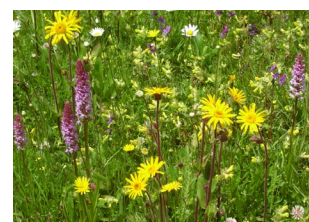
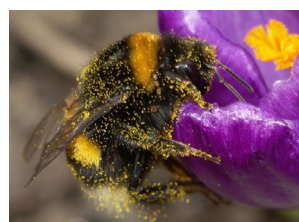
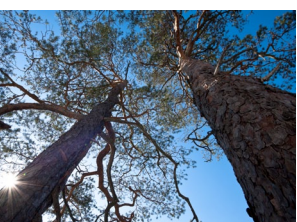
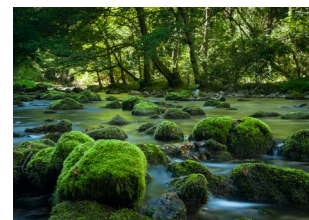
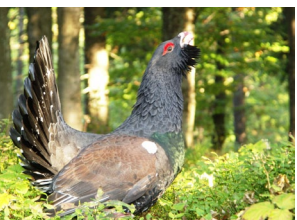


# REGIONAL DEVELOPMENT OPPORTUNITIES OF PROTECTED AREAS AND NATURAL ASSETS IN THE CARPATHIANS



## 'Integrated Management of Biological and Landscape Diversity for Sustainable Regional Development and Ecological Connectivity in the Carpathians'

(ETC Programme South East Europe, Project: BioREGIO Carpathians, Eol Reference number: SEE/B/0010/2.3/X, Work Package 4)



This final publication was elaborated within the Bioregio Carpathians project, funded by the European Union within the framework of the South East Europe Transnational Cooperation Programme.

**Editorial team:** Szilvia Bösze & Hildegard Meyer

**English proof reading:** Katelyn Armbruster

**Graphic design:** ENOVA doo, Sarajevo

**Publisher:** ENOVA doo, Sarajevo

**Published in:** June 2014

**ISBN 978-9958-021-00-8**

**Citation:** 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.

Ownership, title, industrial and intellectual property rights of this volume vest in the project partnership. This volume is made available to the public free of charge. It may be reproduced in whole or in part for educational or non-profit purposes without special permission from the copyright holder, if the acknowledgement of the source is made. No use of this publication may be made for resale or any other commercial purpose what so ever with out prior permission of the copyright holder.

**Photographs:** Figure 1 – WWF Germany; Figure 2 – Millennium Ecosystem Assessment; Figure 3 – EU Strategy for the Danube Region website; Figure 4 – National Development Agency; Figure 5 – Eurostat; Figure 6 – EEA; Figure 7 – Research Institute of Organic Agriculture FiBL; Figure 8 – APUS / Czech Association of Regional Brands; Figure 9 – Syrex Agrofarm; Figure 10 and 11 – Székelygyümölcs; Figure 12 – Arnica project; Figure 13 – Emil Pop; Figure 14 – WWF; Figure 15 – WWF; Figure 16 – Ferenc Kiss; Figure 17 – WWF; Figure 18 – Eduard Apfel; Figure 19 – CFF Vișeu de Sus; Figure 20 – Marilena Vacariu; Figure 21 – Stefan Wegleitner; Figure 22 – VAP Company; Figure 23 – Brend Homolja; Figure 24 – Rácz Inn; Figure 25, 26 and 27 – AER; Figure 28 – Culinary Heritage.





# REGIONAL DEVELOPMENT OPPORTUNITIES OF PROTECTED AREAS AND NATURAL ASSETS IN THE CARPATHIANS

Sarajevo, June 2014

# Table of Content

Acknowledgement	6
Abbreviations	7
<b>1. INTRODUCTION</b>	<b>9</b>
<b>2. SCIENTIFIC BACKGROUND</b>	<b>12</b>
2.1. EUROPEAN OUTLOOK	13
2.2. METHODOLOGY	16
<b>3. MAIN OUTCOMES</b>	<b>17</b>
3.1. BIODIVERSITY AND PROTECTED AREAS	18
3.2. NATURE CONSERVATION POLICY	20
3.3. SOCIO-ECONOMICS	22
3.3.1. Trends	22
3.3.2. Initiatives to retain rural population	23
<b>4. SECTORAL ANALYSIS</b>	<b>25</b>
4.1. AGRICULTURE	26
4.1.1. Challenges	31
4.1.2. Opportunities	32
4.1.3. Good practice examples	33
4.1.3.1. Association of Regional Brands – Czech Republic	33
4.1.3.2. Syrex Agrofarm – Slovakia	35
4.1.3.3. Traditional fruits “Székely Fruit” – Romania	36
4.1.3.4. Ecoherba Society (Arnica project) – Romania	37
4.1.3.5. Organic beef production in a Natura 2000 site – Romania	38
4.1.3.6. High water quality thanks to protected areas – Romania	39
4.1.3.7. Vittel bottled water – France (non-Carpathian)	39
4.2. ENERGY	40
4.2.1. Challenges	42
4.2.2. Opportunities	42
4.2.3. Good practice examples	42
4.2.3.1. Invasive tree species as biomass – Hungary	42
4.2.3.2. Waste material of mountain meadows for biomass – Slovakia	44
4.2.3.3. Renewable energy – Czech Republic	44
4.2.3.4. Reaching energy autonomy of a region – Austria (Alpine region)	45



<b>4.3. FOREST MANAGEMENT</b>	<b>46</b>
4.3.1. Challenges	48
4.3.2. Opportunities	49
4.3.3 Good practice examples	49
4.3.3.1. <i>Forest certification in protected forest areas – Romania</i>	49
4.3.3.2. <i>Forest-environmental scheme in municipal forests – Slovakia</i>	50
4.3.3.3. <i>Local wood processing – Romania</i>	51
4.3.3.4. <i>Development of local wood production chain based on wood from a biosphere reserve – Austria (Alpine Region)</i>	52
<b>4.4. FISHERIES</b>	<b>52</b>
4.4.1. Opportunities	53
4.4.2. Good practice examples	53
4.4.3.1. <i>Trout farm in the Carpathian Biosphere Reserve – Ukraine</i>	53
4.4.3.2. <i>Farming without hurting nature – Hungary (outside the territory of the Carpathians)</i>	54
4.4.3.3. <i>Complex fishing in protected area – Romania</i>	54
4.4.3.4. <i>Biofisch AT – Austria (non-Carpathians)</i>	55
<b>4.5. NON-TIMBER FOREST PRODUCTS</b>	<b>56</b>
4.5.1. Challenges	57
4.5.2. Opportunities	57
4.5.3. Good practice examples	58
4.5.3.1. <i>Forest fruit and mushroom processing manufacture – Romania</i>	58
4.5.3.2. <i>Forest fruit and mushroom processing manufacture – Romania</i>	58
4.5.3.3. <i>Sustainable honey production – Serbia</i>	59
<b>4.6. TOURISM</b>	<b>60</b>
4.6.1. Challenges	63
4.6.2. Opportunities	64
4.6.3. Good practice examples	65
4.6.3.1. <i>Rácz Inn, Kisoroszi – Hungary</i>	65
4.6.3.2. <i>Ecotourism certification – Romania</i>	66
4.6.3.3. <i>Regional Culinary Heritage – Poland and Ukraine</i>	67
4.6.3.4. <i>Wildlife tourism – Romania</i>	68
<b>5. CONCLUSIONS</b>	<b>69</b>
5.1. RECOMMENDATIONS FOR ENTREPRENEURS	70
5.2. RECOMMENDATIONS FOR NGOs	72
5.3. RECOMMENDATIONS FOR POLICY MAKERS AND AUTHORITIES	73
	83
Literature	75
Annexes	78

The study is a result of coordinated effort by the BioREGIO Carpathians project consortium led by WWF Danube-Carpathian Programme (Hildegard Meyer) supported by the input of experts compiled by Szilvia Bösze, Hungary. Specific acknowledgement should be made to Bogdan Popa and Florea Trifoi (DECUM CONSULT Ltd., Romania), Jeroen Arends and Dragana Tar (SEEDEV, Serbia), Victor Turok (Ukraine) and Victoria Gubko (WWF DCP Ukraine) who compiled more detailed information on the topic for their respective country, and Jeremie Crespin (EC DG ENV), Mathieu Fichter (EC DG REGIO), Marco Fritz (EC DG ENV), PhD Eszter Kovács (ESSRG), Micheal O'Briain (EC DG ENV), PhD György Pataki (Corvinus University) and Matt Rayment (GHK) for providing their knowledge and advice to developing the study.

Furthermore, WWF DCP would like to thank all participants at the Stakeholder Consultation Meetings which were held in Hungary, Romania, Serbia and Slovakia during the autumn 2012 and early 2013 for their fruitful discussions and for connecting us to the local context of the issues discussed.

Thanks to Monia Martini and Cristian-Remus Papp (WWF DCP) for their valuable comments and support for the final version of the study.

Thanks to Katelyn Armbruster for proof-reading the final version of the study.

This study has been developed within the framework of the EU-SEE co-funded project BioREGIO Carpathians, which has the aim of enhancing the integrated management of protected areas and natural assets of the Carpathian Mountains. Under the project, sustainable regional development will be promoted and ecological connectivity will overcome legal and ecological barriers while considering transboundary and transnational needs. BioREGIO is building on the existing framework of the Carpathian Convention, its Biodiversity Protocol and other related transnational networks and initiatives. National and local partners and scientific institutions have joined forces to contribute to the improvement of connectivity and continuity of the largest mountain range of Europe, harbouring a unique natural heritage and acting as a major ecological link within Europe. BioREGIO Carpathians is an EU project, which is co - funded by the ERDF within the South East Europe Transnational Cooperation Programme. For more information, see [www.bioregio-carpathians.eu](http://www.bioregio-carpathians.eu).

AER – Association of Ecotourism in Romania  
B@B – EU Business and Biodiversity initiative/platform  
CAP – Common Agricultural Policy  
CBD – Convention on Biological Diversity  
DG – Directorate General  
EAFRD – European Agriculture Fund for Rural Development  
EC – European Commission  
ECEAT – European Centre for Ecological and Agricultural Tourism  
ECNC – European Centre for Nature Conservation  
EEA – European Environmental Agency  
EFNCP – European Forum on Nature Conservation and Pastoralism  
EIA – Environmental Impact Assessment  
ELO – European Landowners' Organisation  
ENP – European Neighbourhood Policy  
ENV – Environment  
ERDF – European Regional Development Fund  
ESSRG – Environmental Social Science Research Group  
EU – European Union  
EUR – Euro  
FAO – Food and Agriculture Organisation of the United Nations  
FSC – Forest Stewardship Council  
GI – Green infrastructure  
GMO – Genetically modified organism  
HNV – High Nature Value

ICPDR – International Commission for the Protection of the Danube River  
IFOAM – International Federation of Organic Agriculture Movements  
IPA – Instrument for Pre-Accession Assistance  
IUCN – International Union for Conservation of Nature (World Conservation Union)  
LFA – Less Favoured Areas  
MS – EU Member State  
MSC – Marine Stewardship Council  
NBSAP – National Biodiversity Strategy and Action Plan  
NGO – Non-governmental organisation  
NTFP – Non-timber forest products  
NTFR – Non-timber forest resources  
PEEN – Pan-European Ecological Network  
PEFC – Programme for the Endorsement of Forest Certification  
REGIO – Regional Development  
SEA – Strategic Environmental Assessment  
SME – Small and medium-sized enterprises  
TEEB – The Economics of Ecosystems and Biodiversity  
UAA – Utilised agricultural area  
UNEP – United Nations Environmental Programme  
WFD – Water Framework Directive  
WTO – (United Nations) World Tourism Organisation  
WWF – World Wildlife Fund  
WWF DCP – WWF Danube-Carpathian Programme



# 1. INTRODUCTION





Conflicts between nature conservationists and businesses or even locals are heard often. However, it is also known and acknowledged more and more widely, that the sustainable use of natural resources is the way forward to ensure long-term welfare of both people and nature. This study is aimed at highlighting opportunities and examples of solutions using the potential of nature and its services for the good of the human society and economics.

This study attempts to **investigate the opportunities that may occur for local people and entrepreneurs in using protected areas and natural assets of the Carpathians as a potential for sustainable regional development**. We aim to reach local stakeholders, such as entrepreneurs and managers of protected areas and natural resources, NGOs involved in cooperation with stakeholders, but also authorities and policy makers who may support the process of sustainable development. Therefore, based on our findings, we provide **recommendations** for three audiences, who have the most significant impact on driving sustainable regional development, i.e.:

1. Policy makers and authorities (e.g. ministries, environmental authorities, national park directorates or other protected area managers);
2. Non-governmental organisations (e.g. nature conservation NGOs) and
3. Entrepreneurs themselves (e.g. families, firms operating in the Carpathian region).

The study on 'Regional development opportunities of protected areas and natural assets in the Carpathians' covers **six sectors**, namely tourism, agriculture, forestry, non-timber forest products, fisheries and energy. **The scope of the study** is to provide (i) a short **analysis of the characteristics** of the Carpathians having an impact on regional development in protected areas, (ii) have an outlook on the six sectors and their relation to protected areas and natural assets and (iii) to provide **good practice examples of sustainable businesses** and initiatives within these six sectors. **The aim is to initiate new, sustainable businesses in these sectors** and thus to ensure both the long-term protection of the landscape and natural assets and also the livelihood of local people.

The study is being **compiled in the frame of Work Package 4** (Integrated management of Carpathian natural assets and protected areas) of the 'Integrated management of biological and landscape diversity for sustainable regional development and ecological connectivity in the Carpathians', known as the **BioREGIO Carpathians project**<sup>1</sup>. The project is aimed at enhancing the integrated management of the protected areas and natural assets in the Carpathians in a transnational context and thereby to increase the attractiveness of the region. BioREGIO Carpathians builds on the existing framework of the Carpathian Convention<sup>2</sup>, its Biodiversity Protocol<sup>3</sup> and other related transnational networks and initiatives. It is an EU project which is co-funded by the **European Regional Development Fund through its South East Europe Transnational Cooperation Programme**. BioREGIO is a joint project with 16 project partners from all Carpathian countries, except the Czech Republic. Project partners are a mix of protected area managers, green non-governmental organisations, environmental agencies, universities (i.e. a combination of public bodies), NGOs and research institutions. The development of the study is led and coordinated by WWF Danube-Carpathian Programme Office (WWF DCPO).

**The Carpathian Mountains or Carpathians** (see Figure 1) **are the largest, longest and most twisted and fragmented mountain chain in Europe** (UNEP, 2007). Stretching approximately 1,500 km along an arc across Central and Eastern Europe, they cover about 210,000 km<sup>2</sup> and are also known as the Carpathian Ecoregion (RUFFINI *et al.*, 2006). They cover parts of seven countries spreading widely towards the north and south, namely from the Czech Republic (4%), Slovakia (22%), Poland (11%), Hungary (6%), Ukraine (14%), Romania (43%) and Serbia (<1%)<sup>4</sup> (RUFFINI *et al.*, 2006). There is an on-going scientific discussion to enlarge the range of the Carpathians in Serbia by including areas by the Iron Gate. For this current study we include the area under discussion in the map below but do not in the statistics or analyses.

<sup>1</sup> <http://www.bioregio-carpathians.eu/>

<sup>2</sup> Framework Convention on the Protection and Sustainable Development of the Carpathians (<http://www.carpathianconvention.org/>)

<sup>3</sup> Protocol on Conservation and Sustainable Use of Biological and Landscape Diversity to the Framework Convention on the Protection and Sustainable Development of the Carpathians

<sup>4</sup> Based on national proposals communicated to the Carpathian Framework Convention

In addition, the **Carpathian Macroregion** extends for approximately 450,000 km<sup>2</sup>, stretches beyond the area of the Carpathian Mountains and also covers additional areas in Austria. This Macroregion is defined according to the administrative regions of the Carpathian area in order to have a larger analytical database (RUFFINI & PTÁČEK eds., 2009) and to enable more adequate analytical analyses. For the purpose of this study we focus on the Carpathian Mountains, however, for certain analyses where no figures are available for the geographical units (e.g. socio-economic or demographic) we use the administrative borders of the Carpathian Macroregion to provide some data. In these cases we always indicate that we refer to the Carpathian Macroregion.



Figure 1: The scope of the Carpathian region (source: WWF Germany)

**Five out of the seven countries** (Czech Republic, Slovakia, Poland, Hungary and Romania) of the Carpathians **are Member States (MSs) of the European Union, whereas the other two** (Ukraine and Serbia) **are not**. However, Serbia is a candidate country and Ukraine also has high interest in a potential accession, therefore both countries are on their way to streamline policies and legislation, with Serbia being much closer to an alignment.

**Biodiversity and ecosystems provide multiple benefits** that are valuable not only for the sake of biodiversity and nature conservation but also for locals and businesses (e.g. pollination, water purification, flood protection, etc.). These are called ecosystem services. Currently, perception of nature conservation and thus, instruments for nature conservation are changing. From a strict, protectionist attitude, where the key measure to conserve an area or a natural asset (e.g. a species) was to close down the respective area and ensure no disturbance, **the new approach is to involve locals in the management of the specific area**. The aim of the new approach is to find win-win situations where locals can meet their expectations and needs (e.g. wellbeing, income) while applying management measures that maintain the good status of nature and ecosystem services of the specific area.

The study on 'Regional development opportunities of protected areas and natural assets in the Carpathians' aims to **enhance this change towards participatory nature conservation** in a region that is lagging behind, by providing not only an analysis of the current situation but also an outlook to the future by showing good practice examples that are potentially suitable to be applied in other parts of the Carpathian region.

The **introduction** is followed by **the chapter on the scientific background** where we provide a European outlook and describe the methodology of the study. The **third chapter** is devoted to the **characteristics of protected areas and natural assets in the Carpathians**, describing biodiversity and protected areas, the core of nature conservation policy and an analysis of the socio-economics in the region. Then we provide **sectorial** analyses, describing major challenges, opportunities, as well as 'good practice' examples for each sector. Chapter five is where we draw **conclusions** and a set of recommendations for policy makers, non-governmental organisations and the entrepreneurs themselves. It is followed by the list of cited **literature** and the **annexes**.



## 2. SCIENTIFIC BACKGROUND





In this chapter we first provide an **overview of the European policy context**, including its **evolution from strict protectionism to participatory nature conservation**. The second part of this chapter provides detailed information on the applied **methodology**.

## 2.1. EUROPEAN OUTLOOK

In the past, nature conservation was equal to species protection, and most commonly applied measures were the designation of protected areas with strict protection where the species occur, often in combination with the exclusion of public access to the area. Lately, due to realising the benefits natural assets provide and that nature conservational goals cannot be achieved without the active involvement of locals, nature conservation policy has changed from species protection to the management of habitats and ecosystems.

This is shown for example in the **evolution of the EU nature conservation and biodiversity policy**. The cornerstone of Europe's nature conservation policy is on the one hand the Birds Directive from 1979<sup>5</sup>, which is the oldest piece of nature legislation in the EU. Whereas on the other hand, legal protection of species other than birds and also of plants and habitats followed much later in 1992 with the adoption of the Habitats Directive<sup>6</sup>. Based on these two pieces of legislation, the Natura 2000 network of protected areas has been designated across Europe, covering approximately 18% of Europe's territory, including the marine areas. With this evolution it is inevitable that from strict species protection the much wider areas containing the Natura 2000 network need proper management measures to ensure favourable nature conservation status of protected species and habitats. While this is not possible if restricted to nature conservationists and nature parks, the principle of EU nature conservation has been shifted to include the involvement of public stakeholders and to encourage them to run their businesses in line with nature conservational goals. These are reflected in the recent publications of the European Commission<sup>7</sup>, such as Natura 2000 – Conservation in partnership (2009), Investing in Natura 2000: for nature, for people (2011) and the sector specific guidance published<sup>8</sup>, such as Guidance on Aquaculture and Natura 2000, Inland waterway transport and Natura 2000, the implementation of the Birds and Habitats Directives in estuaries and coastal zones, Wind energy developments and Natura 2000, Non-energy mineral extraction and Natura 2000 or the lately adopted EU-wide Strategy on Green Infrastructure<sup>9</sup> to enhance Europe's natural capital (COM(2013) 249 final). These guidance documents provide an analysis of the interdependence of the certain sectors and recommendations of how to run such sectorial businesses in Natura 2000 areas without breaking the rules. The Strategy on Green Infrastructure describes green infrastructure as a spatial planning and territorial development tool that provides multiple benefits compared to grey infrastructures. More importantly, the European Commission is committed to finance investments in green infrastructures both from the Cohesion Fund and the European Regional Development Fund.

With the shift towards **participatory nature conservation**, not only land owners and managers like farmers and foresters are addressed, but also members of other sectors are encouraged to run green, **pro-biodiversity businesses**. There are well-known international organisations like the International Union for Conservation of Nature and Natural Resources (IUCN) who provide assistance to businesses and help them transforming their operation and aligning them with nature conservational objectives. The European Commission has a ca. 10-year-long tradition in promoting and advocating for pro-biodiversity businesses, which has evolved into the so called **Business and Biodiversity Initiative** with the establishment of the EU Business and Biodiversity (B@B) Platform and the EU B@B Award in the frame of European Business Awards for the Environment to recognise and reward performance of businesses.

<sup>5</sup> Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds (the codified version of Directive 79/409/EEC as amended)

<sup>6</sup> Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora

<sup>7</sup> [http://ec.europa.eu/environment/nature/info/pubs/directives\\_en.htm](http://ec.europa.eu/environment/nature/info/pubs/directives_en.htm)

<sup>8</sup> [http://ec.europa.eu/environment/nature/natura2000/management/guidance\\_en.htm](http://ec.europa.eu/environment/nature/natura2000/management/guidance_en.htm)

<sup>9</sup> **Green Infrastructure (GI)**: is a strategically planned network of natural and semi-natural areas with other environmental features designed and managed to deliver a wide range of ecosystem services. It incorporates green spaces (or blue if aquatic ecosystems are concerned) and other physical features in terrestrial (including coastal) and marine areas. On land, GI is present in rural and urban settings.

The nature conservation portfolio has not only broadened with the concept of involvement of stakeholders and businesses but has also advanced in terms of scientific reasoning. The point of view has changed from nature to humankind and has been identified that even without recognising and paying for it, we benefit from a multitude of resources and processes that are supplied by nature and biodiversity, thus by ecosystems. These are collectively known as **ecosystem services**. The Millennium Ecosystem Assessment (MA, 2005) defines 'ecosystem services' as benefits people obtain from ecosystems and distinguishes four categories of ecosystem services (see Figure 2), the so-called supporting services being the basis for the other three categories; provisioning, regulating and cultural services.

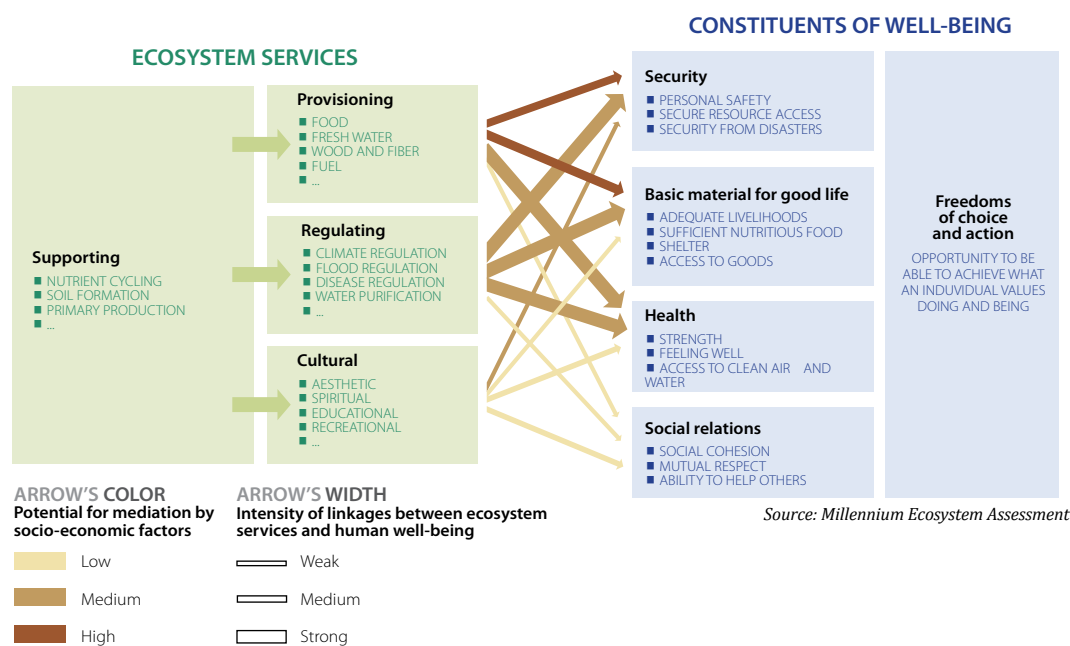


Figure 2: Ecosystem services and the benefits they provide (Millennium Ecosystem Assessment, 2005 p. vi)

In March 2007, the G8+5 environment ministers met in Potsdam. Inspired by the momentum for early action and policy change created by the *Stern Review of the Economics of Climate Change*, they expressed the need to explore a similar project on the economics of the loss of ecosystems and biodiversity. This called to life the international study on 'The Economics of Ecosystems and Biodiversity' (TEEB, 2008), primarily co-financed by Germany and the European Commission. By now the TEEB study is in its second phase<sup>10</sup>, sectorial and geographical analyses are done and reports addressed to different stakeholder groups help people understand the benefits of ecosystems, valorising the ecosystem services and making sure the ecosystem benefits are accounted for.

At European policy and decision making level, the notion of benefits and values of ecosystem services is equal to that of climate change awareness. The European Commission has realized the opportunities in natural assets and ecosystem services for regional development. This is clearly reflected in the Communication on 'Regional development contributing to sustainable growth in Europe 2020' (COM(2011) 17 final) that encourages Member States to invest in green infrastructures as one of the six investment fields, as well as in the Commission proposals for the next (2014-2020) Multi-Annual Financial Framework that enables investments in Natura 2000 and green infrastructures in all regions. The European Commission proposal on the 2014-2020 Common Agricultural Policy (CAP; COM(2010) 672 final) emphasized that payments for ecosystem services would remain useful and put forward a greening of the CAP. In its Objective 2 (Sustainable management of natural resources and climate action) payments for the enhanced provision of **environmental public goods** is put forward. It is acknowledged that there was widespread agreement that the distribution of direct payments should be reviewed and criteria should be both economic (in order to fulfil the basic income function of direct payments) and environmental, so as to support for the provision of public goods.

<sup>10</sup> <http://www.teebweb.org/>

As a market failure in the system for delivered or destroyed ecosystem services is not accounted nor rewarded, non-governmental organisations and public financing, also through projects, have a significant role in influencing policy making (GODINOT, 2011) and policy implementation (BECKMANN *et al*, 2002).

In 2011 the European Commission launched its **resource efficiency** programme (COM(2011) 21 final). Resource efficiency means using the Earth's limited resources in a sustainable manner while minimising impacts on the environment. The flagship initiative for a resource-efficient Europe under the Europe 2020 strategy supports the shift towards a resource-efficient, low-carbon economy to achieve sustainable growth.

All the above leads us to the ultimate notion of **sustainable development**, which refers to a development that meets the needs of the present without compromising the ability of future generations to meet their own needs (Brundtland Report, 1987) and where this requirement shall simultaneously be met for all three components: economic, social and environmental. The European Commission set this as one out of the three priorities of the EU 2020 Strategy (COM(2010) 2020 final) achieving smart, sustainable and inclusive growth by 2020. Taken that all the European funds shall work towards achieving these priorities, taking sustainability to the top of the European agenda has the potential to create a significant shift in business operation, which also might lead to the enhancement of protected areas and natural assets on the ground.

All major EU funds (e.g. Cohesion and European Regional Development Fund, European Agricultural Fund for Rural Development, European Fisheries Fund and European Research and Innovation Fund) have the potential to finance sustainable businesses and management. For example, between 2007-13 Poland used Structural Funds to prepare management plans for Natura 2000 sites, Hungary used the same source to restore protected areas, whereas the Natura 2000 monitoring and ecosystem services mapping was financed in the Czech Republic. Numerous conservation measures might be financed from the Agricultural Funds through agro-environmental schemes and dedicated funding to certain areas. For example, in the 2007-13 EU budget period, the Czech Republic launched a sylvi-environmental scheme dedicated to Natura 2000 forests, but there is also the payment for High Nature Value grasslands and the farmers of Less Favoured Areas. One of the instruments of EU structural funds is the LEADER+ programme, which is aimed at developing and implementing strategies, encouraging partnership and networks to exchange experience for sustainable development of a certain municipality/region. Thus, one can see that the possibility is there to finance sustainable development and it is to a large extent up to the Member States to decide on the exact orientation of the EU funds.

Also, the European Commission provides assistance in the form of guidance to Member States and stakeholders to help the use of EU funds for reaching Europe 2020 targets (e.g. *Connecting Smart and Sustainable Growth through Smart Specialisation - a practical guide to ERDF managing authorities*<sup>11</sup>) and some particular nature conservation and green infrastructure, enabling sustainable growth. Recent guidance documents are already fitted to the 2014-2020 programming, such as the *Guide to Multi-Benefit Cohesion Policy Investments in Nature and Green Infrastructure*<sup>12</sup> that helps identify values of nature to Cohesion Policy goals, tools and approaches to be used.

LIFE+ is a financing instrument dedicated to nature conservation and environmental projects, where locals, entrepreneurs, NGOs, authorities and protected area managers may benefit from LIFE+. However, the fund is only open to EU Member States and not to non-EU or accession countries.

Candidate countries such as Serbia can benefit from the IPA funding (Instrument for Pre-Accession Assistance), which might be used for example to finance the designation of Natura 2000 sites or the development of sectorial strategies. Ukraine is a priority partner country within the European Neighbourhood Policy (ENP) and the Eastern Partnership, which among others offer financial support to ENP-related projects.

We do not go into the very details of EU funding as on the one hand it differentiates from country to country and on the other, the current budget period is soon past and the details of the upcoming period (2014-2020) are not yet clear. Should somebody be interested, one can gain knowledge on the dedicated website of the European Union ([www.ec.europa.eu/budget/mff/index\\_en.cfm](http://www.ec.europa.eu/budget/mff/index_en.cfm)) and very good, up-to-date assessments and position papers by WWF at [www.wwf.eu/what\\_we\\_do/eu\\_budget/](http://www.wwf.eu/what_we_do/eu_budget/).

<sup>11</sup> [http://ec.europa.eu/regional\\_policy/sources/docgener/presenta/green\\_growth/greengrowth.pdf](http://ec.europa.eu/regional_policy/sources/docgener/presenta/green_growth/greengrowth.pdf)

<sup>12</sup> [http://ec.europa.eu/regional\\_policy/sources/docgener/studies/pdf/guide\\_multi\\_benefit\\_nature.pdf](http://ec.europa.eu/regional_policy/sources/docgener/studies/pdf/guide_multi_benefit_nature.pdf)

## 2.2. METHODOLOGY

Although the study is mostly based on desk work, diverse **methods** were applied to analyse the circumstances of the Carpathians in order to identify opportunities that may occur for them in using protected areas and natural assets as a potential for sustainable regional development.

**The policy review** was focused on nature conservation policies, legislation as well as soft policy tools and funding opportunities for pro-biodiversity businesses in Europe and in the Carpathian countries. **Literature review** covered the reviews of existing studies and documents on development opportunities building on protected areas and natural assets. Through **questionnaires** we have gathered information about the attitudes of locals to nature conservation, existing conflicts and positive examples, etc. from the 16 project partners of the BioREGIO project. Regional **stakeholder meetings** were held in Hungary, Romania, Serbia and Slovakia, organised by the respective project partners. The aim of these meetings was to involve local stakeholders and to learn about their views and experiences on business operation in protected areas. Stakeholder meetings were structured around two parts. The first dedicated to setting the scene, whereas the second dedicated to workshop discussions with participants split into three breakout groups around sectorial themes.

To fill in gaps for non-EU and less well documented countries, **experts** were hired by respective project partners for Romania, Serbia and Ukraine who provided additional information. Additionally, **interviews were held with experts** on EU nature conservation about ecosystem investments and green infrastructure, sustainable agriculture, sustainable regional development, socio-economic aspects of biodiversity and nature conservation, and initiatives to green the EU funds.

Potential good practice examples from the Carpathians and the Alps for the reason of similarities were collected and assessed to see whether they fit the sustainability criteria and could be applied elsewhere in the ecoregion, i.e.:

- Should be from one of the sectors of the study;
- Should preferably be from the Carpathian region;
- If example is from outside the Carpathians, the method should potentially be applicable in the Carpathians;
- Initiative shall have a clear link to biodiversity or protected areas (should depend on or be closely linked to protected areas and/or natural assets);
- It should be an investment, a change in business or any kind of new/altered business/activity;
- Should be a business, preferably private or a result of joint action e.g. with NGOs or protected area managers;
- Initiative should be self-sustainable (without funding from the EU or other external support) for at least 3 years;
- Initiative in case affecting use of natural resources should comply with sustainable natural resource management or should be a forerunner in applying new sustainable management methods (should be sustainable, in line with nature conservational objectives).

**Good practice examples** for each sector were chosen to be included in this study. We provide a more detailed description of these initiatives later in this study.



## 3. MAIN OUTCOMES



In this chapter we provide information on aspects and policies that are relevant with regard to regional development opportunities of protected areas and natural assets in the Carpathians. We start with the biogeographical patterns of the ecoregion and then describe nature conservation policy, followed by socio-economic characteristics.

### 3.1. BIODIVERSITY AND PROTECTED AREAS

The Carpathian Mountains represent a link between the taiga of Northern Europe and the Mediterranean ecosystems of the south. They are home to the **largest pristine forests in Western and Central Europe**. The broadest primeval forests are found in the Northern Carpathians in the transboundary region of Slovakia, Poland and Ukraine. There is even a World Heritage Site of Primeval Beech Forests of the Carpathians and the Ancient Beech Forests of Germany, consisting of 15 areas, six out of which are in Ukraine, four in Slovakia while the rest in Germany.

Around the world, mountain regions are well known as centres of species diversity. **The great variety of endemic plant and animal species and characteristics of ecosystems is an essential component in Europe's biodiversity.** The mountains' high levels of species richness and endemism were among the main reasons for their designation as globally outstanding biodiversity in the Global 200 Initiative created by the World Wildlife Fund (WWF) to identify the two-hundred ecoregions that are given priority within the conservation agenda. The Carpathians were identified as one of the Global 200 terrestrial ecoregions that are critically endangered by the direct impacts of human activities (OLSON & DINERSTEIN, 2002).

The Carpathians are rich in **landscape diversity**. In addition to the mountainous areas they encompass broad foothill areas and river valleys, forming a very valuable, diverse landscape. Although commonly referred to as a mountain chain, the Carpathians do not actually form an uninterrupted chain of mountains. Rather, they consist of several orographically and geologically distinctive groups, presenting as great a structural variety as the Alps. No area of the Carpathian range is covered with snow year-round, and there are no glaciers. The Carpathians at their highest altitude are only as high as the Middle Region of the Alps (approx. 2,500 m above sea level), with which they share a common appearance, climate and flora. Unlike the other wings of the great Central Mountain System of Europe, the Carpathians, which form watershed between the northern seas and the Black Sea, are surrounded on all sides by plains, namely the Pannonian Plane on the southwest, the plain of the Lower Danube on the south, and the Galician Plain on the northeast.

It is estimated that the entire Carpathian region is home to **more** than 60,000 native **species**, excluding microorganisms (UNEP, 2007), but it is difficult to give an exact estimate both on species number, abundance, distribution and range due to imperfect knowledge. The highest number of endemism occurs among invertebrate species. To save space, we will refrain from listing the most characteristic and protected species of the region as well as the aspects to their conservation. The BioREGIO project also runs a study to develop Common Integrated Management Measures for certain habitats and animal groups. Within that study, a detailed assessment of the status, appropriate management measures and threats to biodiversity is included. Additionally, the Red List of Species, Habitats and Alien Invasive Species are being developed.

**Major threats to biodiversity** in the Carpathians derive from land abandonment and changes in agriculture, hunting and poaching, fragmentation through infrastructure development and the spread of invasive alien species.

The **network of protected areas** in the Carpathians is extensive. There are two types of large-scale protected areas: **national parks** (Hungary, Romania and Serbia) or national nature parks and **protected landscape areas** (Czech Republic, Hungary and Slovakia) or landscape parks (Poland, Serbia and Ukraine). These two categories cover approximately 13% of the Carpathian territory (UNEP, 2007). The largest share of national parks lies in Hungary, followed by Slovakia, Romania, Ukraine, Poland and Serbia, the lowest share belonging to the Czech Republic (RUFFINI & PTÁČEK eds., 2009). While national parks are designated in all Carpathian countries, other types of protected areas differ slightly or more considerably. In the Czech Republic, Poland, Romania, Serbia and Slovakia **nature reserves** are designated. A similar category exists in Ukraine (nature zapovednik) and in Hungary (nature conservation areas). Forest reserves are also designated in Hungary and Romania. In addition, Romania protects certain areas as scientific reserves.



Non-EU Carpathian countries preserve biodiversity through national ecological networks, by implementing international agreements such as the Bern Convention that entails designation of sites as part of the **Emerald Network**, and by contributing to the **Pan-European Network** (PEEN) or the UNESCO's programme on Man and Biosphere by designating **biosphere reserves**. Different categories of protected areas extend over some 36,000 km<sup>2</sup>, and make up around 18% of the area covered by the Carpathian Convention, an international treaty on conservation and sustainable development of the region. The level of protection within each category varies considerably, ranging from very strict protected areas to areas that focus mainly on rural development.

The **Carpathian Network of Protected Areas**<sup>13</sup> that came to life in 2006 to conserve national resources in the Carpathians and to assist implementation of the Carpathian Convention is made up of:

- 36 national parks;
- 51 nature parks and protected landscape areas;
- 19 biosphere reserves;
- Approximately 200 other protected areas.

EU Member States have designated sites under the Birds<sup>14</sup> and the Habitats<sup>15</sup> Directive as part of the **Natura 2000 network** of the European Union. For EU countries this equals to protected areas of the Emerald Network. In the Carpathian Countries protected areas were designated before the countries' accession to the EU, thus before the designation of their respective Natura 2000 sites. The Natura 2000 designation is therefore an additional title and a system of protection. In many Member States, Natura 2000 sites to a wide extent overlap with other protected areas. In this case, both the national and the EU protection are applicable. For those sites or areas that are designated as part of the Natura 2000 network but are not included in the national system of protected areas, only the EU legislation is applicable.

The Natura 2000 network is not a system of strictly protected areas where no human activity is allowed. On the contrary, most Natura 2000 sites depend on proper management. Therefore, all management methods that do not have a negative impact on Natura 2000 are eligible. Should there be a Natura 2000 management plan for the site, it might provide a guidance of these management methods. In addition, the European Union supports proper management by providing dedicated funds to agriculture and forestry in Natura 2000 sites under the European Agricultural Fund for Rural Development.

Even investments and changes in the management might be eligible in a Natura 2000 site in case it has no negative impact on the conservation status of the Natura 2000 species and habitats that occur on the site. In order to avoid conflict it is best to contact the responsible protected area manager still in the planning phase. For infrastructural investments a so-called screening and an Environmental Impact Assessment will be needed, approved by the competent authority, evaluated for the possible impacts of the construction and the operation on Natura 2000 and assessed for how to minimise or eliminate these negative impacts. Should there be negative impacts to the Natura 2000 site remaining compensation measures may be put in place. Only in case these negative impacts are significant might the investment not be permitted. Of the territorial area, 14% of the Czech Republic, 21% of Hungary, 19% of Poland, 18% of Romania and 29% of Slovakia is designated as Natura 2000 sites<sup>16</sup>. Limitations to the fitting of these data are that figures cannot be selectively restricted to the Carpathians; therefore differences may occur in the terms of coverage within and outside the Carpathian region, even though approximately 90% of the Carpathian territory falls within EU Member States since January 1, 2007. With the designation of the Natura 2000 network it is estimated that 15% of the Carpathian territory is covered by the network.

---

<sup>13</sup> See website of the Carpathian Network of Protected Areas at <http://www.carpathianparks.org/>

<sup>14</sup> Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds (the codified version of Directive 79/409/EEC as amended)

<sup>15</sup> Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora

<sup>16</sup> Natura 2000 Barometer as of January 2011 on EIONET [http://bd.eionet.europa.eu/activities/Natura\\_2000/chapter5](http://bd.eionet.europa.eu/activities/Natura_2000/chapter5)

## 3.2. NATURE CONSERVATION POLICY

Usually two types of policy instruments are applied for the protection of nature. The one is the **legislative tools** and the other is the **soft policy tools**, with the former being those that are compulsory to be implemented (e.g. law, regulation and decree) and the latter being those that are not entered to the power of a legislation but are a kind of advice or example that should be implemented mostly in order to support the implementation of a certain legislation (e.g. strategy, plan, guidance, agreement). All Carpathian countries have the combination of the two. As the value of nature and biodiversity was up until the very recent times not measured in economic terms, and that the services and benefits ecosystems provide are still usually taken for granted, nature conservation objectives are often oppressed by other economic reasoning. Therefore, proper implementation of legislation and the involvement of stakeholders in the implementation of soft policy measures are vital for nature.

### Legislative instruments

EU Member States of Carpathian countries (Czech Republic, Hungary, Poland, Romania and Slovakia) had to streamline their legislation to the EU and apply **EU nature conservation directives** (Birds and Habitats Directive) and have designated sites as part of the Natura 2000 network. Taking into account that Serbia is a candidate country for European accession, establishment of networks for management of nature and biodiversity conservation is both an obligation and aspiration. Natura 2000 network, as a strategic priority in protection of biological diversity, is yet to be established in Serbia but Serbia is advanced in streamlining its policies and legislation to that of the EU. Though Ukraine is not yet a candidate country and is difficult to estimate whether it will be joining the EU or not in the near future, it has started to streamline its policies and legislations to that of the EU. While the analysis of nature conservation policy is completed, a proposal of changes in order to harmonise the Ukrainian nature conservation legislation exists and the Birds and Habitats Directives' approximation plan will soon be approved. The analysis of the protected area network of Ukraine has been analysed and a proposal made for how to change/expand in order to better align with a future Natura 2000 network of the country.

In addition to the EU legislation, where applicable, **each country has its own set of pieces of legislation** on and closely related to nature conservation. The principle piece of legislation is usually a law on environment (e.g. for Ukraine) or concretely on nature (e.g. for the Czech Republic and Hungary). A set of lower level legislative instruments such as government decrees, ministerial decrees etc. supplement the law on nature conservation. In addition, there are sectorial laws, (e.g. on forestry, management of land) the implementation of which have a direct impact on biodiversity. An interesting example is the Polish Act on the socio-economic development of the mountain region.

### Soft policy tools

All Carpathian countries are parties to the **Convention on Biological Diversity (CBD)** and have agreed to implement the Convention, sufficiently contribute to achieving the Aichi Targets<sup>17</sup> and fully implement the current Strategic Plan for Biodiversity 2011-2020, adopted in 2010 at the 10<sup>th</sup> Conference of the Parties to the Convention on Biological Diversity (CBD COP 10). All Carpathian Countries, in line with their commitments made when signing the Convention, developed and adopted a **National Biodiversity Strategy and Action Plan (NBSAP)**. Parties are obligated to report on the implementation of their NBSAP, thus the Convention. The latest (fourth) reporting shows that Carpathian countries have the sufficient legislation in place (CBD NR4 2010).

Among regional initiatives, the most relevant for the Carpathians are the Carpathian Convention and the Danube Strategy. The Framework Convention on the Protection and Sustainable Development of the Carpathians (**Carpathian Convention**) was adopted and signed by the seven Carpathian States as Parties (Czech Republic, Hungary, Poland, Romania, Serbia, Slovak Republic and Ukraine) in May 2003 in Kyiv, Ukraine, and entered into force in January 2006. It is a sub-regional treaty to foster the sustainable development and the protection of the Carpathian region.

<sup>17</sup> Aichi Biodiversity Targets agreed at the 10<sup>th</sup> Conference of the Parties to the Convention on Biological

The **International Commission for the Protection of the Danube River (ICPDR)**<sup>18</sup> is a transnational body, which works to ensure the sustainable and equitable use of waters and freshwater resources in the Danube River Basin. The work of the ICPDR is based on the **Danube River Protection Convention**<sup>19</sup>, the major legal instrument for cooperation and transboundary water management in the Danube River Basin. Since 2000, ICPDR is the platform for the implementation of all transboundary aspects of the **EU Water Framework Directive (WFD)**<sup>20</sup> and coordinates the implementation of the **EU Floods Directive**<sup>21</sup> in the Danube River Basin since 2007, the latter two directives being legal instruments of the European Union.

The EU Strategy for the Danube Region (**Danube Strategy**) was proposed by the European Commission in 2010 (COM(2010) 715 final) and was endorsed by Member States in 2011. The Strategy is aimed at boosting the development of the Danube Region. Among its four pillars, Pillar 2 is on 'Protecting the Environment in the Danube Region' which includes actions 'To preserve biodiversity, landscapes and the quality of air and soils'. The Danube Region is a functional area defined by its river basin. The uniqueness of the EU approach is that the Danube Strategy does not only apply to EU Member States, but is endorsed by non-EU states of the region as well. With this, the Danube Region covers the Carpathians except for Poland, as the geographical scope of the Strategy is primarily, but not exclusively: Germany (Baden-Württemberg and Bavaria), Austria, the Slovak Republic, the Czech Republic, Croatia, Hungary, Slovenia, Romania and Bulgaria within the EU, and Serbia, Bosnia and Herzegovina, Montenegro, the Republic of Moldova and Ukraine (the regions along the Danube) outside the EU.



*Figure 3: The scope of the Danube Region Strategy  
(source: EU Strategy for the Danube Region website, <http://www.danube-region.eu/>)*

In addition to the NBSAP under the CBD, most Carpathian countries have **sectorial strategic programmes on environment**, which include a chapter on nature. The Czech Republic has a State Environment Policy and has a chapter that specifically focuses on mountain ecosystems in its National Biodiversity Strategy. Hungary and Serbia have their multiannual National Environmental Programme. There is also a multiannual National

<sup>18</sup> <https://www.icpdr.org/main/>

<sup>19</sup> Convention on Cooperation for the Protection and Sustainable use of the Danube River (Danube River Protection Convention)

<sup>20</sup> Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for the Community action in the field of water policy. Brussels, 23/10/2000

<sup>21</sup> Directive 2007/60/EC on the assessment and management of flood risks. Brussels, 6/11/2007

Environmental Policy in place in Poland and a National Environmental Action Programme in Slovakia. Ukraine has put an emphasis on protected areas and ecological networks, and the State Programme of Ukraine's National Ecological Network Development for 2000–2015 is embedded in the law (RUFFINI et al, 2008).

Pieces of **guidance and recommendations** to help implementation of legislation exist at all levels. The European Commission has developed **guidance for those sectorial activities** that have the highest impact on biodiversity and the successful implementation of nature directives (see Chapter 2.1 European Outlook). **Communications** from the Commission are important pieces of non-legislative, soft policy tools in EU Member States. They are non-binding by their nature but their implementation is monitored by the Commission. The core Communication from the Commission in the field of nature and biodiversity is the EU 2020 Biodiversity Strategy (COM(2011) 244 final) that sets out six biodiversity targets for EU Member States to be achieved by 2020. Recently, the European Commission adopted a strategy on green infrastructure to enhance Europe's natural capital (COM(2013) 249 final). The concept of green infrastructure is that the services of nature and biodiversity can be used in many cases more efficiently than bare grey infrastructure, while at the same time providing multiple benefits. Typical examples of green infrastructure are the restoration and maintenance of mountain forests and floodplain forests instead of building dams, or securing a flower margin along cultivated lands in order to secure habitat for pollinators. The strategy draws a road to encourage investments in green infrastructure so that the 2014–2020 EU funds can also be streamlined with this approach.

Guidance documents and recommendations are often valuable outcomes of projects, such as species action plans or site management plans developed under LIFE+ Nature projects<sup>22</sup>. They are initiated by international organisations like EUROPARC Federation ('European Charter for sustainable tourism in protected areas') or help the implementation of initiatives like the 'Protocol on Sustainable Forest Management' and the 'Protocol on Sustainable Tourism' to the Carpathian Convention. Furthermore, they support the actors of targeted sectors like the guidance documents on agriculture, food supply, forestry, non-energy extractive industries and tourism under the EU Business and Biodiversity Platform. Sectorial strategies, guidance and other soft policy tools from the Carpathian countries are listed in the relevant parts of the sectorial analyses.

### 3.3. SOCIO-ECONOMICS

**The relationships between biodiversity, ecosystem services and human well-being, as well as employment are significant and closely intertwined.** As always, there are both positive and negative aspects of mountainous and especially protected areas in respect to social and economic patterns.

#### 3.3.1. TRENDS

The average **human population density** in the Carpathian region is 120/km<sup>2</sup>. Behind this average however, the differences in distribution are very large. In the very mountains, where the economic carrying capacity is rather low, the population density is 10–25/km<sup>2</sup>, whereas in the forelands of the mountains it is rather high, with over 150/km<sup>2</sup> and is especially high along the external "market line" (a chain of cities), where it is more than 200/km<sup>2</sup>. However, these two areas showing different densities of population cannot be regarded separately. The economic base for a significant share of the population in the densely populated area is the mountains and their products. On the other hand, the population in the mountains would be even smaller without the demand of the population in the forelands for their services and products. **Population density trends** are the result of birth and death rates and migratory movement of the population. For example, in 2002, 11% of the population of the Serbian Carpathian worked abroad for more than one year. As a comparison, the same figure was only 5% for the entire national population (LUKIČ, 2011). As a result, changes led to the **aging** of the Carpathian population and to **land abandonment** in the mountainous areas. For example, in Romania, after the 1990s a significant decrease in the number of cattle and sheep occurred due to massive outmigration and land abandonment.

---

<sup>22</sup> Convention on Cooperation for the Protection and Sustainable use of the Danube River (Danube River Protection Convention)

After the change of regime in the 1990s, policies continued to concentrate on the intensity of production rather than creating incentives to increase environmental qualities. The structural adjustment process in agriculture caused the low return (poor) land to be released from production, especially in protection zones with severe environmental restrictions. Land abandonment resulted in a rapid degradation of wildlife and landscape in places where these natural values were legally protected. For example, in the White Carpathians, the westernmost mountain range of the Carpathian Mountains lying in the Czech Republic and Slovakia, they have found that **solving the conservation problem is not separable from the rural development problem of the region**, and therefore there is a need for participation of local community in terms of contributing producers but mainly consumers of high natural values (RATINGER & KRŮMALOVÁ, 2002).

Majority of the Carpathians is poorly accessible with weak connectivity. This all contributes to the **peripheral position** of the region affected by depopulation and negative demographic trends that only reinforce negative economic indicators. During the socialist era, this remoteness saved vast areas of the Carpathians from destruction and overexploitation, as the communist regime did not find interest in the development of mountainous areas where the land could not be collectivised. This helped the Carpathian traditions (e.g. traditional farming methods), flora and fauna to survive, for example, in Romania, where approximately 45% of the entire Carpathian population lives.

The **unemployment rates** are usually higher than that of the national average while the investments per capita are low. And activity rates (active people in working age) are also very low (GÁL & RÁCZ, 2008).

### 3.3.2. INITIATIVES TO RETAIN RURAL POPULATION

**The analysis of the answers to the questionnaire (Annex I) show that people answering the questionnaire and living in the Carpathians are mostly happy of living in a nice and biodiversity rich, healthy environment, may even be proud of their home environment, but they have a negative perception of the impact of protected areas on their lives.** In their perception nature conservation is equal to restrictions and they are not really aware of opportunities. The analysis showed that local people do not very well recognise the value of nature and ecosystems surrounding them (with an average of 2.5 on a scale between 1 to 5). However, they are usually fairly proud of the landscape and the biodiversity (forests, lakes etc.) they live in or live close to (with an average of 4 on a scale between 1 to 5) and they enjoy natural values in their free-time, for example, hiking, etc. to a middle extent (with an average of 3.3 on a scale between 1 to 5). In addition, both answers to the questionnaires and regional stakeholder meetings showed that locals are easily able to provide examples of conflicts between nature conservation and local people or business but can rarely think of positive, good examples. All these have impacts on the socio-economics of the Carpathians with large, natural and protected areas, as the attitude of locals increases out-migration and unsustainable developments since people do not recognise the opportunities of protected areas.

Lower fertility and higher provisioning of ecosystem services of mountainous areas are recognised for example by the European Fund for Agriculture and Rural Development in its **scheme for Less Favoured Areas (LFA)**. In areas designated as 'less-favoured', agricultural production or activity is more difficult because of natural handicaps, e.g. difficult climatic conditions, steep slopes in mountain areas, or low soil productivity in other less favoured areas. Due to the handicap to farming there is a significant risk of agricultural land abandonment and thus a possibility of loss of biodiversity, forest fires and the loss of highly valuable rural landscape. The Less Favoured Areas (LFA) payment scheme is aimed at mitigating these risks and mountainous areas are one of the LFAs recognised by the EU. Another measure of the European Union is to compensate the income forgone for those farmers who contribute to the proper management of biodiversity rich, natural and semi-natural grasslands is the **High Nature Value (HNV)** grassland payment scheme. Mountain hay meadows are typical habitats where HNV farming practices should be applied and paid for.

In addition to EU wide programmes, there are specific tools applied in certain countries to help laggard regions. The Hungarian Government for example, set off a scheme in 2008 dedicated to assisting the **Least Developed Micro-regions**<sup>23</sup> (see Figure 3) reach the EU average with the help of EU co-funding. When

<sup>23</sup> See details of the programme at <http://www.nfu.hu/lhh>



designated the Least Developed Micro-regions and protected areas in Hungary on the map, it turned out that many Least Developed Areas, to a large extent, overlap the protected areas, which leads us to conclude that they are areas rich in biodiversity.

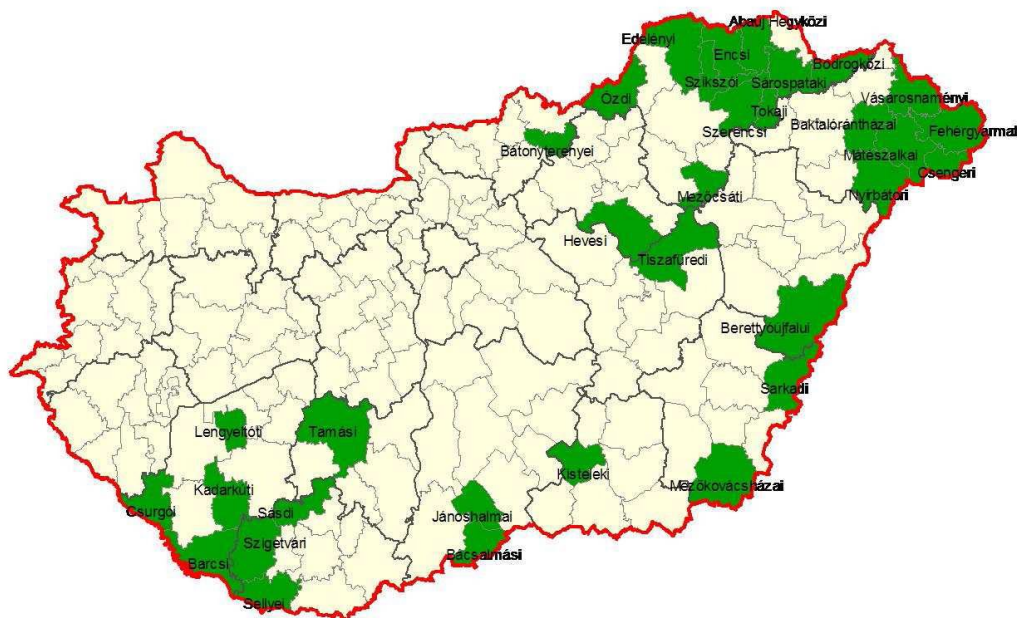


Figure 4: Least Developed Micro-regions in Hungary (National Development Agency, 2008, <http://www.nfu.hu/lhh>)

The law in Serbia regulates that the municipalities having fewer than 50% of national GDP/capita are considered underdeveloped and are categorized as **devastated areas**. Special policies and measures are designed to enhance development of such areas and decrease the regional development differences. There are three such municipalities among 13 of the Serbian Carpathian region, while all 13 are under the national average.

**Jobs are linked to biodiversity directly** through management and conservation of protected areas, and through the direct provisioning services of ecosystems (supporting primary industries such as fisheries, forestry and agriculture) **and indirectly** through the provision of valuable ecosystem services such as nutrient cycling and water provision. There is also evidence that the sectors most dependent on biodiversity and related ecosystem services are also those that are causing the most damage to the very services and inputs that they are reliant upon (e.g. agriculture places pressure on water quality and quantity). In most cases, such damages are caused by unsustainable resource management and the conversion of natural systems, which may create immediate wealth and short-term employment, but often result in degraded ecosystems, declining provision of ecosystem services and decreases in employment in the long run (NUNES *et al.*, 2011). The European Commission has estimated the impact of implementing the EU 2020 Biodiversity Strategy on jobs and skills. The study concluded that proper implementation of the Strategy will have a net positive effect on the number of green jobs both among the higher skilled and low-skilled labour workers, with which it may help mitigate the impacts of the current economic crisis and work against the high unemployment rates. Also, it will have a net positive impact on the quality of jobs as it is concluded that unless job quality is improved, there is a serious risk that the jobs will be avoided by young people and Europe's increasingly urban population, raising a serious obstacle to the achievement of the EU biodiversity targets. On the other hand, by encouraging skilled manual workers in agriculture, forestry and fisheries to diversify their practices, the Strategy has the potential to secure the sustainability of jobs in these declining sectors, and attract more young people to them, thereby contributing to the EU's poverty reduction and rural diversification objectives (JURADO *et al.*, 2012).



## 4. SECTORAL ANALYSIS





This chapter is dedicated to the **in-depth analysis of the sectors agriculture, energy, forestry, fisheries, non-timber forest products and tourism**, in alphabetical order. Sector by sector we provide information on relevant patterns of the specific sector, its characteristics in the Carpathians and any information or data that is relevant for the study. We also give insight to definitions on sustainability in these sectors. We have also collected relevant guidance documents, standards and initiatives on sustainability of the certain sector. This type of sectorial introduction is followed by the description of challenges both in terms of those faced by the sectorial actors due to nature conservation and the impacts the sector might have on biodiversity. Then, we provide some good practice examples from Carpathian countries that might be for consideration for application in other countries or areas of the Carpathians. Examples of good practice are provided from the Alpine region taken the similarities of the two regions and the fact that experience and knowledge is more available for the Alpine region since the longer history of the Alpine Convention compared to that of the Carpathian Convention. In the next chapter (Chapter 5, Conclusions), we formulate concrete recommendations for our three target audience groups to help them to take the next step to sustainable regional development.

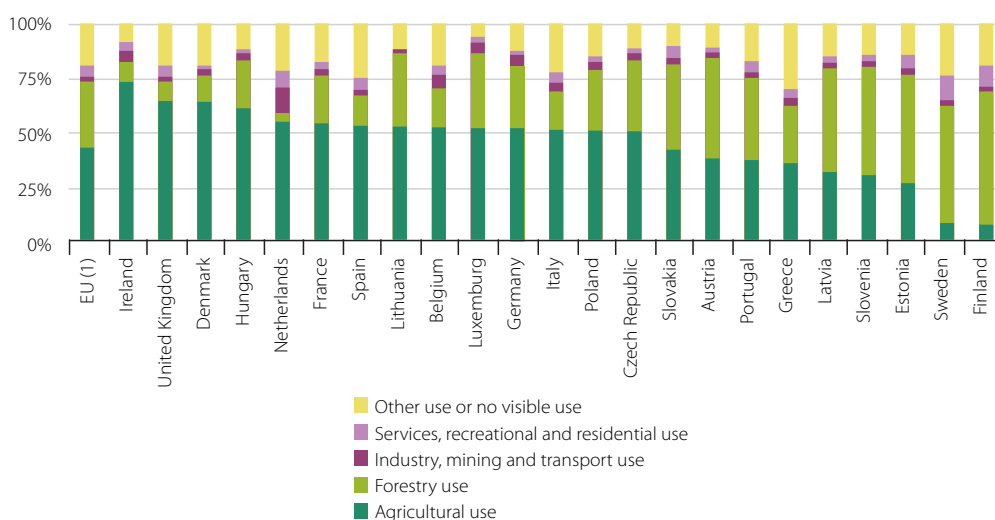
## 4.1. AGRICULTURE

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.

### Agricultural land use and the importance of land management

Land management depends on the associated land use.

Based on Eurostat data from 2009<sup>24</sup>, agricultural land use is the most common primary land use category in the EU; it accounted for 43% of the total area in EU-23 (excluding Bulgaria, Cyprus, Malta and Romania). Hungary reported more than 60% of its terrestrial land used in agriculture, Poland reported 50% and Slovakia is at the EU-23 average. 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.



(1) EU average excluding Bulgaria, Cyprus, Malta and Romania.  
Source: Eurostat (online data code: lan\_lu)

Figure 5: Land use in EU-23 (source: Eurostat, 2009<sup>25</sup>)

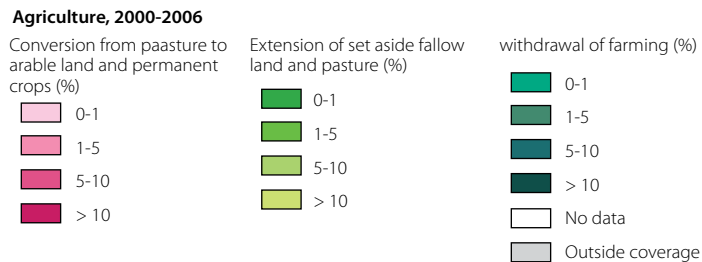
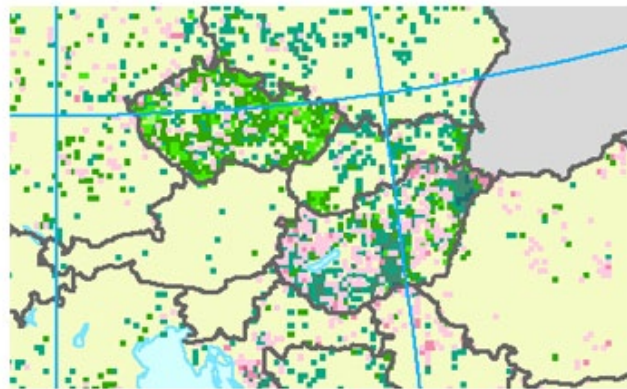
<sup>24</sup> [http://epp.eurostat.ec.europa.eu/statistics\\_explained/index.php/Land\\_cover,\\_land\\_use\\_and\\_landscape](http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Land_cover,_land_use_and_landscape)

<sup>25</sup> [http://epp.eurostat.ec.europa.eu/statistics\\_explained/index.php/Land\\_cover,\\_land\\_use\\_and\\_landscape](http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Land_cover,_land_use_and_landscape)

As for the Carpathians, excluding Ukraine, data exists for the Carpathian Macroregion, at the European Environmental Agency (EEA)<sup>26</sup>. Figures based on CORINE Land Cover show that over 55% of the area is used for agriculture (arable land, vineyards, tree plantations, pastures etc.) whereas approximately 38% is covered by forests.

In particular, 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 (GÁL & RÁCZ eds., 2008).

According to EEA data on land cover changes in all Carpathian countries, land use change is dominated by land abandonment on the one hand and conversion of pastures to arable land or permanent crops on the other (see Figure 5).



**Figure 6: Agricultural land use changes between 2000 and 2006**  
 (source: EEA, <http://www.eea.europa.eu/data-and-maps/figures/agriculture-clc-change-2000-2006>)

The history of the Carpathian countries has a lot to say in this regard. During the socialist era, the Czech Republic, Slovakia and Hungary experienced intensive collectivisation, land consolidation, the compulsory integration of private farmers into cooperatives and collective organisations. In Poland, the private sector was preserved to some extent. Particularly, in south-eastern Poland and in central Romania, small private enterprises and individual farmers resisted this collectivisation due to the mountainous characteristics where small, isolated mountain farms should not be collectivised (RUFFINI & PTÁČEK eds., 2009). The fall of the Iron Curtain in 1989 resulted in rapid and drastic changes in Eastern Europe’s political, societal and economic structures, thus in the post-Communist states of the Carpathians. Centralised planning economies shifted towards free-market systems including a long privatisation process, institutional regimes were altered and confronted in time with the sensitive process of democratization, and rapid demographic change occurred. These socio-economic and political changes affected land use but the rates and spatial patterns of these changes differed markedly in time and among countries (HOSTERT *et al.*, 2008). Typically in the Romanian, Ukrainian and Polish mountainous regions the percentage of holdings with less than 5 hectares of arable land continue to be high, 50% or more (as a comparison, the average size of a holding was 14 hectares in the EU-27 in 2010).

<sup>26</sup> <http://www.eea.europa.eu>

In general, evidence shows that there have been significant but variable levels of farmland abandonment over the last few decades all over the EU, primarily in areas where agriculture is less productive, particularly in remote and mountainous regions and areas with poor soils and harsh climates. For example, about 15-20% of the cropland used in socialist times was abandoned after the change of regime in all Carpathian countries, likely as a response to the decreasing profitability of agriculture after 1989 (KUEMMERLE *et al.*, 2008). Furthermore, the main causes for agriculture land use changes are generally found in the ageing of farmers population, the migration of young generations to cities and their tendency to be employed in the service sector, the abandonment of traditional extensive forms of agriculture and animal raising for apparently more performing monoculture and intensive systems, and the influence of market logic and supply chain length upon farm viability, especially in small to mid-sized holdings.

Under these premises, the selection of the management system for agriculture land use is crucial both in socio-economic and environmental terms: the long-term viability of agriculture as business, of the agro-ecosystems at stake, and of the socio-cultural systems associated with the specific agriculture activity.

### Definitions of responsible land management

There is no universal definition of **sustainable agriculture**, but most of them include the following elements: ecologically sound, economically viable, socially just, culturally appropriate, humane and based on a holistic scientific approach. Particularly in terms of market production, sustainable agriculture must also reflect the concerns of consumers with respect to quality, safety and health.

The term sustainable agriculture was addressed by the US Congress in the 1990 Farm Bill<sup>27</sup> where it is defined as “an integrated system of plant and animal production practices having a site-specific application that will last over the long-term:

- Satisfy human food and fibre needs;
- Enhance environmental quality and the natural resource base upon which the agricultural economy depends;
- Make the most efficient use of non-renewable resources and on-farm resources and integrate, where appropriate, natural biological cycles and controls;
- Sustain the economic viability of farm operations;
- Enhance the quality of life for farmers and society as a whole.”

Sustainable agriculture seeks to improve the benefits of agricultural production by reducing threats and enhancing benefits to biodiversity, and to lower the impacts of agriculture on habitats and species through improved production and management practices. Organic and traditional forms of sustainable agriculture are explored in more details.

**Organic farming**, also called as ‘bio’, is a strict farming method where the production, control and labelling of organic products is ruled by legislation. This type of farming is one that respects natural systems and cycles. Organic farming contributes to the protection of our natural resources, to biodiversity and animal welfare. It also has a great potential to help the sustainable development of rural areas (in Eastern European countries this holds true as long as market opportunities for small farmers are improved and their willingness and capacity to cooperate is strengthened). Organic production is vegetable production using natural sources of nutrients (such as compost, crop residues, and manure) and natural methods of crop and weed control, instead of using artificial, synthetic or inorganic agrochemicals; furthermore, it is meat production using organically produced fodder. Rules apply both to materials, and farming practices. In addition to the EU legislation, all EU Member States have respective national legislation on organic farming. Organic farming is a sector of European agriculture that has seen constant growth in recent years. From 2005 to 2007, the total organic area (i.e. fully converted area plus area under conversion) as a percentage of the total utilised agricultural area (UAA) within the EU rose from 3.6% to 4.1%. The increase in area between 2006 and 2007 was 5.9% and 7.4% from 2007 to 2008. In the Carpathian countries, highest increase between 2007 and 2008 was in Hungary (15%) and Slovakia (19.4%)<sup>28</sup>.

<sup>27</sup> Food, Agriculture, Conservation, and Trade Act of 1990 (FACTA), Public Law 101-624, Title XVI, Subtitle A, Section 1603 (Government Printing Office, Washington DC, 1990) NAL Call # KF1692.A31 1990

<sup>28</sup> [http://epp.eurostat.ec.europa.eu/statistics\\_explained/index.php/Organic\\_farming\\_statistics](http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Organic_farming_statistics)

Carpathian country	Organic land (ha)	Organic land (%)
Czech Republic	460,498	10.8
Hungary	124,402	2.9
Poland	609,412	3.9
Romania	229,946	1.7
Serbia	6,238	0.1
Slovakia	166,700	8.6
Ukraine	270,320	0.7

Figure 7: The rate of organic agricultural land and total agricultural land in the Carpathian countries in year 2011 (source: Research Institute of Organic Agriculture FiBL, 2013<sup>29</sup>)

**Traditional farming** is the application of methods and know-how from before industrialisation. It is by its nature, in balance with the surrounding ecosystems, it has developed with man adapting to geographical conditions and consequently has shaped the beautiful landscapes we still admire, especially in the Carpathians. It usually results in risk reduction, provides all-year land cover, is diverse both in species and genetic variety, and runs with low input but is very labour intensive. In the last 10-15 years the concept of High Nature Value Farming (HNVF) has developed at European level to recognise the fact that some forms of agriculture and especially traditional ones have a positive effect on biodiversity thus promoting a positive relationship between agriculture and nature and particularly between traditional forms of agriculture land management and biodiversity conservation. HNMF is characterized by agriculture being the main form of land use, agriculture supporting a high diversity of wild species and habitats or the presence of species and habitats of national/regional/European importance, and biodiversity conservation depending on the continuation of specific agriculture practices (REDMAN, 2009). Similarly to organic farming, given that traditional/HNV farming is mainly practiced by small farmers, particularly in Eastern European countries, it is crucial to improve market opportunities for them and to strengthen their willingness and capacity to cooperate in order to improve and stabilize the economic viability of such farming systems, which in return deliver ecosystem services to society.

Responsible land management can also be integrated into conventional agriculture, which refers to any farming not dedicated to alternative methods, such as the ones described above or genetic engineering. In conventional farming, chemical plant protectants, chemical fertilisers, and intensive mass animal farming are common, and products from conventional farming may contain accidental mixtures of Genetically Modified Organisms (if below the labelling threshold of 0.9 percent). This kind of farming has dominated the 20<sup>th</sup> century and accounts for most farming today (<http://www.coextra.eu/glossary/word672.html>). Still, responsible practices that could be adopted by conventional farmers include crop rotation, the integration of landscape features such as hedges, trees, small wetlands, pockets of natural vegetation, and part of the farmland area being excluded from production (e.g. fallows, buffer strips, headlands), with the condition that the land is not ploughed, sown, fertilised or sprayed, but it can be grazed or mown, and can include grass buffer strips and headlands and semi-natural habitats. Similarly, conventional livestock farmers can move from intensive grass crops towards more extensively managed pasture/grassland systems achieved through the use of different types of forage including shrubs and trees. These measures have the potential to address the negative impacts usually associated with agriculture, namely biodiversity loss, nitrogen pollution, climate emissions and damage to soil and water quality, while simultaneously improving the delivery of public goods or ecosystem services. (WWF, 2012).

<sup>29</sup> <http://www.organic-europe.net/europe-data-tables.html?&L=0>

## Existing guidance, standards, initiatives and organisations

The **Convention on Biological Diversity** contains a **Thematic Programme on Agricultural Biodiversity**. The Programme recognizes the dilemma of agriculture in that it provides essential ecosystem services on the one hand, and on the other hand is a major driver of biodiversity loss. As all Carpathian states are Parties to the CBD, they shall be committed to accomplishing the Programme.

The Secretariat of the Carpathian Convention helps Carpathian states to implement the Convention's Article 7 'to maintain the management of land traditionally cultivated in a sustainable manner, and take appropriate measures in designing and implementing their agricultural policies' by running a **Working Group on Sustainable Agriculture and Rural Development (SARD)**.

The **European Innovation Partnership on 'Agricultural Productivity and Sustainability'**<sup>30</sup> (EIP-AGRI) is one of the flagship initiatives of the European Commission to help EU Member States implement the Europe 2020 Strategy. The initiative, launched in February 2012, aims to provide a working interface between agriculture, bio-economy, science and others at EU, national and regional level. It is also meant to serve as a catalyst to enhance the effectiveness of innovation-related actions supported by Rural Development Policy as well as the Union Research and Innovation. As a result, through innovation projects and research, we may expect the development of farming measures that ensure long-term sustainability. Those interested may follow the outputs of the work (e.g. innovative technologies developed, guidance documents, recommendations) and be involved in relevant focus-groups or other events are organised by the EIP-AGRI.

The **Food and Agriculture Organisation of the United Nations (FAO)** is helping countries achieve sustainable gains in agriculture to feed a growing world population, while respecting the natural environment, protecting public health and promoting social equity. The department helps farmers to diversify food production, reduce the toil of farming, market their products and conserve natural resources. The FAO has its Regional Office for Europe and Central Asia in Budapest, Hungary.

The **European Landowners' Organisation (ELO)** is a non-profit organisation representing the interests of the owners and managers of rural land and rural businesses within the EU. It aims to promote "a prosperous and attractive European countryside", and it lobbies to advance its aims at local, national and European levels. ELO's main concern is to ensure that rural areas are developed in a way that balances economic activity with conservation of the rural, environmental heritage. ELO is an NGO and thus is open to join.

The **International Federation of Organic Agriculture Movements (IFOAM)** EU Group is the EU working level of IFOAM. IFOAM's goals are the worldwide adoption of ecologically, socially and economically sound systems that are based on the principles of Organic Agriculture. IFOAM EU Group is a non-profit membership-based organisation that brings together more than 300 organisations, associations and enterprises. It represents the organic movement in Europe and promotes the further development of organic food and farming. IFOAM is an NGO and thus is open to join.

The **European Forum on Nature Conservation and Pastoralism (EFNCP)** is the only European organisation focusing on the maintenance of low-intensity livestock farming, the type of farming that is widespread on less productive land in many European countries, typically using semi-natural pastures and meadows. Out of the Carpathians they run projects in Romania and help promote traditional farming in the mountain regions. EFNCP is an NGO and thus is open to join.

The **European Learning Network on Functional Agro-Biodiversity (ELN-FAB)** covers EU-27 plus Switzerland and Norway. It compiles best practice examples and disseminates practical guidance to European farmers and landowners concerning functional, agro-biodiversity in order to promote sustainable agriculture. The European Centre for Nature Conservation (ECNC) hosts the Secretariat of the European Learning Network and plans to broaden and intensify the current activities with the goal of exchanging knowledge and practical experience across country and language borders, between farmers, policy makers, scientists, businesses and NGOs, to enable fast and effective implementation of best practices. ELN-FAB is an initiative and those interested may follow the deliverables of the project.

The '**Guidelines for promoting sustainable agriculture in Alpine mountain regions** – Insights into handling social dynamics in project management'<sup>31</sup> is a product of a project on the 'Implementation of Sustainable Agriculture and Rural Development in Alpine mountains'. Its objective is to implement and assess

<sup>30</sup> COM(2012) 79 final

<sup>31</sup> [http://ec.europa.eu/research/agriculture/pdf/imalp\\_alpine\\_en.pdf](http://ec.europa.eu/research/agriculture/pdf/imalp_alpine_en.pdf)

collective actions aimed at promoting sustainable agriculture and rural development in the Alps. Although it has been developed for the Alpine Region, taken its similarities to the Carpathians, the Guidelines provide useful information and recommendations to farmers of the latter mountain region.

#### 4.1.1. CHALLENGES

The agricultural sector is one of the major natural resource-based industries. If not performed in a sustainable manner, it is one of the sectors having significant negative impacts on biodiversity, causing species loss, and the decrease of farmland biodiversity (such as farmland birds that declined by almost 50% in the past 25 years as well as a loss in butterflies) (SEC (2010) 1163 final).

The most significant drivers of the loss of farmland biodiversity are:

- Land-use changes (e.g. conversion of natural and semi-natural land to agricultural land or urbanisation);
- Intensification (e.g. application of intensive farming practices such as monoculture with high chemical input);
- Abandonment of farmland (e.g. farmers moving from the countryside to urban areas and leaving the land behind with no further cultivation);
- Climate change (e.g. extremely high rainfall within an unusually short period, extreme weather changes).

Traditional agriculture is being threatened by the breaking down of social structures, resulting in demographic changes that lead to **intensification** as well as land abandonment. The **conversion** of natural, semi-natural or even agricultural land into energy plants for “green energy” is not only conflicting biodiversity, but in a wider perspective, it can also be a competitor to food and fodder production. The spread of GMO crops entails the risk of crossing over into natural ecosystems.

In the Carpathians, **intensification** on lowland areas and **land abandonment** in the mountainous areas seems to be the common land use change trend. A perverse effect in some of the EU Member States within the Carpathians are experienced in preparing multiannual Common Agriculture Policy, especially in 2005-2007 as well as today: Biodiversity rich natural and semi-natural grasslands were ploughed and cultivated as arable land for a few years as the CAP was said to provide payments for the conversion of arable land into grassland. Such perverse effects should be identified and phased out from the funding schemes.

**Harmful farming practices** are a big contributor to greenhouse gas emissions (e.g. animal husbandry with a high number of animals), water and soil pollution and the decline of biodiversity.

Many rural areas are also suffering from **abandonment** by farming families who can no longer make their living from farming.

Long-term challenges that farming faces in Europe these days are due to **climate change**, natural resources such as water, energy and the cultivation of food. However, in the Carpathians, it is more the climate change mitigation measures that play an important role than the adaptation to climate change.

Climate change projections suggest more irregular rainfall and a warmer climate in the Carpathian basin (Láng, 2006; Bartholy *et al.*, 2007). Studies of temperature change over the Carpathian Basin largely assume an increase in temperature. The Carpathian Mountains are projected to experience an increase between 3.0 °C in the north-western part to 4.5°C in the south. Higher temperatures, rising CO<sub>2</sub> concentrations, changes in annual and seasonal precipitation patterns and frequency of extreme events will affect both productivity and quality of agricultural outputs in the region (ALTERRA, exp. 2014).

Although there exists agro-environmental payments and additional national payment schemes within the EU, like the landscape maintaining programme (PPK) in the Czech Republic, which compensate and acknowledge the restrictions and difficulties that farmers face and reward the public goods provided by them to the society, farmers nevertheless, often complain about their circumstances. Among these complaints, compiled from the replies from the questionnaires and stakeholder meetings, the most frequently claimed statements in the Carpathians were:

- Restrictions posed on them under management plans of protected areas;
- The restrictions are not at all or not sufficiently compensated;
- Damage caused by protected species, not at all or not sufficiently compensated;

- Lower market value of farmland on protected areas;
- Lower liquidity of farmland on protected areas;
- Bad position for loans as farmers of protected areas have less profit and many banks do not accept protected area as mortgage;
- There is no solvent demand to pay the extra prices of sustainable or organic food.

#### 4.1.2. OPPORTUNITIES

Benefits to biodiversity and ecosystems for agricultural productivity include improved pollination, natural pest control, nutrient cycling, soil and water conservation and, as a consequence, a decreased demand for external inputs and the production of higher quality, value-added products as well as increased resilience and adaptive capacity of agricultural production systems against the disturbances of climate change. Therefore, **understanding interactions between biodiversity and agricultural production and translating this knowledge into management practices** is essential to ensure the delivery of public goods or ecosystem services. The **adoption of alternative and innovative technologies** is an important contribution in this sense. Benefits of sustainable agriculture to individuals, businesses, and society as a whole include reduced negative environmental impacts, healthier, safer and sufficient food, fibre and fuel, the conservation of biodiversity, landscape aesthetics, preservation of the genetic diversity of vegetable crops and animal breeds, reduced business risks, and mitigation of greenhouse gas emissions.

A cutting edge opportunity in implementing sustainable agriculture practices is represented by **agro-biodiversity**, a vital sub-set of biodiversity. Many people's food and personal security depend on the sustained management of various biological resources that are important for food and agriculture. Agricultural biodiversity, also known as agro-biodiversity, or the genetic resources for food and agriculture, include:

- Harvested crop varieties, livestock breeds, fish species and non-domesticated (wild) resources within field and forest range land including tree products, wild animals hunted for food and in aquatic ecosystems (e.g. wild fish);
- Non-harvested species in production ecosystems that support food provision, including soil microbiota, pollinators and other insects such as bees, butterflies, earthworms, greenflies;
- Non-harvested species in the wider environment that support food production ecosystems (e.g. agricultural, pastoral, forest and aquatic ecosystems).

Agro-biodiversity is the result of natural selection processes and the careful selection and innovative developments of farmers, herders and fishers over millennia. Basically, it is the result of the interaction between the environment, genetic resources and management systems and practices used by culturally diverse peoples, and therefore land and water resources are used for production in different ways. ([www.fao.org](http://www.fao.org))

Experience and research have shown that agro-biodiversity can:

- Increase food security, and economic returns;
- Reduce the pressure of agriculture on protected areas and endangered species;
- Make farming systems more stable, robust, and sustainable;
- Contribute to pest and disease management;
- Conserve soil and increase natural soil fertility and health;
- Diversify products and income opportunities;
- Help maximize effective use of resources and the environment;
- Reduce dependency on external inputs;
- Improve human nutrition and provide sources of medicines and vitamins;
- Conserve ecosystems' structure and stability of species' diversity (B@B, 2010).



Therefore, the sustainable use of natural resources and maintaining healthy and well-functioning ecosystems is not just about protecting the environment for its own sake, it is also vital for farmers, as it ensures the fertility and productivity of agricultural ecosystems, and is key to competitiveness and food security in the long-term.

To motivate and support farmers, landowners and land managers must understand and see an opportunity in shifting to more sustainable methods of farming and start incorporating responsible land management. Over the past two decades there has been a rise in **branding and certification schemes** in the agricultural sector (organic production, local and regional brands etc.); these create market niches which can assist businesses to access new markets, expand their customer base and increase their income, while fully complying with biodiversity objectives.

Furthermore, within the European Union the **Common Agricultural Policy** (CAP) provides specific funding opportunities, that combined can contribute to nature conservation and the viability of farms (particularly ensuring stable incomes in extensively farmed areas), and overall, stimulate local economies and the vitality of local communities. Besides direct payments under Pillar 1, rural development measures under Pillar 2 support farm-level investments, products access to markets, creation of producer groups, instalment of young farmers, activities as well as product diversification, etc. In particular, the so-called agro-environmental payments under Axis 2 are aimed at:

- Maintaining beneficial farming systems and practices;
- Supporting biodiversity friendly practices;
- Supporting agriculture in Natura 2000 areas as well as in other areas with valuable natural features (e.g. Less Favoured Areas, High Nature Value Farmlands);
- Restoring degraded habitats.

In addition, there are **national funding schemes** in certain Carpathian countries to support farming in landscape areas (e.g. the Czech Republic) or to compensate for the damage caused by protected species (e.g. Hungary and Romania).

### 4.1.3. GOOD PRACTICE EXAMPLES

#### 4.1.3.1. Association of Regional Brands – Czech Republic

**Type of example:** branding

**Initiator:** NGO

**Additionally involved:** local businesses, farmers, etc.

The regional branded certification project was created by the NGO APUS and the Czech 'Association of Regional Brands' to support products originating from specific rural regions or protected areas in order to make them more noticeable and marketable.

APUS initiated and managed their foundation on the national level within its project to enhance awareness of Natura 2000 areas. The network initially included three regions in 2005, and expanded to 10 regions by 2009 (see Figure 8) and to 18 by 2012. In 2010, over 250 certificates have been granted for products or groups of products. Most of the enterprises are micro-enterprises in the handicraft and food processing sectors.



Figure 8: Regional branded certification network in the Czech Republic (APUS / Czech Association of Regional Brands, 2009)

All of the brands in the Association have common granting principles, marked and unified graphic design. Their basic characteristics include the guaranteed origin and respect for the environment in all phases of both production and sale. The brand also concerns proportion of manual or mental work and local raw materials.

The certification is granted to products that have been produced within one of the member regions and that have clear relationship with that region, for example, a traditional local product, a product made of local raw materials or a product made by hands of the local people. The product also has to be of a certain quality and it must not cause harm to the environment. The brand is usually granted to handicrafts or artwork, food, agricultural and natural products and sometimes to industrial products. A certification commission that consists of local producers, regional authorities, nature-protection organisations and agrarian and commerce bodies awards the brands. Although the brands respect common rules, the individual regional brands are unique to a great extent, depending on the conditions in which they arose and work. While in the first three regions, the brand was established in protected areas predominantly, this phenomenon was receding in the others and what they have in common until now is mainly the fact that they are rural areas with a great tourist potential but also with structural difficulties.

The study 'Biodiversity Technical Assistance Units', financed by the European Commission, has analysed the initiative and found that taken that in contrary to the start-up period of the scheme, the compulsory criteria of the product needing to originate from protected area was set aside, by the end the cultural, geographical and social indicators were relatively well developed but the criterion was relatively weak on environmental indicators (FOXALL *et al.* 2010) and would need further improving to ensure that it has benefits for biodiversity. Still, the initiative had good roots and is a success, so it is recommended to be analysed and applied in other countries and regions with a strengthened biodiversity pillar.

For further information: <http://www.regional-products.eu/>

#### 4.1.3.2. Syrex Agrofarm – Slovakia



Figure 9: Product offers by Syrex Agrofarm, Slovakia (photo: Syrex)

**Type of example:** dairy product

**Initiator:** farmer (business)

**Additionally involved:** local farmers, SMEs, small-holders

Syrex is run by a multi-generation farmer family in the neighbourhood of National Park Malá Fatra. Grandparents and great-grandparents of the current owners did traditional mountain farming for a living, which included sheep and cow rearing. The firm was established in 1993 as a sheep and milking cow farm that also processed milk into traditional cheese braids. They offered their products in a sell-at-the-gate system and at weekly markets. As the business grew they turned towards retail shops and hotels.

In ten years they could not satisfy the high demand for their products. The company restructured itself and its business model and in 2003 it took its new name, Syrex. They stopped farming and focused more on production, production quality, modernization and sale of these products, but always keeping tradition and sustainability in the foreground. The company developed a set of criteria to ensure the quality of their raw milk, and that their milk suppliers and producers apply traditional, environmentally sound, sustainable farming practices. All their suppliers are from the region, mostly small and medium-sized enterprises (SMEs) and small-holders.

Today, the business has about 30 employees, produce around 50 kinds of dairy products including cheese balls, strings, natural and flavoured cheese and cheese rolls, and has a network of dealers throughout the Czech Republic and Slovakia who are supplied by fresh products once or twice a week.

They are members of the Zázrivá cheese braids producers association, their smoked and fresh cheese braids and smoked and fresh cheese strings are qualified by the association. They also hold a protected geographical indication (PGI; European designation scheme for traditionally manufactured products of a certain region) for the natural flavoured Zázrivá cheese braid and smoked Zázrivá cheese braid. The company promotes traditional use of meadows and grasslands in Zázrivá lazy Natura 2000 site. They run trainings on cheese making and are also open to visitors.

For further information: <http://www.syrex.sk>



#### 4.1.3.3. Traditional fruits “Székely Fruit” – Romania



Figure 10 and 11: Logo and product offers by Székelygyümölcs

**Type of example:** protection of agricultural genetic diversity, fruit production and processing

**Initiator:** NGO

**Additionally involved:** local farmers, SMEs, small-holders, municipalities, agricultural associations, etc.

Udvarhely Seat is a hilly region, where livestock breeding and fruit growing has been the predominant source of income for centuries. Fruit growing is a specific activity to the lower hills of Udvarhely Seat, the southern and south-western parts of the region. There are several traditional, native fruit varieties that are characteristic to different villages. Many became rare and even almost extinct due to the intensive fruit growing of the socialist era. Traditional farming knowledge has also disappeared.

The Fruits of Our Tradition (FRUTRAD) project (2009-2011) supported by a grant from Norway through the Norwegian Cooperation Programme for Economic Growth and Sustainable Development in Romania had two main objectives:

- To save and to reveal the value of the old fruit types, and to motivate their cultivation;
- To increase the profitability of traditional agriculture by processing the locally grown fruits.

The project involved 23 communes in 3 cities, integrating a total of 127 settlements. The subregion's total population is around 120,000 inhabitants, from which 55% live in traditional rural areas and Natura 2000 territories, exceeding 100,000 ha in the county.

Main achievements of the project were the survey of native local fruit varieties, the training of farmers, the development of business packages, the establishment of a resource centre, the building and running of a small scale fruit processing plant, as well as the increase of the market for good quality, local fruit and fruit products.

The first Community-Based Social Enterprise (CBE-Lupeni, Harghita County) was initiated within the frame of the FRUTRAD. The second CBE (CBE-Zetea, Harghita County) was established in 2012 within the Green Entrepreneurship Program through the financial and professional support of Romanian Environmental Partnership Foundation (REPF) and Romanian-American Foundation (RAF).

In total, 600 farmers increased revenues in CBE-Lupeni in 2011 and 250 in Zetea in 2012. In 2011, 600 tons of fruit were processed in CBE-Lupeni and 40,250 in Zetea in 2012. Three workplaces were created in 2011 (Lupeni) and five in 2012 (Zetea), whereas 1,250 people benefitted indirectly in 2011 (Lupeni) and 3,500 in 2012 (Zetea). The total value of the production was 290,000 EUR in 2011 (Lupeni) and 136,000 EUR in 2012 (Zetea).

For further information: <http://www.szekelygyumolcs.ro/>

#### 4.1.3.4. Ecoherba Society (Arnica project) – Romania



Figure 12: Typical *Arnica montana* habitat (photo: Arnica project)

**Type of example:** sustainable collection and processing of herbs

**Initiator:** university and NGOs

**Additionally involved:** locals

Between 2000 and 2004, the Albert Ludwigs University (Germany) coordinated the Apuseni Project – A chance for Motzen Land, having the goals of research and sustainable development of Ghețari village in Gârda de Sus commune, Romania. In the project 491 plant species were recorded in the study and out of them 242 were medicinal. Among the medicinal species *Arnica montana* was unsustainably used (i.e. over-harvested, poor quality of the fresh material, low acquisition price, un-fair trade etc.).

Therefore, WWF UK initiated and ran the Arnica Project between 2004-2007 (Conservation of Eastern European medicinal plants: *Arnica montana* in Romania) with the involvement of four additional institutions: the Darwin Initiative, the WWF Danube-Carpathian Programme Office, UASVM Cluj-Napoca and Gârda de Sus City Hall. The project's goal was to identify a sustainable use for the *Arnica montana* for the benefit of both biodiversity conservation and the welfare of local people in the Apuseni Mountains.

*Arnica montana* is an endemic species in Europe and is protected in Romania. The oligotrophic grasslands that contain *Arnica* are habitats of Community interest under Natura 2000. Therefore, both the species and its habitats are of high conservational value.

By now, as a result of the above initiatives, the Ecoherba Society produces dry arnica inflorescences in an organic manner. The inflorescences are harvested mostly in the Apuseni Natural Park by local harvesters who are trained so that they do not harm the habitat while harvesting. The drying process is also performed locally. The beneficiary of the dried inflorescences is the company Weleda, from Schwäbisch Gmünd, Germany, which is a Europe-wide known company of bio-cosmetics.

For further information: <http://www.arnicamontana.ro/>

#### 4.1.3.5. Organic beef production in a Natura 2000 site – Romania



*Figure 13: Cows on Ignis Plateau, Maramureş (photo: Emil Pop)*

**Type of example:** production of organic beef

**Initiator:** NGO

**Additionally involved:** local farmers

In 2006, WWF set the basis for a new approach to conservation with the One Europe More Nature Project. Eight pilot areas across Europe were chosen to demonstrate how local businesses can bring benefits to both nature and local people. In Maramureş County, Romania, a grazing project was started with the aim to enter the market with “green beef”. The Țiplea family received 26 cattle from a local breed in order to reintroduce grazing on an abandoned mountain meadow on the Ignis Plateau.

The free-range herd was in the mountains the entire year. The herd was then monitored for its behaviour, specifically the relation to grazing patterns and to feeding and protection of offspring in the vicinity of large carnivores (wolves, bears). The sub-alpine grassland was monitored for effects on biodiversity and plant composition. The high quality organic beef is offered in local pensions in the nearby villages.

Since 2011, the herd stayed on the plateau only during the warmer season, as there was not sufficient fodder and limited access to the site. Step by step other cattle breeders joined the initiative and brought additional cattle to the plateau. Unfortunately, there is still a problem with the slaughtering process of ecological certified meat. The Țiplea family now offers additional products from cow milk, like cream, cheese, butter and cakes prepared from traditional recipes. The products are offered at markets in the largest cities of Romania and in supermarkets. The ingredients are not only coming from the Țiplea family herd but also from the farmers who joined the initiative.

Lessons learned: market-based mechanisms help to create models to succeed gaining income and long-term conservation goals. To get the best out of it, flexibility and diversification is needed in order to be able to adapt to the market needs and secure local involvement.

For more information: Edit Pop, [epop@wwfdcp.ro](mailto:epop@wwfdcp.ro)

[http://awsassets.panda.org/downloads/rz\\_oemn\\_factsheet\\_maramures2.pdf](http://awsassets.panda.org/downloads/rz_oemn_factsheet_maramures2.pdf)



#### 4.1.3.6. High water quality thanks to protected areas – Romania

**Type of example:** provisioning of ecosystem services

**Initiator:** n.a.

**Additionally involved:** locals as beneficiaries

Zărnești gets its water from the watershed in the Piatra Craiului National Park, and after treatment the water is distributed to the almost 17,800 inhabitants. Forests and pastures are influencing the water quality; they both impact water retention and soil erosion. The management of pastures is based on capacity studies that limit the number of cattle and sheep in specific periods and areas. Thanks to proper protected area management especially on pastures, the water taken from the watershed in the protected area is of high quality; therefore not much treatment is needed before distribution. In addition, the location of the distribution network is very close to the water sources. As a result of the ecosystems providing high quality water and a convenient location, the treatment and distribution costs are very low, therefore the price paid by the inhabitants of Zărnești is also very low, in fact, being the lowest tariff in the entire country (0.33 RON/m<sup>3</sup>) and the second lowest 1.19 RON/m<sup>3</sup> in the town of Victoria.

Contact: Mircea Verghelet, Director, Piatra Craiului National Park Administration, office@pcrai.ro, <http://www.pcrai.ro/lang-en/6/Parcul.html>

#### 4.1.3.7. Vittel bottled water – France (non-Carpathian)

**Type of example:** payments for ecosystem services; sustainable farming for clean water

**Initiator:** Vittel Company (Nestlé Waters)

**Additionally involved:** local farmers

In order to address the risk of nitrate contamination caused by agricultural intensification in the aquifer, the world leader in the mineral water bottling business, Vittel, is financing farmers to change their farming practices and technologies. A 10-year research study concluded that significant changes in the agricultural measures upstream are needed in order to achieve and maintain good groundwater quality downstream, which was essential for Vittel bottling the water. Therefore Vittel decided to compensate for environmental friendly farming methods in the catchment area, and is also paying compensation to the farmers for watershed protection measures, which is a good example of payment for ecosystem services. The principle is that downstream users of water (Vittel in this case), compensate upstream land managers for activities that influence the quantity and quality of downstream water.

On the north-eastern France pilot site, where Vittel mineral water originates in 'Grande Source' ('Great Spring') located in the town of Vittel at the foot of the Vosges Mountains, Vittel tested the payments for ecosystem services (PES) model. A package of incentives was developed in collaboration with farmers with these agreements (PERROT-MAÎTRE, 2006):

- Long-term security through 18- or 30-year contracts.
- Abolition of debt linked to land acquisition, and land acquired by Vittel left in usufruct for up to 30 years.
- Subsidy, on average, is about 200 Euros/ha/year over five years. This is to ensure a guaranteed income during the transition period and reimburse the debt contracted before entering the programme for the acquisition of farm equipment. The exact amount is negotiated for each farm.
- Up to 150,000 Euros per farm to cover the cost of all new farm equipment and building modernisation.
- Free labour to apply compost in farmers' fields. This is to address the labour bottleneck and ensure optimal amounts are applied on each plot. These amounts are calculated for each plot for each farm every year, and individual farm plans are developed every year.

- Free technical assistance including annual individual farm plans and introduction to new social and professional networks. This is particularly important as giving up the intensive agricultural system alienated farmers from traditional farming networks and support organisations such as the Farmers Federation and the Chamber of Agriculture.

The ability to maintain farmers' income level at all times and finance all technological changes was an important element of success. Also, the development of a long-term participatory process to identify alternative practices and a mutually acceptable set of incentives; the ability to link incentives to land tenure and debt cycle issues and to substitute the old technical and social support networks with new ones, were all fundamental conditions of success.

By 2004, all 26 farms in the area had adopted the new farming system; 1,700 ha of maize had been eliminated and 92% of the sub-basin was protected. The average farm size increased to 150 ha as the extensive production required additional land. A clear indicator of success has been the requests from young farmers, who have taken over the family farm, to enter into 30-year contracts. Currently, all farmers have signed 30-year contracts.

The Vittel experience is most likely to be replicable in places where land cannot be purchased and set aside for conservation. However, one must not forget to look at the whole picture of the industry, because the direct and indirect impacts of bottling also need to be counted. Ecosystem service of the provisioning of clean water shall not be overexploited; the amount of water bottled must not lead to depletion, change hydrology or have a negative impact on groundwater level. In addition, recycling of bottles should be ensured for the fully pro-biodiversity business.

Information on Vittel example:

[http://www.vittel.com/fr/index.htm#dvp\\_durable/preserver](http://www.vittel.com/fr/index.htm#dvp_durable/preserver) (FR only)

[http://www.nestle-waters.fr/creation-de-valeur-partagee/gestion-des-ressources-en-eau/la-protection-de-nos-sources.html#.U1gxz\\_L\\_vww](http://www.nestle-waters.fr/creation-de-valeur-partagee/gestion-des-ressources-en-eau/la-protection-de-nos-sources.html#.U1gxz_L_vww) (FR only)

## 4.2. ENERGY

Worldwide, energy consumption is increasing along with the prices of fossil fuels. Priorities of the energy policy of most European countries are energy efficiency (i.e. production and consumption) and energy saving. This is due to the exhaustion of non-renewable energy resources, scenarios for further increases in energy prices and the inevitable dependency on energy of our entire human society. Energy production and consumption is a complex matter, which goes beyond one certain sector, for they are closely interlinked not only with the economy as a whole but also with driving forces like climate change.

The energy life-cycle includes production, distribution and consumption. Energy production covers the extraction and use of fossil fuels including oil, coal and gas, or the production of energy by a wind farm. Energy distribution is the transmission of energy or an energy source (i.e. fuel) through a network of power or fuel transmission lines or road transport that crosses the landscape to deliver electricity and fuel. Energy consumption means the use of energy, and thus is a source of waste and pollutant emissions. The renewable energy sources are the sources that are replenished naturally (e.g. wind, biomass, hydro, solar, geothermal), whereas the fossil fuels (e.g. oil, gas and coal) are non-renewable energies.

Within this study we focus on the **production of renewable energies** as a way towards sustainable economy.

### Existing policies, guidance, standards, initiatives and organisations

The **European Union** is desperate to play a world leading role in renewable energy policy and to fight climate change. The aims of the policy are supported by market-based tools (e.g. taxes, subsidies and the CO<sub>2</sub>-emissions trading scheme), by developing energy technologies (e.g. technologies for energy efficiency and renewable or low-carbon energy) and by Community financial instruments. In 2007, the Council adopted energy goals known as the **'20-20-20' targets**, aiming to reduce greenhouse gas emissions by 20% from 1990 levels; to increase the share of renewable energy to 20%; and to make a 20% improvement

in energy efficiency. However, these goals will be hard to achieve by 2020. These targets were enacted in 2009 with the adoption of the **climate and energy package (Renewable Energy Directive)**<sup>32</sup>. For further enforcement, the EU adopted the **Renewable Energy Strategy**<sup>33</sup>, setting up a strategy for 2020. The Strategy translates the EU targets to binding Member State targets and identifies other more specific implementation prescriptions to achieve the '20-20-20' goals, such as on limiting energy use in Europe etc. The recent Europe 2020 Strategy on the smart, sustainable and inclusive growth puts high emphasis on climate change and renewable energy, therefore **EU funds between 2014-2020** that are to be aligned to the Europe 2020 will provide the needed financial incentives to **low-carbon economy**.

According to the Renewable Energy Directive, EU MS had to develop their **National Renewable Energy Action Plan** including the detailed roadmap on how to reach the MS' legally binding 2020 target for the share of renewable energy in their gross energy consumption and production. All Carpathian EU Member States have submitted their National Renewable Energy Action Plan.

Among the non-EU MS Carpathian countries, the **'Energy Sector Development of the Republic of Serbia by 2015'** is the strategy that layouts the roadmap for accomplishing energy goals for the country in accordance with the **Law on Energy**.

As for **Ukraine**, the **Energy Strategy up to 2030** sets targets to expand the use of alternative energy sources, though with less ambitious goals than that of the EU.

The European Commission has recently adopted the guidance book on **'Wind energy development and Natura 2000'** which provides practical information on how to establish a new wind energy plan or project in or near a Natura 2000 site without going against the EU nature conservation legislation and thus facing major difficulties.

Ecofys Consultancy, in its study 'Towards a harmonised sustainable biomass certification scheme' (B. Dehue, S. Meyer & C. Hamelinck, 2007), commissioned by WWF International, the Forest Stewardship Council (FSC), the Dutch and the UK Governments, proposes a set of **principles and criteria for an international Meta-Standard for sustainable biomass** to ensure that production of energy from biomass is sustainable from the farm or field on which the biomass is grown to the energy plant. They define five sets of criterion: 1) Conservation of carbon stocks; 2) Conservation of biodiversity; 3) Conservation of soil quality/productivity; 4) Efficient water use and prevention of water pollution; and 5) Prevention of air pollution (e.g. emissions from burning practices).

The **International Renewable Energy Agency (IRENA)** is a world-wide intergovernmental organisation that supports countries in their transition to a sustainable energy future, and serves as the principal platform for international cooperation, a centre of excellence, and a repository of policy, technology, resource and financial knowledge on renewable energy. IRENA promotes the widespread adoption and sustainable use of all forms of renewable energy, including bioenergy, geothermal, hydropower, ocean, solar and wind energy in the pursuit of sustainable development, energy access, energy security and low-carbon economic growth and prosperity. It encourages governments to adopt enabling policies for renewable energy investments, provides practical tools and policy advice to accelerate renewable energy deployment, and facilitates knowledge sharing and technology transfer to provide clean, sustainable energy for the world's growing population. [www.irena.org](http://www.irena.org)

As the market is very diverse, there is no single European organisation on renewable energy to represent European renewable energy producers or so. However, majority of the large, international nature conservation organisations are active in the field of energy policy, and WWF seems to be the forerunner leader on this field. [http://wwf.panda.org/what\\_we\\_do/footprint/climate\\_carbon\\_energy/](http://wwf.panda.org/what_we_do/footprint/climate_carbon_energy/)

<sup>32</sup> Directive 2009/28/EC of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC

<sup>33</sup> Energy 2020 - A Strategy for competitive, sustainable and secure energy. COM(2010) 639 final. Brussels, 10 November 2010



#### 4.2.1. CHALLENGES

Challenges in the use of renewable energy are twofold. On one hand, the sector is developing due to the high demand to increase the share of renewable energy production and consumption in order to mitigate climate change and to ensure long-term sustainable growth. However, shift towards green energy is not that easy for both technological and political reasons. The development of renewable energy projects in the Carpathians at present still tend to be limited by the lack of proper policy measures and the high investment costs. On the other hand, the production of renewable energy might be harmful to biodiversity if not done in a careful way. These negative impacts might be grouped into two classifications: (i) those related to land use and (ii) those to fragmentation. Therefore, careful planning and an early assessment of possible impacts on biodiversity are inevitable to avoid that green energy is at the end harmful to nature.

##### Land use conflicts

Especially in the case of biomass plantations (e.g. biofuels, energy grasslands, energy forest plantations) it is essential that land uptake for these must not come from the conversion of natural or semi-natural habitats (e.g. grasslands and forests) or from food-producing arable lands. Reasons for this are obvious but not always respected. In case natural or semi-natural habitats are ploughed and converted into biomass plantations, it destroys valuable habitats and leads to biodiversity loss and the conversion might well be irreversible on the short-term. If land used for food or fodder production is turned into biomass production, it may lead to increasing food and fodder prices.

##### Fragmentation

Biomass plantations, large scale wind farms or hydro power plants can easily become a barrier for species. Therefore, biomass plantations should be designed with the intention of leaving habitats (e.g. stepping stones or corridors) for dispersal of the species. The effects of wind farms especially on migratory birds and bats are heavily discussed with pro and contra arguments. Analysis shows that large scale wind farms have significant impact on the routing of migratory birds as they divert the migratory route. Hydro-power plants, if no natural or artificial alternative routing (e.g. fish stairs) are ensured, is an impermeable barrier for many species.

#### 4.2.2. OPPORTUNITIES

Altogether, there are great opportunities for the use of renewable energies in Europe, for there is a growing political will, financial underpinning and an increasing social consciousness. The Carpathian region has great potential for renewable resources, especially biomass, but also wind and hydro energy (UNIDO, 2010).

However, most renewable energy projects are not profitable without a supporting mechanism. There are diverse supporting mechanisms applied in the Carpathian region, from the national and/or EU co-financing, to low-interest rate loans, or even through the support of operation (e.g. feed-in tariffs or quota system, tax relief etc.). There is no specific renewable energy fund in the EU budget, but the policy is embedded into all relevant funding streams, thus, into Cohesion Policy, Agriculture and Rural Development, Research and Innovation. Funds are also available to non-EU Carpathian countries, for example, through the Pre-Accession Assistance for Serbia and the European Neighbourhood and Partnership Instrument for Ukraine. The assistance to shift to renewable energies in the Central and Eastern European countries is also on the agenda of the European Bank for Reconstruction and Development.

#### 4.2.3. GOOD PRACTICE EXAMPLES

##### 4.2.3.1. Invasive tree species as biomass – Hungary

**Type of example:** biomass production from invasive alien species

**Initiator:** NGO

**Additionally involved:** local municipality, local businesses



Figure 14: Harvesting biomass at Tisza Floodplains (photo: WWF Hungary)

Within the frame of the One Europe More Nature initiative of WWF, the organisation runs a project along River Tisza in Tiszatarján for the rehabilitation of valuable floodplain habitats.

The status of floodplain habitats along River Tisza is rather poor in Hungary. Natural habitats disappeared to a large extent; there are only a few natural floodplain forests, floodplain grassland and wetlands remaining and many of the original floodplains landscape were fragmented and habitats cut by dams due to the river control. In addition, invasive alien species (e.g.: black locust) invaded these valuable habitats. These lead to loss of habitats and biodiversity.

The ultimate aim of the WWF project is to protect and enhance the conservation status of floodplain habitats, both forests and grasslands. Finding a self-sustainable system where locals could explore their interest in contributing to the project goals was essential.

In 2006, WWF Hungary evaluated the renewable energy potential of the area and concluded that biomass production might be the way forward. Jointly with the local municipality of Tiszatarján, WWF Hungary has already developed a project that has begun to restore floodplain habitats in a triple-win system: good for nature (i.g. habitat restoration), good for economy (i.g. renewable energy production), and good for people (i.g. local income).

The project area encompasses 30 ha, where different nature conservation measures have been applied to restore and maintain floodplain habitats. Invasive alien species are harvested, transported and sold to the nearby biomass plant in Tiszaújváros by local people, a means of generating income. In addition, WWF applies traditional grazing on valuable grasslands. The least fertile, and from a nature conservational point of view, least valuable, abandoned arable lands were converted into energy tree plantations of native species (*Salix viminalis*, *Salix express*).

For further information:

<http://wwf.hu/mit-tesz-a-wwf-tiszatarjanban/mit-tesz-a-wwf-tiszatarjanban> (only in Hungarian language)

[http://wwf.panda.org/what\\_we\\_do/where\\_we\\_work/project/projects\\_in\\_depth/one\\_europe\\_more\\_nature/sites/tisza\\_floodplains\\_hungary/](http://wwf.panda.org/what_we_do/where_we_work/project/projects_in_depth/one_europe_more_nature/sites/tisza_floodplains_hungary/)

[http://awassets.panda.org/downloads/oemn\\_approach\\_brochure\\_final.pdf](http://awassets.panda.org/downloads/oemn_approach_brochure_final.pdf)

#### 4.2.3.2. Waste material of mountain meadows for biomass – Slovakia

**Type of example:** biomass production from waste material (e.g. wood) of mountain meadows

**Initiator:** NGO

**Additionally involved:** local municipality, local people

The Global Environment Facility (GEF) has recently awarded a grant for the preservation of mountain meadows and utilization of their biomass in Vernár, Slovakia. The two-year project was started in 2012.

The aim of the project is to preserve the unique and valuable mountain meadows while using it as a potential to initiate sustainable development in the region at the National Park, Slovenský Raj. In order to achieve the project goals, excess hay from the meadows, self-seeded trees in the meadows and waste material of local wood harvesting in the forest is used as the raw material to produce briquettes for heating.

Locals are actively involved in the project through the management of the project area, and jobs are created in the briquette production plant and the biomass plant. Also, the project is expected to have a positive impact on the ecotourism potential of the area due to the increased attractiveness of nature.

Although the project definitely seems to be a good initiative for sustainable development, it has to be stressed that it is still in the initial phase where costs are covered by the grants, therefore, the long-term self-sustainability of the model is not proven yet.

Further information: <http://www.machaon.eu/> and <http://www.machaon.eu/docs/project-restoring-biodiversity-in-slovensky-raj-national-park-underway.pdf>; <http://sgp.undp.sk/en/>

#### 4.2.3.3. Renewable energy – Czech Republic



Figure 15: Biomass power plant in Hostětín (photo: WWF)



Figure 16: Inside the biomass power plant in Hostětín (photo: Ferenc Kiss)

**Type of example:** covering energy needs from renewable energy sources at municipality level

**Initiator:** municipality

**Additionally involved:** joint research and technology

Hostětín is a village of 230 inhabitants, situated in the White Carpathians. Like in many municipalities, the majority of the population is using electric heaters and/or household scale brown coal systems for basic



heating. Hostětín is not connected to a district heating network and will not be connected to a natural gas network. Main drawbacks of the baseline situation are:

- From a primary energy point of view, it is very inefficient to use electricity for heating purposes.
- Combustion of brown coal, being a fossil fuel, significantly contributes to the greenhouse effect (CO<sub>2</sub>-emissions);
- It leads to strong environmental pollution in the form of dust, CO and SO<sub>x</sub>.

The District Office in Uherské Hradiště and Ecological Institute Veronica, together with Twente Energy Institute and BTG Biomass Technology Group, and The Netherlands selected Hostětín as a potential site for demonstration of alternative energy supply system through a centralised biomass based heating plant.

In addition to the biomass boiler system, houses in Hostětín were equipped with solar hot water systems. Without solar boilers, households are forced to use fossil or electrical heating systems. The combination of solar and biomass energy is meant to demonstrate the concept of integral green heat supply, thereby maximizing CO<sub>2</sub>-emission reductions in a cost-effective way.

Since 2000 in Hostětín a central heating plant with an output of 732 kWt has operated, whose boiler incinerates chips from waste wood coming from nearby wood-processing facilities, approximately 500-600 tonnes per year. About 69 out of 81 houses in Hostětín are connected to the distribution system of 2.4 km in length. The heating plant produces approximately 3,500 GJ of heat and saves 1,500 tonnes of CO<sub>2</sub> per heating season.

Therefore, there are several contributions of this measure, not only are renewable energy resources being used along with significantly cleaner air in the municipality compared to the past, the fact that payments for heating are not addressed to international gas, electricity or coal corporations, but to the municipality and local entrepreneurs is also significant.

<http://hostetin.veronica.cz/> (only in CZ language)

#### 4.2.3.4. Reaching energy autonomy of a region – Austria (Alpine region)

**Type of example:** renewable energy used to reach energy autonomy

**Initiator:** Authority Vorarlberg, Austria

**Additionally involved:** politicians, public administration, chamber of commerce, chamber of labour, industry, citizens, experts, municipalities, NGOs, etc.

Extending over a surface of 2,600 km<sup>2</sup>, Vorarlberg is four times the size of Vienna. Two thirds of the province is situated 1,000 m above sea level. The total number of inhabitants is 372,000. The shores of Lake Constance are at 400 m and the highest summit of Vorarlberg is Piz Buinat 3,312 m.

The regional initiative 'Energy autonomy 2050 Vorarlberg' is the central programme of energy policy in Vorarlberg. Reaching energy autonomy by 2050 was a strategic decision made unanimously in the regional parliament of Vorarlberg in 2007. The decision was motivated by the will to reduce dependence on fossil fuels, to guarantee a safe energy supply and to protect the climate.

The programme is aimed at covering 100% energy demand using a balanced, sustainable and local energy supply based on renewable sources by 2050. It is a good example of sustainable development, from the strategic planning to implementation phase. The programme was launched in 2007. The basic principles for how to achieve the overall goal (i.e. 100% energy autonomy by 2050) have been identified within a 2-year process phase. Based on these results some 101 sustainable measures in the field of renewable, building sector, industry and transport have been elaborated in four thematic groups. The implementation phase of the strategic decisions began in 2012 and runs up until 2020. An informative web-page has been established with the aim to reach out to all stakeholders and provide useful information on energy efficiency, reduction

of energy use and renewable energies, so as to get them involved. A monitoring process on how to measure developments towards reaching the 2050 target has been identified as well.

For further information:

<http://www.energiezukunft-vorarlberg.at/> (only DE) and/or at the website of the key consultancy Energy Institute Vorarlberg <http://www.energieinstitut.at/>

### 4.3. FOREST MANAGEMENT

The Carpathian landscape is heavily shaped by agriculture and forest management. Forests provide valuable ecosystem services such as carbon sequestration, water retention, reducing soil erosion, non-timber forest products (e.g. mushroom, berries, honey etc.) and others, like cultural and recreational values, and habitats for wild species. In addition, forestry policies, thus forest management are closely interlinked with the climate change and energy policy, so discussions in one field have to take into consideration the others. Therefore, sustainable and integrated forest management is crucial for effective provision of ecosystem services.

Although game management and non-timber forest products are closely interlinked with forest management, due to their nature, are handled separately. The former is no standalone economic sector but a management one, therefore is not discussed but only referred to in the study where relevant, whereas the latter is discussed in a separate chapter as an individual sector.

#### Definitions

The United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro in **1992**, also known as the **Earth Summit**, adopted the Non-Legally Binding Authoritative Statement of Principles for a Global Consensus on the Management, Conservation and Sustainable Development of All Types of Forests (i.e. '**Forest Principles**')<sup>34</sup>. It is an overarching policy document making several recommendations to governments on how to approach the conservation and sustainable development of forests.

A definition of **sustainable forest management** was developed by the **Ministerial Conference on the Protection of Forests in Europe** (MCPFE) in Helsinki in **1993**, and has since been adopted by the Food and Agriculture Organisation (FAO). It defines sustainable forest management as "the stewardship and use of forests and forest lands in a way, and at a rate, that maintains their biodiversity, productivity, regeneration capacity, vitality and their potential to fulfil, now and in the future, relevant ecological, economic and social functions, at local, national, and global levels, and that does not cause damage to other ecosystems". In simpler terms, the concept entails the balance between society's increasing demands for forest products and benefits, and the preservation of forest health and diversity. This balance is critical to the survival of both the forests, and to the prosperity of forest-dependent communities.

In 2000, the fifth Conference of the Parties to the **Convention on Biological Diversity** (CBD COP5) adopted the definition of the **ecosystem approach** and a set of principles on how it is applied. It defines the ecosystem approach as a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way. It recognizes that humans, with their cultural diversity, are an integral component of many ecosystems. Based on this, in **2004**, the CBD COP7 recognised **sustainable forest management** as the ecosystem approach for forest ecosystems. The two concepts, sustainable forest management and the ecosystem approach, aim at promoting conservation and management practices which are environmentally, socially and economically sustainable, and which generate and maintain benefits for both present and future generations.

In December **2007**, the General Assembly of the **United Nations**, very much inspired by the CBD, adopted the most widely, intergovernmentally agreed definition of **sustainable forest management** as, "a dynamic and evolving concept that aims to maintain and enhance the economic, social and environmental value of all types of forests, for the benefit of present and future generations". They characterized sustainable

<sup>34</sup> <http://www.un.org/documents/ga/conf151/aconf15126-3annex3.htm>

forest management by seven elements that are in line with the ecosystem approach: (i) extent of forest resources; (ii) forest biodiversity; (iii) forest health and vitality; (iv) productive functions of forest resources; (v) protective functions of forest resources; (vi) socio-economic functions of forests; and (vii) the legal, policy and institutional framework.

**ProSilva, or close-to-nature forest management** promotes forest management strategies which optimise the maintenance, conservation and utilisation of forest ecosystems in such a way that the ecological and socio-economic functions are sustainable and profitable. The general approach to management, which is advocated by ProSilva, includes market and non-market objectives and takes the whole forest ecosystem into consideration.

### Existing guidance, standards and initiatives

There are numerous guidance documents, certification systems and standards on sustainable forest management across the world, including Europe and the Carpathians as well. They are mostly outcomes of international initiatives, but there also exists some local scaled ones. These are only successful if sustainable forest management principles and measures are incorporated into the local forest management plan or the equivalent document in place.

In 1998, the European Commission adopted the **EU Forestry Strategy**<sup>35</sup>. The Strategy emphasises the importance of the multifunctional role of forests and sustainable forest management for the development of society. As the basis of implementation, it calls up on Member States to develop national forestry strategies to identify and ensure the sustainable management of forests. The EU contributes to the achieving of sustainable forest management and the implementation of international agreements and guidelines with providing funding through EU funds. Although, the Strategy was definitely an important step to identify the crucial need for a sustainable management of European forests, but had little concrete measures. The Strategy was reviewed in 2005, and based on the synthesis report a new strategy for the EU was adopted in 2006, known as the **EU Forest Action Plan**<sup>36</sup>. The overall objective of the EU Forest Action Plan is to support and enhance sustainable forest management and the multifunctional role of forests. The Action Plan formulates a set of actions on both Member State and EU level, in four areas for the period between 2007 and 2011, namely:

- Improving long-term competitiveness;
- Improving and protecting the environment;
- Contributing to the quality of life;
- Fostering coordination and communication.

In 2011, the Parties to the Carpathian Convention adopted the **Protocol on Sustainable Forest Management**<sup>37</sup>. It sets basic principles of sustainable forest management in the region and identifies actions to be taken in order to achieve the goals of the Convention. To download the Protocol: [http://www.carpathianconvention.org/tl\\_files/carpathiancon/Downloads/02%20Activities/2.1.4%20Protocol%20on%20Sustainable%20Forest%20Management.pdf](http://www.carpathianconvention.org/tl_files/carpathiancon/Downloads/02%20Activities/2.1.4%20Protocol%20on%20Sustainable%20Forest%20Management.pdf)

There is an increasing demand for wood coming from certified origin and management methods. The two most widely known and spread ones are the **Forest Stewardship Council (FSC)** and the **Programme for the Endorsement of Forest Certification (PEFC)**. Forest owners and managers can apply for certification, still certified wood has a higher market value. <https://www.fsc.org/> and <http://www.pefc.org/>

<sup>35</sup> Communication from the Commission to the Council and the European Parliament on a forestry strategy for the European Union. COM(1998) 649, Brussels, 03.11.1998

<sup>36</sup> Communication from the Commission to the Council and the European Parliament on an EU Forest Action Plan. COM(2006) 302 final, Brussels, 15.6.2006

<sup>37</sup> Protocol on Sustainable Forest Management to the Framework Convention on the Protection and Sustainable Development of the Carpathians

The High Nature Value concept was first applied to forestry in the context of the EAFRD Strategic Guidelines. As such, there has been no systematic identification of **HNV forestry** across Europe, and an approach for doing so does not yet exist. A similar concept, however, has been developed over the last decade, **High Conservation Value Forests** (HCVF), which means there is some precedent. This term originated in the certification criteria of the Forest Stewardship Council (FSC) and is defined as ‘forests of outstanding and critical importance due to their high environmental, socio-economic, biodiversity or landscape values’. <https://ic.fsc.org/high-conservation-values.87.htm> and <http://www.hcvf.net/eng/about/>.

**ProSILVA** was founded in Slovenia in 1989, and is a **European federation of professional foresters** across 24 European countries (and more recently in New England, USA) who advocate and promote Close-to-Nature Forest Management Principles as an alternative to clear felling, short-term tree plantations. <http://www.prosilvaeurope.org>

The Ministerial Conference on the Protection of Forests in Europe, known as **Forest Europe**, is the **pan-European political process** for the sustainable management of the Europe’s forests, and active since 1990, currently has 46 member countries. It develops common strategies for its members and the European Union on how to protect and sustainably manage forests. All Carpathian countries are members of Forest Europe. <http://www.foresteurope.org>

The **Good practice guidance on sustainable mobilisation of wood in Europe** was released in 2010 and it provides the basic principles as well as identifies concrete measures on wood mobilisation in a sustainable way. It also presents good practice examples linked to each measure and helps decision makers and forestry practitioners to make sound choices in this field. To download the guidance: [http://www.foresteurope.org/documentos/Wood\\_Mobilisation\\_Guidance\\_Report.pdf](http://www.foresteurope.org/documentos/Wood_Mobilisation_Guidance_Report.pdf)

#### 4.3.1. CHALLENGES

As forests cover a significant part of the Carpathians, forest management has a significant role both in nature conservation and local livelihoods. On a broader scale it also has an impact in climate change mitigation and adaptation, and in contributing to achieving the existing renewable energy targets.

It is most likely, as a long-lasting impact of the socialist era, that most forest areas are state owned in the Carpathians and are managed by the local government or the state forestry authority. In addition, in some cases like Slovakia, many of the Carpathian forested lands lay within protected areas. Even though the nature conservation authority is responsible for the proper management of protected areas (e.g. a National Park) it is usually not this person who is in charge, but rather the forest management authority that is given this task, which often has contradicting goals. What makes the situation even more difficult is that game management usually falls within the responsibility of either the forest management authority, or, in fewer cases, established private game management units. These examples show that the **proper management of forests need the cooperation and mutual will of two or three actors, even without them having a common goal**.

Another challenging factor is that due to collectivisation during the socialist era and forests remaining in public ownership after the change of regime, **local inhabitants lost their privately owned forest lands and thus their livelihoods**. They now live in a forested area but are no longer the ones who manage and benefit from it.

Though reprivatisation of state/public owned forests after the change of the regime, the increase in local/private ownership creates the opportunity for local people to gain back their connections to land, but it is also opens up the opportunity for short-term income gains that can lead to severe cutting.

The two threats that put the highest pressure on forests across the Carpathians are the **unsustainable use, as in the application of harmful practices, and illegal logging** across the Carpathians. Even though there is proper legal structure in place like management plans and forestry plans that incorporate sustainable management of protected forests, unfortunately **financial incentives are not yet in place to compensate harvesting restrictions** and higher management costs. Therefore, forest managers have no motivation to move from intensive cutting of wood to more sustainable measures, and for short-term income perspectives, clear cutting or even illegal logging is a more attractive option.



### 4.3.2. OPPORTUNITIES

**Protected forests provide multiple benefits**, from raw material (e.g. timber, wood housing, pulp and paper industry) to non-timber forest products, recreational areas, and cultural values, they are also great carbon stocks, especially the mountain forest cover, which plays a significant role in retaining water, thus contributing to flood prevention and the prevention of soil erosion.

Sustainably managed forest areas are traditionally a frequented tourist destination; therefore, the **alliance between forest management and tourism** is a great opportunity in the Carpathians.

**Processed wood** has a higher market value than raw material. Therefore, the boosting of the local processing would have the potential to provide jobs as well as retain a bigger share of income in the region.

The potential of the Carpathians to produce **environmentally high quality wood, as compared to a** mass quantity of wood, is very great. However, it should be noted that certified wood is demand driven, therefore the market should be established first, then the certification applied.

A sustainable approach would be to view and **manage forests in a holistic way**, with less emphasis on wood production, more compensatory payments for restrictions, and the increase in potential of the non-timber forest products and recreational hunting.

### 4.3.3 GOOD PRACTICE EXAMPLES

#### 4.3.3.1. Forest certification in protected forest areas – Romania



*Figure 17: FSC certified forest in Romania, tree with logo (photo: WWF)*

**Type of example:** application of certification schemes for sustainable forest management and market benefits

**Initiator:** national park (from a Global Environment Facility (GEF) project)

**Additionally involved:** forest administration

The GEF Project Management of Biodiversity Conservation is one of the most successful projects for protected areas in Romania. In the frame of the project, two protected area administrations (Retezat National Park and Vanatori Neamt Natural Park) were established along with the creation of management plans. As a pilot

initiative, two forest districts within the Vanatori Neamt Natural Park (Varatec and Targu Neamt, ca. 31,000 hectares) received Forest Stewardship Council (FSC) certification in 2002 as the first ever in Romania, and are still certified.

After the analyses of the outcomes of the pilot project and seeing the market and social benefits of sustainable forest management, the National Forest Administration, Romsilva, decided to enlarge the areas under certification. By 2013, thanks to inspiration of the successful pilot project, ca. 2.4 million hectares of state owned forests have been integrated into the FSC certification programme in Romania.

Further information on the GEF project:

[http://www.pcrain.ro/static/engleza\\_proiect01.html](http://www.pcrain.ro/static/engleza_proiect01.html) and project documents

<http://www.worldbank.org/projects/P044176/biodiversity-conservation-management-project?lang=en&tab=overview>

<http://www.rosilva.ro/>

#### 4.3.3.2. Forest-environmental scheme in municipal forests – Slovakia



Figure 18: Western Capercaillie (*Tetrao urogallus*) in Velká Fatra National Park (photo: Eduard Apfel)

**Type of example:** application of forest-environmental measures by municipal forest administration

**Initiator:** municipality responsible for the management of forest areas

**Additionally involved:** national park, locals

The municipal forest administration of the town Banská Bystrica is responsible for the management of several protected forest areas. A significant part of their land is located within the Velká Fatra National Park. They have decided to apply an ecosystem approach and introduce the silvi-environmental forest management measures (e.g. for cutting, moving of wood etc.) in line with biodiversity objectives. Schemes have been prepared in collaboration with experts of the national park.

The municipality has become one of the pioneers of silvi-environmental schemes in Slovakia, which is introducing forest management techniques that respect biodiversity conservation standards. For example, they try to manage the forests to promote safe habitats for the Western Capercaillie (*Tetrao urogallus*). They expect long-term benefits such as a balanced income from harvesting and increased income from tourism due to the higher attraction value and an increasing market from managed non-timber forest products.

[www.lesybb.sk](http://www.lesybb.sk), Ing. Eduard Apfel, email: [e.apfel@lesybb.sk](mailto:e.apfel@lesybb.sk)



#### 4.3.3.3. Local wood processing – Romania



Figure 19: Mocânița steam train in Maramureș, Romania (photo: CFF Vișeu de Sus)

**Type of example:** local processing of wood

**Initiator:** business

**Additionally involved:** national park, locals

The Maramureș Mountains Nature Park encompasses 132,354 ha, where 60% is forest. The watershed of the Vaser Valley itself covers more than 36,000 ha of forest. Wood processing was, and still is, characteristic for the area and remains to be the main livelihood activity. After the social era, the industry decreased. In 1999, RG Holz Company was established in Vișeu de Sus, Maramureș and by now became one of the leader European companies of stratified wooden elements for windows and doors, with partners in Germany, Switzerland, Italy, Austria and Bulgaria and has around 800 employees.

After the floods in the region in 2001, when the valley was not accessible for almost 10 months, a high amount of low quality wood, due to being affected by insects, fungus etc. remained in the area, not being appropriate for carpentry. Therefore, in 2002, Nova Artis opened up a factory in the region and started to produce EPAL-EUR pallets. Nova Artis by now is producing 50,000 pallets per year and has around 100 employees. The two companies were not and are not competing, but rather are complementing each other thanks to their different raw material, though both being timber but of different quality.

In 1932, after 150 years of wood rafting, a narrow-gauge railway was inaugurated for the transport of the wood. The steam train became the symbol of the area. In 2003, a branch of RG Holz Company started to offer regular trains for tourists, so not only was wood transported but also tourists who were interested in the beauty of nature. The number of tourists rose from around 1,000 in 2007 steadily to almost 20,000 by 2010. The National Park receives 1 EUR per tourist from the company running the Mocânița train.

Both the local wood processing and the cooperation of business and the nature conservation is a good example for replication. Processed wood has a higher added value compared to the raw material and gives multiple jobs for locals. Naturally, sustainability of the forests where the wood comes from should be ensured.

For further information: RG Holz Company <http://rgholz.com/index.php>, Nova Artis Company <http://www.novaartis.ro/en-home.html>, Mocânița narrow-gauge steam train <http://www.cffviseu.ro/content/en>.

#### 4.3.3.4. Development of local wood production chain based on wood from a biosphere reserve – Austria (Alpine Region)

**Type of example:** a network of managers and manufacturers for local economy and nature

**Initiator:** Biosphere Reserve Grosses Walsertal, Austria (LEADER+ financing)

**Additionally involved:** local businesses such as cabinet makers, sawmills, carpenters, municipalities, manufacturer of ovens and foresters

The four-year-project 'Bergholz' was initiated in order to boost sustainable regional development within the frame of the Alpine Convention. The objective was to stimulate local wood processing and the market for it. The wood originates from the Biosphere Reserve Grosses Walsertal, which is produced based on sustainable management principles. Local businesses who participated in the project established a network to produce items for houses, furnishings, to build wooden houses etc. from this local resource and through local manufacturing in high quality. Certification and labelling was developed and applied and thanks to a successful communication, well distributed among its customers.

In 2006, the good cooperation resulted in the foundation of the business association Verein Wirtschaft Grosses Walsertal. Now, years after the closure of the project, the business association still runs successfully, and additional foresters and manufacturers joined the association in order to benefit.

For further information see: <http://www.bergholz.at/> (only in DE)

## 4.4. FISHERIES

Fisheries in the Carpathians have two major forms: (i) from the Danube or other main river courses and (ii) small scale fishponds and fish farms on upstream and mountain ranges. However, altogether **fisheries or aquaculture have very little economic value across the Carpathians**. For example, in Serbia, the total catch of fish by recreational fishermen was 1.5 times higher than those of professional fishermen.

Aquaculture activities are carried out in many Natura 2000 sites. From a first European analysis it is now known that over 5% of the sites host aquaculture activities at the time of their designation. In fact, many of these sites have been designated because this activity has maintained suitable habitats (e.g. ponds) for species of EU interest. A significant number of these sites have their entire surface covered by aquaculture activities and include natural or human-made ponds, lakes or lagoons. In many of those sites aquaculture has been practiced traditionally and is considered compatible or has adapted its operation to the conservation needs of the sites (EC, 2012).

We should note that the Carpathian region has good potential in recreational and sport fishing/angling, though that should be dealt under tourism and not under the production sector fisheries.

### Definitions

Sustainable fishery concepts evolved as people started to learn and understand the inevitable impacts of overfishing and harmful fishing practices. Because of the scale and impacts, the vast majority of the fisheries sector is in the marine and only a small proportion is in the inland aquaculture. Therefore, sustainability principles mostly deal with sustainable fishery in the marine. All in all, **concepts of sustainable fishery** entail that: the amount harvested is within a sustainable rate, meaning that no population decline is caused by overfishing; and that no destructive and illegal fishing practices are applied. Tools applied are usually quotas on fish catch, fleet and vessels, and certain fishing practices are forbidden in order to minimise by-catch and to eliminate the destruction of marine environment.

There are no definitions dedicated to sustainable fisheries in inland waters, however the conventional sustainability criteria shall apply.

BIO AUSTRIA general regulations and livestock regulations analogously apply to fish farming. The BIO AUSTRIA fish farming regulations apply to two types of habitats, the "Carp Section" regulates production in



standing waters and warmer water biotopes, and the "Trout Section" applies to the production of predatory fish inhabiting cold, running, oxygen-rich waters in low-nutrient water biotopes. They set the criteria on **organic fish production**.

[http://www.bio-austria.at/biobauern/beratung/tierische\\_erzeugung/fische](http://www.bio-austria.at/biobauern/beratung/tierische_erzeugung/fische)

Naturland promotes organic agriculture the world over and its 53,000 members make it one of the major organic farming associations. Naturland also has standards for certified **organic aquaculture** and recently started an initiative "Naturland Wildfisch" for the certification of sustainable capture fishery.

[http://www.naturland.de/naturland\\_fish.html](http://www.naturland.de/naturland_fish.html)

### Existing guidance, standards and initiatives

The Directorate General for Environment of the European Commission, with the assistance of Atecma, developed and published a **Guidance document on aquaculture activities in the Natura 2000 Network**. The document summarises the aspects of different aquaculture on Natura 2000 areas and promotes sustainable aquaculture by providing lines to follow when planning fisheries activities.

Fishing is a traditional activity in the Danube river basin. Due to changes in the past decades (e.g. the building of dams, low wages, spreading view that commercial fishing shall be strictly limited for the protection of fish stocks etc.) **the number of commercial fishermen decrease** and thus there is a threat to the continuation of this tradition.

Threats to freshwater fish stocks as the resource of fishing are numerous. Among them the biggest threats are **illegal fishing** (e.g. without quota or licence, uncontrolled, during the spawning season etc.) and **fishing with banned tools** (e.g. high-voltage current, poaching with net). The introduction and spread of **invasive alien (i.g. allochthonous) fish** species impact the natural balance and decrease stocks of native fish.

**Pollution** of rivers with untreated sewage, industrial wastewater but also with solid waste, illegal or not prudent **extraction of gravel** from river beds thus, the destruction of spawning habitats; all have irreversible effects on freshwater ecosystems.

It is likely that freshwater ecosystems, thus fisheries will be among the first who will have to adapt to **global climate change**, causing less rainfall, higher temperatures and an increasing risk of droughts.

#### 4.4.1. OPPORTUNITIES

The human population of the Carpathian countries eats far less fish per capita per year than the EU average (e.g. 20 kg/capita/year EU average, 4.0-4.5 kg/capita/year in Hungary, 7 kg/capita/year in Serbia). There is a growing awareness of food and health, and it is proven that fish is a very healthy food source. This fact and the growing meat prices might increase the local **market demand for fish**.

The European Commission has decided **to increase the share of funds from the European Marine and Fisheries Fund during the coming EU budget period (2014-2020)** for freshwater aquaculture as compared to marine. Thus, there is an approaching opportunity to finance sustainable development of fisheries in the Carpathians.

The Carpathians have great opportunities for high quality trout, grayling and salmon farming, which could serve the increasing international demand for certified, healthy fish.

#### 4.4.2. GOOD PRACTICE EXAMPLES

##### 4.4.3.1. Trout farm in the Carpathian Biosphere Reserve – Ukraine

**Type of example:** freshwater fish farm to meet the demands of tourists and for reproduction of wild fish

**Initiator:** protected area manager (Carpathian Biosphere Reserve)

**Additionally involved:** locals

In order to replenish fish stocks of the Carpathian Rivers as well as to meet the needs of the local population and tourists for high quality river fish, the Carpathian Biosphere Reserve restored a big fish farm that was closed down in the 1980s. They breed three *Salmonidae* species: Brown trout (*Salmo trutta m. fario*), Rainbow

trout (*S. irideus*) and Brook trout (*Salvelinus fontinalis*). Brown trout is a native species and all the bred stock of this native species goes for reintroduction in the Biosphere Reserve and the surrounding areas. The other two are bred for their commercial values, and are sold on the local market and to tourists. The income created from the sales of the two commercial stocks is used to cover the costs of the breeding of the native species.

Carpathian Biosphere Reserve: cbr-rakhiv@ukr.net

#### 4.4.3.2. Farming without hurting nature – Hungary (outside the territory of the Carpathians)

**Type of example:** divers farming, including a fish pond system

**Initiator:** private farmer

**Additionally involved:** locals

Mr. D. Szomor runs his farm in the Kiskunság National Park (KNP). He believes that agricultural activities that are well adapted and accommodated to the features of a given landscape make a better business model than the ones that are not. Therefore, his farming is based on the principle to take advantage of the characteristics of the landscape. He started to run his farming business in the 1970's and is now farming and making his profit on thousands of hectares (mixed cropland, grassland, fishery) farmed in line with nature conservation objectives. Mr. Szomor was nominated by KNP to be awarded with the "Pro Natura" medal for his continuous and successful efforts to take nature into account in his business activities.

From 1994 on, in addition to his, at that time, existing farm, Mr. Szomor started a fish pond development project. It took ten years to develop the 450 ha connected system of fishponds. This new business initiative by him was also directed and managed in a way that supports nature conservation objectives. Fish ponds were developed and are managed in a way that benefits migratory bird species and restores the degraded wetlands of the Kiskunság National Park (PATAKI, 2008). Within the fish pond system he always keeps a pond for the feeding of wild birds. This pond is set at the lowest altitude compared to the others, in order to ensure that it is always under water, even if one or another pond is temporarily not flooded and used. Thanks to the existence of 'feeding ponds', there is less need to protect the commercial fish ponds from wild fauna.

<http://szomordezso.eu/> (only in HU)

#### 4.4.3.3. Complex fishing in protected area – Romania



Figure 20: Fishpond in Dumbrăvița, Romania (photo: Marilena Vacariu)

**Type of example:** fish from protected area

**Initiator:** business

**Additionally involved:** locals

Delta Carpathians - Dumbrăvița is a protected area of about 420 ha, of which approximately 180 hectares are lake and surrounding area and the rest is a network of ponds and their neighbouring land. This unique area is used for fishing, industrial fishing and bird watching.

Doripesco, a privately owned company, was founded in 1998. It is a family business, with passion and dedication, with love for the profession and with the respect for nature. Fishery Complex Dumbrăvița lies on a Special Protection Area Natura 2000 site, which is also a Ramsar Site, in the Barsa depression close to Brasov. The company tried and succeeded to combine commercial fishing and angling. Later, the company expanded its portfolio to other activities such as tourism, construction, production of concrete and peat fuel stations, with providing jobs for locals. Current activities of the company:

**Pisciculture:** Two carp farms with the total area of ca. 320 ha water; one sturgeon farm; one trout farm; a fish processing station, through which Doripesco offers customers 100% natural products certified as traditional products; maintenance of fishing facilities; seven shops selling fish and fish products.

**Tourism and recreation:** Doripesco tourist complex at Vadu Red (motel- restaurant and six fishponds for angling and commercial fishing); Poiana Râșnoavei in Rasnov; Trout House Restaurant; additional angling ponds.

**Construction:** Two gravel sorting stations and one concrete station; BCU production and bricks; civil engineering; hydraulic works; road works.

In the areas managed by Doripesco hunting is prohibited and with that the angling/fishing from boats, there are no engine boats for recreation or water sports, it is forbidden to burn vegetation (e.g. reed), nature should be respected (e.g. nesting birds etc.), everybody has to keep the area clean.

There are over 200 species of birds, some of which are included in the Birds Directive and international conventions on wildlife, such as *Botaurus stellaris*, *Crex crex*, *Aythya nyroca*.

For further information: [www.doripesco.ro](http://www.doripesco.ro) (in Romanian only).

#### 4.4.3.4. Biofisch AT – Austria (non-Carpathians)



Figure 21: Fish harvesting in Waldviertel, Austria (photo: Stefan Wegleitner)

**Type of example:** bio fish production by a joint venture including marketing

**Initiator:** single person

**Additionally involved:** 36 fish farmers across Austria

In 1992 Marc Mößmer started his small business in the region of Waldviertel in the Northern part of Austria where fish farming, especially carp, has a long tradition; many of these fish ponds were already engineered in the Middle Ages. In his own interest, he elaborated guidelines with experts from Germany and Switzerland for organic fish farms that were accepted by the EU in 1996 (EU-VO 834/2007). Step by step, he created a market for organic fish through awareness raising and personal contacts in Austria, especially in Vienna where people usually do not have personal relations to local fish farmers, a fact that was a good basis for development. With a small EU contribution he was the driving force establishing a joint venture with now 36 fish farmers (ARGE Biofisch) across Austria. They produce fish according to the Bio Austria Guidelines of 1994 with a centralized marketing platform (Biofisch GmbH) under the label Biofisch AT. Member fish farmers manage ponds with sizes from 1 to 200 ha. In most of the cases fish farming is part of a diverse portfolio of income of farmers (in addition to crops, livestock, tourism, forest etc.), but some of the farmers can make their living solely from fish production.

Currently, around 30-40% of the overall surface of fish ponds in Austria is processed organically for carp, whereas only 5% are for trout and other predatory fish due to the fact that organic fodder is very difficult to be purchased and its origin is mostly from the sea. The CO<sub>2</sub> footprint makes a big difference between the two types of fish production: there is an energy-investment (in KW) of approx. 3.5:1 for carp filet and approx. 45:1 for predatory fish species like trout or salmon. These obviously underpin the choice of bio-carp.

In the Waldviertel region, where the climate is rather rough, around 12-16 tons of carp can be produced from 60 ha a year. As a comparison, in a region where the climate is more optimal, up to a threefold yield can be reached.

The initiative won the innovation prize of Austria in 1996. Currently Mr. Mößmer is implementing new guidelines based on an even stricter Demeter principles.

For further information: <http://www.biofisch.at/>

## 4.5. NON-TIMBER FOREST PRODUCTS

Under non-timber forest products (NTFP) we mean all natural resources, useful substances, materials or commodities that are obtained from a forest and do not require the harvesting of trees themselves. They include a lot of different resources such as berries, mushrooms, plants, mosses and lichens etc. On a wider scale, wild game and ecotourism also belong to NTFP, but for the purpose of this study they are covered by other chapters.

The existence of non-timber forest resources is a provisioning service of forest ecosystems and is highly dependent on forest management, game management and thus on biodiversity. The access to NTFP for locals is often a cross-cutting issue as may well be the part of their everyday life, for example, by complementing their food, making decorations etc.

### Definitions

Sustainable management of non-timber forest products is heavily discussed at the international agenda, however, mostly in the context of tropical forests and the third world. There is no commonly agreed definition for the sustainable harvesting, though the notion is embedded in several nature conservation initiatives, and this is the case for CBD for example. The conservation and use of non-timber forest resources (NTFR) sits at the confluence of probably more Articles of the CBD than any other natural resource (CBD, 2001). This very well shows how much interlinked this resource is with other sectorial and nature conservational activities and goals.

### Existing guidance, standards and initiatives

Sustainable management of NTFR and sustainable production of NTFP is more widely discussed at tropical forests and developing countries (e.g. India, Brazil, Bolivia etc.) than in Europe or the Carpathians. However, there are some initiatives at different levels in Europe to sustainable NTFP, but no guidance or standard has been found.



As the majority of collecting is for personal use, policy relevant to the sustainability of personal use is as important as regulation of commercial harvesting.

The Scottish Government's economic strategy is to create a more successful country, with opportunities for all of Scotland to flourish, through increasing sustainable economic growth. The Scottish Forestry Strategy recognises the economic potential of NTFPs in supporting business development activities, and in 2009 the **Scottish Government's policy on non-timber forest products**, developed by the Forestry Commission of Scotland has been published: [http://www.forestry.gov.uk/pdf/NTFPpolicypublic.pdf/\\$file/NTFPpolicypublic.pdf](http://www.forestry.gov.uk/pdf/NTFPpolicypublic.pdf/$file/NTFPpolicypublic.pdf). The Scottish charity Reforesting Scotland has established a website 'Forest Harvest: non-timber forest products in Scotland' to promote sustainable NTFR harvest, and has developed **guidelines on moss, bulb and wild mushroom collection** (<http://www.forestharvest.org.uk/guidelines/harvestingguidelines.htm>). The **Scottish Wild Harvest Association** aims to promote NTFP through providing information on NTFP, facilitating cooperation of members, organising events, help raising marketing opportunities etc. (<http://www.scottishwildharvests.org.uk/>)

#### 4.5.1. CHALLENGES

The collection of non-timber forest products (e.g. mushrooms, decoration plants, flowers etc.) has a long tradition. It belongs to the natural interaction of people with their surrounding nature. It can as well serve personal needs as commercial purposes. There are three major challenges to NTFR. The one is over-harvesting, the other is the access rights to NTFR, and last but not least is the transparency of the economic activity.

NTFR in the Carpathians is usually not managed for harvesting as such but are peoples' benefits of forest ecosystems and are often taken for granted. The sustainability of NTFR harvesting can only be measured and monitored in case an initial survey set the baseline of NTFR, based on which estimations can be made about production capacity and thus the sustainable level of harvest. Monitoring shall follow to track sustainability. Without these, it is impossible to estimate if NTFR were over-harvested or not. For example, snowdrops were collected across Hungary in the spring time for years, being a favourite bouquet for Valentine's Day, that mass collection led to the reduction of bulbs and plants, and eventually to local extinction. Therefore, the government turned to the help of legal protection, which was the only measure to stop **over-harvesting**.

It is also a question of to whom the NTFR belongs to. It is illegal to collect NTFP in private forests without the **permission** of the owner. In state/public forests, people may collect NTFP, but not on protected areas. Also, the list of protected species that may not be harvested without the permission of the competent authority may differ from country to country.

Another legal aspect is that by its nature, NTFP might take a share of the black or grey economy. An example for that is collecting wild berries or mushrooms in the forest and selling them at the roadside without any documentation. Guidelines, standards and the enhancement of the white market and business case of NTFP may well lead to bleaching the **grey or black market** of NTFP.

#### 4.5.2. OPPORTUNITIES

Healthy forest ecosystems provide multiple benefits, such as provisioning timber, NTFR, flood prevention, etc. The collection of NTFP for personal consumption is important for the local population, and it may be a recreational activity and is embedded in the relationship of locals to their environment. For commercial use, NTFP might be the raw material for a wide range of businesses and can generate significant economic activity, dealing with a variety of products from wild mushrooms to mosses and lichens for decoration purposes, or essential oils from pharmaceutical plants. The result of the questionnaires of this study shows that local people enjoy natural values such as NTFR, hiking etc., and to a high extent (4 on a scale of 5).

The market and the sustainable management and harvest of NTFR is not very much organised in the Carpathians. However, there are certain local initiatives that provide a good example to others. The potential for sustainable NTFP is great in the Carpathians, taken its significant forest cover, its high biodiversity and the extent of natural and semi-natural forests.

### 4.5.3. GOOD PRACTICE EXAMPLES

#### 4.5.3.1. Forest fruit and mushroom processing manufacture – Romania

**Type of example:** NTFP harvesting

**Initiator:** NGO

**Additionally involved:** locals

The Székely Fruit Association presented among the good examples for agriculture set up a social enterprise, a forest fruit and mushroom processing manufacture in Zetea, Harghita County. They collect, process and market forest fruits and mushrooms. Besides the commercial purpose, the business aims to develop and implement innovative and sustainable ways of forests exploitation, and at the same time a social objective, namely to assure increased incomes for the Roma communities of the area. They cooperate with an association of private forest owners that owns over 20,000 ha of forests. In the first season 40 tons of berries and 2.5 tons of mushrooms were collected and processed.

Over 300 locals were involved and had income from these activities. In addition, all Roma people who worked for the association received wood for winter heating for free.

<http://www.szekelygyumolcs.ro/>

#### 4.5.3.2. Forest fruit and mushroom processing manufacture – Romania



Figure 22: Forest mushrooms in Maramureş (photo: VAP Company)

**Type of example:** NTFP harvesting

**Initiator:** business

**Additionally involved:** locals

VAP Company was established in 2002 in Deseşti village, Maramureş County, with private local capital. Main activities are the harvesting of mushrooms and forest fruits and then selling them to the national and international market. They provide fresh, frozen and dried products.

Currently, the company owns its production buildings, storage and transportation facilities and all the necessary equipment for delivery.

The company employs 8 local people full-time and generates income for a lot of locals in the harvesting season through buying the collected NTFP.

For further information: <http://vapsrl.ro/> (only RO)

Pop Vasile, Maramureş County, 282 Deseşti, Cod Postal: 437135, Tel.: +40 (0) 262 372 803

#### 4.5.3.3. Sustainable honey production – Serbia



Figure 23: Honey bee (photo: Brend Homolja)

**Type of example:** NTFP harvesting

**Initiator:** local municipality

**Additionally involved:** locals

Forests and forest plantations in Homolje Mountains are diverse habitats and optimal for beekeeping and honey production. Naturally isolated and surrounded by mountain ranges, the area is a sanctuary for unique flora and fauna, with the most important honey tree species, such as black locust, linden, maple, willow, horse chestnut. The area covers ca. 760 km<sup>2</sup>, mostly within the Žagubica municipality. It is dominated by forests which cover almost half of the total territory, around 20% by meadows and 12% by pastures, which all give excellent opportunities for honey production. There are more than 80 different medicinal plants and melliferous species that contribute to the production of quality honey.

With only 22 inhabitants per km<sup>2</sup>, it is one of the least populated areas in Serbia and has excellent natural conditions to increase the production of honey, which is a great opportunity for locals. Beekeeping is also gaining importance for the benefit of agriculture by providing pollination services. The estimated potential for beehives in entire Serbia is far greater than the current existence of about 450,000 bee colonies. This potential deserves much more attention not only because of the direct economic benefits but also because of its importance in maintaining and enriching flora and fauna, the unfolding of life processes in the biosphere and the environment<sup>38</sup>.

Local authorities initiated the process of supporting beekeeping and their economic subsectors. A process was started several years ago that resulted in the protection of the geographic region for Homolje honey and in many other awards and recognitions.

<sup>38</sup> National strategy for sustainable use of resources

The local municipality has facilitated the registration of a bee keeping association and a bee keeping cooperative in Homolje that would assist in providing inputs and defining rules for production and marketing of honey of the same standardized quality. The cooperative was founded by 84 beekeepers in the municipality of Žagubica and they have, assisted by the consultants from the University of Agriculture, taken the job to develop a code of practice for the production of Homolje honey.

In 2008, the protected designation of origin HOMOLJE HONEY was registered, and in the following year, with newly designed promotional packaging and labelling, the honey from Homolje was awarded a “Serbian trademark of the year”. In 2010 it received the Golden medal for quality, and the Golden medal for innovation in packaging. Furthermore, the international protection of intellectual property for Homolje honey was obtained, making this product the first in this category from Serbia.

The honey is extracted once, or maximally twice per year (after the flowering of black locust trees and after the flowering of meadow grasses) and only when at least two thirds of the frames are filled with honey. It is a blend of black locust (up to 50%) and floral honey, which gives the specific flavour of Homolje honey.

The key characteristics that distinguish its production and quality from the others and link it to the territory are the floral composition of Homolje fields and forests, the prescribed system of production (one yearly extraction), and origin of the multi-generational know-how and tradition.

It is estimated currently that Homolje provides ca. 10-20 tons per year, whereas yield could reach 200 years still remaining within a sustainable range.

For more information please refer to:

<http://www.zdravasrbija.com/lat/Zdrava%20Srbija/104-Brend-Homolja---Homoljski.php> (in Serbian language only)

## 4.6. TOURISM

Tourism is closely linked to nature in terms of impacts and dependency, and can cause both environmental degradation and enhancement. The interrelationships between tourism and nature conservation are extremely complex and dynamic, with conflict and the consequent degradation of the environment being most acute where tourism development occurs rapidly and without strategic planning. The role of tourism as a consistent contributor to nature conservation is particularly questioned based on considerations that tourists trample vegetation, disturb wildlife, leave litter, carry pathogens and weeds, and thus do not always behave in ways which promote a symbiotic relationship between the tourism industry and conservation. Furthermore, tourism has often fostered intensive viewing of nature, with resulting disturbance or damage, and export of protected and endangered species. The tourism sector also contributes to climate change (it is estimated that the global share for CO<sub>2</sub>-emissions attributable to tourism through transport, accommodation and activities is around 5%), which again has varied impacts on biodiversity; for example, the effects on rare and isolated populations, loss of keystone or iconic species, extinction of endemic species, and dissemination of invasive species (BRANDL *et al.*, 2011). In general, the tourism sector uses significant amounts of natural resources, and plays a role in landscape modification and habitat fragmentation with negative impacts on biodiversity, as a result of the “grey infrastructure” development (e.g. development of ski resorts or other infrastructure).

Still, tourism has a large potential for sustainable socio-economic development and nature conservation, given that it can contribute to the protection of natural resources as well as maintaining the livelihoods and preserving cultures and traditions. In this sense, it is important that the tourism sector innovates and uses environmentally friendly technology and infrastructure, adopts responsible practices, and invests in education and awareness-raising, both internally among tourism operators and externally towards tourists and local residents. This is done in order to understand the cultural and biological diversity that characterize a certain place as well as the effects of their behaviour, as to develop respect for what is usually taken for granted, for instance, the environment.

The successful integration of tourism and nature conservation objectives is of increasing importance, particularly because it enhances people’s choices, thus, enhancing the chances of responsible tourism businesses for stronger competitiveness and higher profitability, and also helps maintain or even enhances the quality of the environment. All forms of tourism, and to different extents, rely directly on ecosystem services and



biodiversity (e.g. ecotourism, agro-tourism, wellness tourism, adventure tourism etc.). Tourism uses recreational services and supply services provided by ecosystems, particularly since tourists are increasingly looking for cultural and environmental authenticity, traditional/local typical food, interaction with local communities, and some for the opportunity to learn about local biodiversity (flora, fauna, ecosystems) and its conservation characteristics. However, some forms of tourism are more successful than others in integrating the needs of nature into their business practices. The chapter below describes sustainable forms of tourism in more details, while here it is worthy to mention some of the principles and methods used to avoid negative impacts on biodiversity and the environment: use of soft mobility or non-motorized means of transport, monitoring of the carrying capacity of ecosystems etc.

Given the global urbanisation, fragmentation and habitat destruction trends and climate change effects, it is expected that areas with high biodiversity, as well as remote areas, will become increasingly attractive destinations, with mountain areas almost inevitably occupying the first places. This offers a good perspective for tourism development in the Carpathians, where hospitality services (especially hotels and other tourist accommodation providers close to protected areas) and tourism operators are already quite numerous. Although local transportation services like narrow-gauge railway lines are very attractive, they are rather limited in the region. The development of activities such as responsible wildlife watching, mountain-biking, and sustainable fisheries should also be regarded as opportunities, particularly because they tend to attract nature-friendly tourists, and the latter because it can supply quality fish for restaurants and guesthouses.

### Definitions of responsible tourism

There are many definitions for environmentally friendly tourism, such as, sustainable, responsible and ecotourism, as well as numerous guidelines and standards have been developed on sustainable tourism. Some of the key concepts are listed below.

'Tourism that takes full account of its current and future economic, social and environmental impacts, addressing the needs of visitors, the industry, the environment and host communities'. According to the United Nations World Tourism Organisation (UNWTO), sustainable tourism is roughly defined as the meeting of the needs of present tourists and host regions, while protecting and enhancing opportunities for the future, with meeting all the principles of sustainable development, being environmental, economic and socially sustainable. It addresses both the needs of visitors, the industry, the environment and host communities (UNWTO, 2005). UNWTO stresses that the participation of all relevant stakeholders is essential, as well as a strong and well-founded policy context. They also emphasize that all types of tourism shall be transformed into sustainable tourism, and the small-scaled tourism should not be the only tourism that is considered sustainable.

The Global Sustainable Tourism Council's Criteria are the result of a worldwide effort to develop a common language about sustainability in tourism. Focusing on social and environmental responsibility, as well as the positive and negative economic and cultural impacts of tourism, the criteria are organised into four topics: (i) sustainable management, (ii) socio-economic impacts, (iii) cultural impacts and (iv) environmental impacts (including consumption of resources, reducing pollution, and conserving biodiversity and landscapes).

The first International Conference on Responsible Tourism in Destinations took place in Cape Town in August 2002 as a side event of the Johannesburg World Summit on Sustainable Development (also known as Earth Summit). **Responsible tourism** is like sustainable tourism, however as often the word sustainability is overused and not understood, responsible tourism has been adopted as a term used by industry. Responsible tourism is any form of tourism that can be consumed in a more responsible way. According to the Cape Town Declaration (2002), responsible tourism is tourism which:

- "Minimises negative social, economic and environmental impacts;
- Generates greater economic benefits for local people and enhances the well-being of host communities;
- Improves working conditions and access to the industry;
- Involves local people in decisions that affect their lives and life chances;
- Makes positive contributions to the conservation of natural and cultural heritage embracing diversity;

- Provides more enjoyable experiences for tourists through more meaningful connections with local people, and a greater understanding of local cultural, social and environmental issues;
- Provides access for physically challenged people;
- Is culturally sensitive, encourages respect between tourists and hosts, and builds local pride and confidence."

**Ecotourism** is a form of sustainable tourism. All forms of tourism can become more sustainable, but not all forms of tourism can be ecotourism. According to the World Conservation Union, one may talk about ecotourism when the destination is a relatively undisturbed area where visitors go specifically for the natural and cultural values of the area (CEBALLOS-LASCURÁIN, 1996). Particularly in Romania, the ecotourism definition promoted by the National Tourism Authority in partnership with AER (Association of Ecotourism in Romania), INCDT (National Research and Development Tourism Institute), and the Ministry of Environment, includes the presence of at least one protected area as criteria for the designation of an ecotourism destination. As ecotourism is a form of sustainable tourism, it has to accomplish all the three elements of sustainability, namely environmental, economic and social. Ecotourism shall promote nature conservation and low impact on natural resources, respect for local traditions and it is a must as well that local people shall benefit of the tourism activities. Finally, ecotourism promotion should be done based on correct marketing.

Hunting and angling is a consumptive recreational activity that lead to the capturing or killing of the animal therefore should be embedded as means of sustainable management, whereas wildlife tourism is based on the experience of seeing the wildlife through observation or photography, therefore disturbance of species need to be avoided.

### Existing guidance, standards and initiatives

There are numerous guidance documents and standards on sustainable tourism across the world, and thus, in Europe and the Carpathians as well. They are mostly outcomes of international initiatives but some local scaled ones exist as well.

The **CBD Guidelines on Biodiversity and Tourism Development**<sup>39</sup> was published by the Convention on Biological Diversity (CBD). It provides international guidelines for activities related to sustainable tourism development in vulnerable terrestrial, marine and coastal ecosystems and habitats of major importance for biological diversity and protected areas, including fragile riparian and mountain ecosystems. The accompanying user's manual<sup>40</sup> on the CDB Guidelines on Biodiversity and Tourism Development also provide several case studies where the guidelines have been implemented.

**UNEP**, under the Biodiversity Planning Support Programme, has prepared a **Guide to Best Practices for Sectorial Integration: Integrating Biodiversity into the Tourism Sector**<sup>41</sup>. This UNEP document presents eight thematic studies designed to provide guidance to biodiversity planners to mainstream biodiversity into sectoral and economic policy development and planning. It also deals with the implementation of national biodiversity strategies.

The **European Commission** works to build strong partnerships with sectors having significant impact on biodiversity, like with the help of its series on sectoral guidance, including the one on **Sustainable Tourism and Natura 2000 – Guidelines, initiatives and good practices in Europe**<sup>42</sup>.

The **European Ecolabel on Tourism Accommodation** is part of The European Ecolabel<sup>43</sup> voluntary scheme, established to encourage businesses to market products and services that are kinder to the environment. Although biodiversity does not play a central role in the criteria (optional criteria on organic garden, composting and environmental communication and education on local biodiversity), the requirements aim at reducing impacts of leisure organisations on the local environment and also have a complex criterion to limit consumption, waste production and that prefers renewable sources and substances. Local biodiversity therefore benefits from this eco label.

<sup>39</sup> <http://www.cbd.int/tourism/guidelines.shtml>

<sup>40</sup> <http://www.cbd.int/doc/programmes/tourism-manual-en.pdf>

<sup>41</sup> <http://anna.spenceley.co.uk/files/IntegratingBiodiversitySynthesis.pdf>

<sup>42</sup> [http://ec.europa.eu/environment/nature/info/pubs/docs/nat2000/sust\\_tourism.pdf](http://ec.europa.eu/environment/nature/info/pubs/docs/nat2000/sust_tourism.pdf)

<sup>43</sup> <http://ec.europa.eu/environment/ecolabel/products-groups-and-criteria.html>

The **European Charter for Sustainable Tourism in Protected Areas**<sup>44</sup> has been initiated by EUROPARC. The title is awarded based on the fulfilment of a set pre-condition criterion and the maintenance of quality is audited periodically. There is only one Charter Area from the Carpathians, the Muránska Planina National Park, which received its title in 2012.

The **Protocol on Sustainable Tourism to the Framework Convention on the Protection and Sustainable Development of the Carpathians** was initiated by the **Carpathian Convention** with the aim to enhance and facilitate cooperation of the Parties for the development of sustainable tourism in the Carpathians. Based on the Protocol, the Carpathian Sustainable Tourism Strategy is being developed in a participatory manner. It will be up for adoption at the fourth Conference of the Parties to the Carpathian Convention in September 2014. The Strategy contains clear objectives and activities for the implementation of sustainable tourism destinations/businesses throughout the entire Carpathians.

There are also smaller scaled initiatives, like the **Sustainable tourism development strategy of Djerdap National Park**, Serbia.

The **Association of Ecotourism in Romania (AER)** is a partnership for nature conservation and sustainable tourism development. On one hand, it represents the interests of mid-size tourism operators that also offer nature-friendly programs and services, while on the other hand it acts as a development organisation implementing projects aimed at the sustainable development of local communities through tourism promotion. Among their many activities they have developed an **Ecotourism Certification System, which** puts into practice the principles of ecotourism and ensures nature conservation through quality services development. <http://eco-romania.ro/>

The European Centre for Ecological and Agricultural Tourism (ECEAT) **is the leading European organisation in the field of small-scale sustainable tourism with a special attention to rural areas and organic farming.** It is a network of hundreds of small-scale accommodations and tourist services all over Europe, offering sustainable tourism services and approves their contribution to local communities and protection of the environment. ECEAT is stressing the **environmental, socio-cultural and economical sustainability** of the accommodation and its services provided. Requirements of joining the ECEAT brand are:

- Providing relevant “eco” information to guests;
- Supporting environmental friendly agriculture;
- Using water and energy in an efficient and conscious/responsible way;
- Following the green building policy;
- Reducing production of waste;
- Supporting soft mobility;
- Contributing to nature conservation;
- Contributing to sustaining cultural heritage;
- Contributing to supporting the local economy;
- Improving the environmental performance.

For details and/or applying for the certificate: <http://www.eceat.org/>

#### 4.6.1. CHALLENGES

Like all industries, tourism can have adverse environmental, economic and social effects. These impacts are mostly linked with the construction and management of tourism related infrastructures such as roads and tourism facilities including resorts, hotels, restaurants, shops, golf courses, skiing slopes and resorts, mainly dedicated to mass tourism. Improperly managed tourism can put enormous pressure on an area and can lead to soil erosion, increased air, soil and water pollution, natural habitat loss, increased pressure on wildlife, or even heightened vulnerability to forest fires.

As described in previous chapters, the Carpathians are diversified, offering natural and cultural values that are unique in Europe. They harbour rich biodiversity, have significant protected areas and provide habitats for populations of endemic and protected species (see Chapter 3.1 on Biodiversity and Protected Areas).

<sup>44</sup> <http://ec.europa.eu/environment/ecolabel/products-groups-and-criteria.html>

Therefore, it is a frequented tourist destination. The most visited parts are the mountainous areas. Taken that ecosystems need decades to restore any damage caused by tourism, tourism may have a long-term negative impact. Such activities with significant negative impact, for example, are the establishment of new ski-lifts, ski-slopes and its service infrastructure (buildings and roads), and off-road vehicles.

In summary, the most common conflicts between tourism and nature conservation are:

- Habitat loss due to infrastructure development;
- Visitor pressure,
  - Disturbance and damage of ways of life and social structure;
  - Disturbance of wildlife and nature;
  - Illegal leisure activities (e.g. motocross and quad, illegal hunting);
  - Pollution and resource consumption (e.g. water etc.).

Therefore the real challenge is really **to achieve a symbiotic relationship between tourism and nature conservation**, meaning that their interaction is organised in such a way that both derive benefit from the relationship. At an intermediary level, coexistence is noted when a positive effect is recorded between the two sides; however, such coexistence rarely continues indefinitely, particularly when an increase in tourism activity may cause substantial changes to the environment. Unavoidably, conflict occurs when conservationists see that tourism can have only detrimental effects on the environment. (BRANDL *et al.*, 2011)

#### 4.6.2. OPPORTUNITIES

Protected areas and natural assets provide great opportunities for tourist accommodation providers, tour operators and linked services. Sustainable tourism can be a win-win both for the tourism industry and for biodiversity. It creates local livelihoods and raises the importance of conserving natural values of the surrounding areas. In addition, it has significant socio-economic benefits taken its potential to provide jobs and livelihood for local people even in remote rural areas, thus, it contributes to poverty reduction. It also can help increase public awareness of the biodiversity problems, bringing people into closer contact with nature and the environment.

The **benefits of sustainable tourism for the tourism industry and local communities** are:

- Conservation in the long-term – the essential overriding aim for protected areas;
- Improved income and living standards by diversifying and improving services and products;
- Revitalisation/maintenance of local culture and traditional crafts and customs;
- Support of rural infrastructure;
- Providing a new angle for marketing and promotion;
- Improving public opinion and overall perception of the company/tour operator/accommodation provider;
- Differentiating them from competitors and acting as a model of a responsible and innovative business;
- Companies acting as sustainability champions will directly benefit from such an image;
- Enabling companies/tour operator/accommodation provider to reach new clients;
- Ensuring long-term use of tourism sites and resources and not only short-term income gains.

For a long time the tourism industry has benefitted from the services of biodiversity and has taken them for granted, and without feeling responsibility to maintain or improve the state of biodiversity. It is easy to recognise to what extent tourism depends on protected areas and natural assets, keeping in mind the examples above. Therefore, the involvement of the tourism sector into sustainable business operation and biodiversity conservation is not only in the interest of nature conservation, but also the self-interest of tourism industry.



Financing sustainable tourism may come from EU funds where applicable. During the programming period 2007-2013, both the European Regional Development Fund (ERDF) and the European Agriculture Fund for Rural Development (EAFRD) have provided schemes for the sustainable development of rural areas. Whereas the ERDF has supported more sustainable patterns of tourism to enhance cultural and natural heritage and to develop accessibility and mobility related infrastructure, the EAFRD has encouraged tourist activities as part of diversification of the rural economy. Furthermore, under the European Fisheries Fund (EFF), small scale fisheries and tourism infrastructure were also supported along with the sustainable development of fishery areas. Research supported under the 7<sup>th</sup> EU Framework Programme for Research, Technological Development and Demonstration may result in benefits for the tourism sector. The Competitiveness and Innovation Framework Programme (CIP), which supports the competitiveness of EU enterprises and especially small and medium-sized enterprises (SMEs), focuses on investing in innovation activities, including eco-innovation. Similar opportunities are expected to be funded in the next programming period 2014-2020. (BRANDL *et al.*, 2011) Sustainable tourism facilities may be eligible for banking as well, thus, may use loans to finance investments. Investors may also be interested in investments to sustainable tourism facilities.

Sustainable wildlife management carries opportunities for tourism as areas rich in wildlife and especially those rich in high value biodiversity are a frequently targeted destination of wildlife tourism. There is a growing interest of special wildlife tourism offers in Europe, such as bird watching, photo shooting or observation of rare species. The Carpathians have a high potential to meet such needs thanks to their high value of biodiversity.

### 4.6.3. GOOD PRACTICE EXAMPLES

#### 4.6.3.1. Rác Inn, Kisoroszi – Hungary



Figure 24: Rác Inn (photo: Mr. Racz)

**Type of example:** cooperation of business and national park

**Initiator:** national park

**Additionally involved:** local business

The Rác Inn is situated in the heart of the Danube Curve in Hungary, in the village Kisoroszi, on the northern peak of the Szentendre Island. The natural isolation of this area helped to maintain naturalness and biodiversity. The area lies within the boundaries of the Danube-Ipoly National Park Directorate and is close to both protected, terrestrial and aquatic areas.

The Inn has been running since 2004 as a family venture in a building in the old village centre and provides a restaurant, accommodation and leisure activities such as horseback riding, golf, traditional handcraft lectures, guided tours in protected areas, etc. In 2011, thanks to the economic development of the business and cooperation with the Danube-Ipoly National Park Directorate, the Rác family opened the Rác Garden, a restaurant and café, at the very bank of the Danube River.

The protection of environment and cultural heritage is a key principle for the family. When designing the Inn, they took into account that it is best fitted to the landscape, the interior resembles elements of traditional

rural houses. They even use solar power for heating. The ingredients of the meals served in the restaurant all come from Hungary, and mainly from local producers, as they offer seasonal and traditional local meals. Employees are members of the family living in the village. Through the guided tours organised by Rácz Inn, it promotes controlled tourism in protected areas. Through the activities offered, they play a role in education and public awareness of the environment.

Although Rácz Inn is not an approved sustainable tourism facility with any kind of official labelling or auditing, they are in line with the sustainable tourism principles. This is reflected in the fact, for example, that the Danube-Ipoly National Park Directorate started cooperation with the Rácz family. The National Park invested in bicycles and canoes, the renting of which is handled by the Rácz family through the Rácz Garden. Rácz Garden and Rácz Inn also organise professional guided tours (e.g. hiking, cycling and canoeing) into protected areas, led by experts (officers and rangers as appropriate) of the National Park. In 2010, the regional Industry Syndicate seated in Szentendre rewarded the Rácz Inn for the efforts made to run an environmental friendly business.

The website of the facility is available at: [www.raczfogado.hu](http://www.raczfogado.hu) (available only in Hungarian).

#### 4.6.3.2. Ecotourism certification – Romania



Figure 25, 26 and 27: Logo, guesthouse and guided tour by AER.

**Type of example:** certification scheme

**Initiator:** NGO (with support of Environmental Partnership Foundation)

**Additionally involved:** private businesses, locals

The innovative idea promoted by the Association of Ecotourism in Romania (AER) is to bring together the public and the private sector in a partnership for nature conservation and sustainable tourism development. AER has achieved a partnership for nature conservation and tourism development among tourism associations, non-governmental associations acting in local development and nature conservation, nature conservation projects and travel agencies.

AER defines ecotourism as a tourism form in which the main motivation of tourists is the observation and appreciation of nature and local traditions related to nature. Therefore, ecotourism has to achieve the following requirements:

- Contributes to nature conservation and protection;
- Supports the well-being of local people;
- Has an educational component that creates nature conservation awareness, both for tourists and local communities;
- Requires the lowest possible negative impact on the environment and on the socio-cultural component.

The AER has developed an ecotourism certification system based on international experience and adapted to the Romanian context. The AER runs the certification system and in addition, the Association provides further assistance to its members, such as a yearly map of certified tourist destinations, brochures, but also networking and sharing their experiences. It also represents member businesses at events, for example, tourism fairs in Western Europe.

Certification can be given in two different categories:

- Ecotourism programmes/tours provided by tour operators (e.g. eco-tours of maximum 15 participants such as horse-riding, canoeing, mountain biking, cultural tours etc.),
- Small-scale accommodation structures in rural and natural areas (e.g. eco-lodges and guesthouses of maximum 25 rooms).

By now, there are not only the products of AER members but also those provided by non-members who have applied and successfully received the Eco-Romania certification. Benefits identified that are linked to AER certification are: raising awareness and a demand among tourists for ecotourism, raising trust among tourists, better marketing, and also the positive socio-economic impacts such as creating jobs, providing livelihoods, and assistance to protected area managers due to the low impact of tourism activities.

For details on the AER, detailed certification criteria etc.: <http://eco-romania.ro/>

#### 4.6.3.3. Regional Culinary Heritage – Poland and Ukraine

**Type of example:** certification scheme

**Initiator:** NGO

**Additionally involved:** private businesses, locals



Figure 28: Logo of Culinary Heritage.

Regional Culinary Heritage is a network with member regions all across Europe. The title has been awarded to 26 regions and the network involves altogether 989 members. The common goal is to develop regions through regional food and culinary traditions. It is expected that the increased use and production of regional food will develop small scale business. The Regional Culinary Heritage initiative aims to boost tourism, raise the awareness on environmental issues of the certain area, increase local employment, and thanks to healthy food, improve health conditions. Businesses from a certain region that is awarded with the Regional Culinary Heritage title can apply for membership of the network. Members come from the entire food supply chain such as producers, farm shops, processors, restaurants etc. from all around each region. All business members in the network are responsible to ensure that products have their origin from the region.

Regions who want to join the Culinary Heritage Europe network need to apply through a regional organisation to the European coordinator on an application form. Should the region be eligible for membership, it becomes

a candidate region. Only after this, and an introductory phase, can a region become an approved region. The European network is based on a common framework, which includes:

- Criteria and directions for participating regions;
- Criteria and directions for participating businesses;
- Directions for how to use the common logotype.

Among the many added values of being part of the Regional Culinary Heritage network is the marketing value of the use of an approved and established logo. Another benefit is the great potential to increase tourism, with all its additional benefits, like the creation of jobs. In addition, regional cooperation for local food production, process and sales (e.g. through restaurants) can only improve the networking within the regions.

Although there is no region from the Carpathians within the European Regional Culinary Heritage network, there are nine regions in Poland and one region in Ukraine that have been awarded and carry the title of a Culinary Heritage Site, with all its benefits.

Though the European Regional Culinary Heritage network is not a classic sustainable tourism business, it is a good example of an initiative based on cooperation and something that has the potential to boost sustainable tourism and the local economy.

The website of the initiative is available at [www.culinary-heritage.com](http://www.culinary-heritage.com)

#### 4.6.3.4. Wildlife tourism – Romania

**Type of example:** wildlife encounters special trips

**Initiator:** international project consortium, followed by tour operators

**Additionally involved:** NGO, protected area manager, other businesses

The Romanian Carpathians is home to a significant European population of large carnivores such as brown bear, wolf and lynx. These three species meet the demand criteria for large, rare and iconic species that attract wildlife tourists. Hunted until extinction in most parts of Western Europe, these species survive today only in those areas that offer extensive wilderness habitats, which is much restricted in an urbanized continent like Europe. The attractiveness of these species could therefore be directly linked to association with wilderness areas. The Romanian Carpathians are therefore an ideal spot.

The initiative of developing and spreading wildlife tourism in Romania was thanks to the international 'Carpathian Large Carnivores Project' (CLCP), supported also by WWF, between 1995 and 2003. Developing ecotourism in the area based on wildlife observation was part of the integrated management approach of the project that viewed this form of tourism as a necessary aspect for enhancing community support towards the conservation of large carnivores. The media interest and promotion generated led to the first foreign wildlife tourists appearing in 1997 in the Brasov area, with significant increase in groups and international tour operators in the following years of the project (CONDREA, 2013).

By now, more and more tour operators realise this opportunity in nature and offer special wildlife encounters in independent (e.g. guided tours) and in holiday packages, and with AER certification. See for example: Exodus UK – Carpathian culture and wildlife offer (<http://www.exodus.co.uk/holiday-destinations>), AER members offering wildlife watching tours: <http://www.eco-romania.ro/tour-romania/tours-and-activities/wildlife-watching>



## 5. CONCLUSIONS



The literature and policy review shows that at the European scale there is a clear trend in the shifting from protectionist towards participatory nature conservation. With the spreading concept of ecosystem services and their values, it is easier to communicate the benefits and needs in protecting biodiversity. This also helps underpin the greening of EU policies and funds, (e.g. Cohesion Policy calling for spending more on ecosystems and green infrastructures) (COM(2011) 17 final). The proposal from the European Commission on the Common Agricultural Policy for 2014-2020 included further greening of funds, especially on payments for public goods, the Climate Policy clearly targeting sustainability goals (GODINOT, 2011). All these embed the necessary involvement of stakeholders in order to achieve sustainable growth in Europe (COM(2010) 2020 final). This carries opportunities for rural people to become engaged in pro-biodiversity businesses, contributing to nature conservation on the one side and providing sufficient economic and social benefits on the other.

The analysis of the answers to the questionnaires and discussions at stakeholder meetings, and the input from national experts for Romania, Serbia and Ukraine highlighted that though the Carpathian Ecoregion has great potential in terms of natural assets, it is a laggard compared to other Western European countries, in regards to tapping into their potential. This may be a remnant of the history of the region, and adding to it, the difficulties regarding the current financial crisis. We found, that although there are some initiatives of sustainable businesses in the Carpathians that are worthy to be followed, there is room for further initiatives. What was heard most at stakeholder meetings were the conflicts between nature conservation and local businesses, more specifically, the restrictions and difficulties entrepreneurs face because of protected areas and species. When it was time to identify the positive, good examples, it was almost impossible to find any. There was similar feedback in the answers to the questionnaires. Those who answered had marked the certain sectors relevant to their region and those with whom they are in contact throughout their operations. All who filled the questionnaire could list conflicts and problems with all the sectors they marked as relevant for the region. However, there were only a few good examples provided through this information source.

The searches for case studies show that there are pro-biodiversity business hot spots, regions where several good example initiatives exist in parallel or even being interlinked with each other. This suggests that pro-biodiversity businesses and initiatives are good catalysts for sustainable regional development.

All this information led us to conclude that there is a clear need to assist locals in finding ways to use the opportunities for sustainable businesses in their region. There are three main groups that can drive these changes. One is policy makers, another is non-governmental organisations and the third is the locals, the entrepreneurs themselves. Therefore, based on literature, the analysis of questionnaires, the stakeholder meetings, expert interviews, analysis of case studies and our knowledge and experience, we have concluded with recommendations for these target groups.

## 5.1. RECOMMENDATIONS FOR ENTREPRENEURS

Under the term entrepreneurs, we mean all locals and businesses that run economic activity in the region. These, for example, may be individuals or families running farms or providing accommodation, and also smaller or larger companies with factories in the area, etc. To give better understanding, we use 'biodiversity' in this chapter to cover biodiversity and ecosystems, especially those of protected areas and natural assets.

- First, we suggest **considering the dependency of your activities on biodiversity** (e.g. on pollinators, clean water, wood).
- Along with this, you should **identify the negative impacts of your activities on biodiversity**.
- Additionally, **list all the risks that your activities/business may suffer from the loss of biodiversity**.
- Now, think of and identify good practices to **eliminate these risks**. From your solutions, list the ones that could be applied in your activities/business. These may not require major investment, but in case they do, you should identify possible funding sources.
- You can always **turn to external assistance for help**. NGOs and professional advisors are usually good in business development and financing. Joining, or at least contacting an association or wider initiative already running activities, is often a good way to save you from the first difficulties, and they may very well be able to give you good advice and help.



- Experience shows that **diversification of the activities is a good approach in increasing stability of the business**. This may be diversification within a certain business (e.g. a tour operator traditionally providing guided tours visiting urban cultures, starting up wildlife watching tours; or a narrow-gauge train used for transportation of wood, additionally used for tourists) or starting an alliance of separate businesses (e.g. a family providing accommodation buying breakfast ingredients for the guests from a local, small-scale pro-biodiversity farmer and advertising the products of the farmer).
- Should you plan **an investment or significant alteration of your activities in a protected area or Natura 2000 site**, make sure to **analyse social, economic and environmental impacts** of your investment.
- Should you ask for **project co-funding** (e.g. European Union funds) or a **bank loan**, you will necessarily be asked to provide a feasibility study. It is the best tool to conduct an objective and rational analysis of the strength and weaknesses of your project idea. It will help you to evaluate the technical, economic, legal and operational feasibility, to identify risks and their solutions and also to set up a rational time schedule for the implementation. A template of a common EU-funding feasibility study fitted to sustainable development initiatives is in Annex III.

#### Additional recommendations for agriculture

- Remember to comply with protected areas and Natura 2000 management plans.
- Do not change land use without prior notice to the protected area manager and/or respective authority.
- Remember that short-term income may be detrimental to your long-term income.

#### Additional recommendations for energy

- Remember that renewable energy may not necessarily be sustainable energy.
- Do not use natural or semi-natural lands for renewable energy plants or plantations.

#### Additional recommendations for fisheries

- Ensure no fish escape from your stock in case you breed non-native species.
- If you have a high biodiversity and protected species, seek cooperation with other stakeholders and run a diverse service, e.g. what might be a loss to your stock, might be an advantage for tourism (birdwatchers, hikers etc.).

#### Additional recommendations for forestry

- Initiate dialogue and seek cross-sectorial cooperation with nature conservations (e.g. national park), NGOs, game management, hunting and tourism. The common interests should be identified and capitalised.
- Look for joining sustainable forest management schemes.
- Harmonise the forestry management plan with the PAs management plans.

#### Additional recommendations for non-timber forest products

- Keep in line with the quotas for sustainable harvesting of the goods.

#### Additional recommendations for tourism

- Look into joining a sustainable tourism scheme, with real sustainability criterion.
- Seek local cooperations with other stakeholders. Involve local communities in ecotourism programmes (e.g. for providing local products and services).

## 5.2. RECOMMENDATIONS FOR NGOs

Well organised and scientifically-sound green NGOs are traditionally great catalysts of sustainable development and nature conservation. They assist both policy makers in establishing the necessary legal and funding structures, and local people in accessing funds, starting projects, initiatives and investments. The raising awareness role of NGOs is key in communicating environmental goals and viable solutions to the people.

- NGOs shall further **engage in raising awareness** with the **assistance of policy and decision makers**.
- To boost sustainable development in their region, they are encouraged to **offer professional advisory services** to businesses/locals. They are often perfectly situated to help locals/businesses in identifying their dependence on biodiversity and ecosystems as well as opportunities and methods, and also accessing funding.
- NGOs may become the **bridge between nature conservationists and locals**, helping them work together.
- NGOs are encouraged to use their capacities and knowledge not only for initiating change but also for **monitoring outcomes**.

### Additional recommendations for agriculture

- Assist policy makers in establishing the necessary structures and funding.
- Raise awareness of the mutual benefits of sustainable agriculture among farmers.
- Offer professional advisory services on sustainable farming.
- Help farmers identify their dependence on biodiversity and ecosystems and help them identify opportunities and methods to improve.
- Promote/initiate pro-biodiversity branding/labelling etc.
- Promote joint food supply-chain networks based on sustainability principles.
- Ensure real sustainability criteria are applied in any pro-biodiversity branding/labelling etc. scheme.

### Additional recommendations for energy

- Assist businesses in finding the right place and way for renewable energy.
- Engage in SEAs/EIAs public hearings to avoid/mitigate energy projects in sensitive areas for biodiversity.
- Help identify energy sources in protected areas and assist in ensuring their sustainable use.

### Additional recommendations for fisheries

- Assist fisheries in finding ways to diversify business and/or to cooperate with other stakeholders.
- Develop and promote sustainability criterion for fisheries.

### Additional recommendations for forestry

- Help bridge private forest owners, state forest owners, locals and nature conservationists to each other.

### Additional recommendations for non-timber forest products

- Initiate studies on the sustainable carrying capacity of NTFP.



#### Additional recommendations for tourism

- Help policy makers prepare guidance/strategy/guidelines etc. on sustainable tourism.
- Help policy makers to establish sustainable tourism scheme/labelling etc.
- Identify potential sustainable tourism businesses in the region.
- Help these businesses convert to a pro-biodiversity, sustainable tourism facility with best practice examples, advice, etc.
- Initiate local, regional cooperation and initiatives (e.g. labelling, networking).

### 5.3. RECOMMENDATIONS FOR POLICY MAKERS AND AUTHORITIES

Policy and decision makers have significant impact on the life and business of locals.

- Therefore, they should **ensure proper stakeholder involvement** throughout policy development and decision making processes to ensure that those on whom certain decisions will have an effect have opportunity to improve policies with a bottom-up approach.
- Policy makers shall **maintain a stable legal framework for sustainable business operation**.
- **Ensure proper funding for sustainable development** and to use the most opportunities to do so, provided by EU funds. Running a sustainable business should, in an ideal world, for its social and environmental benefits, be at least as profitable as a business not fitted to sustainability criteria.
- **Biodiversity proofing**<sup>45</sup> of funds would eliminate payments harmful to biodiversity.
- **Support assessment of ecosystem services and their values**, properly incorporate into strategies, funding schemes and accounting.
- With policy tools, they should **help the creation of local, pro-biodiversity brands, labelling, the cooperation of sustainable businesses**, etc. In some areas, **special banking products** like low-interest micro-finance would help sustainable businesses as well.

#### Additional recommendations for agriculture

- Ensure stakeholder involvement, especially in the designation of protected areas and development of any management guidelines/plans etc. that may have an effect on them.
- Ensure that damage caused by protected species is compensated for.
- Through fitted funding, ensure that sustainable agricultural methods are better supported than those that are harmful.

#### Additional recommendations for energy

- Ensure, with proper legislation and fitted funding, that no use of renewable energy does harm to biodiversity.

#### Additional recommendations for fisheries

- Ensure that damage caused by protected species is compensated for.
- Initiate organic fish production.

#### Additional recommendations for forestry

- Through policy measures, ensure that forestry, game management and nature conservation sectors take joint decisions on issues having an impact on biodiversity.

---

<sup>45</sup> <http://ec.europa.eu/environment/nature/biodiversity/comm2006/proofing.htm>

- Apply a forestry management/logging planning methodology that equally involves forest managers, game managers and protected area managers.
- Promote high nature/conservation value forestry.

#### **Additional recommendations for non-timber forest products**

- Initiate studies on the sustainable carrying capacity of NTFP.

#### **Additional recommendations for tourism**

- Large numbers of sustainable tourism businesses come from small and medium-sized enterprises (SMEs). Develop support schemes or initiatives to boost this sector.
- Help sustainable tourism with guidance, strategy, guidelines or any kind of guiding material that may help businesses to identify opportunities in sustainable tourism and help them to start-up or convert such a business.
- Establish local/regional/national, or apply an existing criterion/benchmark/system/award scheme etc., to sustainable tourism.
- Help develop local/regional identity.
- Develop the measurement of performance in regards to biodiversity and sustainability. Ensure the maintenance of quality by monitoring and auditing.
- Improve necessary infrastructure.

- ALTERRA (exp. 2014)*: Task 2 Interim report: Preliminary Assessment vulnerability & potential adaptation measures for the service contract integrated assessment of vulnerability of environmental resources and ecosystem-based adaptation measures. On behalf of the Commission, Tender DG ENV.D.1/SER/2010/0048; to be published 2014
- BARTHOLY, J., PONGRÁCZ, R. and GELYBÓ, G. (2007)*: Regional climate change expected in Hungary for 2071-2100. *Applied Ecology and Environmental Research* 5 (1), 1-17
- BECKMANN, Andreas, CARMIN, JoAnn and HICKS, Barbara (2002)*: Catalysts for sustainability: NGOs and regional development initiatives in the Czech Republic. In Walter Leal Filho (ed.) *International Experiences on Sustainability* (pp. 159-177), Bern, Peter Lang Scientific Publishing
- BRANDL, Klara, BAUMGARTNER, Christian, BIRKETT, Margaret, DYMAK, Stefanie, PRICE, Colette and PROTOPAPADAKIS, Petros (2011)*: Sustainable Tourism and Nature Conservation – An Investment in our Future. Report to Surf-Nature project, [www.surf-nature.eu](http://www.surf-nature.eu)
- Brundtland Report (1987)*: World Commission on Environment and Development's (the Brundtland Commission) report *Our Common Future*. Oxford, Oxford University Press
- B@B, Business@Biodiversity Platform (2010)*: Agriculture Sector and Biodiversity Conservation – Best Practice Benchmarking. Outcome of a workshop by the European Union Business and Biodiversity Platform for the European Commission, DG Environment
- The Cape Town Declaration (2002)*: International Conference on Responsible Tourism in Destinations, Cape Town <http://www.responsibletourismpartnership.org/CapeTown.html>
- CBD (2001)*: Sustainable management of non-timber forest resources. Montreal, SCBD, CBD Technical Series no. 6
- CBD NR4 (2010)*: Fourth National Report of the Czech Republic, Hungary, Poland, Romania, Slovakia, Serbia and Ukraine on the implementation of the Convention on Biological Diversity
- CEBALLOS-LASCURÁIN, Héctor (1996)*: Tourism, ecotourism, and protected areas. IUCN, Gland, Switzerland, and Cambridge, UK in collaboration with the Commission of European Communities
- COM(2009) 358 final*: Report from the Commission to the Council and the European Parliament on a 'Composite Report on the Conservation Status of Habitat Types and Species as required under Article 17 of the Habitats Directive'. Brussels, 13.7.2009
- COM(2010) 672 final*: Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on 'The CAP towards 2020: Meeting the food, natural resources and territorial challenges of the future', Brussels, 18.11.2010
- COM(2010) 715 final*: Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on 'European Union Strategy for Danube Region'. Brussels, 8.12.2010
- COM(2010) 2020 final*: Communication from the Commission on EUROPE 2020 – A strategy for smart, sustainable and inclusive growth. Brussels, 3.3.2010
- COM(2011) 17 final*: Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on 'Regional development contributing to sustainable growth in Europe 2020'. Brussels, 26.1.2011
- COM(2011) 21 final*: Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on 'A resource-efficient Europe – Flagship initiative under the Europe 2020 Strategy'. Brussels, 26.1.2011

- COM(2011) 244 final: Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on 'Our life insurance, our natural capital: an EU biodiversity strategy to 2020'. Brussels, 3.5.2011
- COM(2013) 249 final: Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on 'Green Infrastructure (GI) –Enhancing Europe's Natural Capital'. Brussels, 6.5.2013
- CONDREA, Diana (2013): The sustainability of wildlife tourism in Romania – The case of large carnivores. Master Thesis. Aalborg University, Campus Copenhagen, Master in Tourism
- EC (2012): Guidance document on aquaculture activities in the Natura 2000 Network, European Commission, DG Environment, Brussels
- FOXALL, Jack, DAY, Mark, KARPOWICZ, Zbig, KRÁLL, Attila, NAGY, Dénes, HUSZTI, Levente, DIKOVA, Miroslava and TEDERKO, Zenon (2010): Supporting Business for Biodiversity: A biodiversity technical assistance facility – "The Biodiversity Technical Assistance Unit Project". Final Report for the European Commission, DG Environment under contract: 070501/2006/451431/MA/B2
- GÁL, Zoltán & RÁCZ, Szilárdeds (2008): Socio-Economic Analysis of the Carpathian Area. Centre for the Regional Studies of Hungarian Academy of Sciences, Discussion Papers, Special Issue, Pécs
- GODINOT, Sebastien (2011): Unlocking the Potential of the EU Budget – Financing a greener and more inclusive economy. Volume I-II. WWF European Programme Office, Brussels, Belgium
- HELTAI, Miklós, BIRÓ, Zsolt & SZEMETHY, László (2006): The changes of distribution and population density of wildcats *Felis silvestris* Schreber, 1775 in Hungary between 1987-2001. *Nature Conservation* 62:37-42
- HOSTERT, Patrick, KUEMMERLE, Tobias, RADELOFF, Volker C. and MÜLLER, Daniel (2008): Post Socialist Land-Use and Land-Cover Change in the Carpathian Mountains. Geomatics Lab, Humboldt-University, Berlin
- IUCN (2010): 'Tourism Sector and Biodiversity Conservation Best Practice Benchmarking – Outcome of a workshop by the European Union Business and Biodiversity Platform' for the European Commission, DG Environment. Brussels
- JURADO, Elena, RAYMENT, Matt, BONNEAU, Marcelline, McCONVILLE, AJ and TUCKER, Graham (2012): The EU biodiversity objectives and the labour market: benefits and identification of skill gaps in the current workforce. Final Report for the European Commission, DG Environment
- KUEMMERLE, Tobias, HOSTERT, Patrick, RADELOFF, Volker C., van der LINDEN, Sebastian, PERZANOWSKI, Kajetan and KRUHLOV, Ivan (2008): Cross-border comparison of post-socialist farmland abandonment in the Carpathians. *Ecosystems* 11: 614-628
- LÁNG, István (2006): The project "VAHAVA", Executive summary. Ministry for the Environment and Water Management (KvVM) and the Hungarian Academy of Sciences (MTA), Budapest
- LUKIČ, Vesna (2011): Demographic Problems in the Carpathian Region of Serbia. *Journal of the Geographical Institute "Jovan Cvijić"*
- Millennium Ecosystem Assessment (2005): Ecosystems and Human Well-being: Synthesis.* Island Press, Washington, DC
- NUNES, P.A.L.D., DING, H., BOTELER, B., ten BRINK, P., COTTEE-JONES, E., DAVIS, M., GHERMANDI, A., KAPHENGST, T., LAGO, M., McCONVILLE, A.J., NAUMANN, S., PIETERSE, M., RAYMENT, M., and VARMA, A. (2011): 'The Social Dimension of Biodiversity Policy: Final Report' for the European Commission, DG Environment under contract: ENV.G.1/FRA/2006/0073 –2nd, pages vii-205, Venice/Brussels, February 2011



- OLSON, D. M., DINERSTEIN, E. (2002): The Global 200: Priority ecoregions for global conservation. *Annals of the Missouri Botanical Garden* 89(2):199-224
- PATAKI, György (2008): To Do Business and Gain Profit in a Way Not To Hurt Nature – A Case Study on Win-Win Opportunities for Biodiversity and Business. Leonardo da Vinci Program: Agri-marketing Project, Contract number: UK/06/B/F/PP/162-535, Gödöllő
- PERROT-MAÎTRE, Danièle (2006): The Vittel payments for ecosystem services: a “perfect” PES case? International Institute for Environment and Development, London, UK
- RATINGER, Tomáš & KRŮMALOVÁ, Veronika (2002): Provision of Environmental Goods on Potentially Abandoned Land: The White Carpathians Protected Landscape Area. CEESA discussion paper / Humboldt-Universität Berlin, Department of Agricultural Economics and Social Sciences, No. 6
- REDMAN, Mark (2009): Hidden values of High Nature Value Farming systems in Romania and Bulgaria. Study for WWF DCP Romania
- RUFFINI, Flavio V., STREIFENEDER, Thomas & EISELT, Beatrice (2006): Implementing an international mountain convention – An approach for the delimitation of the Carpathian Convention Area. European Academy, Bolzano/Bozen
- RUFFINI, Flavio V., HOFFMANN, Christian, STREIFENEDER, Thomas & RENNER, Kathrin (2008): SARD-M Report for the Carpathian Convention Member States. Assessment of Policies, Institutions and Processes, Regional Synthesis for the Czech Republic, Hungary, Poland, Romania, Republic of Serbia, Slovak Republic and Ukraine. European Academy, Bolzano/Bozen.
- RUFFINI, Flavio V., PTÁČEK, Pavel eds. (2009): Atlas of the Carpathian Macroregion. Palacký University Olomouc, Czech Republic
- SEC (2010) 1163 final: Commission Staff Working Document, Consolidated Profile. Accompanying document to the Report from the Commission to the Council, the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on ‘The 2010 assessment of implementing the EU Biodiversity Action Plan’. Brussels, 8.10.2010
- STAHL, Philippe and ARTOIS, Marc (1994): Status and conservation of the wild cat (*Felis silvestris*) in Europe and in the Mediterranean rim. (Status et conservation du chat sauvage (*Felis silvestris*) en Europe et sur le pour tour de la mer Méditerranée.) Conseil de l’Europe, Strasbourg
- TEEB (2008): ‘The Economics of Ecosystems and Biodiversity’ – An Interim Report. European Communities
- UNEP (2007): Carpathians Environmental Outlook 2007. Dimograf Printong House, Bielso-Biała, Poland on behalf of the United Nations Environment Programme
- UNIDO (2010): Renewable energy in the Carpathian region – Deployment policies and financing of renewable power generation option in the Carpathian region. United Nations Industrial Development Organisation, Vienna
- UNWTO (2005): Making Tourism More Sustainable – A Guide for Policy Makers. United Nations Environment Programme and World Tourism Organisation, Paris, France
- WITOWSKI, Z. J., KRÓL, W. & SOLARZ, W. eds. (2003): Carpathian List of Endangered Species. WWF and Institute of Nature Conservation, Polish Academy of Sciences, Vienna-Krakow
- WWF (2012): WWF proposal on CAP 2014-2020, WWF European Policy Office, www.wwf.eu



## I. QUESTIONNAIRE

**to collect information from BioREGIO project partners to contribute to compilation of the study on regional development opportunities of protected areas and natural assets**

*<please provide link to EN, DE or HU version documents/websites wherever possible>*

### 1. GENERAL INFORMATION ON PROJECT PARTNER

Name of organisation:

Location (country, region etc.):

Main field of work, incl. type of organisation (e.g. national park, NGO, research institute):

Contact details:

### 2. GENERAL INFORMATION ON CHALLENGES OF PROTECTED AREAS

2.1. Do you work with protected area managers? <Y/N>

2.2. What type of protected area(s) lay there (e.g. national park, Natura 2000 site etc.)?

2.3. Has the local public been involved in the designation process? <Y/N>

If yes, how?

If yes, what was their main perception?

2.4. Do you work with local people living or running their business on protected area(s)? <Y/N>

What type of activities/businesses exist there? <put an 'X' in the box>

agriculture/ organic farming	forestry	game management	fisheries	tourism (incl. hunting and angling)	energy	non-timber production

2.5. Are there conflicts between protected area managers and local people/businesses? <put Y/N in the relevant box>

agriculture/ organic farming	forestry	game management	fisheries	tourism (incl. hunting and angling)	energy	non-timber production

If yes, what are the main conflicts you know of?

2.6. Please provide any useful information or experience you have in the operations of farmers (incl. organic), foresters, game managers, fisheries, tourism operators (incl. hunting and angling), energy suppliers and non-timber production on protected areas in the region/country.

### 3. GENERAL INFORMATION ON OPPORTUNITIES OF PROTECTED AREAS

3.1. What do you think, how well local people recognise the value of nature and ecosystems surrounding them? <1 – being not at all; 5 – being very well>

1	2	3	4	5

3.2. How much are local people proud of the landscape/forest/lakes etc. surrounding them? <1 – being not at all; 5 – being very well>

1	2	3	4	5

3.3. How much are local people enjoying natural values any other time and way than that closely related to their business operation (like go hiking, picking mushrooms, skating on the lake in the winter, feeding birds etc.?) <1 – being not at all; 5 – being very well>

1	2	3	4	5

Please provide examples:

3.4. Has there been any territorial or sectoral strategies developed (e.g. Natura 2000 management plan, spatial plans, sustainable tourism strategy, climate change strategy etc.)?

If yes, what? *<please provide link if possible>*

If yes, has the public been involved? *<Y/N>*

How, at what stage?

What was their main perception and has it been taken into account?

3.5. What is the main income source(s) of local people/business(es) in protected areas?

3.6. Is there any specific fund/funding stream/programme/banking product for activities/business(es) in protected areas? *<Y/N>*

If yes, what?

3.7. Are there any local brands/labels/criteria/award established (e.g. regional products or national park products with specific logo, sustainable production criteria etc.) in the below sectors? *<put an 'X' in the box where something like the above exists>*

agriculture/ organic farming	forestry	game management	fisheries	tourism (incl. hunting and angling)	energy	non-timber production

If yes, what are these initiatives?

3.8. If you would need to summarise, what would you say, how good or bad is the attitude of local people towards protected areas? *<1 – being very bad, with lots of conflicts, with people perceiving nature conservation and protected areas as only constraints and obstacles; and 5 – being harmonious, with local people feeling ownership of natural assets. If you wish, describe below in a few words why you came to this conclusion>*

1	2	3	4	5

Why?



#### 4. GOOD PRACTICE EXAMPLE(S)

- 4.1. Do you know of good practice examples of local business run on protected area? *<Please provide any good practice example(s) from the above sectors you are aware of that contributes to sustainable regional development and operates in protected areas or are linked to natural assets. Extremely useful would be a business that received funding and improved in a way that is in line with the conservational objectives of the area. Provide short description of the example and a link/document where further information was available.>*

#### 5. ANY OTHER INFORMATION

- 5.1. Please provide any other information, data or information source you may find relevant and interesting for this study on regional development opportunities of protected areas and natural assets.

#### 6. LITERATURE

Please have a look on the below list of publications, links, documents etc. that were already identified and analysed in the literature review phase of the current project. Do you know of any other that might be useful and relevant to the development of the study on regional development opportunities of protected areas and natural assets in the Carpathians? (Note by: only English, German or Hungarian literature can be referenced, otherwise short summary in English needs to be provided)

##### Legislation and policy

Birds Directive (2009/147/EC) and Habitats Directive (92/43/EEC)

COM(2011) 244 final: 'Our life insurance, our natural capital: an EU biodiversity strategy to 2020' and its Impact Assessment accompanying the communication

Framework Convention on the Protection and Sustainable Development of the Carpathians (also known as the Carpathian Convention)

Protocol on Sustainable Forest Management to the Framework Convention on the Protection and Sustainable Development of the Carpathians

Protocol on Sustainable Tourism to the Framework Convention on the Protection and Sustainable Development of the Carpathians

COM(2010) 715 final: 'European Union Strategy for the Danube Region'

COM(2011) 017 final: 'Regional development contributing to sustainable growth in Europe 2020'

CBD Strategic Plan for Biodiversity 2011-2020

##### Strategies and guidance

Guide on hunting under the Birds Directive

Natura 2000 and forests – Challenges and opportunities

Sustainable tourism and Natura 2000

The EU Business and Biodiversity Platform best practice examples and guidance documents on the following sectors: agriculture, food supply, forestry, non-energy extractive industries and tourism

Regional Workshop on Renewable Energy in the Carpathians: Discussion Paper on an Action Plan for a Regional Framework Approach for the Promotion of Renewable Energies in the Carpathian Region

European Charter for sustainable tourism in protected areas (EUROPARC initiative)

### Studies and projects

European Learning Network on Functional Agro-biodiversity (ELN-FAB)

CBD National Report of the following countries: Czech Republic, Hungary, Poland, Romania, Serbia, Slovenia, Ukraine

Carpathian Protected Areas ([www.carpathianparks.org](http://www.carpathianparks.org))

WWF-DCP (2008): Handbook on funding in the Carpathians – ‘Seizing opportunities to support nature conservation and local development in the Carpathian Mountains’

WWF-DCP (2001): The status of the Carpathians – A report developed as part of the Carpathian Ecoregion Initiative

L. Braat & P. ten Brink eds. (IEEP et al) (2008) on behalf of the European Commission: The cost of policy inaction – The case of not meeting the EU 2010 biodiversity target

Mazza L., Bennett G., De Nocker L., Gantioler S., Losarcos L., Margerison C., Kaphengst T., McConville A., Rayment M., ten Brink P., Tucker G., van Diggelen R. (IEEP et al) (2011) on behalf of the European Commission: Green Infrastructure Implementation and Efficiency

Bio Intelligence in collaboration with SPIN lab (2008) on behalf of the European Commission: Modelling of EU land-use choices and environmental impacts

COWI (2010) on behalf of the European Commission: Study on how businesses take into account their risks related to biodiversity and ecosystem services: state of play and way forward

Nunes, P.A.L.D., Ding, H., Boteler, B., ten Brink, P., Cottee-Jones, E., Davis, M., Ghermandi, A., Kaphengst, T., Lago, M., McConville, A. J., Naumann S., Pieterse, M., Rayment, M., and A. Varma (2011) on behalf of the European Commission: The Social Dimension of Biodiversity Policy

K. Rademaekers *et al.* (2012) on behalf of the European Commission: The number of Jobs dependent on the Environment and Resource Efficiency improvements

## II. GUIDING QUESTIONS TO THE BREAKOUT GROUPS ON REGIONAL DEVELOPMENT OPPORTUNITIES

### SETUP:

1. Tour de table
2. Open discussion facilitated by moderators, with the use of questions. If possible identify a volunteer to be rapporteur of the group. Use as much tools as possible (post-it, chart etc.)
3. Wrap-up by rapporteurs to agree on what to report back to the 'plenary'

### MAIN AREAS OF DISCUSSION AND RELATED QUESTIONS:

1. Perception of protected areas and natural assets
  - Start a discussion to identify how many of the participants live in or close to protected areas and how many live in a distance but his work being related to protected areas/natural assets.
  - Discuss if it is rather good or bad for the business that the area they are working on is protected. What do they think, what would be different in their business if they were not related to protected areas?
  - Discuss if it is rather good or bad for their family and private life that the area they are living in is/close to protected. What do they think, what would be different in their private life if they were not living in/close to protected areas?
  - Try to identify as much issues as possible that participants think protected areas and natural assets provide them. You can group them into positive (e.g. leisure activities, picking mushrooms, clean air etc.) and negative images (e.g. slippery roads during winter because of the ban to use salt etc.). Use post-its if you wish
2. Challenges of operation in protected areas
  - Ask for concrete examples participants think was a challenge to their business operation, hit them negatively and it was only due to the fact that they operate on/are related to protected areas and natural assets. Important is that only those examples count and should be noted that were caused by the fact of being in a protected area. If a negative example/challenge may occur in any other business, than it is not good for the purpose of this exercise.
  - Put these challenges/negative issues into an order of importance.
3. Opportunities of operation in protected areas
  - Ask for concrete examples where participants benefitted from protected areas and/or natural assets.
  - If not they experienced, but have they heard about some examples where a business/association/ investor had built on the opportunities of protected areas or natural assets (e.g. logo for products increased sales, habitat restoration of a protected area increased tourism)?

#### 4. Financing

- How, from what sources they finance their operations, developments?
- Ask if they heard of any specific funds/project call for proposals/other financing (e.g. banking) specifically targeted at citizens/businesses of protected areas or natural assets. If not, stimulate the discussion with examples to show that they exist.
- Ask if they themselves have ever used such funding.
- Ask how they found these financing possibilities (e.g. were they informed? have they found themselves? from a funding advisor? etc.)
- Ask if they knew any funds that is available for businesses outside protected areas and is not available for them, who operate in protected areas? The objective of this question is to see if they thought protection puts a restriction on them.



## III. FEASIBILITY STUDY TEMPLATE FOR A SUSTAINABLE DEVELOPMENT PROJECT/INVESTMENT

### Table of contents

#### 1. EXECUTIVE SUMMARY

#### 2. BENEFICIARY

##### 2.1. GENERAL INTRODUCTION

*2.1.1. Structure*

*2.1.2. Activities*

*2.1.3. Experiences of previous projects/investments*

##### 2.2. STRATEGIC ROLE OF THE PROJECT

##### 2.3. PROJECT PARTNERS

##### 2.4. PROJECT MANAGEMENT

#### 3. BACKGROUND

##### 3.1. SOCIAL-ECONOMIC-ENVIRONMENTAL CIRCUMSTANCES

##### 3.2. SECTORAL INTRODUCTION

##### 3.3. HOW DOES THE PROJECT FIT TO SECTORAL POLICIES?

#### 4. JUSTIFICATION

##### 4.1. CURRENT STATE

##### 4.2. PROJECT GOALS, OUTCOMES, IMPACTS

*4.2.1. What are the goals of the project?*

*4.2.2. What are the expected social, economic and environmental impacts?*

*4.2.3. How does the project fit to sustainability principles?*

##### 4.3. TARGET GROUP

#### 5. SCENARIO ANALYSIS

##### 5.1. BUSINESS AS USUAL SCENARIO

*5.1.1. Technology*

*5.1.2. Investment costs*

*5.1.3. Operational costs*

*5.1.4. Impacts (social, economic, environmental)*

## 5.2. SCENARIO „A“

### 5.2.1. *Technology*

### 5.2.2. *Investment costs*

### 5.2.3. *Operational costs*

### 5.2.4. *Impacts (social, economic, environmental)*

## 5.3. SCENARIO „B“

## 5.4. SCENARIO „C“

## 5.5. COMPARATIVE ANALYSIS AND THE CHOOSING OF THE BEST OPTION

## 7. DETAILED DESCRIPTION OF THE BEST OPTION

### 7.1. TECHNOLOGY

### 7.2. TIME SCHEDULE

#### 7.2.1. *Implementation*

#### 7.2.2. *Procedures*

#### 7.2.3. *Budget*

### 7.3. SUMMARY OF THE ENVIRONMENTAL IMPACTS OF THE BEST OPTION

#### 7.3.1. *Foreseen negative and positive impacts during implementation*

#### 7.3.2. *Measures to eliminate negative impacts*

#### 7.3.3. *Foreseen negative and positive impacts during operation*

#### 7.3.4. *Measures to eliminate negative impacts*

## 8. FINANCIAL ANALYSIS

### 8.1. INVESTMENT COSTS

### 8.2. OPERATIONAL COSTS

### 8.3. EXPECTED INCOME

### 8.4. BALANCE

## 9. ECONOMIC COST-BENEFIT ANALYSIS

### 9.1. EXPECTED ECONOMIC COSTS

### 9.2. EXPECTED ECONOMIC UTILITIES

## 10. RISK ASSESSMENT

### 10.1. POTENTIAL RISKS

### 10.2. RISK MANAGEMENT PLAN

For further advice see Guide to Cost-benefit Analysis of investment projects – Structural Funds, Cohesion Fund and Instrument for Pre-Accession (2008):  
[http://ec.europa.eu/regional\\_policy/sources/docgener/guides/cost/guide2008\\_en.pdf](http://ec.europa.eu/regional_policy/sources/docgener/guides/cost/guide2008_en.pdf)

