

**Background analysis and documentation as basis for
the development of the Carpathian Convention
Sustainable Agriculture and
Rural Development Protocol**

Authors:

Dr. Thomas Streifeneder, Dr. Christian Hoffmann, Anna Vanin

European Academy Bolzano (EURAC Research)
Institute for Regional Development and Location Management
39100 Bozen, Drususallee 1

Revised version
Bozen/Bolzano, 9th July 2015

Contents

1. Results - Synthetic summary	5
2. Objectives of the report	6
3. Methodology.....	6
4. Introduction	7
4.1 General framework conditions for the agricultural sector as an integrative part of rural areas 7	
4.2 Agriculture and rural development in the mountainous areas of the Carpathians.....	8
5. Enabling environment: Relevant national and international socioeconomic, institutional and political framework conditions.....	13
6. Common characteristics of the Carpathian mountain areas.....	14
7. The national Carpathian mountain areas.....	18
7.1 Romania	18
7.2 Slovakia.....	19
7.3 Czech Republic.....	21
7.4 Hungary.....	22
7.5 Poland	24
7.6 Ukraine	26
7.7 Republic of Serbia	27
8. SWOT-analysis	28
8.1 Strengths and Features	28
8.2 Weaknesses, gaps and challenges.....	28
8.3 Opportunities	29
8.4 Threats and risks	30
9. Possible fields of action for closer international / transnational / transboundary cooperation ..	32
9.1 Institutional setting.....	32
9.2 Education and professional training	33

9.3 Natural capital and agrobiodiversity	33
9.4 Linking agriculture and tourism – agrotourism and rural tourism	34
9.5 Access to markets - high quality products and labeling	35
10. Experiences and good practices from the Alps.....	36
10.1 Regional knowledge networks - Learning and Innovation Network for Sustainable Agriculture (LINSA).....	37
10.2 Supporting measures and instruments.....	42
10.3 The cooperative system.....	43
10.4 Marketing agricultural products	44
10.5 Certified agrotourism and farm products	45
10.6 Social/green agriculture	46
11. Conclusion and recommendations referring to agricultural issues in the Convention text and protocols	48
11.1 Enhancing the institutional, political, governmental, economic and familiar enabling environment.....	48
11.2 Enhancing the contribution of tourism to sustainable agriculture in the Carpathians (Article 14). 49	
11.3 Developing and designing instruments (CC Art. 7.2).....	49

1. Results - Synthetic summary

The desk research based analysis on the status quo and development of agriculture and rural areas identified the following main "selling points and advantageous features" for the Carpathian Convention area:

- 1) Vast areas classified as deep rural with extensive (traditional) farming practices
- 2) Rural cultural heritage
- 3) Diversification: High potential for sustainable rural tourism and agro-tourism
- 4) Marketing: Typical products, appropriate for being processed to high quality standard
- 5) Transnational network based on the Carpathian Convention (CC and working groups activities)
- 6) Exchange with the Alpine network and relative expertise

Furthermore, EURAC detected the succeeding areas and fields of action for closer international / transnational / transboundary cooperation:

- 1) Policies: Developing and designing policies and instruments to promote and compensate good agro-environmental practices or organic farming to support extensive farming and to protect biological and landscape diversity, natural, semi-natural habitats and protected areas and enhance connectivity between these areas (in accordance with art. 4, 8, 9, 15 of the Biodiversity protocol)
- 2) Heritage: Traditional farming practices, knowledge, handicraft and practices (in accordance with art. 23 of the Biodiversity protocol): When implementing this Protocol, the Parties shall take measures for the preservation and promotion of the traditional farming practices, traditional knowledge, in particular the sustainable land-use patterns, land resource management practices, local breeds of domestic animals and cultivated plant varieties, and sustainable use of wild plants.
- 3) Creation of an enabling environment for sustainable rural tourism and agro-tourism
- 4) Introduction of a Carpathian wide booking system for touristic accommodation
- 5) Creation of trans-Carpathian label for certified agricultural high quality products and authentic rural and agro-touristic offers
- 6) Compatible monitoring and information systems
- 7) Knowledge transfer: Coordinated scientific research and exchange of information
- 8) Common programs and projects
- 9) International cooperation and knowledge exchange platform on rural areas

2. Objectives of the report

The objectives of this synthetic report are those outlined in the Small-Scale Funding Agreement between UNEP and the Institute for Regional Development of EURAC Research signed in November 2014. Hereafter, the report should serve:

- 1) according to COP4 as “[...] a background analysis and documentation that will substantiate a decision on the need to conclude a Protocol” therefore including features, gaps and needs to be the basis for the development of a first draft of the Carpathian Convention Sustainable Agriculture and Rural Development Protocol.
- 2) Furthermore, the assessment in this background document should deliver key aspects and inputs for the discussion of the related Working Group on Sustainable Agriculture and Rural Development (SARD).

3. Methodology

The approach applied in this synthetic background assessment report is generally based on a synthetic SWOT-analysis considering the agriculture and rural area related aspects mentioned in the Carpathian Convention (CC) text and relative protocols. The analysis refers to secondary data and information and is the outcome of 1) desk research, 2) a literature review and analysis of key reports in this field (SARD-M¹ report by Ruffini et al, 2008², Vasica report by Carpathian Project, 2009³, Mountain Partnership Regional Report, 2012⁴, EURAC CC Implementation report⁵, Bioregio project reports, relevant scientific articles etc.), and EURAC’s own experience as a result of the participation in various projects and meetings concerning the sustainable development of the

¹ Sustainable Agriculture and Rural Development – Mountain.

² Ruffini F. V., C. Hoffmann, T. Streifeneder and K. Renner 2008: SARD-M Report for the Carpathian Convention Member States. Assessment of Policies, Institutions and Processes, Regional Synthesis for Czech Republic, Hungary, Poland, Romania, Republic of Serbia, Slovak Republic and Ukraine. European Academy of Bolzano/Bozen, p. 63.

³ Carpathian Project (2009): VASICA - Visions And Strategies In The Carpathian Area. Protection and sustainable spatial development of the Carpathians in a Transnational Framework. Authors: Maciej Borsa, Constantin Chifelea, Harald Egerer, Zoltan Gal, Wictor Glowacki, Marian Halas, Veronika Hopfgartner, Ivan Illes, Zbigniew Niewiadomski, Pavel Ptacek, Doris Wiederwald, Vienna.

⁴ Mountain Partnership (2012): Sustainable Mountain Development in Central, Eastern and South Eastern Europe - From Rio 1992 to Rio 2012 and beyond.

⁵ Weiß, M.L., Streifeneder, T.:37, (2011): National achievements and challenges related to the implementation of the Carpathian Convention. EURAC, Bolzano.

Carpathian Region. Its long lasting expertise due to manifold scientific activities in and about the socioeconomic and agricultural development in the Alps in the framework of comprehensive monitoring activities turned out to be very helpful. Although the Alps and Carpathians are characterized by quite different framework conditions and enabling environments for agriculture and forestry-related activities, they have common features/characteristics e.g. the majority of farms are usually small-structured family farms. Thus the experiences from the Alpine realities are relevant for the Carpathian region as the presence of manifold successful activities and good practices of smallholder farming – above all the cooperative system and technical networks - may be of crucial importance for the future development of the farmers in the east of Europe.

4. Introduction

4.1 General framework conditions for the agricultural sector as an integrative part of rural areas

“The agriculture sector is becoming more technologically sophisticated, commercially oriented and globally integrated; at the same time, migration patterns and climate variability are changing the rural landscape across the developing world. These forces pose challenges and present opportunities for all agricultural producers” (FAO, 2011: 3⁶). Major challenges include the globalization of the food sector, climate change, lack of suitable financial services, insecure land tenure and lack of public support, unfavorable policies (FAO, 2014⁷), missing commercialization and market access, imperfect markets and high transaction costs (Bernard & Spielman, 2009⁸). The need of commercialization is highlighted by various programs like the FAO/Italy cooperation strategy Food Security through Commercialization of Agriculture (FSCA). Often the food chain is discriminating against farmers who get a low share of the product price. At the same time agricultural productivity in many developing countries is very low and calls for an improvement of the performance of agriculture (Abebaw & Haile, 2013⁹). Hence, increasing agricultural productivity and intensification through technical change, seasonal finance and marketing systems (Abebaw & Haile, 2013) represents a “promising strategy to achieve pro-poor growth” (Birner and Resnick,

⁶ Food and Agriculture Organization (FAO) report 2010/2011. State of food and agriculture. “Women in agriculture - Closing the gender gap for development” speaks about the “gender-gap”.

⁷ FAO (2014), Towards stronger Family Farms, Voices in the International Year of Family Farming.

⁸ Tanguy Bernard, David J. Spielman Reaching the rural poor through rural producer organizations? A study of agricultural marketing cooperatives in Ethiopia. Food Policy 34 (2009) 60–69

⁹ Abebaw, D., Haile, M. G. (2013): The impact of cooperatives on agricultural technology adoption: Empirical evidence from Ethiopia. Food Policy 38: 82-91.

2010: 1442¹⁰). Western and Asian experiences show the success in reducing rural poverty and enabling growth when small farmers are economically supported and provided with access to finance which is often the limiting factor for setting up entrepreneurial activities (ibid.).

4.2 Agriculture and rural development in the mountainous areas of the Carpathians

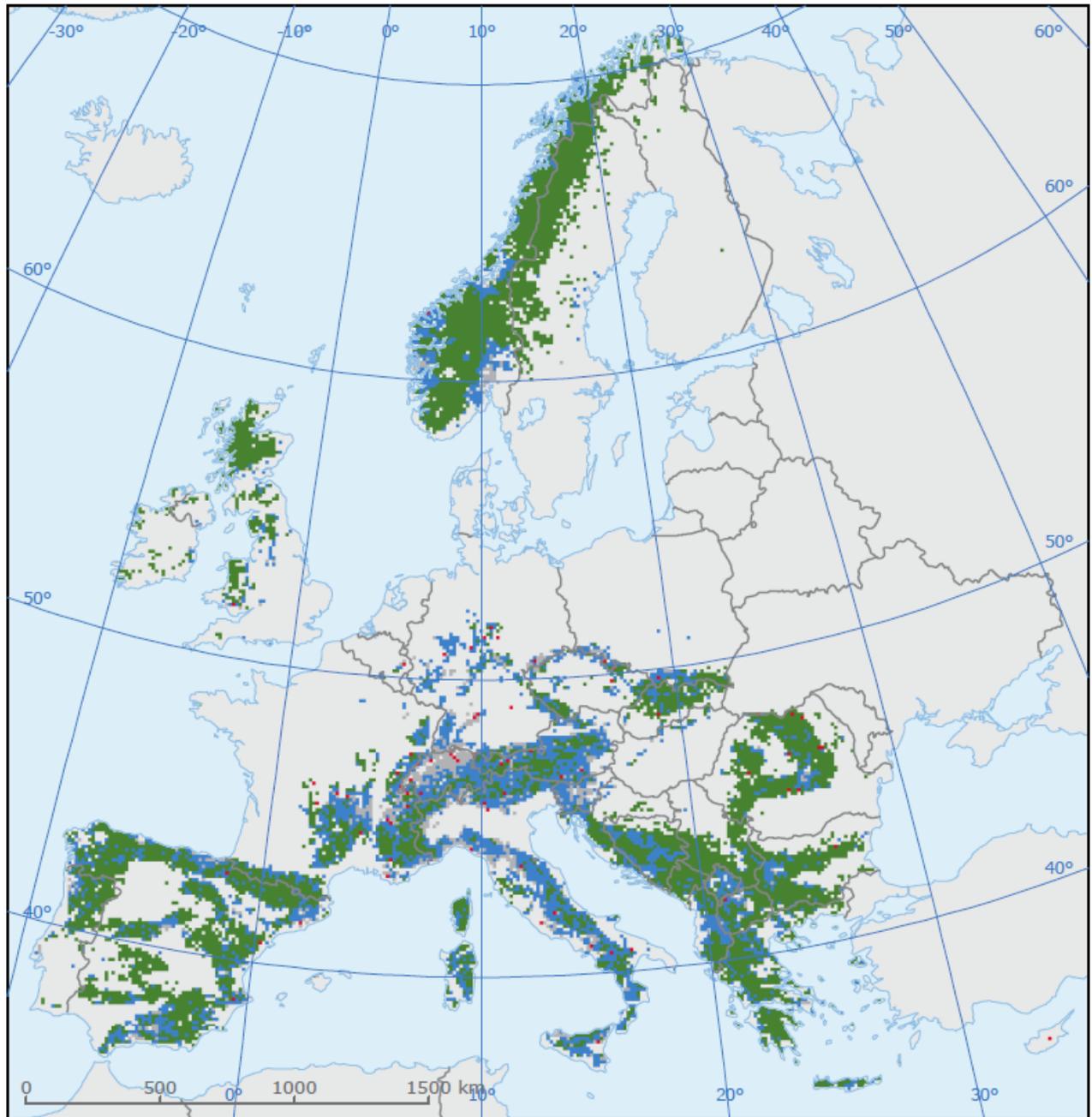
Most parts of the Carpathian mountain range can be classified as deep rural (Fig. 1). This outstanding characteristic of the Carpathians with only rare urban areas becomes optically evident, when comparing the differences to the Alps which is profoundly influenced by the surrounding urban centres. The Carpathian Macro-region is currently in a transition process.

While the new member states are influenced from different historical background, they all seek their success in accelerating the urban concentration process in small development poles or by increasing the accessibility to rural centres. For this transition process the interrelatedness between urban zones and rural areas is herein decisive. The applicability of this form of rural sustainability and its resilience towards “de-growth” is deeply tied to knowledge transfer, mobility and accessibility with urban destinations.

This idea of introducing a concept on peri-urban interrelatedness suffers particularly from a rapidly changing socio-economic context. And as a consequence the Carpathians’ remote rural villages within low populated counties are usually the losers in that process¹¹. And indeed, it’s the peripheral communities in mountain regions that face severe problems of depopulation, ageing population, lack of jobs and farm abandonment due to out-migration of skilled persons towards urban areas.

¹⁰ Birner, R., Resnick, D. (2010): The political economy of policies for smallholder agriculture. *World Development* Vol. 38, 1442-1452.

¹¹ Hoffmann C. and Ianos I. (2015): Urban and rural development published in [New S4C Research Agenda 2015-2020](http://carpathianscience.org/new-s4c-research-agenda/urban-and-rural-development/) Urban and rural development, <http://carpathianscience.org/new-s4c-research-agenda/urban-and-rural-development/>;



Distribution of FARO-EU (Foresight Analysis of Rural areas Of Europe) rural classes across Europe and mountains

Peri-urban
 Rural
 Deep rural
 Urban

Fig. 1: Distribution of FARO-EU rural classes across Europe’s mountain massifs (EEA, 2010)

Sinking product prices and decreasing public support provide additional “forage” for outmigration and farm abandonment. To strengthen the remaining subsistence or conventional farms they need to focus on a more diversified portfolio of agricultural production & services to gain a sufficient living. However, improved accessibility and communication facilities as well as the trend for

regional products open new opportunities for inter-sectorial collaboration benefiting from urban-rural interrelations. Successful examples of horizontal and vertical cooperation at different levels demonstrate that smallholder farming can survive and generate income. In this regard of key concern is the analysis of the framework conditions and enabling environment. Innovative initiatives emerged at the interfaces between agriculture and tourism, gastronomy and the health sector. Cooperative, collective and citizen-driven actions like community supported agriculture result in a higher added value along the whole regional supply chain. Social services like green care agriculture support the re-socialisation of people and provide therapeutic care taking. Finally, new business approaches such as touristic holiday packages for farm stays and a major integration of agricultural products or services like tasting sessions by farmers in accommodation facilities increase local economic benefit.

Concerning terrestrial land used in agriculture, Hungary reaches 60%, Poland 50% and Slovakia the EU-23 average of 43%. Among the Carpathian countries reported to the EU, more land is used for agriculture than for forestry in Hungary and Poland, the ratio is equal in Slovakia, whereas forestry is more extent in the Czech Republic (Bösze et al., 2014).

According to Mountain Partnership (2012¹²) “The Carpathians are characterized through agriculture and forestry, with much of the agriculture taking place on the Transylvanian Plateau, intra-montane basins and lower mountain slopes. The northern slopes are typically dominated by wheat, rye, oats and potato cultivation, while the southern slopes are sown with corn, sugar beets, grapes and tobacco. In the highlands, forestry and animal herding are the primary activities.” The FAO (2014) states that a common feature of farming culture in the Carpathians is the tradition of transhumance. Bösze et al. (2014: 26) write, that “The Carpathian landscape has largely been shaped by a long tradition of mountain agriculture and sheep farming characterized by extensive practices and natural/semi-natural vegetation. Today, these traditional occupations are in decline as a result of economic development trends and opportunities, which at the same time pose increasing pressures on the natural environment and inevitably impact agriculture land use and management, as well as the aspects of existing landscapes and biodiversity.”

Despite these common general framework conditions, challenges and agro-structural characteristics, the reality depicts generally huge differences between the single countries. This is mainly due to a complex system and interrelationships of manifold internal and external driving forces (Fig. 2).

¹² Mountain Partnership (2012): Sustainable Mountain Development in Central, Eastern and South Eastern Europe From Rio 1992 to Rio 2012 and beyond. Editor Bryan Hugill.

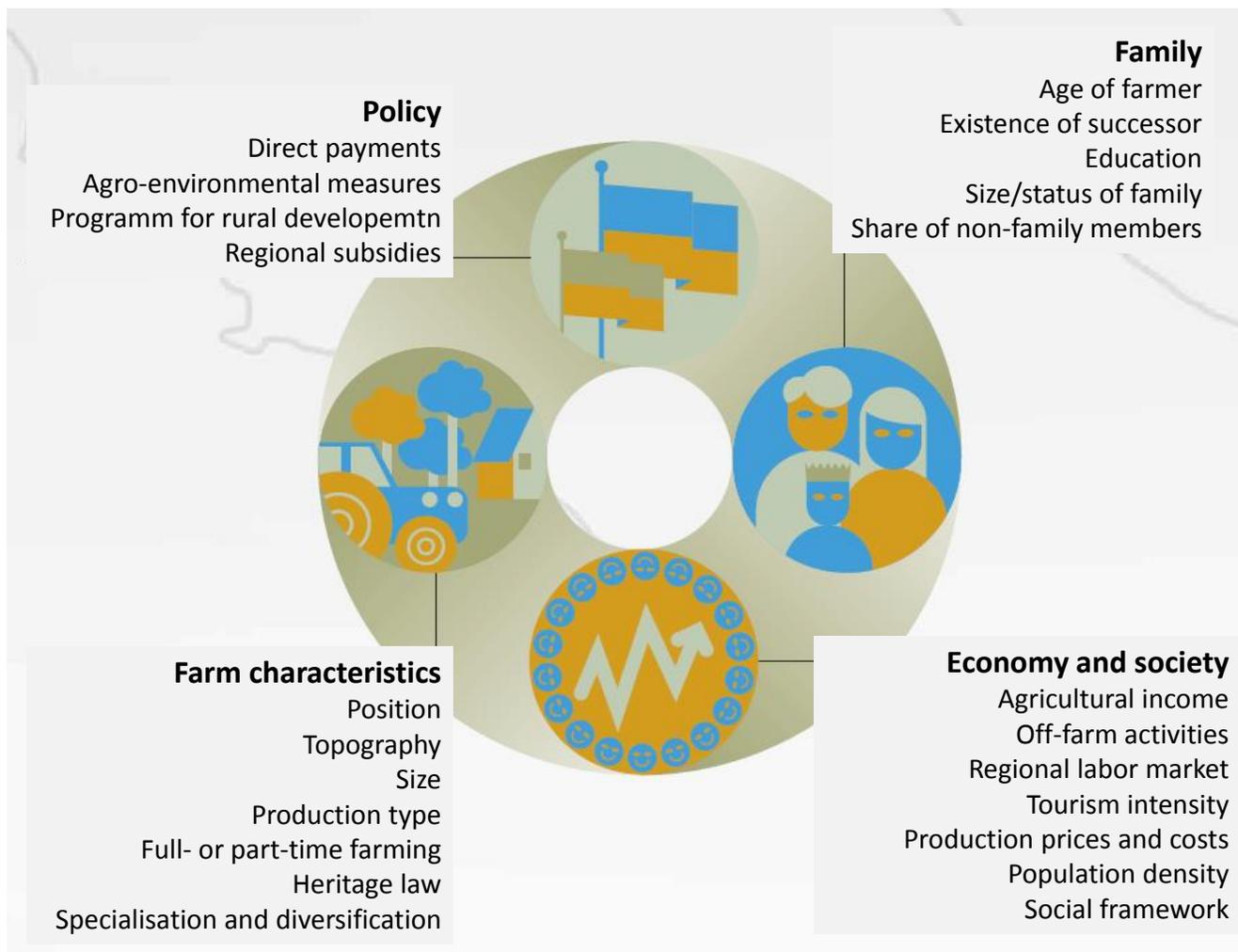


Fig. 2: Overview on the driving forces influencing agricultural development (Streifeneder et al, 2015)

Manteanu et al. (2014: 5) summarize the impacting factors on agricultural and forestry dynamics as follows (Fig. 3): “[...] *institutional and economic factors were the most important drivers of agricultural expansion and deforestation, jointly accounting for more than 75% and 65% respectively of the case studies. This class of drivers also included the technological developments that led to agricultural intensification and support forest transition, but our focus on land-cover areas did not allow to examine technological drivers in detail. In contrast, socio-demographic factors like migration or sector employment were more important for agricultural abandonment (42% of cases) and forest succession (36% of cases). Physical factors were also mentioned as drivers of change, for example climate supported forest succession on abandoned mountain*

pastures, where the timberline shifted to higher altitudes (Mihai et al., 2006¹³; Shandra et al., 2013¹⁴). Overall, abandonment of agriculture was largely driven by socio-demographic (42%) and institutional (31%) factors, with the economy playing a less important role (24%).”

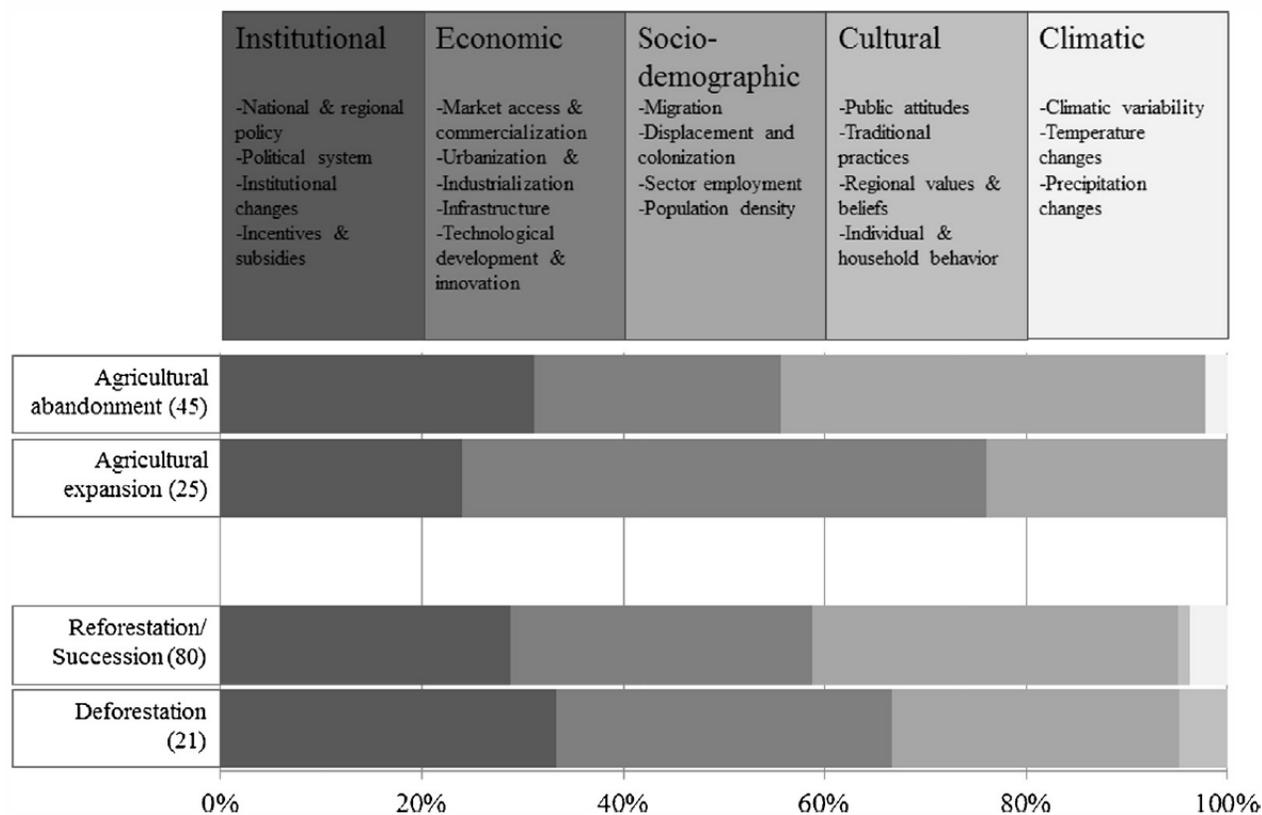


Fig. 3: Driving forces for agricultural and forestation

The Carpathian region is generally strongly affected by above average land use change dynamics (Fig. 4). Land cover changes happen in all Carpathian countries, in most cases due to land abandonment and conversion of pastures to arable land or permanent crops (Bösze et al., 2014; Kümmeler et al., 2008¹⁵). The ESPON map depicts a heterogeneous situation, but the map proves that many regions show high rates of land use changes due to extensive agricultural management approaches. However, some regions also apply intensive agricultural production processes.

¹³ Mihai, B., Savulescu, I., Sandric, I., Oprea, R., 2006. Application de la detection des changements a l'etude de la dynamique de la vegetation des Monts de Bucegi Bucegi (Carpates Méridionales Roumanie). Télédetection 6, 215–231 (in French).

¹⁴ Shandra, O., Weisberg, P., Martazinova, V., 2013. Influences of climate and land use history on forest and timberline dynamics in the Carpathian mountains during the twentieth century. In: Kozak, J., Ostapowicz, K., Bytnerowicz, A., Wy'zga, B.(Eds.), The Carpathians: Integrating Nature and Society Towards Sustainability. Springer, Berlin Heidelberg, pp. 209–223.

¹⁵ Kuemmerle, T., Hostert, P., Radeloff, V.C., derLinden, S.v. Perzanowski,K., Kruhlov, I. (2008): Cross-border Comparison of Postsocialist Farmland Abandonment in the Carpathians, Ecosystems.

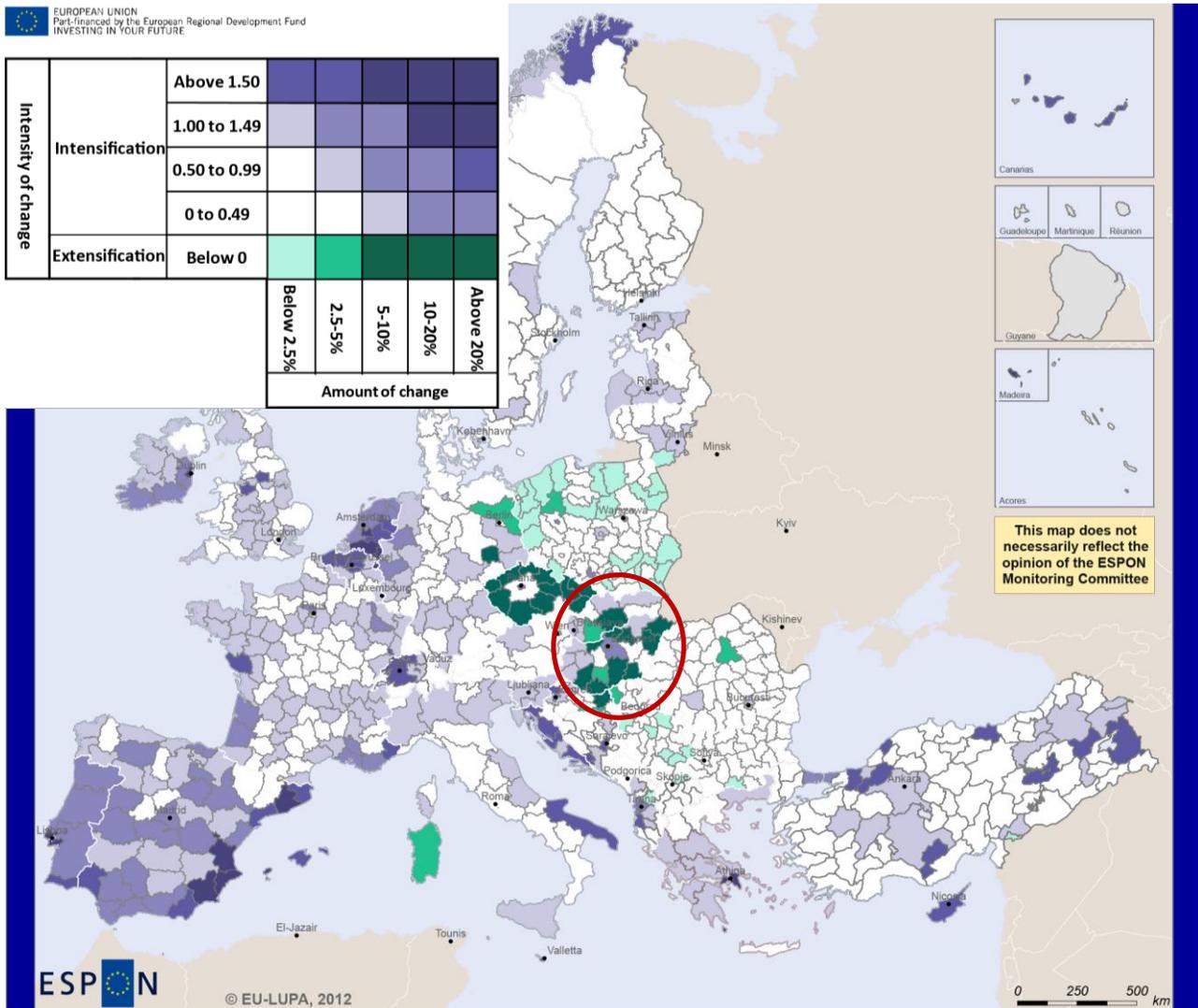


Fig. 4: Hot spots of land use change 1990-2006 (ESPON; 2015¹⁶)

5. Enabling environment: Relevant national and international socioeconomic, institutional and political framework conditions

This chapter aims at depicting the main structural differences and divergences in agriculture and rural development in the Carpathian countries. Besides the regional and international framework conditions influencing development dynamics, the national framework conditions proved to have a

¹⁶ ESPON (2015): http://www.espon.eu/main/Menu_Publications/Menu_MapsOfTheMonth/map1401.html

massive impact on the processes. Hence, the authors tried to draw a synthetic picture of the national policy and supporting strategies and measures.

6. Common characteristics of the Carpathian mountain areas

Currently, there are various proposals available for the delimitation of the Carpathian territory. Each of these study approaches followed their own strategy in delimitating the Carpathian Mountain range. The Vasica analysis considers an extended area of the Carpathian Mountains themselves, including also the fore-lands (470.000 km²) within which the regions are in mutual interrelation. This definition is based on the aggregation of administrative regions (NUTS2 and NUTS3) having a share in the Carpathian Mountains (VASICA, 2009¹⁷). A far narrow approach was derived from the 1990 “WWF’s Global 200 Eco-Region” initiative that was based on ecological and geo-morphological criteria for defining the mountainous range of (210.000 km²) of the Carpathians. And finally the seven countries of the Carpathians themselves elaborated national proposals to which extend the Carpathians are covering the state-territory. As the major difference in comparison to the “Eco-Region” is the exclusion of the Transylvanian Plateau this proposal just encompasses about 162.000 km² (Ruffini et al., 2006:80; Fig. 5).

According to Ruffini et al. (2006¹⁸) “...the process of a spatial definition of the area undertaken by the Carpathian Convention and the difficulty in defining biophysical and political ideals, as well as finding a compromise between them and socioeconomic considerations”, no final decision could currently be taken, to approve any of the proposals elaborated. Thus the approach remains flexible and according to the “thematic issue” the territorial scope of the protocols can be decided flexible case by case in accordance to the Conference of the Parties.

This is quite similar to the situation in the Alps: Despite its political approach of its delimitation, the Alpine Convention area is mostly identical with the topographic mountain area. On the contrary the Alpine Space Program area and even more the Alpine Macro-Region area are much larger, including non-alpine areas. This has mainly the following implications: It is challenging to gather mountain sharp data - for many regions, data are partial or only available at a relatively low level of spatial resolution - and to set up mountain monitoring because mountain areas don’t stop at larger

¹⁷ VASICA (2009): Visions and Strategies in the Carpathian Area. Protection and Sustainable Spatial Development of the Carpathians in a Transnational Framework. Published by The Carpathian Project under the INTERREG III B CADSES

¹⁸ Ruffini, F. V., Streifeneder T. & Eiselt B. (2006): Implementing an international mountain convention – An approach for the delimitation of the Carpathian Convention area. EURAC, Bolzano/Bozen.

administrative (provincial, regional) borders. On the other side the mountain areas do not represent an island, disconnected from its surroundings; they are heavily impacted by what is coming in from, in most cases, the urban areas (traffic, amenity migrators etc.). Hence a larger area permits to get a larger database including relevant interrelationships and allow full regional governmental participation by extending the area at stake to the consideration of full administrative areas. (VASICA, 2009¹⁷). However, this approach and the relative data-set does not permit real conclusions on mountain-related issues.

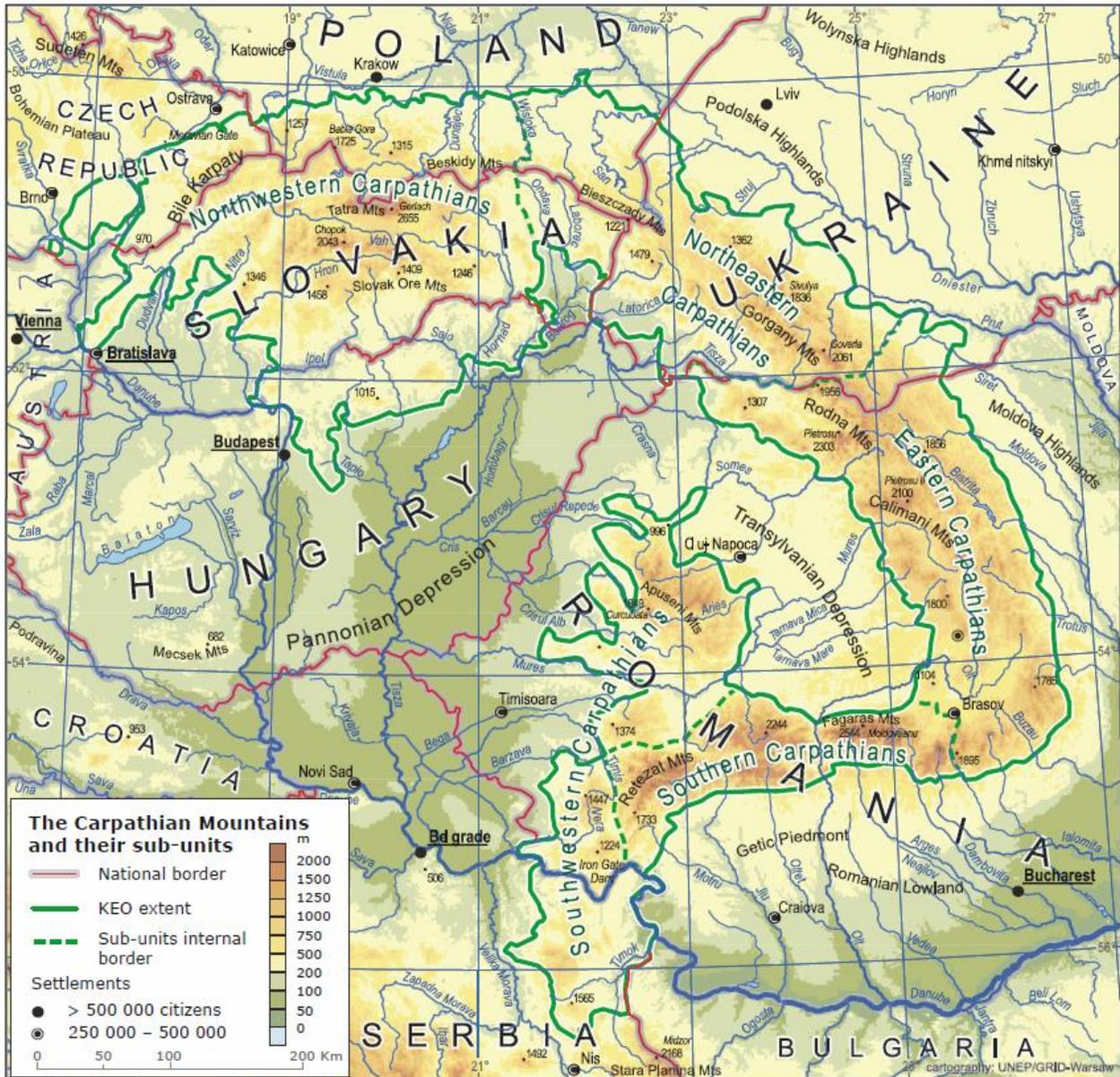


Fig. 5: The Carpathians (EEA, 2010¹⁹)

¹⁹ EEA (2010): Europe's ecological backbone: recognising the true value of our mountains. EEA Report No 6/2010.

The Carpathian Mountains are shared by seven European countries: the Czech Republic; Hungary; Poland; Romania; Slovak Republic; Ukraine. Commons factors, specific to this area, allows to consider it as a unique region - The Carpathian Macroregion (Ruffini, & Ptáček, 2009²⁰). Despite the actual delimitations involve a variegated set of biophysical conditions and political contexts, it is possible to identify a common set of features that are the basis for both weaknesses and strengths of this territory.

On the one side, mountain areas are characterized indeed by difficult accessibility, geographical isolation thus resulting in high costs for the provision of public services and long distances to travel that hinder economic activities and create precarious living conditions for the local population. Additionally, as underlined by FAO (2013: 12), mountains are also subject to political marginality: mountain legislation is still embryonic in many countries, and only a very limited range of countries adopted an integrated mountain legislation. In the majority of cases, mountain-related actions are developed within the scope of a country rural development policy or in regional plans (Weiß & Streifeneder, 2011). Hence, the existence of the CC and its protocols are of outmost relevance for a sustainable development of this area.

On the other side, as stated above, the Carpathian Mountains display unique features as compared to other mountainous areas that need to be addressed in the following SWOT analysis. Firstly, the Carpathian areas in each country are mainly covered by forested lands. Additionally (Ruffini et al., 2008: 21), wide areas of the Carpathians are classified as rural with only a few municipalities not categorized as such. As predominantly rural areas these regions face harsh conditions that have been further enhanced by the peculiar historical pattern in the Carpathians: during the communist era these mountainous area were subject to no specific legislation or planning, being considered as peripheral by the government. Improper land use, such as destructive deforestation or large-scale farming in unsuitable areas, together with the restriction of international tourism in the area, are among the major factors for the current precarious socio-economic situation in the Carpathian countries. In particular, when referring to the primary sector in these regions, the privatization processes during the 90s, resulted in the establishment of very small private farms that were lacked a proper transition to market economy, in terms of organizational models, education and training and technical infrastructure, making the primary sector, important in the Carpathians, not competitive for the market.

Another important feature in the Carpathian area is related to the income disparities between the Carpathian regions and the rest of the national territory they belong to. This is associated with

²⁰ Ruffini, F.V, Ptáček, P. (eds.) (2009): Atlas of the Carpathian Macroregion. Published by Palacky University Olomouc, Czech Republic.

increasing levels of outward migration, especially of young people, towards more developed urban areas in the country, thus causing the abandonment of fields and agricultural activities and the over-aging of resident population.

On the one hand, as stated in the VASICA Report (VASICA, 2009²¹), the CC area hosts a unique natural heritage that is home for a great variety of habitats and wildlife as well as a significant cultural heritage of rural arts&crafts and architecture. On the other hand, the Carpathian area is vulnerable due to a variety of factors including land abandonment, high unemployment and large emigration rates. Hence, a tendency to marginalization in mountain areas can be detected, depending on the fragility of ecosystems and the socio-economic structure generally found in these mountain regions.

This socio-economic structure appears to be strongly influenced by the marginal spatial position of many Carpathian regions compared with more densely populated centers. Difficult accessibility and long distances to travel result in lack and higher per capita costs of relevant public and social facilities such as schools, hospitals, etc. (Ruffini et al., 2008). These elements further exacerbate the disparities between peripheral regions of the Carpathian Region and other areas: high unemployment rates, social problems and poor level of education strongly impact the sustainability of the most peripheral regions (Tiner, 2007²²).

In general, the Carpathian area faces poor transport infrastructure and high transport costs that, combined with remoteness from national capitals, make market access particularly difficult. This clearly explains the significantly lower per-capita GDP levels in this area compared with Western European countries and also with capital cities like Vienna, Prague, Bratislava and Budapest that display a per-capita GDP higher than the EU-27 average (Ruffini, & Ptáček, 2009: 40).

Another key factor to be taken into account when considering the most critical aspects in this area is age structure. Aging of population in the Carpathian area seems to be the result of long-term patterns of rural-urban and urban-rural migration: on the one hand aging is the result of young people moving outward, on the other hand older people move inward following retirement. The age structure is therefore another key factor in understanding marginalization dynamics in the Carpathians.

Finally, it is important to take into account the impacts that the fall of communism and privatization processes had on the area, with particular reference to the agricultural sector. The general phenomenon of falling employment rates in the primary sector, that affects also Eastern European

²¹ VASICA:21 (2009)

²² Tiner T., (2007): National Assessment of Policies, Institutions and Processes for SARD in the Hungarian Carpathian Mountains in SARD-M Report:43

countries, is exacerbated by the fragmentation of agricultural properties after the breakdown of communism. As in the Alps, small-holder family farming is the backbone of the agricultural economy and it can be estimated that up to 90% of all farms in Hungary, Slovakia and Romania are smaller than 5 ha. (ibid., 2009)

7. The national Carpathian mountain areas

7.1 Romania

The impacts generated by the factors considered above, and the peculiar marginalization patterns in the area of the Carpathians, are particularly important in Romania where more than 40% of the Carpathian Mountains lie within its borders (Ruffini et al., 2008: 13). Around three out of ten people are working in the primary sector, far beyond the average in other Carpathian states.

The high rate of people employed in agriculture in Romania goes along with a high fragmentation of land tenure, following the disintegration of the Soviet bloc. Indeed, Romania, together with Poland, features the highest score of farmers owning less than 5ha in the Carpathian area, with more than a half of its arable land owned by small farmers. The sector is still characterized by a high quote of subsistence farming, non-effective land management, and economically weak farms. When considering the Carpathian area in Romania it is also important to mention the significant outward movement of people from rural areas to urban ones. The country with the highest share of people employed in agriculture, Romania is also the country accounting for the most densely populated urban area, the country's capital city Bucharest, and among the three capital cities of the area recording the highest increase of population in the 1990ies. This trend can be partly be explained by the high coverage of agricultural zones in Romania, accounting for more than 60% of the National territory (ibid. 2008: 18).

The depopulation of rural areas, particularly in the mountain regions of Caras-Severin in Romania, coupled with high unemployment rates and with the lack of foreign investment usually flowing to urban centers, furthers hampers economic development in the rural and mountainous parts of Romania.

Despite the Carpathian Mountains extend over more than a half of the Romanian territory, human resources and specific institutions especially established for the management of the Carpathians protected area system are missing. (Weiß & Streifeneder, 2011²³)

According to Tamara Mitrofanenko, consultant at UNEP Vienna, a key to the implementation of the CC and to the creation of sustainable development of the mountain communities in the long term, further investment in education is needed. Sustainable development is not considered a priority in the local community and educational activities are needed to increase awareness and foster a more active involvement of the population. (ibid. 2011: 37)

To summarize, Romania is particularly important within the scope of the CC objectives due to its vast coverage by the Carpathians mountains (more than a half of its territory) as well as to the significant impact of rural activities in the country both in terms of a wide diffusion of rural land and a high percentage of people employed in the primary sector. The vulnerability of the Carpathian area to the above mentioned social and economic marginalization could therefore generate important impacts on the rest of Romania. A more active institutional involvement, combined with actions to increase awareness concerning sustainable development, are core strategies to be addressed in the implementation process of the CC.

7.2 Slovakia

Slovakia is a typically mountainous country, holding the highest percentage of forested land 40.9%. Moreover, 50.8% of its Carpathian region is forested (Ruffini et al., 2008: 17). While sharing 20% of the whole Carpathians, the Slovak Republic is also the smallest country and as a result it is the country most influenced by the Carpathian Mountains, which cover nearly 70% of the whole Slovak Republic (ibid.: 13).

The two major urban areas – Bratislava and Kosice – as well as other secondary towns, are located at the foothills of the mountains. Except for the settlements in the south and south-eastern flat areas of Slovakia, the majority of settlements is concentrated along river valleys. (HAS, 2007²⁴)

Slovakia is among the countries displaying higher employment rates of people in the service sector rather than in the primary and secondary sector. According to EUROSTAT, while 56.7% of people are employed in the tertiary sector, only 4.4% work in the primary one, thus reflecting the general employment structure of Western European countries (Ruffini et al., 2008: 23).

²³ According to Consultant at the UNEP Vienna Regional Office for Europe, Tamara Mitrofanenko in: Weiß, M.L., Streifeneder, T.:37, (2011): National achievements and challenges related to the implementation of the Carpathian Convention. EURAC, Bolzano.

²⁴ HAS – Hungarian Academy of Sciences, Centre for Regional Studies (2007): Socio-economic Analysis of the Carpathian Area.

The low level of people employed in agriculture in Slovakia can perhaps be partly explained to the significant presence of large-scale farms: these large commercial farms (larger than 500 ha) cultivate half of the agricultural land in the Carpathian region. (REC, 2006: 69²⁵) The current situation reflects land management practices within the collectivized agricultural system in the region prior to the fall of the USSR in which upland grasslands and least accessible lands were abandoned in favor of the most productive and reachable ones. As a result, one of the main issues of concern, when implementing sustainable rural development policies in Slovakia, is to take into account the abandonment of these areas, where the degradation of mountain grasslands habitats and the overgrowth of dominant species caused and an overall loss of biodiversity in the area. In addition, poor land management also interests cultivated area in the Carpathian region: hopes for a decrease of the proportion of ploughed land – currently 60% of the rural areas of the Carpathians – by in-depth studies of agriculturally unsuitable soils and consequent afforestation of those areas (ibid.: 70). Afforestation, organic farming and the return of traditional sheep and cattle grazing to the abandoned uplands of the Carpathians are among the main issues of concern within the implementation of sustainable agriculture policies in the Carpathian region. On the other side more important obstacles are: low level of employment in the primary sector, low productivity and weak competitiveness, long-term decrease of the area of agricultural land and finally insufficient support for the development of alternative agriculture.

On the institutional level in fact, as stated by the State Nature Conservancy of Slovak, the main weaknesses are the insufficient number of staff members and limited funding available (Weiß & Streifeneder, 2011: 37). Additionally, when mentioning the insufficient support for the development of alternative agriculture in the region, reference is also made to the modest participation of local institutions and stakeholders due to low levels of environmental and legislative awareness.

Slovakia is strongly affected by the Carpathians that cover a very high percentage of its territory thus representing a very important area of intervention. The most important issues when considering the Slovak Carpathians are rather diversified: on the one side the least accessible areas, such as the uplands, face long-term abandonment, on the other side poor land management and obsolete production methods in rural area comprise agricultural productivity and cause useless soil degradation. Reinstatement of human activity on the uplands and safeguard of the land through afforestation are opposite but both very important policy objectives.

²⁵ REC – Regional environmental Center (2006): National Assessment of the policy, legislative and institutional frameworks related to the Carpathian Convention – Slovakia. Online: http://archive.rec.org/REC/Programs/EnvironmentalLaw/carpathian/pdf/sep_11_2006_vienna/slovakia_nationalassessment.pdf

When implementing these measures the low level of people employed in the primary sector as well as limited institutional support for the implementation of environmental policies will have to be taken into account.

7.3 Czech Republic

The Czech Republic is among the countries in which the Carpathians cover a minor geographical portion of the national territory, more or less 13% of national territory, and are based in a boundary area of the country (Ruffini et al., 2008: 14).

The Czech Carpathians are characterized by dispersed settlements, difficult access and poor transport system that further accentuates the marginality of the area. (REC, 2006²⁶). Additionally, the area is marginal also in terms of fewer job opportunities as compared to other parts of the country (ibid.: 15). A less productive agriculture and a long-term trend of outward migration contribute to make the area one of the poorest in the Czech Republic. This can partly be explained by the significant agricultural land in the Czech Carpathian region (more than 50%) and the country's overall employment structure that, similar to the Slovak Republic, accounts for a small 3.8% of its populations employed in the primary sector (Ruffini et al., 2008: 23).

Another factor that contributes to the vulnerability of the primary sector in Czech Republic, is the extreme farm income decline following the transition to market-led economy in the 90s that meant a significant reduction of agricultural subsidies. As a consequence, the number of people employed in agriculture shrunk by 75% since 1989. (REC, 2006²⁷). Additionally, as in the Slovak Republic, low productive and poorly managed farms further increase the efforts undergone by the primary sector.

However, contrary to the Slovak Republic local and regional NGOs working on the Carpathian region have an active role in sensitizing the population and in safeguarding traditional crops and methods of production. These NGOs also play a role in the assisting farmers and providing them with financial support (ibid., 2006: 73).

On the other side, the CC is not considered a priority on the national level, as the Carpathians cover only 13% of the national territory, while occupying its borders (Weiß & Streifeneder, 2011: 35). The establishment of a permanent secretariat of the CC as well as the institutionalization of a

²⁶ REC – Regional environmental Center (2006): National Assessment of the policy, legislative and institutional frameworks related to the Carpathian Convention – Czech Republic. Available at: http://archive.rec.org/REC/Programs/EnvironmentalLaw/carpathian/pdf/sep_11_2006_vienna/czech_national_assessment.pdf, p. 11.

²⁷ REC – Czech Republic National Assessment (2006), p. 65.

coordination group for CC implementation are advised in order to ensure support and effective practical impact of the initiative.

In a nutshell what is peculiar to the Czech Case regarding the Carpathian region is first of all its peripheral position in the country as well as its small share on the national territory. Secondly, the area faces outward migration that coupled with a massive fall in primary sector employment rates, make the Carpathian region more vulnerable. This trend is also reflected by the Old Age Index: the Carpathian displays a very high index of 91.7% and displays the highest concentration of regions with an Old Age Index between 80-100 and the littlest presence of young population (Ruffini, & Ptáček, 2009). As in the Slovak Republic, farming is characterized by low productivity and poor market competitiveness. However, a positive potential is seen in the strong role of local NGOs and stakeholders in sustaining and safeguarding local traditional farming.

Low level of productivity, loss of traditional farming methods and high abandonment levels of the primary sector are among the most important issues to be tackled in the region. In order to implement effective policies a more active national government's involvement is advised.

7.4 Hungary

Similarly to the Czech's case, the area of Hungary situated in the Carpathian region is a minor portion – slightly more than 8% - of the overall national territory (REC, 2006²⁸).

The Hungarian Carpathian territory is 59% agricultural land and, as such, it is strongly affected by high outward migration rates, as in other Carpathian countries (Ruffini et al., 2008: 18). Indeed, as in the case of Czech Republic and Slovakia, and the majority of other EU countries Hungary shows a modest employment rate in agriculture. This is mainly driven by the development of other sectors of the national economy (industry and services). Agricultural employment corresponds to 4,6% (Hungarian Central Statistical Office, 2014). Figures report that the agricultural population in Hungary has decreased since 1990 from 693 thousand to 173 thousands in 2010. However this trend has reversed and in 2014 about 190 thousand people were employed in agriculture, 9,7% more than in 2010. In Northern Hungary, the region where the Carpathians are situated, there has been a 1.6 decrease in population since 1990 (REC, 2006²⁹). The better employment opportunities and higher wages in the urban area in Hungary act as incentives for the youth to not choose a rural lifestyle.

²⁸ REC – Regional environmental Center (2006): National Assessment of the policy, legislative and institutional frameworks related to the Carpathian Convention – Hungary. Available at: http://archive.rec.org/REC/Programs/EnvironmentalLaw/carpathian/pdf/sep_11_2006_vienna/hungary_nationalassessment.pdf, p. 5.

²⁹ REC – Hungary National Assessment (2006), p. 49.

However a positive structural change can be observed in the Hungarian agriculture in the last years. There is an increasing number of viable small/medium sized farms producing mainly for marketing which can provide a reasonable living for the farmer family and their employees. According to the 2013 Farm Structure Survey, about 483 thousand private holdings and 8,8 thousand enterprises operated in the agricultural sector. The number of private farms decreased by 15%, while that of enterprises decreased by 6% since 2010. However, mainly the small farms (with an area less than 1 ha) have gone out of business, and their owners were often old and did not have agricultural education. In contrast the number of farms producing mainly for marketing has increased by about 49% in the same period. Moreover, the number of farms with an area between 10 and 500 hectares has also increased.

Another element characterizing agriculture is the dramatic change of land ownership structure after the fall of the Soviet Bloc: from an agricultural sector dominated by state farms and cooperatives, with a minor presence of 7% private farms, to a 88,9% dominance of private small-scale farms consisting of between 1-10 ha. As a result of the fragmentation following privatization, 46,7% of the individual farmers are subsistence farmers who are consuming almost their total production by their own and do not sell any production to the market (Hungarian Central Statistical Office 2013) (Wiesinger G., Dax T., 2008³⁰).

As land ownership changed, and the national economy developed and new sectors emerged and grew also the percentage of Hungary's GDP from agriculture as well as the employment rate in the first sector, have both decreased since 1990. (REC, 2006: 49³¹). The number of people employed in agriculture dropped from 11,9% to 4,6 between 1991 and 2014, whereas if the people employed in the food industry are also taken into consideration then the decrease is from 796 000 to 333 000 people working in the food sector in the same period. However it should be noted that the employment in agriculture and food industry increased by 9.7% and 17.2% respectively between 2010 and 2014.

These changes in land use structure will obviously be reflected in the Carpathian region of Hungary, which is predominantly rural.

³⁰ Wiesinger G., Dax T. (2008): RUDI – Assessing the impact of Rural development Policies, Country profile on rural characteristics, Hungary. Available at: http://www.rudi-europe.net/uploads/media/Hungary_WP1_Report.pdf, p. 15.

³¹ REC – Hungary National Assessment (2006)

On the institutional level, a positive and very active role within the civil society can be traced: civil society and NGOs are probably the main driving force locally, nationally and regionally, especially when sustainable agriculture and biodiversity conservation are concerned (ibid.).

Since 2010 the Ministry of Agriculture (earlier: Ministry of Rural Development) is responsible for the environmental issues as well, which fact increases the efficiency, enhances the coordination, the cooperation and eases the communication among the different policy domains.

To summarize, the Rural Carpathian region in Hungary, together with other rural parts of the country, suffer from the negative effects following high land ownership fragmentation and high depopulation rates in the aftermath of the disintegration of the Soviet bloc. However, in recent years due to the significant amount of subsidies coming in the sector as well as other policy measures agricultural investments grew, consequently the competitiveness of the sector developed considerably. Similarly positive trends can be observed in the employment of the food sector. When taking into consideration just the Carpathian area, another issue to be taken into account in the implementation of the Convention in Hungary is the decreasing national contributions to CC-related activities, presumably due to the limited extension of the Carpathian region in the country (Weiß & Streifeneder, 2011: 36).

7.5 Poland

The Polish Carpathians cover a minor portion - nearly 6% (5.48%) of the area of the country (REC, 2006: 4³²). According to the official data from the Central Statistical Office, the Polish Carpathians are characterized by a 48% presence of agricultural land (9,728 km²). The Carpathian region alone gives 4.55 % of national GVA in the sector of agriculture, hunting, forestry and fishery (ibid.: 52).

According to Eurostat figures in 2003 the percentage of people employed in agriculture in the Polish Carpathian region was 12.3%, classifying Poland at the third place among Carpathian countries primary sector's employment rates, following Romania and Ukraine (Ruffini, & Ptáček, 2009). However, for the majority of farm owners in Poland agricultural activities are not the main source of income for the household. As in other Carpathian countries, young people tend to migrate to cities or abroad (Skroka et al., 2014:57³³).

After 1989 the majority of farms in the Carpathian area are private and very small(< 4,99ha), especially when compared to a national average farm size of 10,22 ha (Central Statistical Office,

³² REC – Regional environmental Center (2006): National Assessment of the policy, legislative and institutional frameworks related to the Carpathian Convention – Poland. Available at: http://archive.rec.org/REC/Programs/EnvironmentalLaw/carpathian/pdf/sep_11_2006_vienna/poland_nationalassessment.pdf

³³ Skroka, W and Paluch L. (2014): The Level of Economic Development of Rural District in the Malopolskie Voivodeshio vs. the intensity of disagrarisation processes. Problems of Small Agricultural Holdings, No 4:57.

2013). Moreover compared to the national average (currently around 50%)³⁴ the Carpathian Region is characterized by a high number of farms not producing for the market: for example, when considering the western Carpathians, the *Malopolskie Województwo*, only 14.8% of the farms were producing for market use, while the other were producing only or mainly for individual use. Similar figures apply to the Eastern Carpathians too (REC, 2006: 52).

A major issue of concern at the institutional level when for the successful implementation of the CC, is that the institutional, legal and political framework is dependent on administrative divisions, the *Województwo* regions. A common regional mountain policy lacks between the three *Województwo* regions of the Polish Carpathians: differentiated responsibilities in the field of implementation of the Convention among the different administrative levels and units, as well as the lack of regional systems of information and monitoring, could hinder an effective implementation of the CC (ibid.: 12).

Most important among the circumstances is that there is no regional mountain policy in Poland. The whole institutional, legal and political set up is strongly tied to the administrative division at voivodeship level. Thus, in fact, we have three Carpathian regions in the Polish Carpathians, within the borders of each of the voivodeships (ibid.: 121).

Other social aspects must be considered, such as the local Carpathian communities' lack of interest (or often opposition) to sustainable development. In face of unstable or hard economic conditions, the local community is often not keen on focusing on long-term perspectives, such as the one involved in the idea of sustainable development. Investment that could more easily increase the community's present levels of income are more welcomed than regulations that could limit land use at the expense of present advantages (ibid.: 123).

To summarize, the implementation of the CC in the Polish Carpathians needs to take into account the low productivity of the region's farms on the one side, and on the other side it requires the support of projects sensitizing the population to the importance of long-term sustainable objectives at the local level. The main obstacle in the Polish case is again the lack of a common national legislation of the establishment of an institutional body monitoring the Carpathian area. Although, regional governments provided specific policies for sustainable development issues in the area, often financed by EU Regional funds, the scope of their actions is limited to their administrative boundaries. A coherent regional pan-Carpathian country is thus a necessary criterion for the implementation of the Convention (Ruffini et al., 2008)

³⁴ The Economist (2014). A Golden Age for Polish Farming? Eastern Approaches. Available at <http://www.economist.com/blogs/easternapproaches/2014/03/polands-agriculture>

7.6 Ukraine

The Ukrainian Carpathians make up 10.3% of the general territory of the Carpathian Mountains. The Carpathian region (the mountains together with the sub-mountain region and the Transcarpathian lowlands, which are part of the Carpathian region in terms of natural, economic, cultural and social characteristics) occupies 37,000 km². This represents 6.1 % of the territory of Ukraine (REC, 2006: 4³⁵).

Agricultural lands in Ukraine occupy 42.3 million ha, which represents 70.1% of the Land Fund of Ukraine, including 32.5 million ha of arable lands or 53.9% of the total area.

The area of agricultural lands in four administrative regions of the Carpathian region makes up 50.0 % of the territory of these administrative regions. The total share of the four administrative regions of the Carpathian region (Zakarpatska, Lvivska, Ivano-Frankivska and Chernivetska oblast) is 10.8% of the total volume of agricultural production in Ukraine (ibid.: 76).

Ukraine has been profoundly influenced by the conversion of farms to private ownership in the aftermath of the collapse of the Soviet Bloc: although in 2004 still nearly half of farms were state-led, private farming accounted for 90% of the total agricultural production in Ukraine. However, these businesses are not competitive due to their small size, technical low progress and lack of modern organization (ibid.: 88).

Additionally to a poor competitiveness, a lack of budget funding for rural areas and agricultural production, as well as absence of any reform in villages, enhances criticalities in the area. As a result, confirming the trends of other Carpathian countries, rural areas offer low living standards, unemployment and consequently a decrease in the birth rate in rural areas and youth emigration dynamics in favor of more developed area, such as urban ones (ibid.: 90).

On the governmental level a lack of cooperation among the various ministries is detected: the Ministry of Environmental protection, who is the main authority for the implementation of the Convention in Ukraine, does not have access to all the information from other authorities and opportunities for cooperation within ministries is also poor. Some exponents stated that the Convention is not considered a priority for other authorities. As a consequence, insufficient funding is provided to research and monitoring activities useful to the implementation and functioning of regulations. Other big, fundamental problems are the insufficient enforcement of and compliance with environmental legislation, and insufficient funding for the implementation of the important legislation in the field.

³⁵ REC – Regional environmental Center (2006): National Assessment of the policy, legislative and institutional frameworks related to the Carpathian Convention – Ukraine. Available at: http://archive.rec.org/REC/Programs/EnvironmentalLaw/carpathian/pdf/sep_11_2006_vienna/ukraine_nationalassessment.pdf

A last significant obstacle, refers to the low levels of compliance with laws in Ukraine: Ukraine shows little participation and poor control measures over the implementation of international standards and in general a low interest in the adoption of environmental measures, especially when economic interests are involved (ibid.: 200f).

7.7 Republic of Serbia

The Carpathian Mountains cover a very small portion of the total national area that equals 0.35% (or 73,235 km²). (REC, 2006³⁶). According to Ruffini et al. (2008: 17), 40% of the Carpathian region in Serbia are forests, while agriculture accounts for only 17.2% of land use in the area (REC, 2006: 61). Similar to contexts in other Carpathian countries, agricultural land ownership is characterized by small size farms (with an average area of 0.4 ha, ibid.: 62) that produce mainly for self-subsistence rather than for the market, and are generally characterized by obsolete infrastructure, poor storage facilities requiring modernization processes to increase productivity and competitiveness.

The Serbian Carpathian area displays the highest values in the Old Age Index (Ruffini, & Ptáček, 2009) thus suggesting particularly significant rural-urban migration patterns generating noteworthy impacts of depopulation and aging on the Serbian Carpathian region. Accordingly, Eurostat 2003 figures (ibid.), displayed a small portion of people employed in the first sector, in favor of higher employment rates in the secondary and especially tertiary sector. Although these data are not up to date, presumably the trend is still valid, thus aligning to the employment structure common in the majority of the other Carpathian countries.

At the institutional level, a lack of coordination between the various ministries involved in the implementation of sustainable development policies in the area is detected. Inter-sectoral coordination bodies are missing the Ministry of Agriculture, Forestry and Water Management and other ministries so that they have to refer to the Government of Serbia as a common connection (ibid.: 64). Additionally, the Republic of Serbia does not have a unique policy for mountain areas, nor rural areas in mountain regions (Ruffini et al., 2008: 38). That can prove as an element of weakness in the implementation of the CC, characterized by a multi-sectorial scope of activities.

³⁶ REC – Regional environmental Center: 3 (2006). National Assessment of the policy, legislative and institutional frameworks related to the Carpathian Convention – Serbia. Available at: http://archive.rec.org/REC/Programs/EnvironmentalLaw/carpathian/pdf/sep_11_2006_vienna/serbia_national_assessment.pdf

8. SWOT-analysis

Mountain Partnership (2012) states that "...the sustainability and reach/impact of agriculture in the region hindered by several challenges, including economic transition, changes in land ownership and ongoing privatization, land abandonment, low productivity and income of agriculture, poverty and marginalization of population, lack of technology and state funding, gaps in or, in some countries, absence of appropriate agricultural policy and legislation, poor land management leading to excessive soil erosion, etc. (CEI, 2001; UNEP-Vienna ISCC, 2006). These issues are being addressed through the implementation of the 2003 Framework Convention on the Protection and Sustainable Development of the Carpathians, as discussed below." The following analysis on Carpathian countries' main socio-economic aspects provided an insight into the main criticalities of the area. These criticalities are due to both mountain-specific features as well as to contextual elements that are referred to the Carpathian area itself. The following sections summarize the results stated in the background reports cited at the beginning.

8.1 Strengths and Features

- 1) Existence of specific and still widely distributed cultural and agricultural features such as:
 - a. traditional farming practices;
 - b. extensive, organic and semi-natural farming operations
 - c. old rural architecture and different rural arts and crafts
 - d. Traditional, authentic products

- 2) High attraction level due to:
 - a. Vast areas classified as deep rural
 - b. Uncontaminated nature and much High Nature Value (HNV) areas rich in unique biodiversity and natural attractions
 - c. Low touristic intensity and seldom conflicts with carrying capacities

8.2 Weaknesses, gaps and challenges

- 1) Vast areas threatened by land abandonment and land use change and heterogenous pattern of reforestation and deforestation, with associated soil erosion being severe in some locations,

- 2) In some areas poor land management leading to excessive soil erosion
- 3) Long-term high emigration, especially youth outward emigration to more developed urban areas or abroad
- 4) Remoteness of many rural areas from urban areas and national capitals and high transport costs result in very difficult access to more developed markets
- 5) Changes in land ownership
- 6) Ongoing privatization and related negative land use changes
- 7) No Carpathian-wide labelling of quality products
- 8) High fragmentation land ownership and small-structure of farms
- 9) Low productivity and income of agriculture
- 10) Use of EU funds dedicated for rural and mountain areas to bridge the lack of state funding
- 11) Low tourism intensity
- 12) Lack of technology and low competitiveness of farms due to lack of capital and know-how, old infrastructure
- 13) Low levels of institutional and civil society awareness in regards of rural development and sustainability issues
- 14) Lack of co-ordination among the ministries in charge of implementing the CC, strong administrative sectorization in governmental institutions
- 15) Overall economic and structural problems
- 16) Environmental security, particularly related to climate change, including floods, landslides, windstorms and drought, coupled with unregulated hunting and overgrazing

8.3 Opportunities

- 1) Reservoir of educated, skilled and relatively cheap young European labor force.

- 2) High potential for tourism due to high natural attractions and rural life
- 3) Development of genuine high quality products
- 4) Geo-strategic importance of the Carpathian region due to the presence of oil and natural gas pipelines could bring foreign investment in the region
- 5) Introduction of a Carpathian-wide label for agricultural products and certified rural or agro-touristic accommodations
- 6) Abandonment of farming activities and utilized agricultural areas makes the areas even more natural finished and thus appealing for certain tourist searching these areas and loneliness.
- 7) Not utilized potential of cooperative systems due to historic reasons
- 8) The mostly present small-structured agriculture creates diversified landscape patterns, which is supporting the connectivity and ecological corridors.
- 9) In none of the Carpathian countries agriculture was announced to have a meaningful impact to ecological connectivity. In Romania this seems to be different. The maintenance of the typical patterns of agriculture in the foothills of the Carpathians in south Romania is causing land use conflicts.

8.4 Threats and risks

- 1) Abandonment of farming activity due to lacking successors and over-aged farmers and thus loss of vitality and life quality in rural regions
- 2) Continuous rural depopulation, especially in terms of youth emigration, generates negative economic impacts on the future of farming practices in the region, on the loss of traditional farming practices and the quality of life in rural areas
- 3) Land abandonment can become an obstacle for some species adapted to agriculturally cultivated landscape structures, when the fields are gradually changing to forested structures. Furthermore, the extension of agriculture or forestry activities can negatively affect ecological connectivity.
- 4) Natural reforestation and abandonment of utilized agricultural areas will cause a loss of High Nature Value areas and biodiversity due to increasing forestry areas

- 5) A loss of biodiversity results due to increasing abandonment of utilized agricultural areas. *“Agriculture and biodiversity are closely interlinked and in fact, interdependent. Biodiversity, through functional ecosystems, can provide essential services for agriculture, such as pollination, pest control, etc., whereas by adopting nature-friendly practices, agriculture can help maintain valuable habitats such as grasslands and mosaic landscapes. Although nowadays agriculture is associated mainly with its role in food production, it also has a very important function in maintaining biodiversity and delivering ecosystem services, both as a result of responsible land management”* (Bösze et al., 2014: 26³⁷). According to Bösze et al., 2014: 31), the loss of farmland biodiversity is a result of 1) Land-use changes (e.g. conversion of natural and semi-natural land to agricultural land or urbanisation); 2) Intensification (e.g. application of intensive farming practices such as monoculture with high chemical, input); 3) Abandonment of farmland (e.g. farmers moving from the countryside to urban areas and leaving the land behind with no further cultivation) and 4) Climate change (e.g. extremely high rainfall within an unusually short period, extreme weather changes).
- 6) Not utilized potential of cooperative systems due to historic reasons
- 7) Continuous lack of public funding
- 8) External investments and land acquisition from external investors
- 9) Environmental hazards caused by Climate Change and unsatisfactory prevention measures:
High levels of soil erosion, overgrazing, deforestation
- 10) Large industrial holdings buy or rent thousands of hectares of grassland in marginal and less favored areas to benefit from CAP subsidies and hence contribute to the destruction of traditional farming structures

³⁷ Bösze, Szilvia and Meyer, Hildegard. Editors (2014): Regional Development Opportunities of Protected Areas and Natural Assets in the Carpathians. Work Package 4. Integrated Management of Biological and Landscape Diversity for Sustainable Regional Development and Ecological Connectivity in the Carpathians. WWF Danube-Carpathian Programme, Vienna, Austria.

9. Possible fields of action for closer international / transnational / transboundary cooperation

The major challenges to be tackled in the Carpathian area need to start from the specific vulnerabilities in the area. As clarified in the previous sections, the Carpathian countries are characterised by a peculiar rural development pattern. When considering rural areas, such as the Carpathian regions in the seven Carpathian countries analysed, the following features have to be addressed: the fragmentation of land ownership due to the transition from planned to free-market economies, the income disparities between rural and non-rural areas of these countries, the lack of employment opportunities as well as high education and training in rural areas.

9.1 Institutional setting

A third field of action concerns the institutional level: as reported above, the institutional setting that is in charge of the implementation and monitoring of the CC lacks cooperation and coordination:

- promotion of coordination among governmental bodies (both at the national and regional level) in favour of a multi-disciplinary approach *in lieu of* poor cooperation and overlapping competences between ministries and between regional administrations
- promotion of participatory processes and open communication with local and regional stakeholders to raise awareness and foster responsiveness and involvement in local communities and civil society. Education and training that can improve the understanding of organic farming, implement eco-tourism infrastructure or develop rural skills are fundamental in countries where short-term benefit from economic activities are in serious conflict with long-term sustainable objectives.

One last element to be taken into consideration is that (p.112 perspective) most of the Carpathian countries do not have specific mountain legislation that protects mountains as such. This could be one of the main reasons to explain the insufficient funding for Carpathian areas. Targeted funding and policies are necessary to address the specific features of these mountainous region and address the marginality they face in terms of economic development and harsh living conditions. Trained public administration staff, funding for the equipment of NGOs for monitoring activities is necessary.

9.2 Education and professional training

As farmers in rural areas are sometimes less experienced with legal restrictions and bureaucratic procedures, it is highly recommended to install an advisory-service center to throw lights on policy measures and legal restrictions to enable those remote located farmers at least the possibility to access public funds to reimburse for example the created damages by wild animals. According to SARD-M report, in order to tackle these challenges the following set of actions ought to be implemented:

- provision of extension/advisory services and rural innovation support centres *in situ*;
- enforcement of product processing and marketing strategies for high quality goods (i.e. denomination of geographic origin; support for sale to international markets)
- financial support of small-scale farmers and local processing companies as well as promotion of economic diversification off-farm
- promotion of a balanced regional policy through the stimulation of inflow of capital and FDI, provision of better public services and infrastructure (i.e ICT and transport)

9.3 Natural capital and agrobiodiversity

A second set of actions to be taken in the Carpathian area deals with the safeguard of natural capital in the region and the implementation of environmentally friendly policies. The region unique presence of rich biodiversity, traditional farming practices and HNV areas is at the same time essential for the sustainability of the region as well as an economic potential for tourism development. Again, according to SARD-M Report, future actions include:

- implementation of environmentally friendly practices such as extensive land and forest management adapted to its location and reintroduction of missing species supported by training and professional education
- implementation of multifunctional agriculture, reduction in the use of fertilisers, financial and training services to organically produced goods
- promote tourism in connection with traditional farming practices, Carpathian cultural heritage and rural landscape
- Transhumance farming: Supporting the Foundation of Transhumance Pastoralism which organizes sheep migration which has become a tourist attraction.

9.4 Linking agriculture and tourism – agrotourism and rural tourism

FAO (2014): Good-quality accommodation linked to local tradition and culture is essential. Collective action is needed to bring together tourist information centers, local farming and food production to meet tourist demand, region specific tourist portfolio with innovative offers such as wine tourism or active tourism for seniors and families. Therefore, the creation and fostering of tourist information and of a booking system are goal oriented strategies. Already existing initiatives such as *Pro Carpathian*, which introduces the Green Tourism Certification Scheme should be supported and extended.

There are various ways in which agriculture and other sectors can benefit from each other, enhance regional partnerships and increase regional value added. For example, there are synergies at the interface of agriculture and tourism (Fig. 6). Farmers benefit from the touristic presence as it offers new job opportunities due to the demand for infrastructure facilities and services. Cooperation of agriculture and tourism can affect or involve also non-touristic branches like architecture, care taking, wholesale or crafts. At the same time, however, it is also possible for conflicts to arise if agricultural activities result in noise, smell or health related disturbances; or from the farmer's point of view due to rising land prices or the consumption of agricultural land.

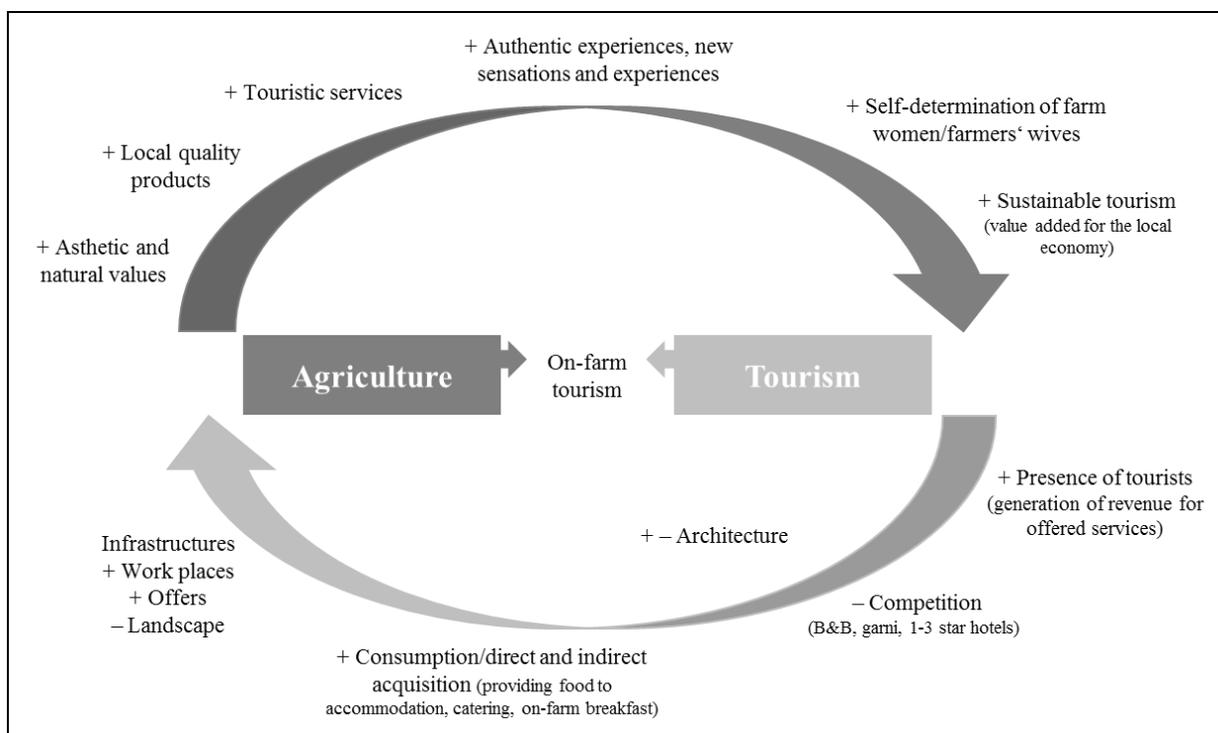


Fig. 6: Positive and negative interaction of potential agro-touristic synergies (Streifeneder, 2014³⁸)

Widespread are also regional food logistics systems between farmers and accommodations as well as between farmers, wholesale traders and accommodations (EC DG AGRI, 2012). Various local food systems have emerged which offer farmers alternative sales channels and respond to the increasing consumer demand for regional products (EC DG AGRI, 2012; WARSCHUN et al., 2013). Looking at the literature and good practice examples, regional value added cooperation schemes are largely promoted as a leverage for regional development (RKW Kompetenzzentrum, 2009; EC DG AGRI, 2012). It remains scientifically disputable, though, whether the aspired multiplier effects and benefits of closed regional economic cycles can be realized and empirically proven (Kullmann, 2004; Fernández Sánchez, 2009).

9.5 Access to markets - high quality products and labeling

The development of an Alpine-wide label for agricultural quality products based on raw material from, produced and processed in classified mountain areas or on alpine pastures is still lacking. This is mainly due to the power of the milk industry, lobby groups or respectively large milk enterprises and cooperatives. Due to the good quality image of mountain and Alpine products

³⁸ Streifeneder, T. (2014): Landwirtschaft und Tourismus – Synergien nutzen!, In: Bäuerliche Familienbetriebe Heute und morgen in Europa, im Alpenraum und in Südtirol, p. 28f.

associated with farming in uncontaminated environment and healthy raw materials, a huge amount of conventional dairy products are sold as declared Alpine or mountain milk or yoghurt but which effectively are not or/and if only partially produced in Alpine or mountain areas. Hence, with the introduction of a certified label based on strict criteria regarding the origin of the raw products and the place of its processing, these products will not be any more marketable and promotable with the image of mountains and the Alps. This would probably cause negative impacts for marketing milk. The situation in the Carpathians may be different. If one googles images for Carpathian and Alpine milk, the results are totally different: conventional dairy products sold with the Alpine/mountain image on the one side and traditional milk making scenes on the other side. This reflects the divergent framework conditions and chances for the introduction of an international mountain label. Based on the traditional and authentic image of extensive and semi-natural farming practices, such a Carpathian label based on clear criteria (an example is the Swiss law on mountain and Alpine pasture products, Fig. 7; see also box below) could be a convincing marketing instrument and would contribute to the maintenance of the actual farms. Other examples in this context are the quality labels for products generated in protected areas and biosphere parks.



Fig. 7: Swiss mountain labels

10. Experiences and good practices from the Alps

The following sections report selected experiences and good practices from the Alps. They should serve as practical showcases on what has turned out to be successful in different Alpine regions. It is clear that these examples depend on certain framework conditions. Hence, it is obvious that they are not easily transferrable to other regions. However, they may figure as interesting hints of what could be done or improved in the Carpathians.

10.1 Regional knowledge networks - Learning and Innovation Network for Sustainable Agriculture (LINSA)

The exchange between regional institutions and the creation of networks play a crucial role for enhancing competitiveness and generating regional value added. A systemic lever for regional development is linked to communication in networks and the development of specialized knowledge. Regional cooperation can represent important company information networks to individuals or institutions in the region, the widely available via the communication structures beyond. Together, all these regional initiatives and networks is the broad participation of all regional operators - producers, processors, distributors and retailers to customers - along the value chain of one or more products as well as other regional actors from politics, administration and society.

In Northern Italy's Autonomous Province of Bolzano-South Tyrol a considerable institutional framework has been established over the past years that allows farmers to benefit from a varied expert knowledge in the agriculture, forestry and food research, marketing and production branches. This can help farmers to grow and position their products and communicate information on the value added of the product (provenance, identity, cultural integrity) (EC DG AGRI, 2012). Despite very small structured family owned farms with an average of 2-3 ha, the region has become the biggest single area producing apple in Europe³⁹. This agro-industrial apple production has been able to flourish and has consistently responded to market demands and competition in the European and global markets because all stakeholders of this sector are well connected.

A FAO-study (Meyer, 2014: viii⁴⁰) on that issue describes the development as follows: *“Since the end of the Second World War and continuing, the various stakeholders involved in apple production and marketing have organized themselves in an efficient and effective Learning and Innovation Network for Sustainable Agriculture (LINSA). LINSA is any knowledge network that exchanges or develops new knowledge or works on innovations. It is a highly sophisticated and adaptive network involving producers, their cooperatives and associations; research; agricultural advisory services; and other public and private actors, all collaborating in a network of linkages that functions due to the high level of understanding and co-operation amongst all stakeholders (Tab. 1).*

³⁹ The 19 000 ha of apple production area in South Tyrol supplies up to 50% of the national Italian apple market, 15% of the European and 2% of the global apple market.

⁴⁰ Meyer, J. (ed.; 2014): APPLE-PRODUCING FAMILY FARMS IN SOUTH TYROL: AN AGRICULTURE INNOVATION CASE STUDYOCCASIONAL PAPERS ON INNOVATION IN FAMILY FARMING, FAO, Rome.

The most important components of the LINSAs are the apple producer cooperatives and their strict adherence to the basic principles of self-help, self-administration, self-responsibility and member's promotion, as defined by Friedrich Wilhelm Raiffeisen. The other factors that influenced the nature of this system are many. Historically, socially and culturally, the nature of the province and of its inhabitants fostered the creation of a geographical cluster where people and institutions had to co-evolve and innovate to survive and thrive. In recent decades, the province has had a stable political landscape with a strong pro-agriculture policy that complemented national government policies and the Common Agriculture Policy of the European Union, providing a good enabling environment for innovation. Economically, the diversification of income of the 8 000 family farms belonging to this LINSAs contributed to the resilience of this innovation system.

The network's development was influenced by formal and informal mechanisms with a strong social learning component. Formal mechanisms can be found at policy, institutional and individual levels. Social learning aspects permeate the system. Learning in South Tyrol is linked to an outside and inside dynamic, both at individual and at collective level. The social capital created in this geographical cluster allows the development of the system by absorbing existing knowledge from others and creating knowledge. The Agriculture Knowledge System accompanied and supported the LINSAs. The research and extension system as well as the education system, have evolved and supported the innovation process with capacity development initiatives, with the provision of rural advisory services or by inventing or adapting technologies relevant for the producers. The apple producers in South Tyrol have created a LINSAs guided by human relationships, trust, common vision and interest where information and knowledge are transferred easily and underpinned by rapid and collective action for innovation."

Tab. 1: The members and stakeholders of LINSa in South Tyrol (Meyer, 2014)

NAME AND AIM	OTHER INFORMATION
<p>AGRIOS (WORKGROUP FOR INTEGRATED FRUIT PRODUCTION IN SOUTH TYROL) <i>AGRIOS is responsible for managing the quality, the law and regulations for integrated management.</i></p>	<p>Founded in 1977, AGRIOS is a private company with non-profit status. It is losing a little of its influence as the directives for integrated management are now dictated from Rome (or from the buyers in the case of GlobalG.A.P.), and the quality control function has now been separated and is being implemented by a not-for-profit company (Konsortium 'Südtiroler Qualitätskontrolle').</p>
<p>BAUERNBUND <i>Farmers' association of the province, with the aim of strengthening the farming community in economic, social, cultural and political terms, and to represent the interest of its members</i></p>	<p>Founded originally in 1904, had to be re-established in 1919 when Sud Tirol became Italian and has continued to evolve since then. It today has 21 000 members. The majority of the association's income is derived from their services.</p>
<p>BERATUNGSRING <i>They offer a private and independent extension system.</i></p>	<p>Rural advisory service provider established in 1957. Budget of € 3.2 million, with 70% of the budget coming from the farmers and 30% from local government. Some 90% of the local farmers are members, and they work through 31 consultants.</p>
<p>COOPERATIVES <i>Their aim is to store and market apples for their members.</i></p>	<p>There are 23 cooperatives for apple production in South Tyrol that cover 95% of the growers. The first cooperative for apple production was created in 1893 (Algund), and today includes VOG Product – Europe's largest fruit processing company. The primary aim of the cooperatives is storage, processing and commercialization of the fruit delivered by the members.</p>
<p>FEDERATION OF COOPERATIVES <i>Two (The Association of South Tyrolean Fruit Growers' Cooperatives [VOG] and The Association of Val Venosta Fruit Growers' Cooperatives [Vi.P]) federations of cooperatives are present, for marketing and for invoicing.</i></p>	<p>Vi.P and VOG are producer organizations in the sense of the EU legislation. VOG was founded in 1945, it has 1 558 employees and is composed of 16 cooperatives with 5 200 members and 10 700 ha. VOG sells 735 000 tonne of apples per year with a turnover of €433 million. Vi.P was founded in 1990. It has 700 employees and is composed of 7 cooperatives with a total of 1 750 members and 5 110 ha. Vi.P sells 284 000 tonne of apples per year with a turnover of €225 million.</p>
<p>INDUSTRY AND SERVICES <i>A vibrant industry is attached to the apple production in the province. It was built to provide the necessary tools for apple production, but many small enterprises have evolved to become leaders in their field.</i></p>	<p>One such company is Isolcell, that is now a 50-year-old company based in Bolzano and is at the forefront of apple conservation techniques, marketing the Dynamic Controlled Atmosphere (DCA) process developed with the Laimburg Research Station. DCA is the most widely-known and used method for optimising controlled atmosphere storage conditions. It is marketed by Isolcell Italia S.p.A. and it is used around the world in commercial apple production (Zanella, Cazzanelli and Rossi, 2008; Prange, Delong and Harrison, 2005).</p>

NAME AND AIM	OTHER INFORMATION
<p>LANDES KONSORTIUM FÜR DEN SCHUTZ VOR WITTERUNGSUNBILDEN</p> <p><i>This cooperative implements initiatives for its members to support any active and passive defence against weather adversities.</i></p>	<p>This cooperative was established in 2004 and has a membership of 95% of the apple producers and 75% of the vine producers.</p>
<p>PRODUCERS</p> <p><i>Apple-producing farmers. There are 8 000 land owners with orchards in South Tyrol, of which 5 000 are active growers of apples.</i></p>	<p>South Tyrol has a long tradition of fruit growing. As far back as the 16th century, couriers from the region around the River Adige brought fresh and preserved fruits to the courts of the Austrian and Russian monarchs.</p>
<p>SOUTH TYROL (AUTONOMOUS PROVINCE)</p> <p><i>The provincial administration has competences for social and economic factors, including with regard to agriculture and forestry. The second autonomy statute gave the province extended power to decide its own future.</i></p>	<p>The province was founded with the annexation by Italy in 1919, included in the Regione Trentino Alto Adige with the first autonomy statute, and acquired extended powers with the second Statute of Autonomy in 1972.</p>
<p>LAIMBURG RESEARCH CENTRE FOR AGRICULTURE AND FORESTRY</p> <p><i>Laimburg Research Centre for Agriculture and Forestry regards itself as the lead research Institution for Agriculture in South Tyrol. The mission is to improve the competitiveness and sustainability of agriculture through creating a critical head start in terms of knowledge.</i></p>	<p>Since its inception in 1975, Laimburg Research Centre has earned a place among the leading agricultural Research Institutes not only in Italy but also in German-speaking Europe. This has been substantially due to the commitment of scientists and experts, who conduct approximately 400 projects and activities annually and worked up the insights gleaned in order to pass them to the South Tyrolean farming community.</p>
<p>TRADE AND KNOWLEDGE FAIRS</p> <p><i>The aim of the fairs is to present the latest innovations and to exchange knowledge</i></p>	<p>Various organizations in the province regularly organize fairs, the most important one being the biennial Interpoma, a fair about everything to do with apples. In 2012, it had 364 exhibitors from 17 different nations, with 16 017 professional visitors from over 60 different countries.</p>
<p>TREE NURSERIES</p> <p><i>The nurseries are part of the services provided by private companies to the growers. Their aim is to provide virus-free and good quality planting material of the varieties requested by the growers.</i></p>	<p>Konsortium der Südtiroler Baumschule (KSB) is a union of nurseries that was established by provincial law, with responsibility for the propagation and distribution of propagation material. These include GRIBA, a cooperative of nurseries. Total production from the South Tyrolean nurseries is over 10 million trees a year. For internal educational information's and studies, the nurseries are united in the Bund Südtiroler Baumschulen (BSB) .</p>
<p>VARIETY INNOVATION CONSORTIUM (SK)</p> <p><i>SK's objective is to test, introduce and promote new varieties. It is the variety information arm of VI.P and VOG.</i></p>	<p>Established in 2002, it is a not-for-profit entity, with its objective being to find good varieties for the region, promoting them and directing growers, in collaboration with Laimburg research station and Beratungsring, to the best varieties through the cooperative group.</p>

10.2 Supporting measures and instruments

Although non representative because resulting from particular framework conditions of an Autonomous Province and strong co-financing power, the quantity and variety of supporting measures and instruments may be an interesting benchmark when talking about subsidiary actions for agricultural activity in a rural mountainous environment. This list documents the measures of the Rural Development Plan of the province for 2014-2020 (Bolzano, 2014⁴¹).

P1: Fostering knowledge transfer and innovation in agriculture, forestry and rural areas

- 1A) Fostering innovation, cooperation, and the development of the knowledge base in rural areas
- 1B) Strengthening the links between agriculture, food production and forestry and research and innovation, including for the purpose of improved environmental management and performance
- 1C) Fostering lifelong learning and vocational training in the agricultural and forestry sectors

P2: Enhancing farm viability and competitiveness of all types of agriculture in all regions and promoting innovative farm technologies and the sustainable management of forests

- 2A) Improving the economic performance of all farms and facilitating farm restructuring and modernisation, notably with a view to increasing market participation and orientation as well as agricultural diversification
- 2B) Facilitating the entry of adequately skilled farmers into the agricultural sector and, in particular, generational renewal

P3: Promoting food chain organisation, including processing and marketing of agricultural products, animal welfare and risk management in agriculture

- 3A) Improving competitiveness of primary producers by better integrating them into the agri-food chain through quality schemes, adding value to agricultural products, promotion in local markets and short supply circuits, producer groups and inter-branch organisations
- 3B) Supporting farm risk prevention and management

P4: Restoring, preserving and enhancing ecosystems related to agriculture and forestry

- 4A) Restoring, preserving and enhancing biodiversity, including in Natura 2000 areas, and in areas facing natural or other specific constraints and high nature value farming, as well as the state of European landscapes
- 4B) Improving water management, including fertiliser and pesticide management

⁴¹ Autonomous Province of Bolzano (2014): Italy - Rural Development Programme (Regional) – Bolzano.

4C) Preventing soil erosion and improving soil management

P5: Promoting resource efficiency and supporting the shift towards a low carbon and climate resilient economy in agriculture, food and forestry sectors

5A) Increasing efficiency in water use by agriculture

5B) Increasing efficiency in energy use in agriculture and food processing

5C) Facilitating the supply and use of renewable sources of energy, of by products, wastes, residues and other non food raw material for the purposes of the bio-economy

5D) Reducing green house gas and ammonia emissions from agriculture

5E) Fostering carbon conservation and sequestration in agriculture and forestry

P6: Promoting social inclusion, poverty reduction and economic development in rural areas

6A) Facilitating diversification, creation and development of small enterprises, as well as job creation

6B) Fostering local development in rural areas

6C) Enhancing the accessibility, use and quality of information and communication technologies (ICT) in rural areas

10.3 The cooperative system

The international UN Year of Cooperatives (IYC) in 2012, recognised the impact of cooperatives on economic and social development due to «...*their democratic organisational structure and their economic outlook, in many mountain regions cooperatives contribute significantly to the growth of social capital, social integration, worksite creation, and the reduction of poverty*». This serves to help stabilizing economic cycles and strengthen local employment. Several mountain regions as for example in Italy and Austria have a historic tradition and also a relevant presence of cooperative systems. Furthermore one can register a growth of cooperatives in times of economic crises (EURICSE, 2010).

A strong interrelationship characterizes local development and smallholder farmers. To guarantee competitiveness and market access of the latter, producer cooperatives proved to play a crucial role in developed as well as developing countries. Due to specific framework conditions, producer cooperatives are an integrative part in several mountain regions contributing to local identity, landscape stewardship, biodiversity conservation and regional development. Their role respective to sustainability and resilience within the socio-ecological system, depends on the institutional profile, management and internal governance system as well external aspects such as financial,

administrative and legal supporting systems. Several successful horizontal and vertical examples of cooperation exist in mountain contexts, witnessing the successful interplay between smallholder farmers and the local environment. In South Tyrol/Italy nearly all apple producers are members of producer cooperatives, which effectively manage storage, processing, and commercialization of the products.

Global and national market competitiveness of small farms within Farmers' cooperatives and collectives can be documented as e.g. in South Tyrol with the apple production and marketing on global markets. The same holds true, on a lower scale, for the wine sector (average utilized agricultural area 1.1 ha), which developed as one of the top Italian wine producing regions. Finally, the small-structured dairy farms organized 100% in cooperatives sell their highly appreciated products in whole Italy. As a consequence the cooperatives can pay quite high milk prices to the farmers.

10.4 Marketing agricultural products

There are several interesting approaches, which demonstrate how market access can be achieved with products from family driven small-holder farms. Two examples are briefly described here: 1) Gran Alpin and 2) Bio vom Berg (Organics from the mountains). "*Gran Alpin (<http://www.granalpin.ch/home/>) provides a secure premium price for cereal producers in Graubünden linked to the uniqueness of local organic mountain cropping systems, and all the values of local identity, landscape stewardship, biodiversity conservation and regional development that such systems represent. Gran Alpin is enabling an alternative approach for rural development to evolve around key elements, including: high quality breads, pastas, flours and beer; the mountains; the extreme production system; organic production and animal welfare; landscapes aesthetics in a core tourism region; and the cooperation of like-minded farmers*" (Bardsley & Bardsley, 2014⁴²). Bio vom Berg (<http://www.biovomberg.at/>) is a brand, which has been able to market organic food in selected supermarkets produced by organic farmers and small-scale processors. This happens since more than ten years within the cooperative and trading platform Bioalpin: "It coordinates production, negotiates price and quantity with its purchasing

⁴² Bardsley, D.K., Bardsley A. M. (2014): Organising for socio-ecological resilience: The roles of the mountain farmer cooperative Genossenschaft Gran Alpin in Graubünden, Switzerland, *Ecological Economics* 98 (2014) 11–21, p. 11.

partners and organizes logistics” (Schermer & Furtschegger, 2013: 30⁴³). The common goal is “network growth”.

10.5 Certified agrotourism and farm products

There already exist good practices in the Carpathian area as mentioned in (Bösze et al., 2014: 33ff):

- Association of Regional Brands – Czech Republic,
- Syrex Agrofarm – Slovakia,
- Traditional fruits “Székely Fruit”– Romania,
- Ecoherba Society (Arnica project) – Romania,
- Organic beef production in a Natura 2000 site – Romania.

However, there is a variety of innovative agri-touristic holiday packages that aims at enhancing regional value added through innovative cooperation partnerships. A well-known and widespread example in the Alpine region is the farm stay or farm visit (*Urlaub auf dem Bauernhof*). Generally, next to holidaying, farm visits are an opportunity for people to gain hands-on experience and learn about production processes and for farmers to communicate traditional procedures and values. It is commonly offered by individual farms or by a network of farms. Networks can have organizational advantages as booking or marketing activities can be realized at a lower cost at the interface of agriculture and tourism and lead to a better visibility on the market with web 2.0 solutions, which single farms might not be able to sustain.

Similarly, other personal contacts with consumers at cooking demonstrations, farmers’ markets or farm festivals, raise awareness for regional products and farming activities. As a welcoming gesture, hotels could hand out special gift cards (so-called Gourmet Cards) with which to acquire exclusively regional products, together with a ‘gourmet map’ indicating at which farms, restaurants and stores regional agricultural products can be purchased. The card could also be sold to inhabitants as gift vouchers or presents.

In the following, we present an example from South Tyrol/Italy, where the “Red Rooster consortium”, an initiative introduced by the regional Farmer’s Union successfully supports touristic on-farm activities as well the marketing of certified agricultural quality products (Alpine Convention, 2013, p. 79f). These are additionally supported by regional investment funding from the regional

⁴³ Schermer, M., Furtschegger, C (2013): A farmers’ cooperative and a supermarket team up. In: Wymann v.D., S. et al. (2013): Mountain farming is family farming. A contribution from mountain areas to the International Year of Family Farming. Rome, p. 30f.

department of agriculture. In South Tyrol agriculture is small scale, which means that it is becoming more and more difficult for farmers to make a living exclusively from farming. An increasing number of farmers are finding it necessary to earn additional income from non-farming activities due to the falling prices of their products. The necessity of working both on the farm and elsewhere puts family life under strain, therefore the “Red Rooster” association aim is to support local farmers by creating extra income from the farm, thus guaranteeing the sustainable development of South Tyrol’s rural culture and putting people in touch with the rural world. “Red Rooster” tries to ensure that farm life carries on in a sustainable manner with the successful combination of agriculture and tourism. The “Red Rooster” trademark was created in 1999 by the Farmer’s Union of South Tyrol for farms offering Farm Holidays in South Tyrol. From 2003 “Red Rooster” has also competed in “Farm Inns and Bars” and “Quality Farm Products” in South Tyrol. Its three mainstays do not only generate additional income for local farmers’ directly from their farms, but they benefit holidaymakers too. Strict criteria and regular monitoring by “Red Rooster” ensure the highest quality for guests and the continued survival and development of South Tyrol’s rural culture – for future generations as well. The most important basic criteria at a glance are the authentic, unspoilt nature in picturesque countryside, personal atmosphere, family-friendly, small farms, pleasant, comfortable environment involving natural materials, “visible” direct experience of agriculture, farm produce, an “hands-on” rural experience and good value for money.

10.6 Social/green agriculture

A study of Hoffmann & Streifeneder (2013⁴⁴) reveals opportunities and limits of an interesting niche for on-farm diversification: Green care. It refers to offering patient-oriented activities that promote physical and mental health and well-being through contact with nature. It recognizes the importance of “social agriculture” activities worldwide. The farms provide various services, such as caretaking, rehabilitation, therapy, education and health care, based on the interplay between people and nature (Dessein et al., 2010⁴⁵). Offering green care has also proven an innovative agricultural diversification strategy for family farms in the mountain regions of South Tyrol and Trentino in northern Italy. Social agriculture is part of green care. Farms following this diversification option fit perfectly in the entrepreneurial concept of multifunctional farming. In addition to their agricultural activities, farmers engaged in social agriculture offer therapeutic,

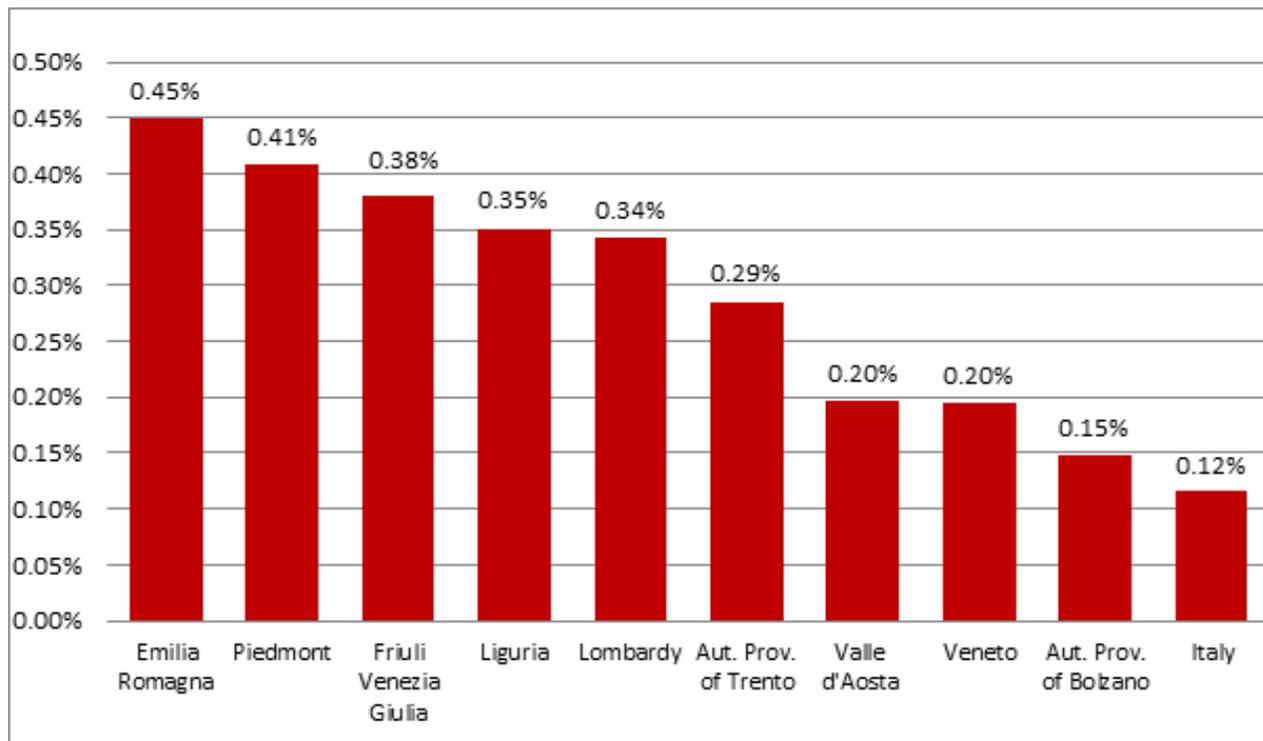
⁴⁴ Hoffmann, C., Streifeneder, T.: Social agriculture a spart of green care. In: Wymann v.D., S. et al. (2013): Mountain farming is family farming. A contribution from mountain areas to the International Year of Family Farming. Rome, p. 80f.

⁴⁵ Dessein, J. and Bock, B.B. eds. (2010): The Economics of Green Care in Agriculture. COST Action 866, Green Care in Agriculture. Loughborough University, U.K.

pedagogic or integrative services, which are complementary to professional health care or educational services. Engagement in social agriculture provides additional income to farmers and appreciation alongside agricultural work (Habenhofer, 2010⁴⁶). However, social farming represents still a niche and is integrated in the farming activities by a limited number of farm holders (Fig. 8).

Social agriculture is a promising area of diversification for family farms in mountain areas, because (FAO, 2013: 81⁴⁷):

- 1) The required investments and costs of complying with regulations are only affordable if farmers receive direct public compensation or income from institutions financing these farm activities.
- 2) Decision-makers and policy-makers should be made more aware of the need for legal and administrative policies that promote social farm services to complement the services of professional health care providers.
- 3) Farmers who plan to engage in social agriculture must be sure that the farm site, structure and staff are capable of managing the administrative needs and psychological and physical stress.
- 4) Pedagogic, therapeutic or integrative services offered by family farms are promising innovative diversification strategies that can yield inclusive economic growth.



⁴⁶ Habenhofer, D. (2010): Defining the concept of green care. In: Sempik et al.: Green Care: A conceptual framework, Loughborough University, U.K.

⁴⁷ Wymann v.D., S. et al. (2013): Mountain farming is family farming. A contribution from mountain areas to the International Year of Family Farming. Rome.

Fig. 8: Share of “Pedagogic Farms” in North Italian regions (Alimos, 2012⁴⁸).

11. Conclusion and recommendations referring to agricultural issues in the Convention text and protocols

11.1 Enhancing the institutional, political, governmental, economic and familiar enabling environment

As demonstrated by Manteanu et al. (2014), socio-demographic, institutional and economic factors mostly impact agricultural expansion and deforestation. This means an effective management and steering of land use dynamics should strongly focus on these aspects and understand the relative regional framework conditions in this regard. Incentives and measures should aim at improving on and off-farm income possibilities in order to limit the abandonment of farms by young people. This is a very difficult task and needs cross-sectoral and institutional efforts. Different examples on concrete activities and policy driven measures are highlighted in this study and may serve as inspiration. Hereafter, a better valorization of the entrepreneurial potential of family owned small holder farming is feasible in the framework of a certain enabling environment (institutional, political, governmental, economic and familiar). Agricultural development and economic performance is a result of an interplay between local and global forces as well as specific regional and local factors. Horizontal and vertical cooperations in order to create regional value added partnerships are extremely relevant and effective to market products generated by family owned smallholder farms. But this also means that despite historic motivated reasons, cooperatives and collaborative structures and systems should be stronger considered as valuable instrument for economic valorization and market access of small-structured enterprises and farms in rural areas. We recommend the creation of a transnational technical exchange platform generating implementation oriented advice for stakeholders and decision makers. The CC Working Group on Sustainable Agriculture and Rural Development (SARD) should work in this direction.

“Even though agriculture plays an important economic role in the Carpathian countries, only Hungary explicitly refers to it as a main goal of its national strategies” (Weiß & Streifeneder, 2011: 28). Hence, mountain agriculture and mountain rural area specific institutional arrangements should be created or further fostered. Often integrated in administrative units responsible for rural

⁴⁸ Alimos (2012): *Alimenta la salute, Le fattorie didattiche in Italia, Censimento delle fattorie didattiche accreditate* <http://www.fattoriedidattiche.net/images/stories/pdf/foxreg.nov2012.pdf>.

development, mountain-agriculture related policies may be marginalized, which hinders the development of specific measures. This need becomes even more accentuated as “*Forestry projects were indicated more numerous than those related to agriculture*” (ibid p. 29). Furthermore, mountain-agriculture related departments, ministries etc. like those for rural development, agriculture and environment should closely collaborate to agree on appropriate measures (see also next paragraph).

Indicator/multi-criteria based supporting and compensatory schemes for mountain agriculture based on the level of disadvantage like those existing e.g. in Austrian (“*Measurement of the single farm disadvantage according to the mountain farm cataster/Messen der einzelbetrieblichen Erschwernis mit dem Berghöfekataster*”) may be introduced to financially support small-structured farms according to their level of environmental and socioeconomic disadvantage. Furthermore, the “Closed farm” (“*geschlossener Hof*”) heritage system in South Tyrol – one descendant owns the farm and pays a reduced price to the other descendent proved to be very effective in maintaining economic viable farms.

The creation of a target and monitoring system on the most detailed administrative level (municipality) would be a goal-oriented project in order to measure and evaluate the status quo and development respectively the impact of measures for mountain areas.

11.2 Enhancing the contribution of tourism to sustainable agriculture in the Carpathians (Article 14).

The introduction of agrotourism and rural tourism should be supported. The regions in the Alps with the highest share of agrotourism and tourism intensity are those with the lowest farm abandonment rates (Streifeneder, 2010). Tourism provides valuable on- and off-farm income possibilities for farmers. At the same time this offer meet the trend towards authenticity and regionality of many visitors and guests.

11.3 Developing and designing instruments (CC Art. 7.2)

One of the key elements for the future development and maintenance of mountain agriculture in the Carpathians is the development of appropriate agricultural policies, state/regional financed supporting schemes and instruments and land management plans. Different agri-environmental programs and compensatory allowances resulted to be most effective means to support agriculture

in the Alps (Streifeneder, 2010⁴⁹). These should integrate environmental concerns i.e. scale financial support according to the level of good environmental practices of the farmers following CC Art. 4. para 6 “*The Parties shall take appropriate measures to integrate the objective of conservation and sustainable use of biological and landscape diversity into sectoral policies, such as mountain agriculture (...)*”. These schemes should consider the following issues already described in the CC text and protocols:

1) Maintaining the management of land traditionally cultivated in a sustainable manner (CC Art. 7 para 1). This implies not only the need for ensuring economic sustainability of the agricultural practice, but also the maintenance of the areas previously used for agriculture still in the agricultural use, thus open and not overgrown by the forest.

2) Preserving the traditional land-use patterns, local breeds of domestic animals and cultivated plant varieties (CC Art. 11).

3) Developing, adopting and implementing the common Carpathian policy for the promotion, labeling and certification of local products and local producers' networks (ST Protocol Art. 11.2) in particular of (...) local goods including agricultural products utilizing local breeds of domestic animals and cultivated plant varieties (exemplary procedures and guideline see box).

General procedures and guidelines for the introduction of a Carpathian-wide label for mountain products based on the Swiss directive 910.19 “For the use of the denomination ‘Mountain` and `Alp` for agricultural products and processed food”⁵⁰

Although the following refers to the Swiss example, the Carpathian-wide label should take into account relevant points of the Regulation (EU) No 1151/2012 of the European Parliament and of the Council of 21 November 2012 on quality schemes for agricultural products and foodstuffs.

According to the Swiss regulation, the use of the label ‘Mountain` and `Alp ` is basically linked to aspects related to the:

- a) Type of products and foodstuff,
- b) Purpose,
- c) Requisitions: origin of the products and raw materials (from defined mountain area or Alp-area), feeding (at least 70% of fodder must come from the mountain or Alp areas), keeping

⁴⁹ Streifeneder T. (2010): Die Agrarstrukturen in den Alpen und ihre Entwicklung unter Berücksichtigung ihrer Bestimmungsgründe. Eine alpenweite Untersuchung anhand von Gemeindedaten. Wirtschaft und Raum, Band 22, Herbert Utz Verlag, 2010, München.

⁵⁰ Verordnung über die Verwendung der Bezeichnungen «Berg» und «Alp» für landwirtschaftliche Erzeugnisse und daraus hergestellte Lebensmittel (Berg- und Alp-Verordnung, BAIV) vom 25. Mai 2011 (Stand am 1. Januar 2014). Online: <https://www.admin.ch/opc/de/classified-compilation/20102725/index.html>.

animals for slaughter (animals have to spend at least 2/3 of their life in mountain or Alp areas; slaughtering within and not later than 2 months after leaving the mountain or Alp areas; Alp meat means that the animals have spent the usual time during summer on alp pastures), agricultural ingredients in foodstuff (only from mountain or alpine pastures; exceptions only if it has been proven that the ingredients do not exist in mountain or alpine pastures; they can exceed a share of 10% on the total weight of the product), location of production and processing (only in mountain or alpine pastures areas, in the case of cheese place where maturing occurs, exceptions for processing of milk and slaughtering),

- d) Designation: indication of origin of all materials and ingredients, name or code number of the institution responsible for the certification of the farm and the packaging or labelling,
- e) Certification: all agricultural produce must be certified in all stages of the production, intermediate commerce, making, labelling and packaging; no duty for certification for commodities on the level of primary production not packaged or labelled and farm-owned commodities and foodstuff directly marketed on the farm; necessary profile of the authorized certification institutions,
- f) Controls through certification or inspection institution: at least control once every two years, for farms producing Alp-products once every four years, every four years (for Alp label every twelve years) verification of the requirements for commodities on the level of primary production not packaged or labelled and farm-owned commodities and foodstuff directly marketed on the farm,
- g) Responsibilities of the farm: documentation of the material flows and other in the production integrated firms, information on necessary commodities not produced according the directive, every time access for controls to the farm,
- h) Interim regulations.

4) Integration of conservation and sustainable use of biological and landscape diversity (CC Art. 4.1.).

5) Adequate maintenance of semi-natural habitats (CC Art. 4.2).

6) Continuity and connectivity of natural and semi-natural habitats (Biodiv. Protocol Art. 9). With reference to the BioREGIO Recommendations for Ecological Connectivity it can be stated the following: To deal adequately with the theme of landscape fragmentation and ecological connectivity it would be best to include it as a measurement in the agro- environmental program of the rural development plan. In this case it would be required to estimate the costs, which may evolve for compensating the agricultural fields, allocated to ecological connectivity like wind shelters and comparable stepping stones. Integrate measurements to foster ecological

connectivity, as an agro- environmental measure in the rural development plan (2014-2020) would be a preferred option to claim support from the European Union to find at least a compromise to solve the land- use conflict.

To motivate farmers to support connectivity a contractual mechanism needs to be installed. Therein a kind of “Trust- Fond” could be appropriate to sustain a heterogeneous landscape structure and to avoid landscape fragmentation. The planning procedures hereby should be conducted by the local authorities. Here the fear could be faced that the plans and measurements foreseen are good designed but unfortunately not adequately applied. Hence, the donors “the Trust Fond” for instance should only agree on the distribution of subsidies if the process is prepared and implemented correctly.

The size of intensively use agricultural fields are for most species a barrier and even a dangerous trap for dispersal and ecological connectivity. Hence monoculture fields would require at least some landscape structures as stepping stones for covering and for orienting. Besides the application of technical harvesting machines as well as the application of herbicides and pesticides has to follow standardized rules to minimize the killings of dispersing animals. Such farm types are rather typical for the foothills and the fringes of the Carpathians, whereas the families in the Carpathians apply more likely subsistence and semi-subsistence farming are more common.

Only in the case of game-keeping the overpopulation of game species for economic reasons causes damages in agriculture, what makes conflicts unpreventable. To cope with these problems in the long run and to gain trust among the farmers, two solution variants are discussed: Either these hunting clubs are restricted to fenced private land what is even negative to ecological connectivity or as long as they operate on state owned territory responsible authorities have to supervise these hunting activities and have to limit these activities with particular permissions.

If the territory where new infrastructure facilities are planned is covering agricultural land, an agreement on selling prices has to be found, which usually varies between utilized agricultural area and industrial territory. To sustain ecological connectivity, eco-ducts or subways along these new infrastructure facilities are installed as this is required in the SEA and EIA to offer save crossing-passages to wildlife and to avoid road kills.

In the context of economic activities, such as forestry and agriculture, corridor development strategies can be combined with adequate incentives to land owners for the sustainable maintenance of these zones according to connectivity criteria. One main advantage of such integrated management is that it could also be advantageously carried out at transnational level, where the presence of different legislations could be a main barrier.

7) Enhancing conservation and sustainable management in the areas outside of protected areas (Biodiv. Protocol Art. 15).