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**RESEARCH FOR
REGI COMMITTEE -
COHESION IN MOUNTAINOUS
REGIONS OF THE EU**

STUDY



DIRECTORATE-GENERAL FOR INTERNAL POLICIES
POLICY DEPARTMENT B: STRUCTURAL AND COHESION POLICIES

REGIONAL DEVELOPMENT

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COHESION IN MOUNTAINOUS REGIONS
OF THE EU**

STUDY

This document was requested by the European Parliament's Committee on Regional Development.

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Abstract

Their specific potentials and opportunities of mountain areas need to be considered as much as their challenges. Mountain areas are too diverse to elaborate an integrated European strategy. However, a framework for development strategies in mountain areas can be developed, taking into account the specific challenges and importance of mountain farming, the high levels of biodiversity in mountain areas, and their specific exposure to climate change. Cohesion policy could use such a framework to better address the demographic challenges of many mountain areas and to promote their economic and social development more efficiently with an enhanced sustainable development perspective. This also presupposes more flexible multi-level governance arrangements.

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LIST OF ABBREVIATIONS

ANC	Area with Natural or other specific Constraints
CAP	Common Agricultural Policy
CLLD	Community-Led Local Development
DG REGIO	Directorate General for Regional and Urban Policy
EAFRD	European Agricultural Fund for Rural Development
EFNCP	European Forum on Nature Conservation and Pastoralism
ERDF	European Regional Development Fund
ESF	European Social Fund
ETC	European Territorial Cooperation
HNV	High Nature Value
ICT	Information and Communication Technology
ITI	Integrated Territorial Investments
LFA	Less-Favoured Area
LAU	Local Area Unit
NDA	Nationally-Designated Area
NGO	Non-Governmental Organisation
OECD	Organisation for Economic Co-operation and Development
SGI	Service of General Interest
SME	Small and Medium-sized Enterprise
UAA	Utilised Agricultural Area
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organisation

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EXECUTIVE SUMMARY

Background

Article 174 of the Treaty on the Functioning of the European Union describes mountainousness as a “*severe and permanent natural [...] handicap*”. This understanding of mountainous regions is outdated. Mountainous terrain creates obvious challenges, but also generates development opportunities. Cohesion policy should approach mountain regions as specific territories, e.g. in terms of the possibilities they offer, their ecological vulnerability and biodiversity, and the challenges for agriculture and forestry.

Few NUTS 2 regions are entirely mountainous. Most mountain ranges (‘massifs’) cross regional and national borders. There are extensive overlaps between mountain areas and other geographically specific areas, e.g. islands, Outermost Regions, sparsely populated areas. Issues of development in mountainous regions are therefore a component of a wider agenda addressing territorial diversity in Europe.

Current development patterns, trends and perspectives in mountain regions

Population trends in mountain areas are dynamic. There is no general trend of depopulation. As the main demographic challenges are at the sub-regional level, NUTS 2 and NUTS 3 statistics may hide significant polarising trends. Contrasts between urban and rural areas within mountain massifs are increasing strongly. In-migration to mountain areas perceived as attractive living environments is also increasing.

Mountain areas are at different stages of economic development. Their agricultural production systems have not been modernised as much as in lowland areas and they have, to varying degrees, gone through phases of industrial development and shifts towards more service-oriented economies. However, as such processes have occurred, and are occurring, at different rates and times, static comparisons of indicators at one time give little insight into their specificities. Transfers of experience and good practice between massifs should consider such time differentials.

Mountain farming faces permanent difficulties that cannot be mitigated or ‘improved’ by adaptation measures. The policy approach to address these issues is evolving and is now more integrated, cross-sectoral, and multi-level. Agricultural policy cannot be addressed in isolation, but must consider actions to promote integrated value-chains, including efforts to provide adequate infrastructure and encourage entrepreneurship, innovation in manufacturing, and targeted education and training programmes.

Adapted farming and forestry practices have critical influences on the provision of ‘public goods’. These should therefore be considered when evaluating the ‘cost-benefit ratio’ of individual Structural Funds actions.

Income generated by secondary houses, retirees, and long-distance commuters can compensate for a lack of export-oriented economic activities. A focus on residential economy may therefore ensure the long-term security of certain attractive mountain areas. Yet such a strategy can be considered problematic from national and European perspectives, as it implies fewer income-generating export activities in mountain areas.

Tourism is the main source of income in some mountain regions, but some forms of tourism have negative environmental impacts. Despite numerous initiatives to promote more sustainable modes of tourism, reforming established practices at a wider scale is difficult.

Insufficient economic diversification generates fragile labour markets that may fail to provide opportunities for local youth, leading to depopulation and reducing resilience to external economic shocks. 'Asset-based' development strategies can contribute to diversification, but must include continual efforts to identify 'assets' and develop the associated activities. Mountain areas have long traditions of economic diversification, and many good practices can be identified.

Teleworking can contribute to economic diversification. However, different forms of teleworking co-exist, each with specific requirements in terms of accessibility, social environment, and service offer. Strategies aiming to use teleworking as a lever of development must consider emerging trends, as well as differences between European countries with regard to flexible working arrangements.

Policies to support mountain areas must consider not only the economic returns of individual projects, but their contribution to the balanced development of communities and regions. The notion of 'public goods' is important in this respect. To enhance the capacity of Structural Funds to support development in mountain areas, individual initiatives should internalise their social, ecological and economic costs and benefits.

Preconditions for further development: accessibility, transport and service provision

There has traditionally been an over-emphasis on 'hard infrastructure' interventions to improve accessibility. Structural Funds have promoted 'softer' business, enterprise and innovation projects. These efforts need to be pursued, while acknowledging that some investments in hard infrastructure are justified.

Infrastructure facilitates, but does not constitute, sustainable economic development. Improved infrastructure may improve connectivity and facilitate increased exports, but can also open local markets up to greater competition.

Broadband access can be promoted more widely through public-private partnerships (PPPs), as the regulatory framework for Structural Funds support to PPPs has been improved for the 2014-2020 programming period. Expanded broadband access can support economic development, education and governance.

Challenges relating to the provision of services of general interest (SGIs) in remote mountain areas are similar to those for small islands and sparsely populated regions. Profitability in these areas is often too low for private actors to spontaneously provide SGIs, and costs for their public provision are high because of the lack of economies of scale. Strategic options to address these challenges must encourage alternative and innovative solutions. Pursuing 'equal access to SGIs' is not a viable option; tailor-made solutions adapted to local and regional needs and possibilities must be developed.

Addressing climate change and nature protection

Climate change will have particularly important consequences in mountain areas. Studies on these issues have mainly focused on the Alps. Projects in other massifs are essential, and should capitalise on the outcomes of successful projects across Europe.

Holistic strategies are needed to address the potentially dramatic increase in natural hazards resulting from climate change. Yet climate change may also bring benefits, which need to be considered in integrated planning and management.

'Hotspots' of biodiversity and protected areas are concentrated in mountains. The management of these sites, and the provision of recreation, tourism, education and research associated with them, provide employment, often in remote areas with few other opportunities. Cohesion policy can contribute to fostering regional approaches to sustainable development, including collaborative management.

Possible roles for cohesion policy

A dedicated Structural Funds programme for mountain regions after 2020 would not address the diverse challenges. The objective should be to provide frameworks to help regional and national programmes to address development opportunities and challenges in mountainous areas, and to encourage cooperation between programmes that operate in particular mountain ranges. Such approaches to action and cooperation can be elaborated within the framework of 'place-based policies'. A standardised multiscale stepwise characterisation model for mountain areas is presented to contribute to this process.

More integrated approaches are needed to address demographic, economic and ecological challenges in mountain areas and should utilise frameworks for inter-sectoral policy coordination. Cohesion policy can gain in efficiency by better recognising the specificities of mountain areas at each step of relevant programming processes. From the beginning of planning for a new programme period, partnerships should be encouraged to carefully consider how sub-regions with distinctive geographical features are represented and how their views on an appropriate strategic approach are built into each Operational Programme.

1. INTRODUCTION: THE ASSETS AND POTENTIALS OF MOUNTAIN REGIONS

KEY FINDINGS

- In general, policy-makers need to focus on the 'opportunities' and 'strengths' of mountain areas, as well as on their 'weaknesses', 'threats' and 'challenges'.
- Within individual EU Member States, mountain areas tend to be positioned across multiple NUTS 2 regions. This creates additional governance challenges.

In recent years, scientific analyses have moved from regarding the physical characteristics of mountainous terrain as detrimental, to presenting much more balanced views of 'strengths' and 'opportunities' linked to mountainousness, as well as of 'weaknesses' and 'threats' (e.g., European Environment Agency 2010, Debarbieux and Rudaz 2015). However, the review of a selection of Operational Programmes (ADE 2012) suggests that this thinking has not yet permeated into these programmes. The textual analyses of programme documentation, interviews and focus group evidence in this report all show that the physical characteristics of mountains are still perceived overwhelmingly as being problems to be faced rather than providing opportunities for positive action. The attitude to mountainousness still seems to be too 'defensive'.

This may be linked to the fact that European legislation has focused on the challenges faced by regions with specific geographical features, including mountains, rather than on their specific opportunities. Such territories have often been characterised as having a combination of so-called permanent 'handicaps' including low population density, underdeveloped infrastructure provision, remoteness from main markets and fragile ecosystems. Notably, Article 174 of the Treaty on the Functioning of the European States that:

"particular attention should 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".

In contrast, studies of mountain regions by ADE (2012) and in the ESPON GEOSPECS project (University of Geneva et al. 2012) all stress the importance of distinctive local cultures, excellent 'green environment' characteristics, and other assets for successful 'asset-based' development strategies. Many aspects of these assets are themselves derived from the distinctive geography (e.g. mountain cultural attributes; mountain landscape assets, clean air and water).

Such studies arguably represent a major shift in the way in which mountains (and other regions with specific geographic features) are being considered. Much more attention is placed upon the "assets", "opportunities" and "potential" for enhancing socio-economic development trajectories in mountain regions. For example, developing green energy via exploiting natural resources; building upon unique natural and cultural heritage to develop high quality tourism offerings etc.

Notably, for the 2007-2013 programming period, the Community Strategic Guidelines for both Rural Development¹ and Cohesion Policy² stressed the importance of development in all territories to achieve balanced development across the EU. The Green Paper on Territorial Cohesion (European Commission 2008), emphasised a “growing awareness of the need to frame development strategies around the particular assets of territories in a context where eligibility for support is principally determined at the regional level” (p. 4). The Europe 2020 strategy, likewise, stressed that the EU’s sustainable socio-economic future is based on the three main themes – smart, inclusive and sustainable growth (European Commission 2010). **It is not straightforward, however, for mountainous regions to be able to “exploit” their particular “assets”, particularly given their distinct territorial contexts and combinations of different socio-economic, demographic and environmental challenges.**

It is precisely in this context that EU Cohesion Policy could play an important role in mountainous regions. For these regions, both domestic and European funding is critical in facilitating the creation and implementation of integrated and bespoke solutions to meet such territorial challenges, as well as to build on existing opportunities and create future ones.

Admittedly, mountain areas in Europe are very diverse. Based on evidence accumulated in previous studies (e.g. Nordregio 2004, European Environment Agency 2010), the ESPON GEOSPECS project subdivided European mountain areas into 16 large transnational massifs (see Map 1). While acknowledging that there are extensive internal disparities within these wide mountain areas, the present study will use them as general frameworks of analysis.

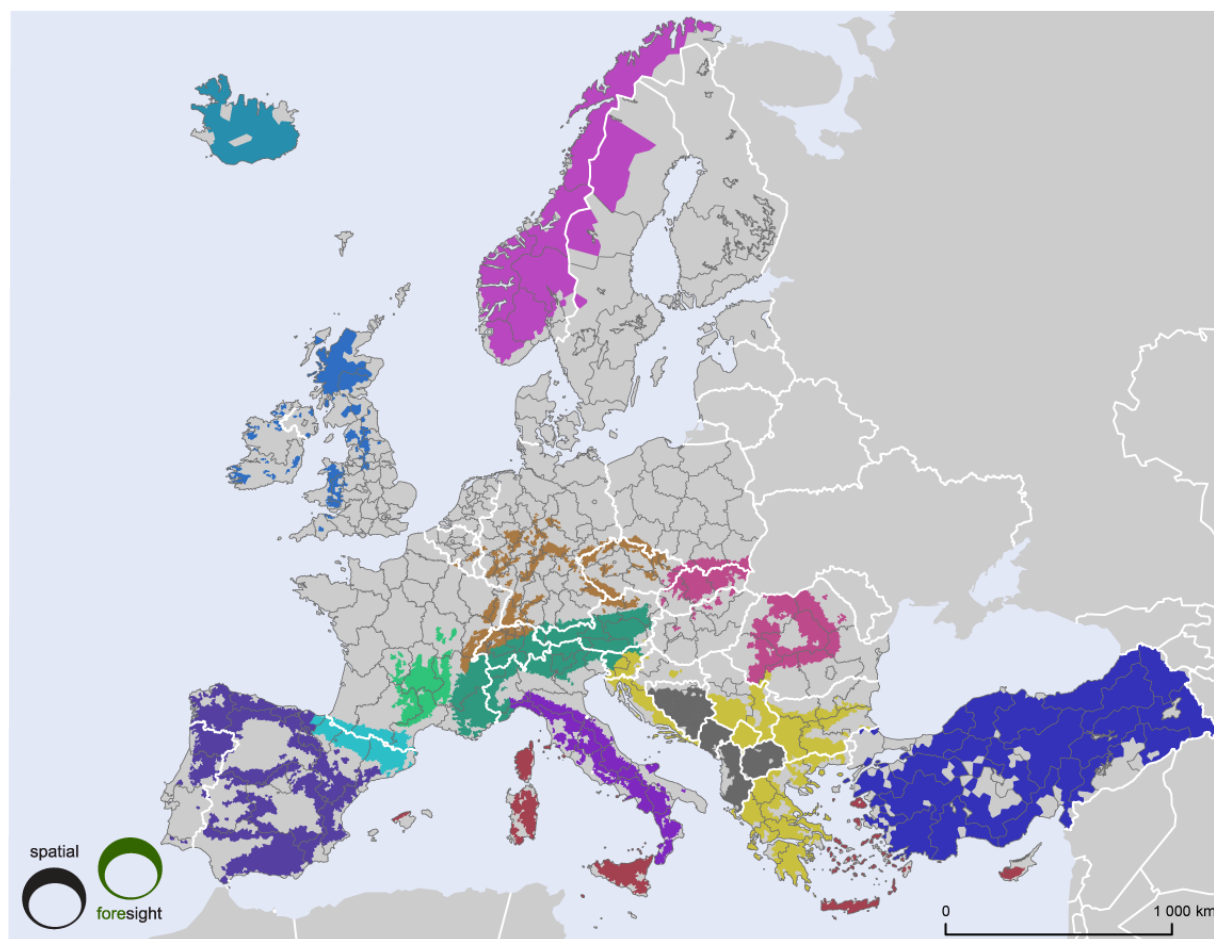
Overlaying this delineation of mountain areas with NUTS 2 boundaries shows that very few European regions are entirely mountainous. Almost all are composed of both lowland and mountainous areas, and the latter are usually situated along a border of the region and shared with one of more adjacent regions. As Cohesion Policy is primarily designed to be implemented at the level of NUTS 2 regions, this implies that:

- when formulating a specific approach of Cohesion Policy towards mountain areas, regional programmes are encouraged to reflect on internal disparities of preconditions, challenges and opportunities within their programme area;
- consistent strategies for mountain areas would need to be implemented in dialogue and collaboration between programmes of neighbouring regions;
- cross-border and transnational European Territorial Cooperation (ETC) programmes have a particularly important role to play when in addressing the development issues of mountain areas.

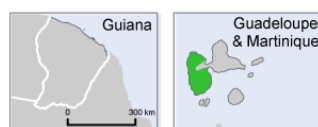
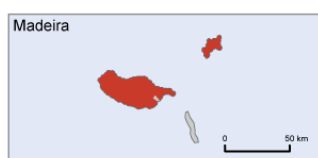
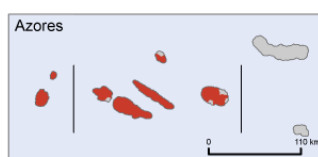
It is notable that the majority of Europe’s large Mediterranean and Outermost islands are also mountainous. In addition, the mountainous areas of Scandinavia and inner parts of the Iberian Peninsula are also some of the most sparsely populated areas in Europe. Different types of geographic specificity therefore co-exist in a number of regions.

¹ Council Decision 2006/144/EC of 20 February 2006 on Community strategic guidelines for rural development.

² Council Decision 2006/702/EC of 6 October 2006 on Community strategic guidelines on cohesion.

Map 1: Transnational mountain massifs in Europe

© University of Geneva for administrative boundaries,
based on material from Eurostat GISCO, the GADM database and the EEA



Transnational mountain massifs

Alps	Iberian mountains
Apennines	Icelandic mountains
Atlantic Islands mountains	Indian Ocean Island mountains
Balkans/Southeast Europe mountains	Massif central
British Isles mountains	Mediterranean island mountains
Caribbean Island mountains	Nordic mountains
Carpathians	Pyrenees
Central European Middle mountains	Turkish mountains

Source: Own elaboration based on data from the ESPON GEOSPECS project (University of Geneva et al., 2012)

The key point, however, is that there can be no 'one size fits all' approach for mountainous regions, for several reasons. First, defining such regions is not a trivial task, and it is not possible to define a 'typical' mountain category. Second, even within large-scale massifs, such as those shown in Map 1, there is very significant diversity in very many characteristics. Third, there is similar diversity in terms of the main policy approaches adopted to tackle socio-economic challenges. The study carried out by Nordregio (2004) provides a useful analysis of the different types of strategies that have been adopted in EU mountain areas. These are:

- Reactive strategies which compensate for handicaps and structural difficulties; these are most common in new EU Member States, as well as Spain and Portugal and usually have a primary focus on the modernisation of agriculture;
- Proactive strategies which are targeted primarily at a diversified mountain economy, and recognise the crucial importance of good accessibility; for instance in Austria, France, and Slovenia;
- Sustainable strategies which focus more on environmental issues and the role of mountains in responding to urban demands for 'natural' environments with opportunities for outdoor recreation; these are most common in some industrial and urbanised countries including Sweden and the UK.

In relation to EU Cohesion Policy, the example below from the Alpine and Massif Central massifs of France provides an interesting insight into the ways in which mountainous regions have worked together to develop joint strategies to tackle common problems (see Text Box 1p. 17).

The key point to emerge from the ADE Study (2012:26) on policy approaches in mountain regions was that:

"The combination of diverse territorial contexts with both varied economic structures and performance has contributed to a multi-dimensional and multi-sectoral approach to policy and strategies in mountainous regions across the EU. This diversity really does demand the creation of policies developed to address specific issues, some of which are common to all mountain regions, however the intensity and impact really does vary. The key point is that increasingly territories need to work together beyond local, regional and national boundaries in order to share common policy approaches and strategies. For this reason, ERDF has an important role to play in mountainous regions across the EU, combining both regional specificity and the opportunity to work within a broader European framework."

The issue of governance, therefore, is particularly important to bear in mind. Importantly, some of the issues have been dealt with in the EU Cohesion Policy 2014-2020 programme framework.

First, a Common Strategic Framework has been created which provides the basis for better coordination between the European Structural and Investment Funds (ESIF) – European Regional Development Fund (ERDF), Cohesion Fund and European Social Fund (ESF) – as well as European Agricultural Fund for Rural Development (EAFRD) and European Maritime and Fisheries Fund (EMFF). In the previous 2007-13 period, stakeholders often viewed the lack of common rules as a hindrance to developing integrated projects using multiple funds. Thus, the **common eligibility and financial rules and the introduction of multi-fund programmes for the ERDF, ESF and Cohesion Fund are of notable importance to mountainous regions** because of the possibility to develop 'holistic' policy and funding streams to tackle challenges as well as to focus on opportunities.

Text Box 1 Multiregional Operational Programme 2007-2013 in France

During in the 2007-2013 programming period, four multiregional operational programmes in France were developed to tackle specific problems that went beyond the regional scale. Two of these programmes were linked to mountainous massifs: the Alpine massif and the Central massif, involving several regions.

During the 2000-2006 programming period, some experiments were already in place to try to develop multiregional initiatives. For example, the Massif Central was included in the Operational Programme of Auvergne. Following these experiments and taking into account lessons learned, the "Alps region" and "Massif Central" Programmes were developed, both coming under the Regional Competitiveness and Employment Objective. The Alps had a total budget of EUR 72 million, including EUR 35 million from the ERDF. The Massif Central had a total budget of EUR 101 million, including EUR 41 million from the ERDF.

The two programmes aimed to overcome the specific difficulties of these mountain areas whilst also enhancing their attractiveness. Thus, the programme for the Alps highlighted the specific advantages of the region (beauty of the landscape, closeness of nature, quality of the forests, proximity of recreational areas and the presence of large towns in the surrounding area, etc.) but also the disadvantages (relative isolation from Italy, incomplete transport networks, etc.).

In this regard, the regional authorities set out a strategy based on three priority objectives: i) increasing in a sustainable manner the competitiveness of the valley systems around medium-sized mountain resorts, ii) managing natural hazards specific to mountains, iii) developing the use of wood-based energy and other renewable energies.

New forms of governance were put in place in order to manage the 2007-2013 programme between the different regions within a massif. For example, the Massif Central multiregional programme covered six regions. The prefect of the Region of Auvergne acted as the coordinator and Managing Authority. A Committee of the Massif was established to set objectives and specific actions to be taken. In particular, it facilitated the coordination of public actions in the Massif and the organisation of public services. It was composed of 83 members in three colleges: i) elected people, ii) economic activities (representatives of public institutions, professional, tourist and union organizations) and iii) representatives from associations, park management organizations, and persons qualified on mountain topics. A permanent commission was also created.

Source: <http://www.massif-central.datar.gouv.fr/index.php?rubrique=645>

Adapted from ADE (2012)

Moreover, the focus on strategic programming based on clear performance targets in this Common Strategic Framework linked to the delivery of Europe 2020 goals should ensure better coordination of the various Structural funds. The fact there is better coordination at the national level, via respective National Reform Programmes, is also a positive development. The key point, however, is to recognise the key role that regions can play in contributing to delivering the Europe 2020 targets at the national level.

Second, the integrated approach to community-led local development (CLLD) is a very interesting development for mountainous regions. This facilitates the implementation of local development strategies by small communities including local authorities, Non-Governmental Organisations (NGOs), and economic and social partners, based on the LEADER (and other Community Initiatives) approach used for rural development. Such **'bottom-up' strategic**

development plans are frequently cited by stakeholders as useful tools to promote development in regions with specific geographical features.

Third, the introduction of **Integrated Territorial Investments (ITIs)** is another **potentially useful development for mountainous regions**. ITIs allow Member States to combine investments from several priority axes of one or more Operational Programmes for the purposes of multi-dimensional and cross-sectoral intervention. The ability to trace the allocation of funds to the various investment priorities is, however, retained. This is a potentially important step forward to strengthening territorial cohesion across the EU, particularly given the focus of ITIs on particular territorial features or zones and the option to develop specific and appropriate governance arrangements. This could be vital for ensuring that mountainous regions do not lose out – not only in financial terms, but also in terms of the types of strategic approach, projects and governance arrangements that can be developed.

Fourth, it is now possible to introduce Thematic Sub Programmes in EAFRD programmes. Regulations specify that these Sub Programmes “*should concern, among others, young farmers, small farms, mountain areas, the creation of short supply chains, women in rural areas and climate change mitigation and adaptation and biodiversity*” (Regulation (EU) No 1305/2013). In addition to the explicit mention of mountain areas, all other issues mentioned are of relevance from a mountain perspective.

Lastly, the **strengthening of thematic concentration, with EU investments focusing on certain priority areas – especially in the fields of energy efficiency, renewables, innovation and Small and Medium-Sized Enterprise (SME) support – is a welcome addition**. A key finding from the ADE Study (2012) was that the regions with specific geographical features have found it difficult to move away from their ‘infrastructure fixation’ and fund projects in such fields. It is crucial, therefore, that future ERDF Operational Programmes in such regions encourage and facilitate this transition to allow the funding of ‘asset-based’ strategies in fields such as renewable energy and business support and innovation. Similarly, the proposals for ESF stress the need for greater thematic concentration in areas such as promoting employment and social inclusion, supporting labour mobility and investing in education, skills and lifelong learning.

However, there have been limited encouragements from the European Commission to apply these instruments at the initial Operational Programme design stage. The present analysis will seek to define principles on how to construct a framework within which such encouragements to take better account of the opportunities and challenges of mountainousness.

2. CONTRASTED DEMOGRAPHIC TRENDS AT DIFFERENT SCALES IN MOUNTAINOUS REGIONS

KEY FINDINGS

- There is not a general trend of depopulation in mountain areas.
- However, NUTS 2 and NUTS 3 statistics may hide significant polarising trends.
- In-migration to some mountain areas is increasing, as they are perceived as attractive living environments.

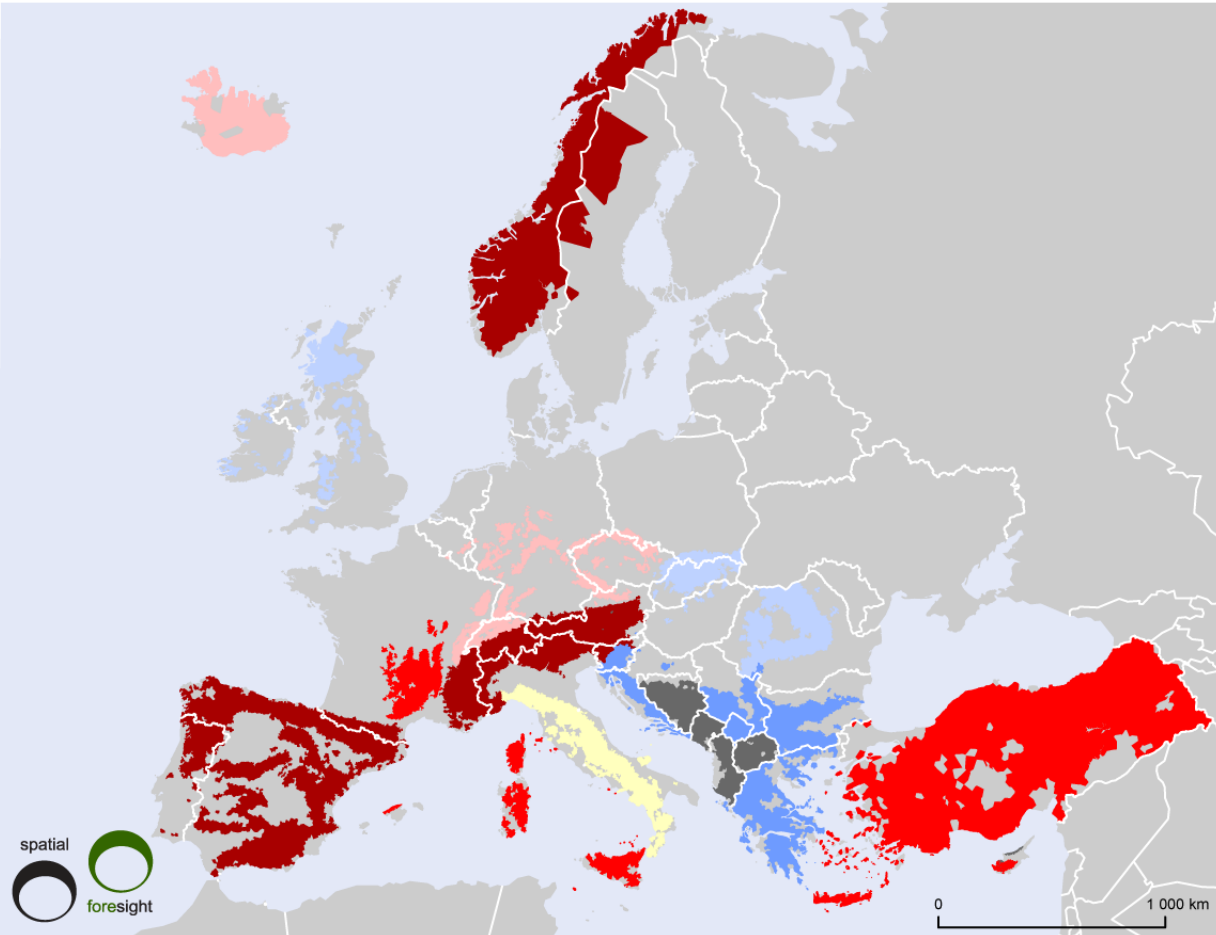
Trends in both the size and structure of the populations of European mountain areas have become increasingly dynamic. A traditional view is that mountain regions are peripheral and tend to be characterized by extensive emigration and depopulation, while in other areas the number of inhabitants is growing significantly, in particular contributing to urbanization processes. However, such a simplified picture is hardly true for many mountain regions, where more diversified population trends can be observed and regional dynamics are not automatically negative.

Europe's mountain areas cannot generally be described as losing population. As shown in Map 2, the only transnational massifs with significant demographic decline between 2001 and 2011 were the Carpathians, the Balkans/South East European Mountains and the mountains of the British Isles. Populations are rising or stable in other European mountains and, at the other end of the scale, population growth is increasingly rapid in the Pyrenees and the Alps. However, parts of these massifs are experiencing demographic decline. It is notable that population loss in the Carpathians and Balkans/South East European mountains is a relatively recent phenomenon, as shown in Figure 1. Demographic losses in the Balkans/South East European Mountains have been particularly marked, with population numbers now below those of 1961.

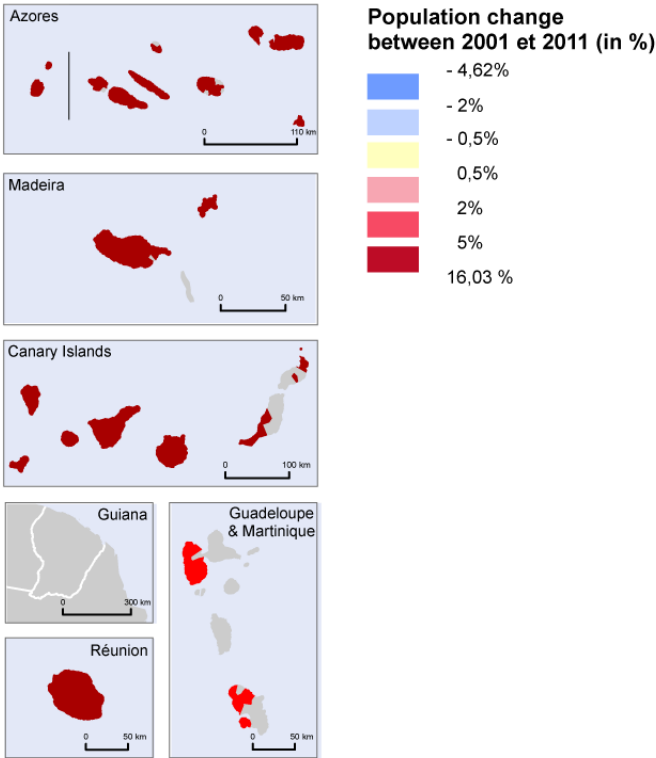
The discourse and the positioning of such demographic problems as a major challenge for general regional development are largely dependent on the relative weight of mountains within a country. While mountains represent only a small share of the national population in many countries, in others – such as Slovenia, Austria, Bosnia and Herzegovina, the former Yugoslav Republic of Macedonia, and Switzerland – the mountain population accounts for more than half of the total national population. Moreover, population densities within mountain areas vary considerably. Despite difficulties in access, there are comparably high densities in many mountain areas, but also low densities in Nordic countries, Scotland and Ireland, the French Pyrenees, and some Spanish mountain ranges.

In the recent past, many mountain regions have experienced population decreases, in particular in less accessible areas, but some mountain areas had overall population growth: particularly the western and central parts of the Alps and more accessible locations. While levels of outmigration are often higher from mountain than lowland municipalities, such trends appear to reflect national trends, rather than being specifically related to mountain / lowland differences.

Map 2: Demographic trends 2001-2011 in transnational mountain massifs



© University of Geneva for administrative boundaries, based on material from Eurostat GISCO, the GADM database and the EEA



Source: Own elaboration based on data from the ESPON GEOSPECS project (University of Geneva et al., 2012) and DG REGIO Local Area Unit (LAU) population data compilation (Spatial Foresight)

The last decade has particularly been characterized by an increased relevance of migration, respectively the rising awareness for population movements. With the rise of immigration towards Western European countries, mountain areas are also increasingly affected by migratory in-flows that exceed out-migration. The resulting positive migration balance has been realised only very recently and is now being discussed as an important new perspective of demographic development in mountain regions (Permanent Secretariat of the Alpine Convention 2015). Through a differentiated analysis of in- and out-migration, and internal (population movements within national boundaries) and external migration, the increasing relevance of international immigration has become clear. Many mountain municipalities are highly affected by large-scale migration movements, so that the share of non-national population is gradually increasing. Within the discussion of the challenge of depopulating areas and the rising problems to secure public services within large parts of mountain areas, these “newcomers” can be seen to provide an important development opportunity. This aspect is further analysed below, in section 3.3.

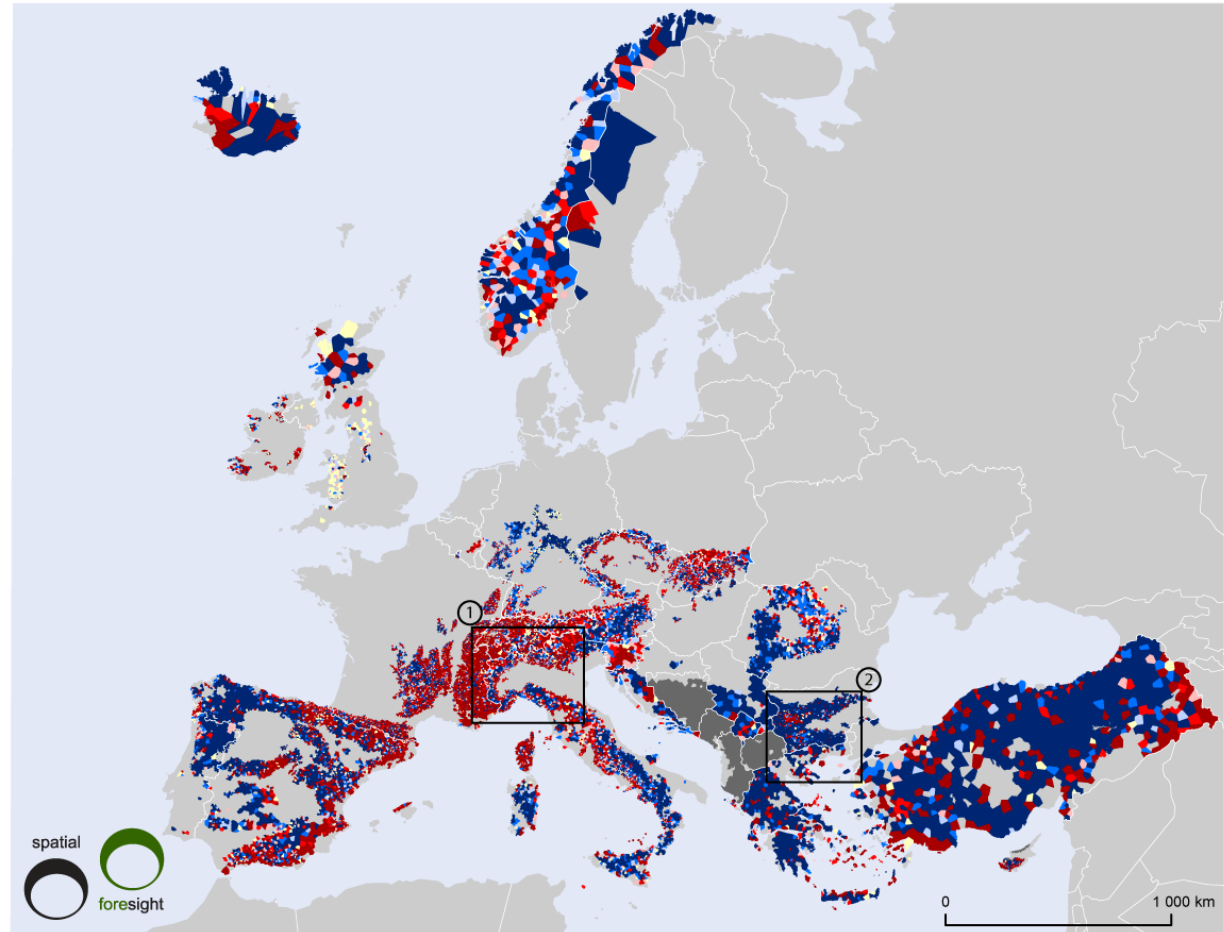
In general in Europe, the most significant demographic trends in terms of economic development of mountain areas occur within massifs. As shown in Map 3, contrasted demographic trends are observed in every mountain area. These evolutions follow different patterns:

- In some massifs, there are significant national differences. For example, Italian Alpine municipalities beyond the commuting range of large cities experience population decline, unlike their counterparts on the French side. Similarly, there are major population losses in the German parts of the Central European middle mountains, while population is mostly rising on the Czech side of the border.
- There may be significant differences between outer and inner parts of massifs, e.g. in the Romanian Carpathian mountains where many municipalities on the outer borders are still growing. Similarly, Iberian Peninsula mountain areas close to the Mediterranean coast experience extensive demographic growth, while those inland are declining.
- In most mountain areas, population is concentrating in urban areas, as illustrated in Map 4 and Figure 2. Polarising trends are particularly strong in the Pyrenees and the Balkans/South East Europe mountains, and less so in the Carpathians and the Alps.

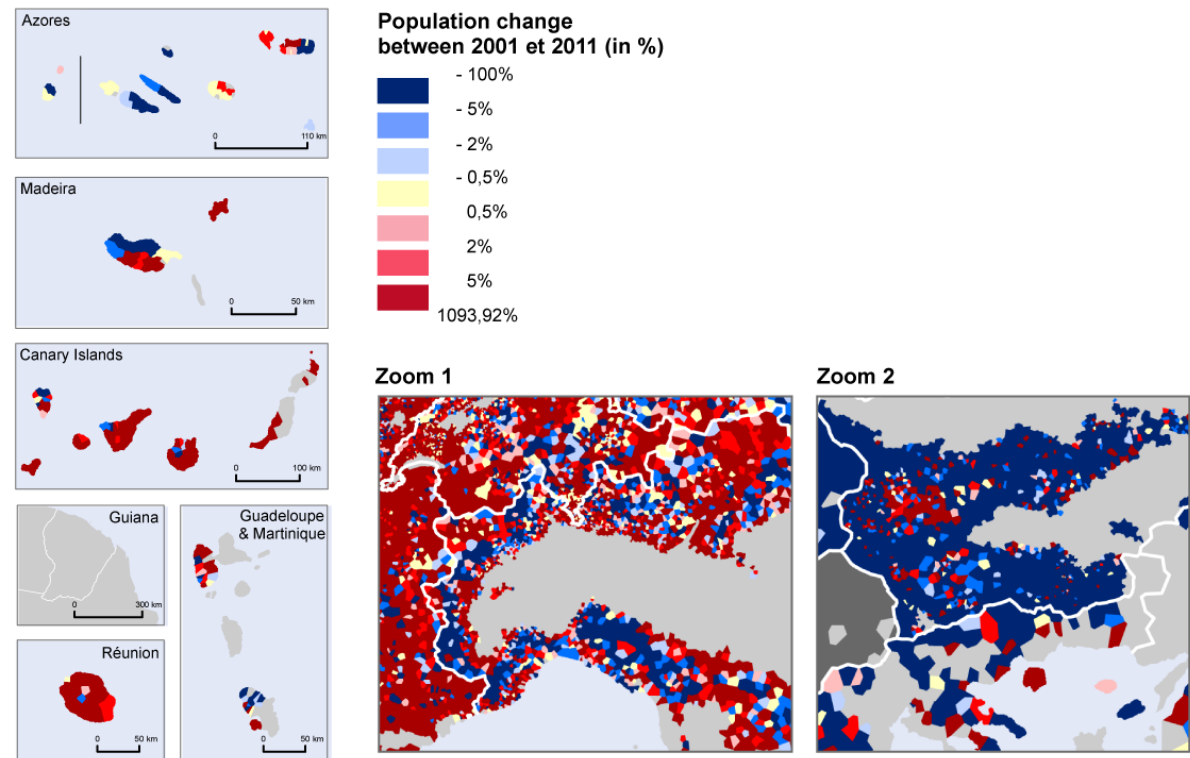
A decreasing population is generally accompanied by an ageing of the population, falling birth rates and hence a cycle of depopulation. So serious is this issue that interviewees in a region such as Cuenca (Spain) consider ERDF assistance to be vital for the survival of remoter small communities in the province of Cuenca (ADE 2012). More widely, this issue was the topic of a project co-funded by the ERDF and the Interreg IVC programme: Policies against depopulation in mountain areas (PADIMA) (Euromontana 2012).

All of these trends have implications in terms of policy design to promote territorial cohesion: should one focus on remote areas within massifs, or rather target mountain areas as a whole?

Map 3: Demographic trends 2001-2011 in mountain municipalities

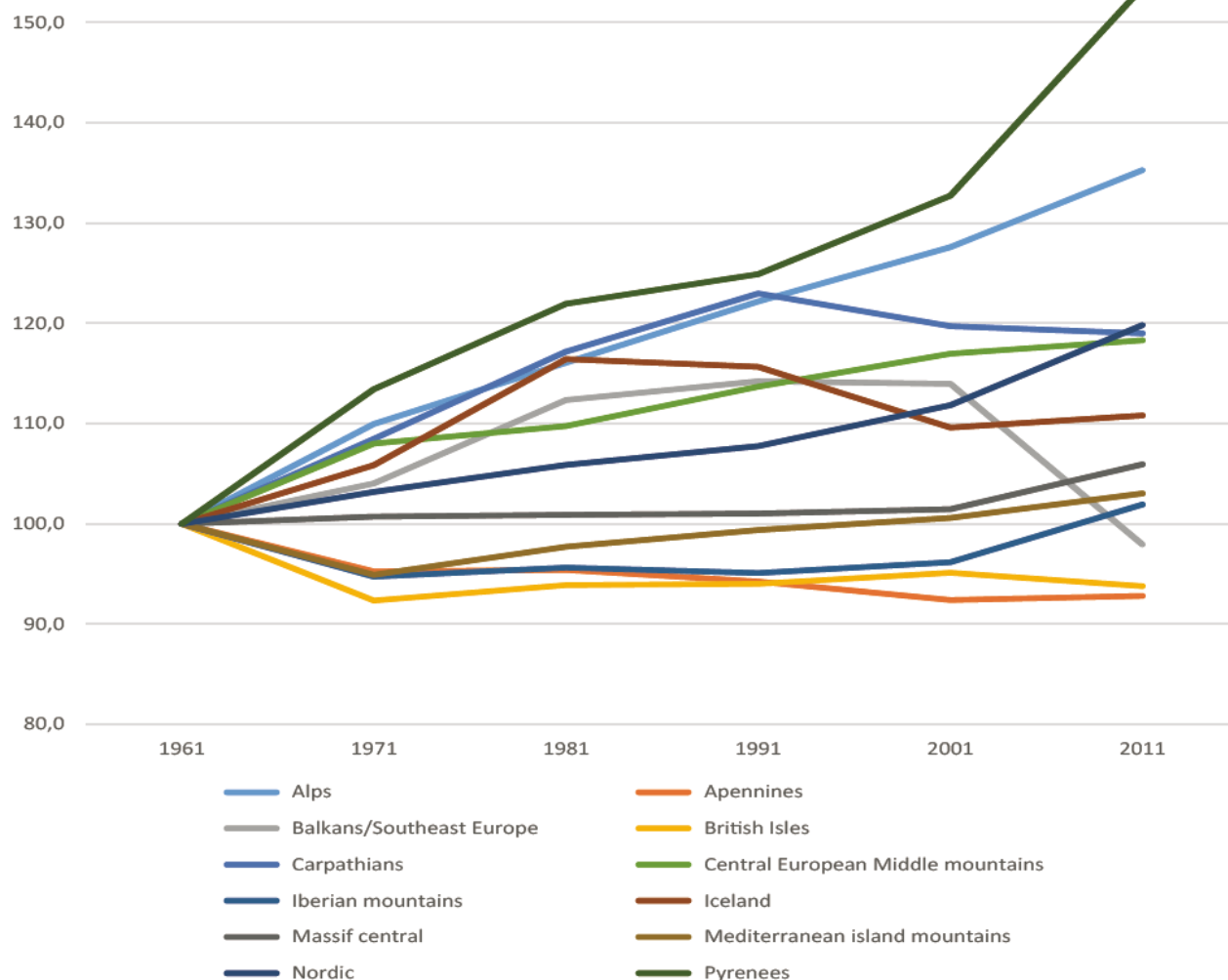


© University of Geneva for administrative boundaries, based on material from Eurostat GISCO, the GADM database and the EEA



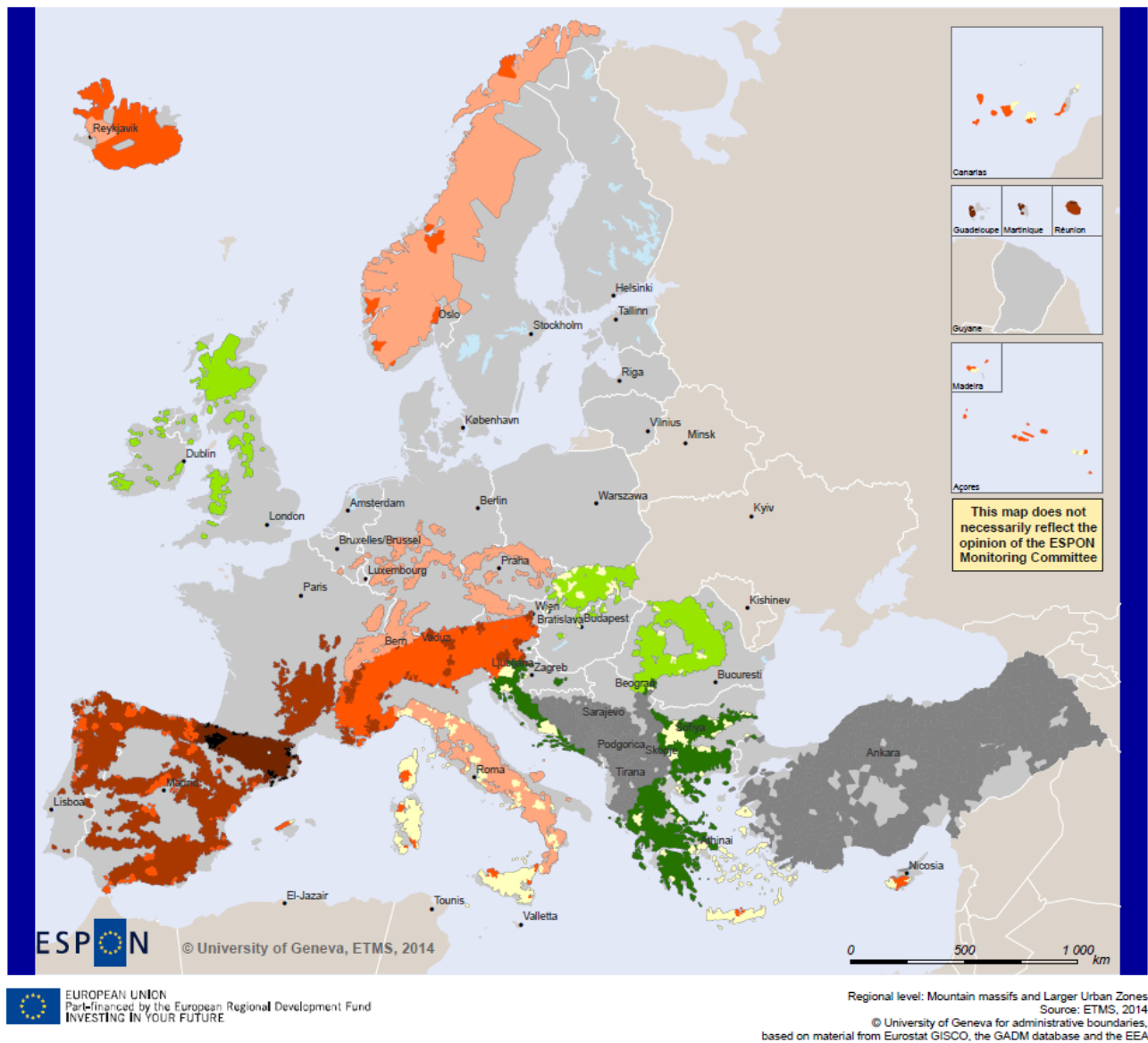
Source: Own elaboration based on data from the ESPON GEOSPECS project (University of Geneva et al., 2012) and DG REGIO LAU population data compilation (Spatial Foresight)

Figure 1: Demographic trends in European transnational mountain massifs (1961-2011)

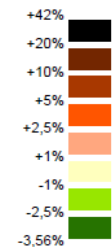


Source: ESPON (2014), based on data from the ESPON GEOSPECS project (University of Geneva et al., 2012) and DG REGIO LAU population data compilation (Spatial Foresight)

Map 4: Demographic trends in urban and rural parts of transnational mountain massifs



Population change 2001-2011 (in %)



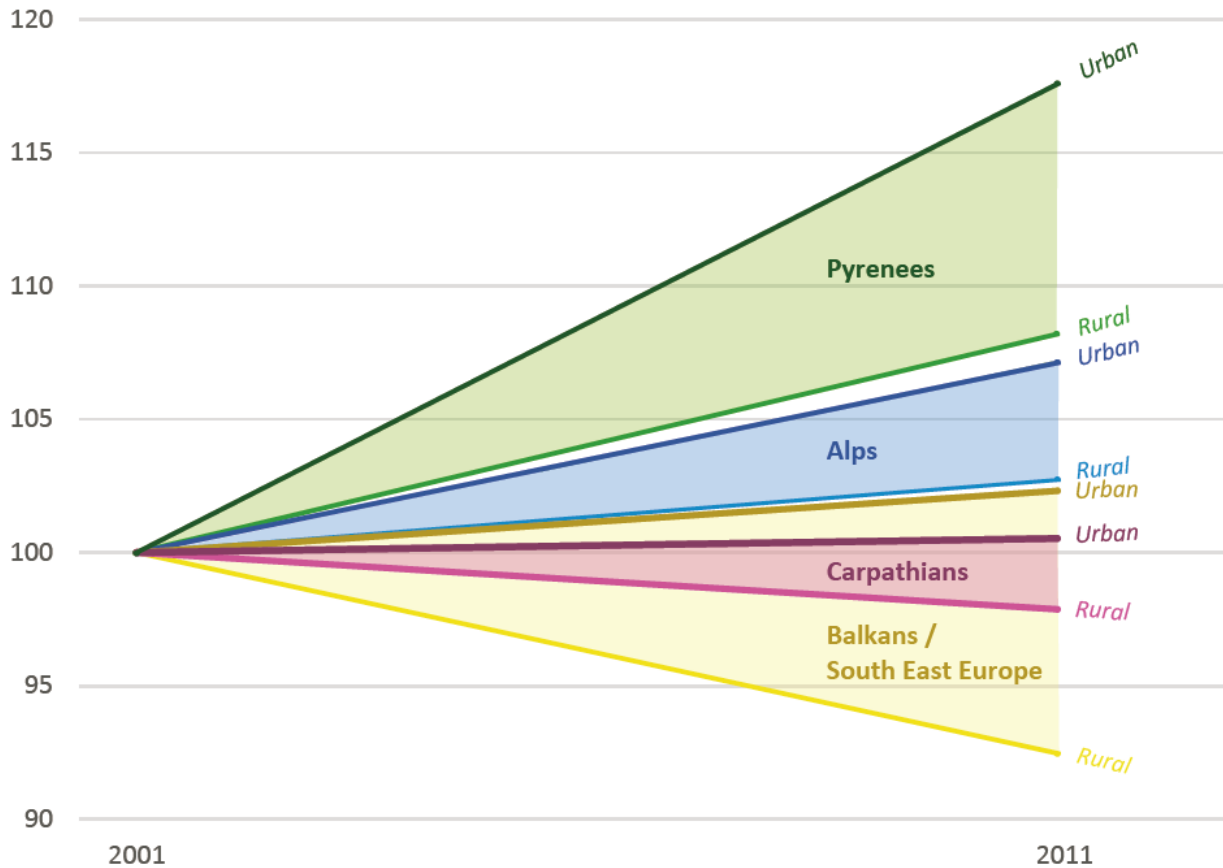
No data

A number of mountain massifs
comprise multiple continuous units
(e.g. Massif Central, Caribbean mountain areas).
The figures correspond to the mountain massifs
as a whole, not their individual units.

Source: ESPON (2014), based on data from the ESPON GEOSPECS project (University of Geneva et al., 2012) and DG REGIO LAU population data compilation (Spatial Foresight)

This map displays demographic change within commuting distance of cities of more than 100,000 inhabitants ('urban') and beyond ('rural') between 2001 and 2011.

Figure 2 : Demographic polarisation in selected mountain ranges: population change of urban and rural components between 2001 and 2011



Source: ESPON (2014), based on data from the ESPON GEOSPECS project (University of Geneva et al., 2012) and DG REGIO LAU population data compilation (Spatial Foresight)

This figure shows the extent of urban polarisation, i.e. the difference between population trends in areas within and beyond commuting distance from urban centres (see delineation in Map 4). The wider the 'gap' between the 'rural' and 'urban' lines for each massif, the stronger the polarisation.

3. CHARACTERISTICS OF ECONOMIC DEVELOPMENT IN MOUNTAIN REGIONS

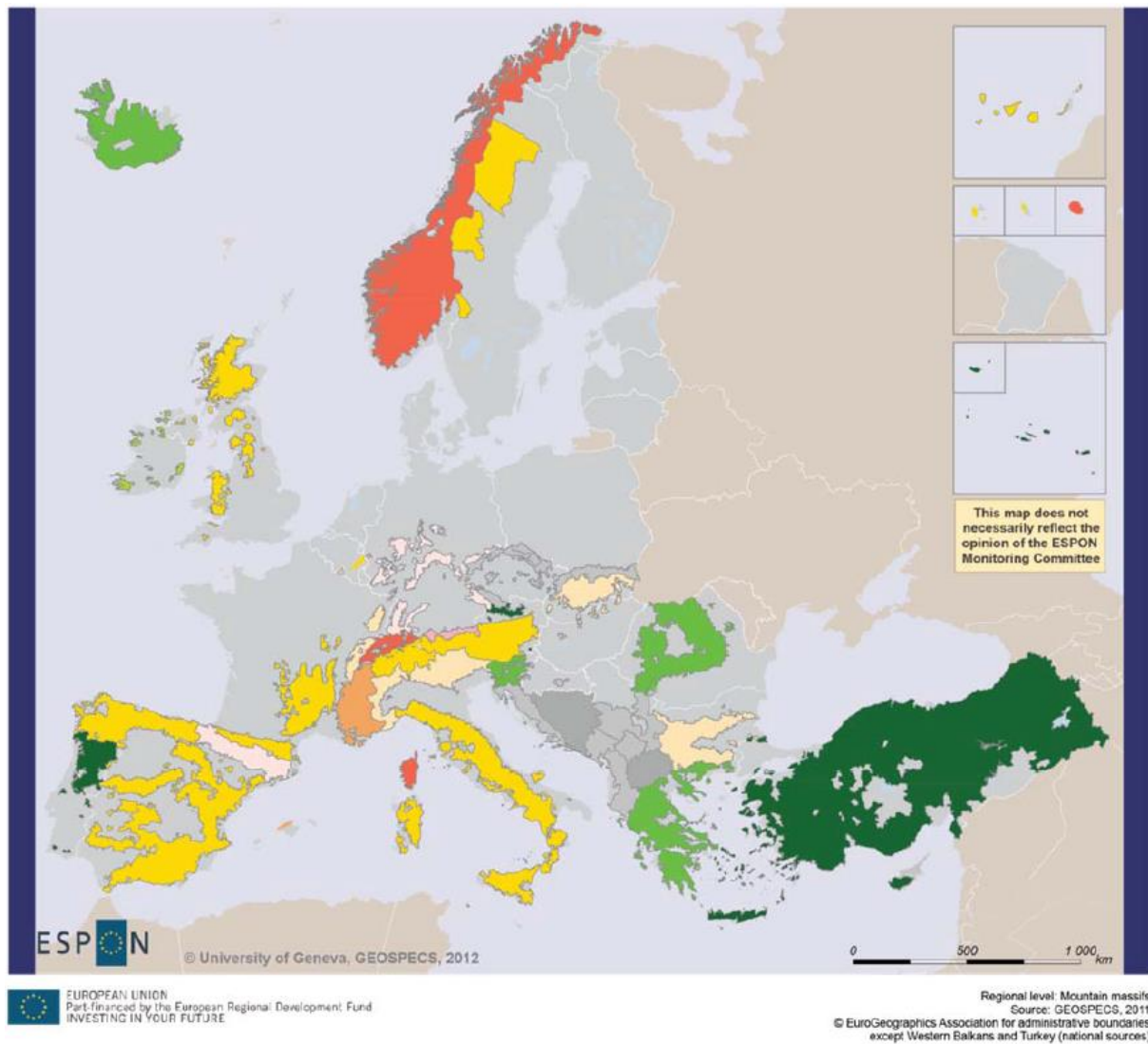
KEY FINDINGS

- Mountain areas are at different stages of development. Although their development processes may be similar in some respects, they occur with time intervals of multiple decades. Transfers of experience and good practice between massifs should take such time intervals into account.
- Mountain farming faces permanent difficulties that cannot be mitigated or 'improved' by adaptation measures. However, the policy approach to address these issues is evolving. It is now more integrated, cross-sectoral and multi-level. This implies that agricultural policy cannot be addressed in isolation.
- Adapted farming and forestry practices, including 'High Nature Value farming', have a critical influence upon the provision of public goods (e.g. landscape preservation, biodiversity, water quality and availability, soil stability and functionality, food security, erosion prevention, resilience to risks).
- The 'residential economy' can offer a sufficient inflow of income to some mountain regions, but can also generate issues such as 'secondary housing sprawl'.
- In spite of numerous initiatives to promote more sustainable modes of tourism, it has proved difficult to reform established practices at a wider scale.
- 'Asset-based' strategies of economic diversification are important, but are not necessarily sufficient to establish diversified and sustainable labour markets.

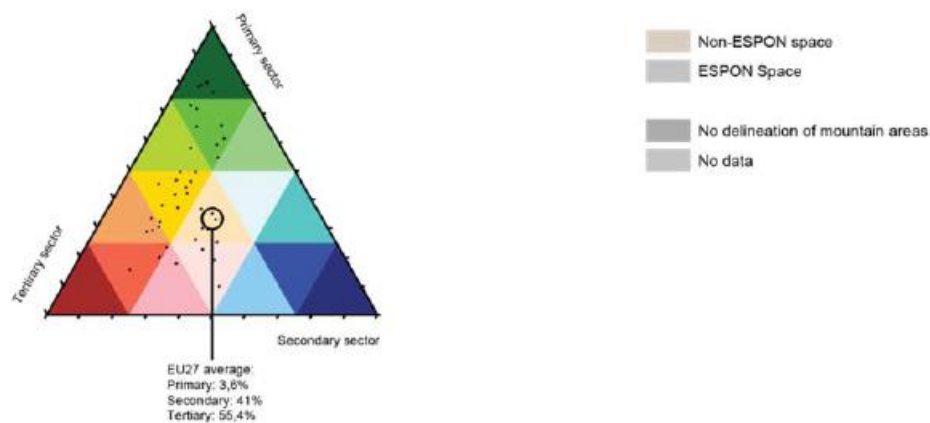
3.1. Diversity of economic profiles of mountain areas: regions at different stages of development

Europe's mountain areas have reached different levels of development. This can be illustrated by mapping the relative importance of employment in the primary, secondary and tertiary sectors. As shown in Map 5, Carpathian, Greek, Slovene, Portuguese, Cypriot and, to a lesser extent Irish mountain areas have an overrepresentation of agricultural employment, together with the Austrian part of the Central Middle mountains. The German Central Middle Mountains, Spanish Pyrenees and Bavarian Alps have combined overrepresentation of employment in industry and services. The French Alps, Corsican and Balearic mountains have, together with those of Réunion, a strong overrepresentation of services. The underlying socio-economic factors that explain these patterns are quite diverse. An overrepresentation of services can, for example, correspond to different levels of activity in tourism and business services, as well as to a larger proportion of employment in public services. A high percentage of employment in agriculture can reflect either limited possibilities to develop alternatives to traditional agriculture and forestry activities, or a strong export-oriented food production industry.

Map 5 Employment in mountain massifs compared to European average

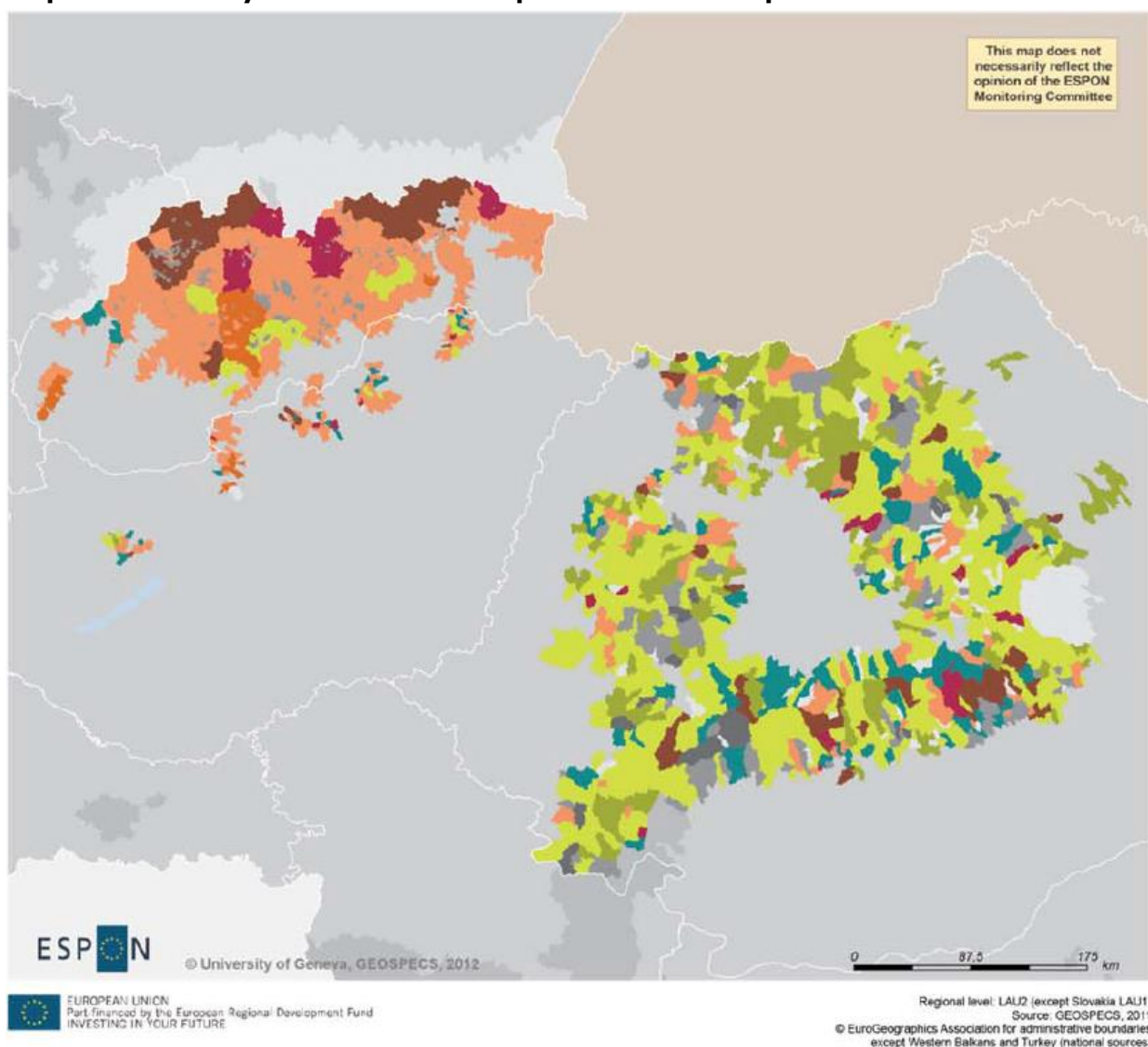


Deviations from EU27 average



Source: ESPON GEOSPECS project (University of Geneva et al., 2012)

This map shows how proportions of employment in the primary, secondary and tertiary sectors in national component of transnational mountain massifs deviate from EU27 average values.

Map 6 Diversity of local economic profiles in the Carpathians

Ascendant classification of Carpathian LAU2 based on employment by NACE category

Major deviations from average profile - overrepresented sectors

- Agriculture
- Manufacturing and electricity
- Mining strongly overrepresented
- Mining more weakly overrepresented
- Construction
- Private and public services services
- Hotels and restaurants and education

Minor deviations from average profile - overrepresented sectors

- Close to average profile - agriculture
- Close to average profile - services

Other

- Lakes
- Mountain areas outside the Carpathian mountains
- Non-mountainous areas
- No data

Source: ESPON GEOSPECS project (University of Geneva et al., 2012)

As illustrated for the Carpathians in Map 6, situations are also contrasted within massifs. One specificity of mountain areas is the relative fragmentation of local economies, as commuting areas and opportunities of commercial exchange are limited by topography. In the Romanian Carpathians, communities specialised in agriculture, manufacturing, construction and service production are for example closely intertwined.

Most mountain areas have gone through a series of transformations beginning with a strong specialisation in agriculture and, often, forestry. In some parts of massifs, phases of intense industrial development followed, when proximity to hydroelectric power plants was a critical locational advantage. Today, many mountain areas have a more service-oriented economy. This process is less advanced in some mountainous areas, e.g. in the Carpathians and in the mountains of Portugal, Slovenia, Greece and Cyprus. For this reason, static comparisons of indicators at a single point in time give little insight into the specificities of economic development processes in mountain areas. For example, comparing the economy of the French or Bavarian Alps, in which tourism and high technology play major roles, with the agricultural and forest-based economy of the Romanian Carpathians suggests that mountain areas are as diverse as any other types of European territories. It would be more relevant to compare the current situation of the Romanian Carpathians with that of the French or Bavarian Alps in the 1930s or 1950s. On this basis, one would be able to consider the specific factors that have allowed the latter to become economically advanced, and potential parallels or differences in development processes.

3.2. Integrated regional approaches to address the specificities of mountain agriculture and forestry

a) Challenges and opportunities of mountain farming

Land use in mountain areas faces particular challenges due to severe production difficulties. With the on-going integration of mountain economies into national and European markets, differences in farming productivity have become more and more relevant, resulting in substantial income gaps within the sector. Adaptation processes have therefore resulted in large-scale land use changes, extensification and intensification in agriculture and forestry in mountain areas, with important consequences on landscape development and environmental outcomes (MacDonald et al 2000). In peripheral regions, these trends led to land abandonment by mountain farming and included a threat of marginalization of agriculture. The Common Agricultural Policy (CAP) has addressed these challenges since 1975 by establishing a support scheme for Less-Favoured Areas (LFAs – since 2013, 'Areas with natural or other specific constraints: ANCs) with compensation payments to alleviate the reduced production and income potential of mountain farming.

The LFA scheme has been the CAP instrument which addresses the territorial dimension of agricultural production most directly. Having been established 40 years ago, it also indicates the **permanent difficulties of farm production in mountain areas that cannot be mitigated or 'improved' by adaptation measures**. These difficulties remain, so the perspectives towards farming practice and the services provided by mountain farmers have significantly changed over this period.

As this is a place-specific instrument, it is important to highlight that agricultural holdings in mountainous LFAs account for 18% of the EU total, the utilised agricultural area (UAA) for 15%, and the agricultural labour force for 15% (European Commission 2009, 3). At the national level, the spatial extent of mountain farming (in terms of UAA) is greatest in Spain, Italy, France and Romania. The relative importance of mountainous areas at the national level, with more than 50% of farms and UAA, is highest in smaller countries (Slovenia, Austria). Within the different contexts of mountain regions, the LFA scheme was used very differently (Dax and Hellegers 2000) and its use evolved with the shifts in the general policy discussion of CAP and the contribution and role of mountain agriculture.

The key challenges for mountain farming are lower farm size and labour productivity. Even taking account of structural adaptation over the last decades, it can be noted that “the average structural evolution followed the same patterns of non-disadvantaged areas” (European Commission, 2009, p. 4). This means a steady, but rather slight increase in average farm size (at least for the period 1995-2007) due to a reduction of the number of holdings of about -20%, which was accompanied by no significant changes in the UAA. The consequence of this structural development is that the gap between average mountain income and average farm income in non-disadvantaged areas is persistently high (c. -28%). This situation is, however, quite diversified among Member States and also between different regions. Difficulties in achieving appropriate income levels result from a number of influences which are attributed to the specific production difficulties, but can also be related to the policy priorities in specific contexts and at the relevant scale (national and/or regional); to the scope of production and development of value-chains; and to the use of more innovative opportunities and more integrated approaches to foster mountain agriculture. With the increasing recognition of mountains as a global common good (Debarbieux and Price 2008), recognition of the roles of mountain farming in providing essential tasks, often referred to as ‘public goods’ (or, more recently, ‘ecosystem services’) increased. While at the beginning of mountain farming support, the “problem” of limited productivity in farm management, and also forestry, within mountain regions was the main driver for establishing compensation payments, the focus has shifted to a concept where local assets of mountain farming are seen as specific opportunities for regional activities (Dax, 2010).

b) Need for a more integrated approach

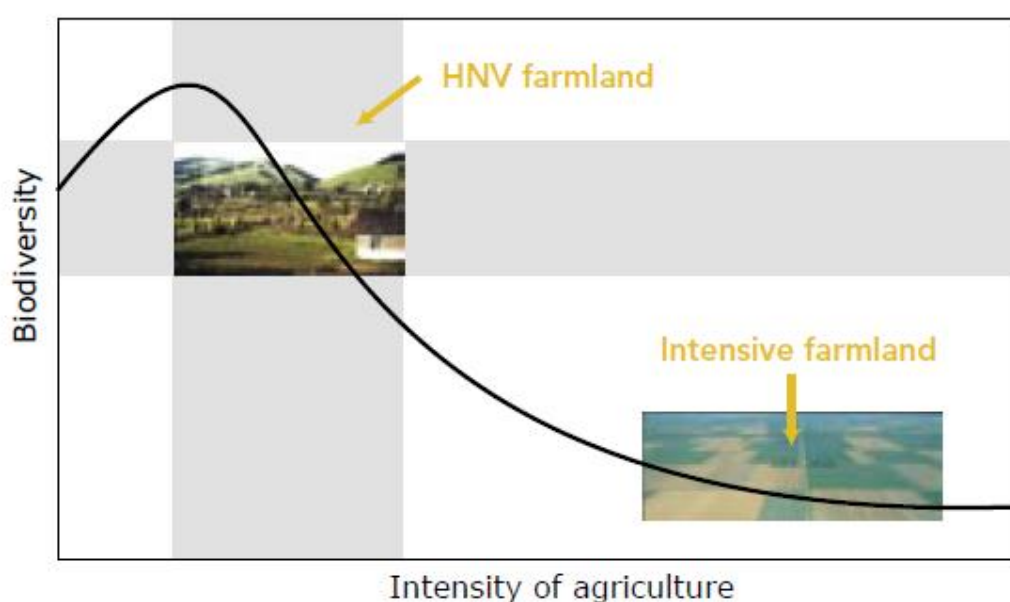
The new perspective that has emerged in recent decades is emphasized in many studies and rural development concepts. It is widely acknowledged that this new logic is accompanied by a particular valuation of the strengths of mountain areas. With regard to the great diversity within mountain regions, tailored and place-based policy approaches are suggested. The challenges for future policy development derive from the fact that a number of the key aspects addressed through this perspective require more comprehensive assessment and stronger coordination of the activities of different sectors and of different administrative levels. Policy actors, stakeholders and regional developers widely approve of these highly demanding policy processes, characterised by integration and multi-level governance. However, they are very difficult to realise in practical local/regional action. Discussion on **the need for, and the feasibility of, ‘integrated’ approaches is therefore on-going in both policy reform considerations and aspirations to increase the effectiveness of policy implementation.** Core issues for integrated mountain policies revolve around issues of sound impact assessment, drawing on the inter-relations addressed by specific management types of mountain farming, addressing the provision of public goods/ecosystem services, the particular sensitivity of mountain ecosystems in these contexts, geographic specificity linked to location in mountains, and governance issues within and among different levels.

c) Role of mountain farming producing public goods (High Nature Value)

The policy of compensating for production difficulties and location disadvantages was appropriate in a policy context characterized by market regulations and exchanges within a limited framework. While this approach still predominates, compensation for disadvantages is no longer sufficient to address the current challenges of mountain agriculture and forestry. The relevance and roles of land use systems in mountain regions have to be assessed and presented as an essential contribution to the regional development and social needs of the Member States and Europe as a whole. This approach of valuing rural amenities provided a background to the more traditional policies of compensation and disparity equalization, but now aims particularly at harnessing regional potentials deriving from mountain-specific contexts. While there is increasing scope for the market development of regional products, many land use activities ensure the provision of public goods expected by both mountain and non-mountain people.

A third of the mountain area of the EU is covered by High Nature Value (HNV) farmland (European Environment Agency 2010), and the high relevance of HNV farming in economically marginal areas is one of the best examples of public goods in mountain areas (Dax and Hellegers 2000). Adapted farming and forestry land use systems in mountain regions have a critical influence upon the provision of public goods. This depends, of course, on the different management systems and the combined actions and understandings of the farmers, foresters and other land users concerned. A beautiful landscape, for example, might have a high societal value and contribute to the tourism sector, but no market price. Other important examples of public goods from mountain agriculture and forestry include a high level of biodiversity, water quality and availability, soil stability and functionality, food security, prevention of erosion, resilience to risks (avalanches, flooding and fire), climate stability, air quality, and social aspects such as rural vitality. This (incomplete) list shows that **it is a core objective for mountain farming and forestry not only to focus on production, but to investigate new ways to manage farmland and forests to stimulate long-lasting improvements in the delivery of social, economic and environmental benefits through policy and practice.**

Figure 3 High Nature Value farming's contribution to biodiversity



Source: European Environment Agency, 2004, after Hoogeveen *et al.*, 2001, photos Peter Veen (left) and Vincent Wigbels (right)

d) Branding/labelling initiatives for mountain products

Given the many opportunities for mountain agriculture and forestry, activities in these sectors have expanded substantially in recent years. As mountain farmers tend to have fewer production options than farmers in lowland areas, the regional specificity of agricultural and food products from mountain areas can be used to increase the value of production. Recognition of the great diversity and high quality of these products has led to the valuation of their production and processing through the option of labelling these products as being of mountain origin. According to the European regulation on quality schemes for agricultural products and foodstuffs³, the term 'mountain product' shall only be used for products for which the feed and the raw materials come essentially from mountain areas and the processing also takes place in mountain areas. In its Delegated Regulation of 11 March 2014 (No 665/2014), the Commission laid down the conditions and principles to use the optional quality term 'mountain product'. This provides an opportunity for additional marketing schemes. Ensuring that this policy instrument is used effectively, however, depends on overcoming challenges of market access due to the predominantly small-scale

³ Regulation (EU) No 1151/2012 of the European Parliament and of the Council of 21 November 2012.

structure of mountain farming and the peripheral situations of many mountain areas (Santini et al. 2013). In response, co-operative structures (e.g. apple production in South Tyrol; in general, dairy production and cheese processing) have evolved in many mountain regions, and regionally based food value-chains allow specific products to be marketed in wider markets. There are also examples of similar value-chains in mountain regions for wood products. Many of these regions have become aware of wood as a specific local resource and have enhanced various uses. For example, the Austrian provinces of Vorarlberg and Salzburg have focused on innovative systems, increasing the use of wood as a modern source for local construction purposes and elaborating a regional “wood-cluster” including about 2,000 enterprises of forest users, wood processors, carpenters and other wood-users.

In conceiving the opportunities for mountain agriculture and forestry as an important strategic point in mountain development, with considerable impact on the strength and attractiveness of mountains, it is important to elaborate procedures and institutional processes supporting such development perspectives. This requires sectoral policies and an increased concern for the coherence of place-based policies to address the potential of mountain agriculture and forestry, in order to realize cooperative approaches and make use of the benefits provided by the sustainable management of land in mountain regions.

Text Box 2 Regional integrated value-chains: food-processing and wood clusters in mountain regions

Apple production, South Tyrol, Italy

The Province of South Tyrol, in Northern Italy, has been producing apples since at least the 16th century. Particularly in the period since 1945, increases in production and marketing have taken place, and this activity currently supports the livelihoods of 8,000 farming families. Apples produced in the area (18,000 ha) supply about 15% of the European market. The main characteristic of the production is the small-scale farming structure: the average farm size is about 2.5 ha. It is a highly sophisticated and adaptive system, based primarily on co-operative production and marketing. Producers and their cooperatives are at the centre of the system, involved in a strong learning and innovation network that enhances competitiveness and is a key driver for success. With recent shifts in demand, many cooperatives face a challenge to change their management systems towards organic farming. However, strong personal constraints, long-term binding delivery agreements and a general resistance towards organic schemes limit the shift towards organic management; at present, only 4% of the region's apple production is organic.

Wood processing in Lungau, Austria

Wood production is an important source of income for local farmers and the regional economy in many mountain regions. The organisation of production and marketing in some Alpine regions reflects the wide scope of functions attributed to forestry in a mountain context. A case study of the small region of Lungau (Austria) reveals the intensive mix of forest land users, forest estates and public forest management, wood harvesters and processors, carpenters and joiners, wood use by the construction sector, and marketing organizations. There are only a small number of large industrial operations (with an emphasis on wooden boards and ski products). Most businesses are small and medium-sized family-owned companies, typically with 20 to 25 employees. At the initiative of the government of the Province of Salzburg, a ‘wood cluster’ was established in 2000 to support cooperation and dialogue between these numerous actors. The cluster involves more than 2,000 actors in the Province of Salzburg. Its economic relevance can be estimated through the large share of the regional land use (about 50% of the area is covered with forests) and the contribution of wood production (about 35%) to regional gross value added of the primary sector. Prospects for the wood sector are favourable since demand is increasing, including additional use options for renewable energy production. The cluster seeks to integrate wood-based value-chains and promote economic exchanges with other regions and marketing initiatives.

Biodiversity conservation and community development in Transylvania

Biodiversity concerns have increased as reports of threats to species and ecosystems have spread. In particular, the activities of the European Forum on Nature Conservation and Pastoralism (EFNCP) have focused on linking community activities to the need to preserve HNV farming. Yet, despite the general recognition of biodiversity targets, and the inclusion of an HNV indicator in the Commission's evaluation system, HNV grasslands and the farming systems that maintain them are under severe economic pressure. Land use in Romania's mountains is a characteristic example where HNV features are widely present, yet severely endangered in the long-term. These areas are mainly dominated by semi-natural grassland (permanent pastures and meadows) used for livestock production. However, land abandonment is a growing threat, and future development is further endangered by low levels of support for this type of land use. Nevertheless, particularly in Transylvania, there is still a high level of landscape diversity, dependent on local management systems.

Value-based chain for dairy products in the Slovenian Alps

In the western Slovenian Alps, SMEs – small farmers and local dairy processors – have jointly developed value-based food chains. First, this implies the promotion of fair business relationships between the actors in the food chain. Second, products are more clearly differentiated, with a focus on food quality, functionality, and environmental attributes. Third, the socio-economic status of farmers is improved. These changes have improved the viability of SMEs in mountain areas. Milk prices are higher and more stable, farms have grown in size, and farmers are more satisfied with their social status. Additionally, a significant number of local people are employed in dairy processing, which has been located within the mountains rather than in the lowlands. As these areas also attract many tourists, a dairy museum and a small promotion facility for local food products have been established in connection with the value-based food chains.

Source: Brozzi et al. 2015; TERESA 2007, 605; Schneider and Drăgulescu 2010

3.3. Roles of tourism and residential economy in mountain areas

a) *Residential economy*

As described in chapter 2, in-migration to mountain areas has increased significantly in recent decades. However, there are many types of in-migrants. Mountains have long attracted people from outside, whether for short term visits or to stay longer. In a few mountain localities, short-term visits and the demand for repeated visits increased to such an extent that construction for tourist facilities, second homes and other forms of amenity migration (Moss 2006) boomed. Some analysts describe these in-migrants as 'new highlanders' (Bender and Kanitschneider 2012, Löffler et al. 2014). For such people, amenities and leisure opportunities are the main driving force for their decision to move to a mountain area. While this trend is most developed in the mountains of Nordic countries and the Alps, it exists to some extent in most European mountain regions (see text Box 3). In Switzerland, some perceive the 'secondary housing sprawl' as a threat to the identity and local economy of mountain municipalities. Following the national referendum in 2012 where the Swiss population voted in favour of a regulation to limit the construction of secondary houses in mountain municipalities, a regulation was passed that puts a threshold for second homes at 20% of the total housing in a municipality. This regulation is relevant for almost all Swiss municipalities.

Text Box 3 Immigration as an opportunity and 'new highlanders' in mountain areas

Large parts of Western Europe are increasingly characterised by high in-migration rates. This process is visible in many parts of the Alps. It is due to not only economic, but also political reasons, such as EU expansion and the rising number of migrants from non-European countries. In the mountain areas of Austria, a turnaround occurred over the last decade, from out-migration to immigration. Such a shift is relevant in many other Alpine regions.

There are a number of different types of movements towards mountain regions, including circulatory movements (e.g. tourism, second-home owners, and commuters), non-permanent migrations (e.g. seasonal workers) and permanent migrations. In mountain areas, migration influenced by amenity aspects and retirement is particularly important. There are several hotspots of in-migration into the Austrian Alps, with a high share of migrants over 50, in municipalities with a high level of amenities and attractiveness to specific groups.

Many different groups of migrants arrive in mountain regions. While conservation movements, such as the limitation of second homes in Switzerland, are emphasized in the media, the relevance of international migration into mountain areas is underestimated. For example, from 2002 to 2010, just for the Austrian part of the Alps, the population rose by 56,000 due to the positive balance of international migration.

The discussion on how to organize useful integration processes therefore has become an important issue for regional development and mountain areas. Many local initiatives underscore the task of realizing the development potential of immigrants and orientating integration strategies towards establishing 'welcoming communities'. In this respect, a key opportunity for many extra-European immigrants settling in mountain areas is that they come from rural backgrounds and have different skills to offer. This is an issue of social inclusion that can be addressed as part of cohesion policy (European Rural Parliament, 2015).

Source: Dax and Machold 2015

Second homes are an issue not only in high-income regions like those of the Alps, but also in more peripheral locations. In such regions, perception of an increased interest in establishing second homes tends to be very different. Rather than a focus on the problems of too high shares of in-flows from outside and harmful effects on local identity and economy, the trend is regarded as an opportunity (Radulescu 2014, Matos 2013). As has been demonstrated in France, income generated by second homes, the presence of retirees and long-distance commuters can amply compensate for a lack of export-oriented economic activities (Davezies 2008). This suggests that a focus on residential economy can be sufficient to ensure long-term security of certain attractive mountain areas. However, such a strategy can be considered problematic from both national and European perspectives, as it implies that fewer income-generating export activities are developed in mountain areas.

b) *Tourism in mountain areas*

Since the late 18th century, tourists have been attracted to mountain destinations. The increasing recognition of this value of mountain areas was associated with iconic images of specific mountain locations, leading to the development of these localities. In combination with the rise of nature protection, this development was linked to visions of 'pristine nature' which added to this attractiveness. Declining agricultural employment and a growth in demand for services, at different times in different areas, contributed to the development of tourism strategies for many mountain regions. Many regional strategies have conceived tourism activities as the main employment alternative and development option. This reflects both the increasing recognition of the service functions of mountain farming and forestry and growing concern and demand for the natural environment (Snowdon et al. 2000, 138). Many

mountain areas provide significant opportunities for tourism activities, particularly due to the high quality of their natural environments. While there has been a significant rise in rural tourism for Europe in general, the relevance for mountain regions is very mixed. Beyond a number of 'hotspots' of tourist development in the mountains, particularly in certain Alpine locations and other well-known destinations, large parts of the mountains have been less intensively affected by the growth of tourism. Nevertheless, **tourism is widely advocated as a means for economic restructuring and local development**, and policy programmes of the Structural Funds, such as LEADER or LIFE, support specific projects.

Different types of mountain tourism

As the intensity of tourism has increased, so have concerns about its long-term effects. In the context of the concept of sustainable development in mountain areas, the search for new forms of tourism activities adapted to the specific conditions became increasingly important. The following different concepts, all based on sustainability, highlight the scope of options, the potential overlap between these types, and the need to elaborate target-specific strategies (Euromontana 2011, 12f.).

- *Rural tourism* can be understood as a general term comprising all tourist activities in rural areas, relating to low population, open space and locations with less than 10,000 inhabitants.
- *Agrotourism* comprises commercial activities of a farm unit "conducted for the enjoyment or education of visitors, and that generate supplemental income for the owner." It overlaps with activities denoting specific sub-types, such as geotourism, ecotourism, culinary tourism or direct marketing of agricultural produce.
- *Ecotourism* is defined as "responsible travel to natural areas that conserves the environment and sustains the well-being of local people." This can be closely related to types of "sustainable tourism" or be regarded as a segment of the larger nature tourism market. It includes a particular learning experience for visitors and is delivered to small groups by small-scale businesses, thus underlining the prerequisite of local ownership.
- *Community-based tourism* is "tourism de facto planned and managed by a group of individuals/households comprising the community as a communal enterprise. It could also be managed by a private entrepreneur whose activity agenda is set by the community and is accountable to it. Between these two extremes there could be a number of other arrangements." The participatory, community-based approach to mountain tourism is therefore a recommended path to sustainable mountain tourism.
- *Cultural tourism* provides concrete opportunities to encourage genuine dialogue between visitors and hosts, to promote new types of cooperation, become more familiar with the heritages of different territories, and contribute to economic and human development. A number of recent concepts make use of the full range of heritage, including cultural heritage, contemporary culture, protected natural sites, health and wellbeing (including spa tourism), educational, wine and food, historical, sport or religious tourism, and even the industrial heritage or the economic fabric of a region.
- Different forms of *niche tourism* can also be identified targeting specific types of clientele, such as disabled or elderly persons, or those practising particular sports or other activities.

Text Box 4 Rural tourism in Italian mountain regions

Agrotourism has long been widespread in some European mountain regions. The increased focus on diversification led to the strong engagement of farm households in tourist activities and expanded some of their offer. This reflects the shifts in demand which address concerns about the highly intensive mass tourism in specific mountain regions. Local initiatives, such as those supported by LEADER, have contributed to agrotourism activities. This trend is exemplified by many parts of the Italian mountains, where the range of tourist attractions and activities has been expanded. Agrotourism also integrates local cultural patterns and economic activities, providing a stimulus for land use activities and environmentally friendly activities. Moreover, as benefits are more evenly shared at the scale of provinces, it is used as an instrument to generate additional income for farm households and local communities in deprived areas.

Rural tourism in Italy has developed in recent decades as a particular highly demanded type of tourism, with high rates of increase. The provinces of Bolzano, Siena, Perugia, Florence and Grosseto are, in decreasing order, those with the highest concentrations of agrotourism units, together accounting for 41% of the national total (ISTAT, 1998). In the province of Siena, 32% of the tourist beds are linked to agro-tourism. The vitality of agrotourism can be explained by several factors, addressing growth in both demand and offer. On the demand side, the rising popularity of this type of tourism has encouraged farmers to engage and extend these activities. Demand is based on the features of the landscape, in particular its agricultural, highly aesthetic appearance, with its topography, mixed land use systems and vernacular heritage, including ancient farmhouses. In order to provide an adequate range of tourism services in a region, coordination and networking must be integrated into local and regional promotion networks. Innovation also requires a strong impetus on information provision and destination management.

On the offer side, the potential to diversify agricultural activities and to use incentives deriving from the Rural Development Plans and LEADER programmes have played a significant role. This supported farm accommodation development by entitling farmers to a preferential tax treatment (a 4% rate compared with an average rate of 27% for other types of accommodation) in addition to room and board sales, direct-to-consumer sales of agro-food products (cheese, wine, olive oil, fruit products, vegetables, meat and poultry), other agrotourism offers, including gastronomic services, and educational programmes, in particular for schools. All of these aspects contribute to the success of these activities.

Rural tourism strategies have spread due to the search for local development strategies to many mountain regions. It therefore seems even more important than ever to elaborate a clear strategy and communication plan, and to highlight innovative action as core requisites for local success.

Source: Shucksmith et al. 2005, p. 178 f.; EU project INRUTOU <http://inrutou.eu>

Efforts to achieve sustainable development in mountain tourism approaches

The global 'explosion' of leisure tourism has led to the substantial development of tourism infrastructure in the form of resorts, rural inns and guesthouses, and major outdoor recreational facilities, as well as smaller elements such as local museums, hiking routes and mountain bike trails (Debarbieux et al. 2014, 8). In this context, mountain landscapes are place-specific assets, valuable for the development of mountain tourism. Beyond topography as the core characteristic of mountain areas, specific assets are linked to nature-based developments and climate specificities. The recognition of assets therefore also depends on seasonal changes and considers issues such as snow and ice (winter tourism, with a predominance of skiing in many areas, but also other winter activities which are increasingly appreciated), mineral and hot springs, the diversity of local peoples and traditional cultural practices, and the sacred dimension attributed to many mountain sites and summits – as well as geological diversity (e.g. unique geological formations) and biological diversity (including unique plant communities and emblematic animal species such as bears, chamois, ibex, and marmots), experienced in particular through summer tourism activities. The rising appeal of tourism will increase demand for experience and use of all these resources in the future.

Text Box 5 Good practice in sustainable mountain tourism

As the intensity of tourism has grown, awareness of its mixed effects on local communities and on the environment has increased. Innovative tourism strategies demand a stricter orientation towards environmentally friendly types of tourism which address the different dimensions of criteria of sustainable development. Recognising that Europe is the World's No. 1 tourist destination, the European Commission stressed, in its communication on "a new political framework for tourism in Europe" (European Commission, 2010), the importance of competitiveness for the European tourism sector. Yet, to achieve its full potential, it is also indispensable to "promote the development of sustainable, responsible and high-quality tourism" which this strategy paper highlights as another priority that must not be overlooked. European tourism stakeholders have integrated the need for "a socially, responsible tourism model", including sustainability concerns, in their perspectives ("Madrid Declaration", Presidencia Española 2010).

Discussions with regard to addressing sustainable development criteria on tourism development have continued for much longer. These started particularly in (or close to) the most densely developed tourism regions in the Alps, with initiatives to apply limitations on tourism growth and/or enhance activities towards more sustainable tourism models. The 'Alpine Pearls' initiative specifically addresses these issues. This is a network of 27 municipalities that aim at climate protection and nature conservation through enhancing 'soft mobility' in their tourism strategies. Starting in 2006, the first municipalities developed the common label within an Interreg IIIB project. Some municipalities have joined only recently (2015) underlining the attractiveness of the idea.

Nevertheless, the concept of linking tourism excellence to sustainable development criteria is applied in all parts of Europe, with relevant examples increasingly being established in diverse mountain regions. One example is the 'European Destinations of Excellence' (EDEN) project, launched by the European Commission in 2006. EDEN promotes sustainable tourism development models across the European Union and is primarily based on national competitions to identify a tourist 'destination of excellence' in each participating country. It draws attention to the values, diversity and common features of European tourist destinations. The main aims are to enhance the visibility of emerging European destinations and create a platform for sharing good practices. Annual themes selected so far have included rural tourism, intangible heritage, protected areas, and local gastronomy. These themes are of key relevance for mountain regions, and many of the selected destinations have been mountain municipalities.

Sources: EU projects Alpine Pearls (www.alpine-pearls.com) and EDEN (<http://ec.europa.eu/growth/tools-databases/eden/>)

Measuring the extent of tourism in mountain areas is not easy, particularly because of the challenge of defining mountain areas and the great diversity of types of tourism flows. At the global level, the United Nations Environment Programme (UNEP) has estimated that mountain destinations account for 15 to 20% of tourist flows. However, this figure conceals extremely diverse situations. For example, it is estimated that the Alps annually attract about 95 million long-stay tourists (i.e. about 460 million overnight stays): about 10% of global tourist overnight stays (Permanent Secretariat of the Alpine Convention 2013, 27). However, the situation varies considerably across the range. Tourism is highly concentrated in some areas and municipalities: "the economy of only 10% of the municipalities, representing 8% of the Alpine population, is based on tourism, and 46% of the beds are concentrated in 5% of the municipalities, according to the Working Group Demography and Employment of the Alpine Convention" (Price et al., 2011, 8). The concentration of tourism in specific municipalities and tourist destinations also characterises other European mountain areas. Such concentration leads to significant problems of high-intensity spatial use and high pressure on the environment.

New strategies for regional development and tourism concepts increasingly have to refer to sustainable development approaches and reflect a **more comprehensive concern for future development and its effects on various aspects of the concerned areas**. Given the large-scale relevance of mountain tourism and its direct impact on biodiversity

conservation, environmental performance, cultural changes and local/regional economies, there is a clear need for adopting sustainable pathways. Both discussions in many areas and the rising number of initiatives show increasing acceptance of the challenge. Yet progress towards sustainable forms of tourism at the large scale remains rather limited.

Obstacles to adopting alternative tourism approaches

The European Commission has defined sustainable tourism as “tourism that is economically and socially viable without detracting from the environment and local culture” (European Commission 2003, 1), which implies a balanced approach to the three pillars of sustainability. Similarly, sustainable tourism in the Alpine area (Permanent Secretariat of the Alpine Convention 2013, 13-14) “should:

- make optimal use of environmental resources that constitute a key element in tourism development, maintaining essential processes and helping to conserve natural heritage and biodiversity;
- respect the socio-cultural authenticity of host communities, conserve their built and living cultural heritage and traditional values and contribute to intercultural understanding and tolerance;
- ensure viable, long-term economic operations, providing socio-economic benefits to all stakeholders that are equally distributed, including stable employment and income-earning opportunities and social services to host communities, and contributing to poverty alleviation.”

Mountains can particularly benefit from actions regarding sustainability carried out at European level by the European Commission. From 2009, the European Commission implemented a programme called “Sustainable Tourism Preparatory Actions” which aimed to apply, at a larger number and scale, the “Agenda for a sustainable and competitive European tourism” (European Commission 2007). While initial focus of the programme was on work along the former ‘Iron Curtain’ and cross-border networks, the activities were extended to the enhancement and promotion of different thematic transnational tourism products such as routes, itineraries or trails (either physical or virtual). This is also relevant for mountain regions.

In many mountain regions, projects to implement ‘sustainable tourism approaches’ have spread, providing a multitude of local small-scale examples. These refer to the various dimensions of tourism development; in particular they highlight legislation aspects, programme and strategy development, communication and awareness, participation issues and “incentives for tourists for behaving in a sustainable way” (Permanent Secretariat of the Alpine Convention 2013, 117). However, the main challenges and obstacles are, in general, designated explicitly only in pilot actions and at local levels. For example, few municipalities make an effort to regulate levels of tourists: for example the ‘Mountaineering Villages’ (*Bergsteigerdörfer*) network initiated by the Austrian Alpine Club and supported by the Alpine Convention. Most local communities are conscious of the economic impact of tourism, but hardly address the negative implications of these activities for sustainability issues.

Actions that seek to promote integrated approaches to sustainable mountain tourism address ecological, social and cultural aspects as well as economic ones. Considerations are particularly advanced with regard to safeguarding natural resources and the environment as the backbone of mountain tourism, focusing on actions that are less detrimental to nature conservation and are more environmentally-friendly in land use and tourism activities, as well as reducing negative effects of tourism-related mobility. Important social aspects include working conditions and effects on the local population in tourist areas; cultural aspects aim to keep cultural heritage as a core of uniqueness of an area. Key economic aspects consider sustainable transport systems, balanced employment schemes, energy efficiency and territorial planning issues. One important obstacle to realizing sustainable

practices in tourism development is limited awareness of the impacts of intensive tourism and inadequate promotion and awareness of innovative offers, as well as accessibility of those offers. Another challenge is a lack of, or ineffective, stakeholder participation. Waligo et al. (2013) identify this as the core obstacle in achieving sustainable tourism and report that “there is little clarity as to how best to resolve this problem”.

European and national standards have been proposed to establish sustainability-related management tools. These tend to have an impact on the elaboration of strategies and investment in the sector, but change the overall situation only gradually. Awareness-raising actions therefore seem important. Some of these concentrate on education and training, but others are organized around competitions and awards which can result in new images of ‘destination of excellence’. Innovative activities benefit particularly from trans-regional cooperation, as new approaches may be strengthened by collaborative discussion of relevant experiences and trans-national exchanges. Nevertheless, an orientation towards sustainable tourism development involves cultural changes that require a renewed understanding of tourists, which has to evolve to take into account changes in the tourism offer. Thus, sustainable tourism development is not so much an anti-model, but a process of shaping the peculiarities of each destination in a new framework which significantly alters the offer and the relationship with its visitors.

Text Box 6 Challenges in adapting tourism strategies in mountain regions to climate change

Climate change poses a serious challenge to social and economic development in all regions. The implications for mountain regions are very relevant because of the particularly high impacts and the degree of changes forecast for these regions. While international commitments have to find ways to reduce greenhouse gas emissions, adaptation measures to the impacts of climate change at the regional scale have to be sought and require integration into sectoral and economic policies (Chapter 5). In the context of mountain tourism, two key vulnerabilities have to be addressed: effects on winter tourism due to reduced snow cover, and rising threats for settlements and infrastructure due to increased exposure to natural hazards.

The study "Climate Change in the European Alps: Adapting Winter Tourism and Natural Hazards Management" (OECD 2007) focused on changes in the reliability of snowfall in ski areas, the effects for tourism opportunities, and the implications of climate change for a range of natural hazards prevalent in the Alps. The analysis considered technological and behavioural adaptation measures, and assessed the need for appropriate adaptations in the institutional structures and risk transfer mechanisms. The Alps are presented as having a high adaptive capacity, with examples of good practices. Winter tourism is directly affected by warming climates through reductions in snow cover and fewer opportunities for winter sports facilities. Artificial snow-making is still the dominant adaptation strategy, with significant costs and particular limits. Short-term assessment has found this strategy to be cost-effective, but with the weakness that only direct costs to ski operations are included and potential externalities of such practices on water use, energy demand, landscape changes and ecology development are not taken into account.

Subsequently, studies on climate change impacts have been intensified, with varying results. The analysis for Austrian regions shows strong regional differences (Bednar-Friedl et al. 2013). A mere analysis of net effects for the Austrian tourism sector would be insufficient, as it could not account for the region-specific differences. Economic dependence is particularly high in this sector, as regions with a focus on winter tourism are characterized by the highest tourism intensity in the country (and partly also in the entire Alps), accounting for about 50% of annual overnight stays.

It is also important to address regions where unfavourable climate conditions exclude adaptation measures, as they are primarily located at low altitudes. This might imply significant equity implications for those areas. Moreover, the effects of climate change on natural hazards could extend to these areas and add to the adaptation problem. This is a much more complex set of issues, as there are many types of natural hazards, and any response will almost certainly involve public agencies, requiring planning, coordination, and reconsideration and adaptation of existing policies and policy measures.

Many hazards which have strong linkages to climate change (mainly those in glacial and permafrost zones) currently have low/medium economic impact. On the other hand, hazards with higher economic and social significance, such as floods, windstorms and avalanches, are more complex, and linkages to climate change is less certain. Nevertheless, the risks related to these changes points to the growing vulnerability of mountain regions. Climate change is therefore an additional reason for effective management of natural hazards in mountain regions, underscoring the need to target sustainable pathways in regional strategies. Given the scope of impacts and increasing threats of future development, continuous efforts to establish and implement mechanisms for climate hazard monitoring are needed. This implies a long-term observation period beyond short-term funding cycles, to generate information and tools to be used and implemented for mapping and in management policies.

Sources: OECD 2007, Bednar-Friedl et al. 2013

3.4. Economic diversification in mountain areas

An important recommendation that emerged from the ADE study (2012) was the need to develop specific 'asset-based' growth sectors. In particular, for mountain regions, the focus should be on the specific 'assets' which offer the only feasible route to economic success, e.g. tourism, culture, renewable energy (or a combination of these). Developing such 'asset-based' strategies is not straightforward, for several reasons. First, a number of mountain regions are at greater risk from the negative impacts of climate change or natural disasters. For example, forest fires in the summer can quickly destroy a cash crop or devastate tourist facilities. Second, it requires greater courage and policy nimbleness from local communities, since most of the 'assets' need to be constantly re-evaluated and improved in order to maintain competitive advantage with other regions. For example, due to their relative remoteness, it is more expensive to get to certain mountain regions, so it is vital that local policy makers constantly innovate to maintain tourist numbers. Third, and related, such 'nimbleness' requires investment in research and innovation to foster such effective 'asset-based' strategies. However, it is precisely in such regions that relatively less funding is invested to encourage research and innovation.

'Asset-based' development strategies may not be sufficient to generate a balanced and sustainable labour market. There is a need for diverse employment opportunities. In some mountain areas, the lack of attractive jobs for women may be an issue. Similarly, a too specialised labour market may fail to provide attractive opportunities for local youth, leading to their emigration – and thus depopulation. Finally, a lack of economic diversification exposes individual mountain communities to external shocks. This lack of resilience may be a threat on a medium to long term. There are long traditions of economic diversification in mountain areas, e.g. linked to seasonality in agriculture and tourism, or the inadequate size of farms leading to the development of parallel activities. This has resulted in local know-how, e.g. watch-making traditions in the Jura. However, parallel activities need to be coordinated in terms of seasonality and workloads, as illustrated by the example of the family farm that prefers to create a home for elderly rather than hosting agrotourists (see Text box 7). As shown by the example of ski production in Slovene Alps, mountain areas can demonstrate a particularly strong innovative capacity when they manage to capitalise on the proximity between producers and users (see Text Box 7). A similar example is Peak Performance, established in 1986 in the Swedish winter sports town of Åre by a small group of professional skiers with competence in marketing, design and commercialisation. Peak Performance is currently one of Scandinavia's largest brands in sports clothing. Online sales and the use of digital marketing channels, e.g. through the creation of a customer database and personalised product recommendations, have further contributed to the development of the brand. Electronic commerce more generally opens up possibilities for the creation of niche activities. While distance to markets is not a significant limiting factor for such initiatives, access to logistics platforms is essential.

Text Box 7 Homes for the elderly on mountain farms

After having welcomed agrotourists for some years, the Silicanum family farm in Gorizia (in Italy, very close to the border to Slovenia), decided to open a first home for elderly people in 2013. The owners had found that agrotourism was too seasonal and therefore did not offer a sufficiently stable income. Running a home for elderly people has become a more appropriate side activity, and also creates employment opportunities for nurses running a 24-hour service. The Silicanum family farm is now developing activities to attract additional guests, such as excursions, gardening and cooking in collaboration with local providers. The development of this activity was made possible by a change in regulations allowing for 'social farm' activities that occurred in 2013 in Italy. In other countries, requirements such as the obligation to hold a relevant degree make it difficult to implement this type of initiative.

Text Box 8 Ski production in the Slovene Alps

The history of the Slovene ski brand ELAN started with light wooden skis as early as 1945. Ski jumper Rudi Finžgar and local engineers founded a company which has generated a series of innovations, e.g. all-plastic fibreglass ski with a polyurethane core and phenolic resin laminates in 1969, uniline skis in 1974, sidecut skis making carve turns possible at low speed in 1993, and WaveFlex technology making it possible to combine a consistent flex with a high torsional strength in 2006. Elan is widely recognised to have revolutionised the skiing industry with its carving skis in the 1990s. Although the production also includes other sport products and mountain equipment (rafting boats, snowmobiles, snowboards...), skis remain the company's main product.

Teleworking can also contribute to the economic diversification of mountain areas. In this respect, it is important to consider that different forms of teleworking co-exist, and that each has specific requirements in terms of accessibility, social environment and service offer. **Strategies seeking to use teleworking as a lever of development in mountain communities must consider emerging trends**, e.g. the rapid growth in the number of independent professionals, as well as differences between European countries when it comes to flexible working arrangements (see).

Text Box 9 Economic diversification through teleworking

There are many examples of good practice in using teleworking to significantly contribute to economic diversification in mountain areas. For instance, in the Ötztal (Tyrol, Austria), an initiative to establish a centre for teleworking women was particularly successful. From 1997 onwards, the Telecentre Ötztal was supported in providing education programmes for women under LEADER II (1995-1999) and LEADER+ (2000-2006). In the first two years, about 300 women gained valuable skills through targeted Information and Communication Technology (ICT) courses (see <http://members.aon.at/~telez0/telezentrum/index.htm>). Such initiatives recognise that access to broadband is only one aspect of importance for teleworking: social, cultural and competence-related issues also need to be considered.

In addition, the range of teleworking options keeps expanding, as companies adopt more flexible working arrangements and the number of independent professionals (or 'iPros') grows: from 2004 to 2013, the number in the European Union increased by 45%, from 6.2 to 9 million (Leighton and Brown 2013). A significant proportion of these workers have a relatively high degree of freedom when deciding where to carry out their activities. However, most require access to broadband internet and reasonable transport accessibility (particularly, ease of access to an airport) to organise face-to-face meetings with clients and business partners. Due to their attractive living environments, a number of mountain areas can attract significant numbers of such 'mobile iPros'. This particularly concerns mountain areas that are easily accessible from metropolitan regions or other well-connected urban areas. Some of the income of iPros may feed into local economies. However, their presence may be seasonal, e.g. linked to recreational opportunities during the winter season.

Other forms of teleworking concern employees who work from home regularly or occasionally. Among countries with significant mountain areas, such working arrangements are common (23-25% of employees) in Slovenia, Austria, Germany and France, but particularly low (7-10%) in others (Bulgaria, Italy, Romania) (Messenger and Gschwind 2015). They make it possible to accept a position even if the commuting distance is too long to travel between one's home and workplace on a daily basis. This creates new opportunities for mountain areas, especially those with intermediate levels of accessibility to urban areas (e.g. between 1 and 2 hours from an urban centre). Differences between European countries when it comes to the adoption of such flexible working arrangements suggest a potential for exchanges of good practice.

Other opportunities for economic diversification in mountain areas focus on the production of public goods and ecosystem services. Public goods are services and goods which are beneficial to people and to companies, but for which payment cannot be envisaged, while ecosystem services are services to society generated by ecosystems with or without human influence (Haida et al. 2015). There are overlapping notions, of particular relevance for agriculture and forestry in mountain areas. These sectors can be 'multifunctional' in the sense that they produce outputs such as beautiful landscapes, biodiversity, and protection against flooding and erosion. The general issue raised by these outputs is that they do not generate any economic returns, unless there are public policy arrangements to internalise costs and benefits; an issue currently being considered in the Public Ecosystem Goods and Services from land management – Unlocking the Synergies (PEGASUS) project, funded through Horizon 2020 (Dwyer et al. 2015).

Public goods can also be produced by the tourism and leisure sectors. These sectors contribute to the attractiveness of mountain areas as a living environment, which are in turn an additional asset for the development of knowledge-intensive activities. The Grenoble region and Bavaria, for example, use proximity to mountains and winter sports to attract highly skilled staff to their technology clusters.

4. PRECONDITIONS FOR THE DEVELOPMENT OF MOUNTAIN AREAS: ADEQUATE TRANSPORT INFRASTRUCTURE, ACCESS TO BROADBAND AND TO ESSENTIAL SERVICES

KEY FINDINGS

- 'Transport infrastructure fixation', i.e. the excessive belief that improved accessibility will lead to development, needs to be addressed.
- Broadband improvement is a field within which public private partnerships (PPPs) can be envisaged. The 2014-2020 programming period regulations facilitate such partnerships. The extent to which these possibilities are taken advantage of, and whether they produce foreseen results in terms of broadband access and service quality, requires monitoring.
- Strategic options to improve access SGIs in mountain areas have been well-identified. The issue is to define how to promote the exploration of these options across European mountain areas.

4.1. Sustainable transport solutions to ensure sufficient accessibility

Focusing on 'hard' infrastructure transport and telecommunications investments may appear to be a natural choice in mountain areas. Such investments may be considered as responses to the inherent 'needs' of these territories, to try to ameliorate the geographical challenges that they face through improving transport and other infrastructure.

Over successive programmes, DG Regio has stepped up the encouragement for partnerships to move on from an over-emphasis on 'hard infrastructure' interventions towards 'softer' business, enterprise and innovation projects and more environmentally sustainable development. The key point is that infrastructure only facilitates long-term development; it does not of itself constitute sustainable economic development. Improved infrastructure may improve connectivity and facilitate increased exports, but can also open local markets up to greater competition. Evidence suggests that some mountain regions have found it hard to move on from the 'cusp' of over-reliance on hard infrastructure investments. In this respect, they are similar to convergence regions.

The European Commission needs to play a more active role in shifting this focus, from the start of programme planning. The message to emerge from the ADE Study (2012) was that this shift should be flexible and pragmatic because there are two cases where investment in hard infrastructure can continue to be justified: (a) 'gap filling' projects, vital to make an earlier large investment project succeed, e.g. access to the 'spinal route' of causeways and bridges along the Western Isles (Scotland); access to the high speed rail terminal at Cuenca (Spain); removal of bottleneck road pinch points linking the Ardèche valleys to the Rhone axis (France), and (b) vital up-grade projects, particularly ICT and broadband facilities where periodic up-grades are not just necessary, but of critical importance. In short, each case would need to be taken on its merits, based upon cost-benefit criteria for hard infrastructure projects.

This has occurred through encouragement by DG Regional Policy in the initial Operational Programme design negotiations and via the Growth and Jobs Agenda and now Europe 2020 targets. The key point, however, is that innovation and R&D type investments in regions with specific geographic features will tend to be rather different than those in other EU regions.

4.2. Broadband access in mountainous regions

Public-private cooperation has been widely used for broadband development to improve access in remote and rural areas. In the 2007-2013 programming period, EU funds contributed to public private partnerships (PPPs) on this topic:

- Auvergne Haut Débit (Massif Central, France): a 10-year contract for construction, maintenance and provision of wholesale services of a 860 km broadband network in the Auvergne region, with France Télécom as a involved private party
- Broadband network Ardèche-Drôme Numérique (Departments of Ardèche and Drôme, France): the construction and maintenance of a 2,018 km broadband network. The main beneficiaries were the 708 municipalities of the Departments (750,000 inhabitants) and 2,000 enterprises.
- Broadband in Lombardy (Italy): the construction of and maintenance of an 8,500 km regional broadband network in 707 towns and villages in areas with no previous broadband infrastructure.

The regulatory framework for PPPs has been improved for the 2014-2020 programming period. There is now explicit mention of these arrangements and greater flexibility in the designation of private beneficiaries of cohesion policy support, in payments and in the calculation of the so-called 'funding gap' (i.e. the difference between funds needed to carry out the investment and income generated by the investment). Broadband access can therefore to a greater extent be promoted through PPP arrangements when this appears appropriate.

Broadband access is essential for many activities in mountain areas. With regard to economic development, one example is provided by the Interreg IVC DANTE (Digital Agenda for New Tourism Approach in European Rural and Mountain Areas) project, which aimed to improve the effectiveness of regional policies in the area of innovation by enhancing the role of ICT in the tourism industry in rural and mountain areas (<http://danteproject.eu/>). In the context of education, broadband access can make it possible for mountain inhabitants to obtain tertiary qualifications by studying part-time, which means that they do not have to commute or move away from families and jobs, as is necessary for face-to-face courses on mountain topics offered by universities in and near mountain areas, e.g. in Austria, France, Greece and Italy. Thus, the University of the Highlands and Islands (Scotland, UK) has developed an extensive portfolio of courses for the inhabitants of this sparsely populated region. Some of these courses are entirely on-line; others also use video-conferencing. One example is the MSc in Sustainable Mountain Development, which is entirely online and therefore available to mountain residents anywhere in Europe; students from Bulgaria, France, Germany, Italy and Spain have all completed the course. Finally, broadband access is a prerequisite for effective e-governance and other aspects of SGIs in mountain regions, as discussed in the next section.

4.3. Provision of services of general interest in mountain regions

Challenges with regard to the provision of SGIs are not mountain-specific. In this regard, remote mountain villages face similar difficulties to small islands and localities in sparsely populated regions. Profitability is in these areas often too low for SGIs to be provided spontaneously by private actors, and costs for public provision of SGIs are high because of the lack of economies of scale.

The ACCESS project, co-funded by the Interreg IVB Alpine Space programme, identified eight strategies to improve accessibility and delivery of SGIs that may be applied across Europe (<http://www.access-alpinespace.com/>):

- Aggregating the offer, e.g. by locating service provision facilities in the same place, by combining different services.
- Developing alternative supply systems, e.g. videoconferencing facilities making it possible to contact a wide range of public services from mountain villages, and other ICT solutions.
- Encouraging unconventional modes of provision, e.g. post offices in shops, shops run on a not-for-profit basis, on-demand transport services.
- Enhancing local market appeal, e.g. awareness-raising of the need for retailers to pay attention to marketing and service quality.
- Promoting flexible and innovative transport solutions, e.g. carpooling using ICT to coordinate the use of shared equipment.
- Strengthening urban-rural integration, ensuring that there is adequate transport infrastructure for city dwellers to use rural leisure opportunities and making urban services available to rural populations.
- Encouraging participative and cooperative planning, to ensure that service offers meet needs and are coordinated.
- Revising policies and legislation so that policies can be adapted to take into account local specific situations, e.g. in rural mountain areas.

These strategic options are applicable in all mountain areas across Europe. The central message is to encourage alternative and innovative solutions. This also implies that pursuing 'equal access to SGIs' is not a viable option, but that the objective should be to develop tailor-made solutions adapted to local and regional needs and possibilities.

5. PHYSICAL ENVIRONMENT

KEY FINDINGS

- Climate change is expected to have particularly important consequences in mountain areas.
- Studies on these issues have so far focused particularly on the Alps. It is important to carry out projects in other massifs, and to capitalise on the outcomes of successful projects across Europe.
- Holistic strategies are needed to address the potentially dramatic increase in natural hazards resulting from climate change.
- Climate change may also bring benefits, e.g. for forestry. Such benefits need to be considered in integrated planning and management.
- 'Hotspots' of biodiversity and protected areas in Europe are concentrated in mountains.
- The management of these protected areas, and the provision of recreation, tourism education and research associated with them, provides employment, often in remote areas where there are few other opportunities.
- Fostering regional approaches to sustainable development, supported through collaborative management regimes, is an objective to which cohesion policy contributes.

5.1. Climate change adaptation

Over the past century, the climate of Europe's mountains has changed. Temperatures have risen, particularly in southwest and northeast Europe. Related to this, winter snowlines have moved upwards. Changes in precipitation have varied regionally. However, the data on which these general statements are based are unevenly distributed. The longest records and most dense recording networks are from the Alps, followed by the Carpathians and the mountains of the British Isles and Scandinavia. The variable availability of such data, as well as the technical challenges of using climate models – especially for regions with complex topography – mean that predicting future mountain climates is uncertain. Nevertheless, it is likely that temperatures will continue to increase, especially at higher altitudes; winter precipitation will continue to shift from snow to rain; and summer precipitation and windspeeds will increase in northern Europe and decrease in southern Europe. Glaciers will continue shrinking, and the lower elevation of permafrost is likely to rise by several hundred metres, leading to decreased instability of slopes and more landslides and rockfalls (European Environment Agency 2010).

These changes will have important consequences, not only for mountain communities and economies, but often at much wider scales. Many of the impacts will require adaptation to avoid negative consequences, but some may also be positive, if the necessary opportunities are realized. Many projects funded through the Framework programmes of the EU, as well as through Interreg, have explored – and continue to explore – these issues. A significant proportion of these projects have taken place in the Alps; a key future need is for more projects in other mountain areas, and to capitalize on the outcomes of successful projects in the Alps.

As noted in Chapter 4, a continuing key challenge for mountain areas is to ensure reliable and safe transport networks. These are vital not only for mountain inhabitants and their economies, but also for freight traffic, tourists, recreational visitors, and people who live in the mountains and commute to nearby cities. In this context, the likely increases in the numbers of natural hazards (avalanches, rockfalls, and landslides) are of significant concern. Effective adaptation requires not only research to predict future trends, but the installation of physical structures to minimize the likely damage by protecting roads, railways and settlements, complemented by monitoring, early warning and crisis management systems. Such investments also need to be made with regard to floods, which often originate in mountain areas, but can have much wider impacts downstream; these are already the most common type of natural disaster in Europe. Most of the damage is caused by a few severe events. A further type of natural hazard that is likely to increase with climate change is fires, especially in drier mountain areas such as those around the Mediterranean and in southeastern Europe. While all of these hazards will have important impacts in rural mountain areas, their economic and human impacts may often be greater in urban areas, both within and around the mountains but, in the case of floods, sometimes far downstream. This implies a need for holistic strategies with regard to natural hazards, built on recognition that effective adaptation to the negative impacts of climate change in the mountains is of European importance.

For Europe's citizens, climate change in the mountains may also bring some benefits. As coastal and other lowland areas warm up, mountain areas may become more attractive as places to visit (especially in summer) and also to live. This implies a key need for proactive planning that considers new demands on mountain resources – particularly the often limited supplies of water and of land that is safe and suitable for construction – as well as the ongoing requirements of established mountain populations. Good practices for climate-friendly mobility systems and energy-efficient construction, developed in some mountain communities, provide new opportunities for SMEs and can be used in other parts of Europe, both within and outside mountain areas. Nevertheless, winter tourism that relies on snow (and cold enough temperatures to make snow) is likely to become less reliable except at the highest altitudes, so that communities that have depended on this resource will have to develop new offers in order to remain profitable.

While agriculture and forestry no longer provide a significant proportion of employment in many mountain areas, these land uses are still important for other reasons in the context of climate change. With regard to minimization of risks from natural hazards, using animals to graze ski runs can be much more cost-effective than installing avalanche control structures, and healthy, well-maintained forests also protect against these and other natural hazards. Such benefits of forests need to be considered in integrated forest planning and management together with other benefits, such as providing biomass fuel and material for construction – as trees may grow more rapidly in response to increasing temperatures and concentrations of atmospheric carbon dioxide – and threats, such as those resulting from the likely increases of populations of pests, diseases, and fires. Equally, rising temperatures and longer growing seasons may allow crops, grapes, and fruit trees to be grown at higher altitudes, leading to increased employment in, and income from, this sector – though this may require research and investment to increase water efficiency. Also, traditional varieties and breeds of livestock often respond well to changing conditions and are resistant to increased water stress or new diseases. Many of the products of mountain agriculture are of high quality, attractive both to tourists and in lowland cities, as recognized by the Delegated Regulation of 11 March 2014 (No 665/2014) on the optional quality term 'mountain product'. Thus, adaptation of mountain forestry and agriculture to climate change may bring a wide range of benefits to mountain residents, visitors, and consumers across Europe.

Cohesion policy has so far focused on risk prevention efforts to adapt to the present and future impacts of climate change, the adaptation of infrastructure and building of new infrastructure, and the improvement of disaster resilience. Measures seeking to take advantage of opportunities emerging as a result of climate change may be an additional focus of particular relevance for mountain areas.

5.2. Nature protection

Most of the 'hotspots' of biodiversity in Europe are in mountains. Of the 1,148 species listed in Annexes II and IV of the Habitats Directive, a third live in mountains. These include 180 endemic species found only in one country (European Environment Agency 2010). This great diversity is associated with a number of values. On one hand, rare plants and animals and the special habitats in which they live attract many visitors to mountain areas, bringing income and employment in the tourism sector. In addition, to ensure the survival of many rare species and the favourable status of habitat types listed in the Habitats Directive, specific funding to farmers and other land managers, NGOs, and local and regional administrations is available through EU instruments, particularly the CAP and the LIFE programme in accordance with the EU Biodiversity Strategy. At the same time, the harvesting of many wild species directly contributes to the livelihoods and incomes of mountain people. These include herbs (for medicine and cooking), mushrooms and berries, which can provide important seasonal contributions to local and regional economies and, in some cases, for export. For example, the marketable value of wild mushroom production in the pine forests of Catalonia, Spain, is estimated as €32 million a year (Bonet et al. 2014). Both hunting and fishing bring visitors to mountain areas, as well as providing food.

The high levels of biodiversity found in Europe's mountains are a major reason that a disproportionate part of their area has been designated by the EU as Natura 2000 sites under the Habitats and Birds Directives and/or by national governments under national legislation. Of the total area designated within Natura 2000 sites, 43% is in mountain areas, compared to 29% for the EU as a whole. These sites cover 14% of the mountain area of the EU (European Environment Agency 2010). Among all massifs, the Iberian mountains have the greatest proportion of their area in Natura 2000 sites; Slovenia has the greatest proportion of its mountain area in these sites, followed by Slovakia, Spain and Bulgaria. In general, countries with a high proportion of their area in mountains have an even greater proportion of their Natura 2000 sites in mountains. For the EU as a whole, Natura 2000 sites cover a smaller proportion of mountain land than HNV farmland; however, the relative proportions vary considerably across massifs and countries. Comparably, 15% of Europe's total mountain area is included within sites designated by states for conservation (nationally-designated areas, NDAs). The highest proportions are in the small massifs of central Europe. Among larger massifs, proportions are particularly high in the Alps and the Nordic mountains. In most EU Member States, the proportion of mountain land within NDAs is higher than that within Natura 2000 sites. The extent to which these national and EU designations overlap varies considerably.

All of these protected areas not only protect valued environments and landscapes, but bring other benefits. The management of these sites, and the provision of recreation, tourism education and research associated with them, provides employment, often in remote areas where there are few other opportunities. In some cases, such employment is through government agencies; in others, through NGOs. In certain cases, and depending on which organisations implement them, such activities may be regarded as SGIs. Alternatively, when conservation NGOs conduct economic activities, these are subject to state aid rules. Protected areas are part of the EU's 'green infrastructure', and well-managed protected

areas, especially forests, provide important functions in terms of protecting watersheds, ensuring the high quality of water to downstream cities, and cost-effectively providing protection against natural hazards, such as floods, avalanches and landslides. These endanger not only mountain people and their settlements but also the vital transport infrastructure that crosses most mountain areas, linking the lowlands on either side and bringing tourists and recreational users from the cities. Many of these people come to the mountains specifically to visit protected areas, bringing income and inward investment, supporting employment and enhancing local image and quality of life. For Europe's Natura 2000 sites as a whole, it is estimated that visitors who specifically visit because of their designation spend €9-20 billion per year, and that they derive €5-9 billion in benefits from recreation (Institute for European Environmental Policy 2013). Given the high proportion of Natura 2000 sites in mountains, it is likely that a significant proportion of these figures accrue to mountain economies.

In addition to protected areas in Europe's mountains whose designation is specifically linked to the conservation of biodiversity under EU and/or national legislation, there are also other designations under UNESCO programmes: World Heritage Sites (WHS), Geoparks, and Biosphere Reserves. All of these overlap NDAs to a lesser or greater extent. Although WHS are designated for their 'universal value', most are also major attractions for tourists from around the world; some have – or are surrounded by – significant tourism infrastructure and have major marketing campaigns; for example, the Swiss Alps Jungfrau-Aletsch WHS and the Dolomites WHS. Europe's 25 Geoparks explicitly link the protection and management of their geological heritage to education and sustainable development, particularly through tourism. Biosphere Reserves, of which there are 116 in Europe's mountains, contain one or more NDAs, but cover much wider regions. Their aim is to **foster regional approaches to sustainable development, supported through collaborative management regimes**. Such initiatives have attracted both national and European regional development funding, for instance through EAFRD and Interreg programmes and, because they are already parts of existing networks, offer particular opportunities for trans-national projects, for instance through Interreg.

6. A FRAMEWORK FOR PLACE-BASED POLICIES IN EUROPEAN MOUNTAIN AREAS

KEY FINDINGS

- An integrated, stepwise characterisation model for mountain areas can help implementing place-based development strategies.
- Addressing mountain parts of NUTS 2 regions means that the reality that they belong to a larger inter-regional and/or international massif is not recognised.
- Differences between and within massifs need to be taken into account before envisaging a European framework for development strategies in mountain areas.

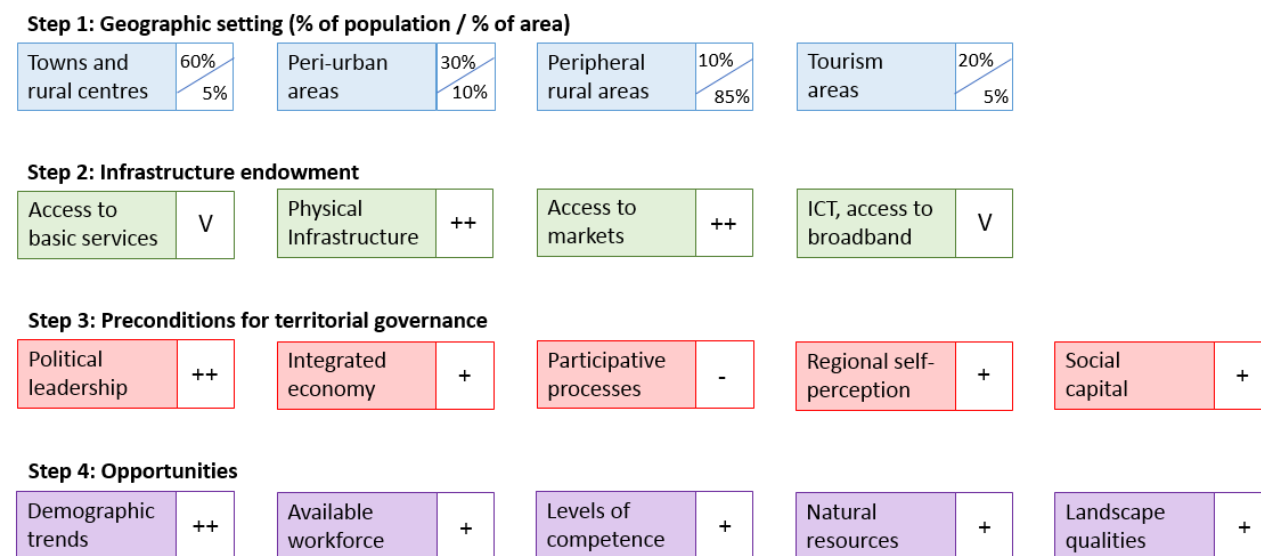
As shown in the previous chapters, European mountain regions are diverse in terms of preconditions, levels of development, potentials, and opportunities. It is therefore not meaningful to attempt to formulate a common strategy for mountain areas across Europe.

However, this does not imply that a European framework for development strategies in mountain areas cannot be developed. Such a framework would consider the environmental and physical characteristics described in Chapter 5, as well as the specific challenges of mountain agriculture and the public goods it generates (Chapter 3). In terms of development perspectives, it could build on the rationale for place-based development described in the Barca report (Barca 2009). Different objectives would be pursued:

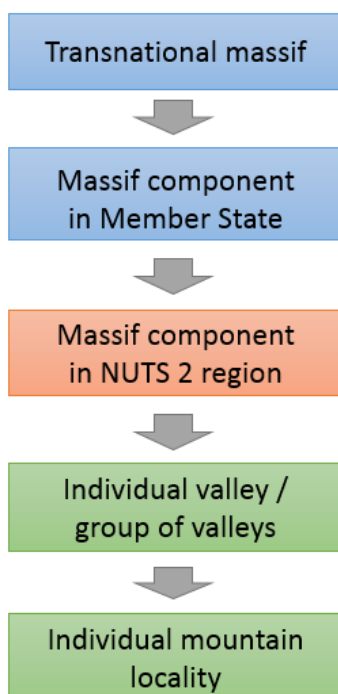
- to take better account of commonalities within mountain massifs which, as shown in Chapter 1, often stretch across multiple countries and NUTS 2 regions and therefore tend to be disregarded;
- to facilitate the use of instruments such as CLLD and ITI by better identifying local/regional challenges and opportunities;
- to encourage multilevel governance with better coordination.

For this purpose, one can envisage a standardised stepwise characterisation of mountain areas, as illustrated in Figure 4. Such a model would be applied iteratively at different scales, from transnational massifs down to individual mountain localities if needed (Figure 5). Some of the aspects listed in Figure 4 cannot meaningfully be characterised at the level of a massif or region, given the degree of internal disparities. The indication 'V' (variable) reflects this, and implies that the characterisation needs to be reiterated at lower geographical levels.

The elements of the stepwise description are further described in Text Box 10. Its systematic application would make it possible to highlight differences between European mountain massifs, as well as their internal disparities. The challenge for a European framework for development strategies in mountain areas would be to address this multi-scalar diversity while addressing pan-European issues linked to, for instance, mountain farming, biodiversity and the effects of climate change in mountain areas.

Figure 4 Stepwise characterisation of mountain areas (example)

(theoretical example, as an illustration of the method)

Figure 5 Application of the stepwise characterisation model at different scales

Text Box 10 Elements of the stepwise characterisation of mountain areas**Step 1 Geographic setting:**

Description of the main types of territories within each massif/mountainous part of region/locality, using percentages of population and area in each category. The three first categories are mutually exclusive, in contrast to 'tourism areas' that may overlap with any other category.

Step 2: Infrastructure endowment***Access to basic services:***

- General health services, obstetric units
- Postal services
- Energy provision
- Waste collection
- Wastewater treatment
- Other?

Physical infrastructure:

- Roads
- Railroads

The main issue is whether the infrastructure corresponds to current needs, and to requirements to take advantage of identified resources. It is not whether the infrastructure is 'as good as in lowlands or central regions'.

Access to markets:

Extent to which the mountain area is close to markets of relevance for existing products or foreseen future products.

Linked to physical infrastructure, which can improve the degree of 'closeness'.

Also includes proximity to areas with potential visitors who can contribute to the development of tourism activities.

Proximity to metropolitan areas creates specific potentials for economic development, e.g. Alpine piedmont areas.

ICT, access to broadband:

Combination of physical infrastructure (ADSL, optic fiber, Wimax radio masts) and broadband operators offering high quality and affordable internet subscription

Step 3: Preconditions for territorial governance***Political leadership***

Are there decision-making bodies in place at the level of the massif / region / locality with a capacity to organise debates and make strategic choices, create a well-functioning regulations and lead local/regional administrations?

Integrated economy

To what extent are the economic actors of the region organised in value-chains, interest groups, employer's organisations, shared facilities (e.g. for training or education), forums for dialogue and exchange, interactions with job centres and with education/professional training institutions?

Participative processes

To what extent are representatives of civil society, NGOs, representatives of local/regional businesses involved in strategic planning processes, e.g. through open consultations, participative workshops, information on on-going debates, citizen's councils?

Regional/local self-perception

To what extent do inhabitants and businesses perceive their region/locality as a dynamic, entrepreneurial area, where new initiatives are welcomed and encouraged? To what extent is the region/locality, on the contrary, perceived as structurally backward, with limited possibilities and sense of initiative and suspicion against new initiatives?

Social capital

Does cohesion between inhabitants, businesses, administration, political leadership facilitate new initiatives, or are there obstacles linked to difficulties of communication and cooperation between groups? Which are the most relevant divisions?

Step 4: Opportunities

Demographic trends

Does the local area manage to attract young people, to encourage young families who will have children? Is there a significant degree of return migration of retirees?

Available workforce

Is there a working-age population that is currently under-occupied, e.g. seeking employment or outside the labour market? Is there a gender imbalance in the labour market?

Levels of competence

Does the population generally have a high level of competence, making it possible to develop advanced, knowledge-intensive activities of higher added-value?

Natural resources

Are there natural resources in the area that are, or could be, capitalised on? This can include agricultural land, favourable climate, forests, rivers, lakes, minerals and other geological resources.

Landscape qualities

Landscape qualities are of specific importance for tourism development, and are therefore particularly highlighted.

7. CONCLUSION – POSSIBLE ROLES FOR COHESION POLICY

KEY FINDINGS

- More integrated approaches are needed to address demographic challenges in mountain areas.
- More general frameworks for the promotion of mountain areas can be envisaged, as instruments to preserve decentralised settlement patterns and to support territorially integrated, place-based and partnership-based approaches
- It is possible to propose procedures for a systematic recognition of mountain area specificities in cohesion policy programming processes. These procedures should not add to the administrative burden of programmes, but rather function as instruments to develop better and more targeted measures.
- There is a need for more flexible multi-level governance arrangements to better address the development potentials and challenges of mountain areas.
- Considering these needs and challenges, it does not appear appropriate to establish a dedicated Structural Funds programme for mountain regions after 2020. The objective should rather be to provide frameworks to help regional and national programmes to address development opportunities and challenges in mountainous areas, and to encourage cooperation between programmes that operate in the same mountain ranges.

7.1. Facing up to demographic challenges

Although there is not a general trend of depopulation in mountain areas, they are confronted with significant demographic challenges, as described in Chapter 2. Addressing these challenges in cohesion policy implies:

- that future Operational Programmes for regions with geographical specificities should contain explicit analyses of demographic trends, at regional and sub-regional levels;
- that the programme strategy should explicitly specify the demographic challenges which ERDF can be used to play a direct role in addressing (e.g. job creation schemes to help stem the outflow of young people);
- that particular care be taken to seek alignment of the ERDF with national policy strategies (e.g. rural areas policy, fisheries policy, second home ownership policy, welfare transfers etc.);
- that ERDF and ESF programmes should be more closely coordinated, since ESF interventions have an important role to play in retaining more young people and attracting others from elsewhere into the region. This does not necessarily imply a re-merging of ERDF and ESF into single programmes, although that has been widely suggested by interviewees and focus groups (ADE 2012). Multifund operational programmes and solutions for cross-financing of operations between ESF and ERDF could to a greater extent be used to target the opportunities and challenges of mountain areas.

A holistic approach to tackling the demographic challenge in mountain areas is vital in order to try to counteract the considerable negative socio-economic consequences.

7.2. Frameworks for policy coordination in mountain areas

The potential usefulness of more general frameworks for the promotion of mountain areas in the European Union may also be emphasized:

- political willingness to preserve decentralised settlement patterns in Europe and to provide preconditions for continued small-scale farming;
- adoption of constraining legislation to promote more harmonious territorial development, e.g. in terms of environmental impact assessments, limits to urban sprawl, promotion of sustainable mobility;
- more balanced funding, better coordination between EU cohesion policy and agricultural policy, strengthening of second pillar of the CAP; support to territorially integrated, place-based and partnership-based approaches such as LEADER, CLLD and TIA, support to civil society organizations.

7.3. Recognition of mountain area specificities at each key stage in programming processes

The key stages are:

- (a) socio-economic analysis as part of the ex-ante evaluation, for example using the stepwise characterisation model proposed in Chapter 6;
- (b) systematic consideration of sub-regions with geographical specificities at the Operational Programme design and implementation stage;
- (c) regular monitoring of the key indicators and financial outcomes at an appropriate sub-regional level;
- (d) at the ex post evaluation stage. This would not be as bureaucratic a burden as might initially be thought, because in most cases there will only be one or two sub-regions involved and most ERDF programmes already do a certain amount of sub-regional disaggregation of this kind, although it is rarely focused on sub-regions with particular geographical characteristics.

Cohesion policy programmes are designed at too aggregated a level (usually NUTS2 or similar) for the unique set of characteristics of mountain areas to be properly recognised and addressed. This is a general problem.

The scale of the problems ranges widely, from cases where a rigid top-down programme of Operational Programme design and structure is imposed, to more flexible systems which allowed geographical specificities to be identified, analysed and implemented.

The latter situations arise either because, fortuitously, the programme region happens to be mostly mountainous, or because steps have been deliberately taken to systematically address the situation faced by sub-regions with specific geographical characteristics.

7.4. Need for flexible multi-level governance arrangements

There is something of a disjuncture between policy governance and implementation at the programme level (usually NUTS2) and at the more appropriate level for the area(s) within the region with the specific geographical characteristic of being mountainous.

There are examples of flexible governance arrangements put in place by a Member State which have effectively solved such issues, which may be drawn from non-mountainous regions. For example, Bornholm is grouped with the Copenhagen metropolitan region for domestic Danish governance purposes. However, the Danish government has put in place flexible governance arrangements, allowing Bornholm effective control of the ERDF programme and its strategy.

In other cases, a Member State has put in place governance systems which gave some, but not all, of the sub-regions an effective voice. For example, in Scotland (UK), the Western Isles, Shetland Islands and Orkney Islands have their own local Islands Councils which act as effective forums for lobbying and engaging in ERDF partnerships. However, other sub-regions, such as the Inner Hebrides islands, are part of much larger council areas and hence less well placed to engage in ERDF programme planning and implementation. The same is true for the different large islands in Voreio Aigaio (Greece) and for the mountainous area within Cuenca (Spain).

It would, of course, be inappropriate to impose from above a 'one size fits all' governance or partnership system. However, there is a case for encouraging partnerships from the very start of planning for a new programme period, to carefully consider how sub-regions with distinctive geographical features are represented and how their views on an appropriate strategic approach are built into the Operational Programme.

7.5. A specific EU programme for mountain regions under the Structural Funds after 2020?

The findings presented above lead to the conclusion that establishing dedicated operational programmes targeting mountain massifs would not be appropriate. However, a framework for considering the specific development opportunities, challenges and risks of mountain regions within existing regional and national operational programmes can be envisaged. The lines of arguments that lead to these conclusions are presented below.

1) Difficulties in delineating EU mountainous regions

A meaningful delineation of mountain regions must make it possible to distinguish them from their surrounding piedmonts, and to identify mountain ranges on a map. As outlined in Section 1, this requires a delineation at the sub-regional level (i.e. below the NUTS 3 level). Creating a dedicated EU programme for mountain regions would generate a new geography of policy interventions, which could be very difficult to handle administratively and politically. A majority of European countries would need to establish an ad hoc body to administer these initiatives targeting mountain areas. The legitimacy of such a body could be challenged by existing local and regional authorities. In countries with established authorities in charge of implementing a national mountain policy (e.g. 'commissaires de massif' and 'préfets coordonnateurs de massif' in France, 'comunità montana' in Italy), the national delineation they use would not necessarily be identical to a consistent European delineation of mountain

areas. Operating with multiple parallel delineations of mountain areas would generate confusion.

Moreover, a considerable number of regions across the EU have a combination of territorial specificities i.e. islands that contain mountains or sparsely populated regions that are also partly or wholly mountainous. Such specificities, therefore, need to be taken into consideration and would make it very difficult to operationalise an effective policy instrument designed only for mountainous regions.

Additionally, as shown in section 1, many mountain massifs cross regional and national borders. Addressing opportunities and challenges at the level of the massif is therefore a matter of territorial cooperation. At the same time, the internal diversity within massifs implies that different types of actions may be required in different parts of massifs and at different spatial scales and levels of governance. In many cases, addressing identified issues requires coordinated actions involving both mountain areas and neighbouring lowlands. It may be difficult to organise such multi-level coordination which, in many cases, extends beyond the mountain area *per se* within the framework of a Structural Funds programme.

2) The importance of developing socio-economic synergies with other territories

As outlined in Chapter 3, mountainous regions vary considerably in terms of the stages of socio-economic development as well as trajectories and prospects for the future. Some mountainous regions are still predominantly agricultural; others have a rich industrial history, which in some cases has led to the presence of highly competitive manufacturing activities; many focus on service provision, typically linked to tourism. This generates different preconditions for the design and implementation of 'asset-based development' strategies.

As discussed in Section 3.2b, there is a need to develop integrated approaches to promoting socio-economic development in mountainous regions. This integration must be multi-faceted, including policy, governance and institutional alignment. It also involves territorial integration, i.e. mountainous regions need to be integrated with their respective geographic context in order to develop holistic socio-economic development strategies. A specific tool for mountainous regions would not promote such integration.

3) A 'one size fits all' approach would not be effective

No 'one size fits all' policy approach could effectively deal with every mountainous region. As discussed in Chapter 1, a variety of policy approaches have been adopted to tackle socio-economic challenges in mountainous regions across the EU. Such approaches vary in terms of development objectives, levers, amounts of funding, and divisions of roles and responsibilities between public authorities and private actors. Moreover, institutional and governance structures are not uniform in all mountainous regions across the EU. Again, this means that developing a 'one size fits all' approach would not be effective.

In this context, EU Cohesion Policy, particularly ERDF, plays an important role. A key conclusion from the ADE study (2012) is that:

"ERDF is an appropriate tool for the development of regions with specific geographical features. Moreover, rather than each of the territories requiring a specific funding instrument, the main point is that the existing ERDF framework provides the necessary funding, flexibilities and focus for effective economic development projects to be developed."

4) Using the current and new tools to maximise opportunities

As discussed in Chapter 1, the new 2014-2020 programming period provides a range of new funding instruments which mountainous regions should use to ensure greater policy integration to enhance socio-economic development trajectories.

First, the Common Strategic Framework ensures better coordination and integration of the various funds. This is particularly pertinent for a considerable number of mountainous regions where several funds operate in the same locality.

Second, the CLLD tool should be used in mountainous regions to encourage the involvement and engagement of a range of stakeholders in particular localities. Encouraging such 'bottom-up' involvement in the drafting of locally specific development strategies is crucial for mountainous regions.

Third, ITIs provide the opportunity for adjacent regions to work together to develop joint projects across administrative boundaries, which often do not coincide with territorially specificities. Again, for mountainous regions which span such administrative borders, this is an important development.

Financial instruments make it possible to invest ESIF funding through financial products such as loans, guarantees, equity and other risk-bearing mechanisms. They can, for example, be used to develop new forms of farming and forestry, promote a more diversified economy, and provide microcredit to entrepreneurs. Such initiatives can be particularly useful in mountain regions, considering the extent of identified development opportunities. A challenge to be overcome is that not all individual projects are 'bankable' in the meaning that they generate income. Reflections on how Financial Instruments could incorporate the production of public goods would help to widen their application in mountain regions.

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