



# Traditional agricultural land use practices in the Dinaric Arc

Sonja Karoglan Todorović



INTERNATIONAL UNION FOR CONSERVATION OF NATURE





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## Acronyms

BiH	Bosnia and Herzegovina
CAP	Common Agricultural Policy
EU	European Union
EAFRD	European Agricultural Fund for Rural Development
EU MS	European Union Member State
GEF	Global Environment Facility
GDP	Gross Domestic Product
GIS	Geographic Information System
GMO	Genetically Modified Organisms
FiBL	Research Institute of Organic Agriculture
HNVF	High Nature Value Farming
IPARD	Instrument for Pre-Accession Assistance in Rural Development
IUCN	International Union for Conservation of Nature
JICA	Japan International Cooperation Agency
LEADER	Links between the rural economy and development actions
LU	Livestock Unit
MAP	Medicinal and Aromatic Plants
NGO	Non-governmental Organization
NP	National Park
PDO	Protected Designation of Origin
PGI	Protected Geographical Indication
RDP	Rural Development Programme
TIKA	Turkish Cooperation and Coordination Agency
TSG	Traditional Speciality Guaranteed
SAPARD	Special Accession Programme for Agriculture and Rural Development
SNV	Netherlands Development Organisation
UNDP	United Nations Development Programme
UNESCO	United Nations Educational Scientific and Cultural Organization
WWF	World Wide Fund for Nature

## 1. Introduction

The current publication is produced within the project “Environment for People in the Dinaric Arc” funded by the Ministry for Foreign Affairs of Finland. It was a joint initiative by IUCN, implemented by IUCN Programme Office for South-Eastern Europe, in partnership with WWF – Mediterranean Programme Office and SNV, that lasted for three and a half years. Its goal was to improve the sustainable development of rural communities on the basis of conservation of biological diversity and traditional landscapes in transboundary regions by enhancing regional cooperation and strengthening environmental governance. The project covered six pilot sites: Plitvice Lakes NP – Una NP, Durmitor NP - Sutjeska NP, the potential transboundary Tara-Drina Biosphere Reserve, Neretva Delta, Mount Dinara, and Prokletije / Bjeshkët e Namuna.

The current publication explores existing traditional agricultural practices in the five transboundary project pilot sites and identifies policy mechanisms, including EU and national ones, for the maintenance and extension of these practices to be used as agriculture development options based on the existing features and assets of the region. It provides an overview of market opportunities for local products, analyses the complex array of issues that traditional agriculture faces and offers possible solutions. The cases from other parts of Europe presented in the publication demonstrate successful marketing promotion and increased value of agricultural products that could also be applied in the Dinaric Arc.

The publication can be used to inspire and encourage farmers and their associations to undertake nature-friendly practices. Local authorities, policy makers and natural resource managers can use it to devise and support implementation of measures that will help preserve Dinaric Arc’s biodiversity.

### 1.1. Land use and the biodiversity of the Dinaric Arc

The area of the Dinaric Arc is among the most impressive karst entities in the world, with distinctive geological, geomorphological and hydrological traits. The geological substrate is dominated by Mesozoic limestone with dolomite rock, and areas of purely dolomite rock. The biological and landscape diversity of this region is not only the work of nature, but also of humans, who over the centuries have turned the primary, often uniform landscapes such as flooded karst fields and mountain forests into semi-open, semi-natural landscapes, rich in diverse habitats and flora and fauna that could not be present here without that transition. Agriculture, the cultivation of plants and especially livestock raising, has played a key role in this process.

Traditionally, the main form of grazing in the Dinaric Arc was extensive nomadic grazing, with summer and winter grazing regimes. Large herds were managed by shepherds with the help of loyal shepherd dogs. This way of management, which is exceptionally important for the conservation of biodiversity, has largely died out.

The role of autochthonous breeds was crucial in the maintenance of Dinaric Arc grasslands. These breeds are the result of centuries-old animal breeding in the Dinaric Arc region, leading to a great diversity of livestock breeds of cattle, sheep, goats, horses, pigs, and other domestic animals. They have the ability to survive harsh conditions under modest forage in the winter period. The main autochthonous breeds of cattle are *Buša* and *Gatačko* cattle, a cross of Tyrolean Grey with *Buša*. In the sheep population, there are many autochthonous coarse wool breeds of the *Pramenka* type of sheep. In the goat population, there is the domestic Balkan breed of goat with several different strains. The autochthonous equine breeds are the domestic hilly-mountain horse and grey donkey. Specialisation and intensification of production, introduction of highly productive breeds and growing consumption of milk and meat products are the main reasons why the number of all autochthonous breeds, with the exception of the widespread *Pramenka*, has been significantly reduced.

Traditional agriculture, i.e. extensive and often nomadic livestock grazing of autochthonous breeds on natural grasslands and the growing of agricultural crops and varieties adapted to the local conditions, has retained the rich biodiversity linked to the man-made habitats of the Dinaric Arc. Agricultural activities are a source of nutrition (fertilization), they maintain the habitats and ensure the transfer of seed and vegetative plant materials (zoochoria) and pollination (fertilization). Individual ecological groups of organisms are directly tied to the traditional breeds: predators, parasites, pests, necrophages, fimicolous organisms, coprophages, saprophytes, insectivores and others.

## 1.2 Issues that traditional agriculture faces

The issues relating to the continued existence of agriculture that maintains biodiversity in the Dinaric Arc are many and complex. They relate not only to biodiversity, but are also closely tied to the fundamental issues of the survival of rural communities and the quality of life in the Dinaric Arc, as well as of agriculture in general. Nor should one forget that a large part of the Dinaric Arc was adversely affected by the conflicts in the 1990s that resulted, amongst other things, in economic instability and desertion of some rural areas.

The human population of the rural areas of the Dinaric Arc is in constant decline, while the remaining population is aging. The processes of depopulation and the abandonment of agricultural activities are increasing. Farms are small (usually 1–3 ha in size) and the parcels are scattered and fragmented into small plots. The inheritance laws in effect throughout the entire Dinaric Arc area permit the division of existing farms, resulting in further reduction of their size to the extent that disables any profitable production. Often, this is the main reason for the cessation of agricultural activities. The existing farmers are older, poorly educated, without financial capital and without heirs wishing to continue with agriculture. Having learned in the past that the state would surely buy up their products, they are usually lacking in entrepreneurial spirit, and therefore find it difficult to initiate and accept change. In general, there are no serious attempts to brand and sell their products as products from high biodiversity areas. Taught by various, often poor experiences, most farmers are opposed to any form of cooperation, even though this would allow for better placement of their products and less expensive procurement of equipment and input materials. The situation in agricultural production is further complicated by the poorly kept land registers and the organisation of the right to pastures (a significant share of the pastures in the Dinaric Arc area are still under state ownership), the lack of a young and supporting work force and, in places, the inappropriate management of the conflict with predators.

The depopulation of rural areas of the Dinaric Arc, drastic reduction in the livestock fund and abandonment of agricultural areas has resulted in the reduction of biodiversity associated to semi-natural habitats throughout the region. Agricultural lands, particularly grasslands (meadows and pastures) are exposed to the processes of natural succession, the growth of pioneer vegetation (junipers, birch, shrubs, ferns, etc.) and the gradual shift towards forest vegetation. This leads to the loss of the biodiversity rich grassland habitats (pastures and mowed meadows) and the wealth of flora and fauna associated with these habitats. The aquatic habitats of ponds and wells and the traditional mosaic arrangement of agricultural systems (plough fields, vegetable crops, orchards) are also threatened. Furthermore, among the remaining farmers in the region, the trend of abandoning the breeding of the autochthonous varieties and breeds is becoming more pronounced.

It appears as though policies in the countries of the Dinaric Arc are not highly in favour of the traditional agriculture that is still dominant here, particularly animal husbandry. The efforts and support of agricultural policy in the region are directed primarily at advancing agriculture in the lowland regions and in all other regions where intensification is possible, while neglecting the revitalisation of traditional agriculture. Very few programmes and incentives are directed at traditional agriculture, particularly in mountainous areas, and in general at agriculture that protects and promotes biodiversity.

Finally, it is necessary to stress that the statistics relating to rural areas, agricultural production and autochthonous varieties and breeds in the Dinaric Arc region, all of which are the subject of this study, are markedly scarce. It is very difficult to obtain information, those data that are available are

decentralised and often contradictory and, in the majority of cases, there are simply no data. Therefore, any analyses as shown in this study were largely forced to rely on data obtained in field surveys and in the expert assessment of the author.

### 1.3 The market and marketing of agricultural products

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The agricultural producers in the Dinaric Arc area primarily place their products on the local market (with the exception of the fruit and vegetable growers in the Neretva Valley who sell their products throughout the region). A significant share of agricultural production is directed towards own needs, and only a minor share is intended for the market. There are no organised buy-offs of agricultural products, and any surpluses are sold by the producers in nearby regional centres where fairs and markets of agricultural products are held. Since there is little remaining livestock, buyers usually approach the breeders themselves, negotiate on the price and purchase the livestock or dairy products directly from the few remaining producers. The prices of the majority of agricultural products in the Dinaric Arc region follow the common prices on the agricultural products market and do not achieve a higher price (premium) in the region. Furthermore, there are very few certified organic products.

It is important to stress that many traditional agricultural products are no longer produced, or are very rare. The agriculture that preserves the biodiversity can largely contribute to restoring the production of several of these products. Indeed, knowledge, financial capital and appropriate processing and storage capacities are needed for the production and especially the processing of traditional products.

### 1.4 Perspectives and possible solutions

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Despite the numerous issues outlined above, the Dinaric Arc area certainly has great development potential provided that it is recognised by the people inhabiting the area, and by national and regional policies. This is an area that is unique in many ways, particularly in its natural resources and wealth of biodiversity. To stimulate tourism, organic and traditional agriculture, to revive craftsmanship and small enterprise, and to offer traditional agricultural products and beverages can certainly be an excellent driving force for development in the region. Moreover, there is awareness and goodwill among the majority of relevant stakeholders to move the region's development forward. However, it is a long path from vision to concrete projects.

What are the solutions and how can they be achieved? Considering the entire suite of issues outlined above, the solutions are not simple, fast or cheap. A study such as this can propose an entire spectrum of measures aimed at revitalising the rural areas of the Dinaric Arc and enabling farmers to focus on the areas of management that would protect biodiversity. But without the persistence and conviction of the local communities and strong political will to turn these proposals into reality, such advice has limited effect. The chapters that follow give certain suggestions that the author believes could be of assistance in the Dinaric Arc region. However, in all these cases, building social and human capital is crucial. Social capital refers to the system of values and standards, the forms and capacities of organisation, legislation, willingness to cooperate and assist, trust, etc. Human capital is based on the knowledge, skills, motivation, entrepreneurial spirit, etc. of each individual. The building of social and human capital is equally necessary among farmers and agriculture policy makers. Both need to observe and realise the true potential of the Dinaric Arc area and the contribution this region can make in terms of agricultural practices that support the conservation of biodiversity. By strengthening social and human capital, it will be possible to find the best development solutions for the region.

## 2. Overview of existing traditional land use patterns in the five project sites



Dalmatian *Pramenka* sheep on Mt. Svilaja, with a view of Mt. Dinara (Photo: R. Ozimec)

### 2.1 Plitvice Lakes National Park and Una National Park

Plitvice Lakes National Park is Croatia's oldest and best known national park. It was proclaimed a national park in 1949 and its uniqueness has been recognised at the global level with its inscription on the UNESCO World Heritage List in 1979. The park is situated in the inland and mountainous part of Croatia, between the tall slopes of the Mala Kapela massif to the southwest and Lička Plješivica massif to the northeast, where the park borders BiH.

The Plitvice Lakes represent a unique and distinctive geological and hydrological karst phenomenon, with a series of 16 lakes joined together with cascades and waterfalls, created through the biodynamic process of travertine building. The park covers an area of 29,685.5 ha, and includes 20 settlements that belong to the municipalities Plitvička Jezera, Vrhovina, Saborsko and Rakovica.

Within the park area, 43 main habitat types have been mapped. Forest vegetation covers about 75% of the park, grasslands and anthropogenic lands (cultivated and abandoned surfaces and settlements) cover 23.60% of the area, and aquatic areas cover 0.74%. Plitvice Lakes National Park has been proposed as a Natura 2000 site.

Pursuant to the Act on Una National Park, the park covers the canyon section of the upper course of the Una River in the territory of BiH upstream from Lohovo, and the canyon section of the lower course of the Unac River from its confluence with the Una River upstream to the Drvarsko Polje field, as well as the area between the Una and Unac Rivers that corresponds to the spring region of the Krka Stream, a tributary of the Una. The entire area of the national park is in the Una-Sana Canton, BiH. A total of 13,500 ha of the park is under the regime of strict and moderate protection, and about 6,300 ha in the regime of moderate development.

The terrestrial habitats in Una National Park include meadows, pastures and forests. The grasslands of the Una River area represent anthropogenic stages that can only be maintained by constant indirect (grazing) or direct (mowing) human intervention. The grasslands are represented by the class *Bromo-Plantaginetea* and the associations *Physospermo – Satureietum montanae*, *Artemisio albae* -

*Rutetum, Satureio subspicatae - Festucetum dalmaticae* and *Achilleo nobilis - Dorycnietum herbacei*. Grasslands of the genus *Brometalia erecti* are developed in plateau areas with deeper, fine soil at higher levels above the canyon.

### Existing agricultural practice

The Plitvice Lakes area is traditionally an area of animal husbandry, primarily of cattle and sheep. Poultry breeding is exclusively chickens, and there is some bee-keeping. Crops such as wheat, rye, barley, oats and maize are dominant, alongside potatoes, while forage crops and fruit are less common (mostly plums and more rarely apples and pears). Many houses have gardens, growing potatoes, onions, garlic and cabbage as the main vegetables.

Formerly, about 40,000 ha of arable lands were cultivated in the wider Plitvice Lakes region, the majority of which were meadows and pastures. However, agriculture in the Plitvice Lakes region was destroyed after the military conflict in the early 1990s. Lands were abandoned and no longer cultivated, the region was depopulated and agrarian activities stopped. Within the actual park boundaries, there are 4,200 ha of arable lands, primarily meadows and pastures.

Exact figures on the number of farms and number of livestock within the park boundaries are not available. According to some estimates, there might be about 600 farms, and the official livestock fund consisting of registered heads receiving support payments, i.e. herds where breeding selection work is carried out, is about 2,400 cattle, 7,500 sheep, 130 goats and 413 pigs. The remaining herds of autochthonous breeds for which breeding selection work is not carried out are not included on the official list, and therefore it is virtually impossible to determine the actual numbers of livestock in the Plitvice Lakes area.

Organic agricultural production is still in its infancy. Currently, there are only a handful of producers, though their numbers are increasing from year to year.

In the area of Una National Park, agricultural lands cover an area of 10,510.72 ha, accounting for 30.2% of the park. The structure of use of agricultural lands indicates a natural land use, with a high share of meadows, pastures and infertile soil.

The Bihać municipality, the administrative district containing Una National Park, contains 27,281 ha of agricultural lands (fields 12,313 ha, orchards 483 ha, meadows 8,806 ha and pastures 5,679 ha). The agricultural lands in the Una River Valley and the lowland parts of the municipality are suitable for the development of vegetable production and greenhouse production, while the higher elevations are suitable for animal husbandry. Impressive results have been achieved in the production of seed and market potatoes, and wheat and rye seeds. The production of beer barley is also significant.

Cattle production is one of the most important branches of overall agricultural production in the municipality. A total of 1,746 holdings dealing with cattle breeding have received a holding registration certificate, with an estimated total of 4,300 heads of cattle. Increasing the scope of cattle production and including people in agricultural production was significantly advanced with the investment of foreign capital into a dairy farm in Bihać, as a company for the purchase, processing and production of milk and dairy products. In 2008, a contract to create a joint incentive fund in animal husbandry was signed between the Bihać municipality and the dairy farm. Both sides invested 100,000 convertible marks (around 51,000 euros) into the fund, and that amount increases each year.

The Bihać municipality has favourable conditions and a long tradition of bee-keeping and the production of honey and other bee products. About 55 bee-keepers are entitled to receive incentives each year, and thanks to these, the number of hives was increased from 1,800 to 6,500 in the period from 1996 to 2009. Bee-keepers are organised as a bee-keeper's cooperative with 149 members, and are financially supported by the municipality. In the past two years, a Bee-keeping Fair has also been supported and held.

The overall state of agricultural production in the municipality is poor, considering that only about 30% of the arable lands are actually cultivated. The livestock fund after the war is gradually recovering, with all the pre-war breeds of domestic animals still present in the area, however in a much fewer numbers.

### Products and markets

Agricultural producers in the Plitvice Lakes region place their products exclusively on the local market. Considering that there are relatively few remaining livestock herds, buyers most often approach the breeders themselves, negotiate the price and purchase livestock or cheese from the few remaining producers. Surpluses, when there are any, are placed by the producers in the regional centres Korenica and Udbina, at fairs and markets for agricultural products. The prices of agricultural products follow the prices on the agricultural product market and have no added value as premium products.

Considering that the Plitvice region is still a rural, livestock area, the majority of recognisable and traditional products are based on those of animal origin: young lamb, škipavac cheese and basa cheese.

Though virtually all the agricultural production in the Plitvice region is traditional, due to its relict origin and small production quantities, there are no compelling needs for producers to certify their products, as the market already recognises them as such. For the same reason, there are currently no recognisable agricultural product brands in the Plitvice Lakes region, even though this would be very useful for the needs of the national park, which has more than a million visitors each year.

The various forms of food production (farming, animal husbandry, fish farming) are among the main forms of land use in Una National Park. The national park administration plans to stimulate integrated plant production and traditional animal husbandry through an advisory role and mediation between individual farmers and relevant institutions, aimed at achieving incentives and compensation for potential damages from protected animal species. Cooperation is also expected with the local community in the development and implementation of joint projects aimed at restoring traditional agriculture methods and creating a recognisable identity of local products and their placement on the market. The national park administration considers this direction of agricultural production as one of the pillars for the development of rural tourism.

## 2.2 Mount Dinara

Dinara is a mountain massif situated in virtually the very centre of the ca. 700 km long and 150 km wide geotectonic system of the Dinaric Arc, about 30 km from the coast of the Adriatic Sea. The Dinara massif extends in direction northwest to southeast, over a length of 84 km. It is the second longest massif in the Dinaric Arc, after Velebit. Mt. Dinara is divided between BiH and Croatia. Further divisions exist at the local level, with the Croatian part of Mt. Dinara falling under 10 municipalities and towns, with the largest share in the territory of the towns Knin and Sinj and the municipalities: Kijevo, Civljane, Vrljika, Hrvace and Otok. The area of Mt. Dinara belonging to BiH falls within the municipalities of Bosansko Grahovo, Tomislavgrad and Livno.

The massif is exceptionally karstic terrain with numerous formations, including countless *vrtače* (small funnel-shaped depressions) and *dolci* (small valleys) and the karst fields which are most important for agriculture.

On the Croatian side of Mt. Dinara, 24 main habitat types have been mapped out, of which 19 have been categorised as endangered. They are dominated by different types of grassland habitats, primarily the sub-Mediterranean and epi-Mediterranean dry grasslands. A total of 754 plant species have been recorded here, including 114 strictly protected taxa and 55 endemic taxa. The fauna of Mt. Dinara has been poorly investigated, with the exception of birds, with 156 species confirmed for the area. The



entire Croatian side of Mt. Dinara has been proposed as a Natura 2000 site, and an expert study is currently underway to proclaim the Croatian side of the mountain as a regional nature park.

More than half the area is covered by different types of grassland habitats, mostly sub-Mediterranean and epi-Mediterranean dry grasslands that are predominantly developed on shallow carbonate soil along the coast and in the interior of the Dinaric Arc to the point where the sub-Mediterranean climate extends. This includes the rocky pastures of the sub-Mediterranean and epi-Mediterranean vegetation zones, the Mediterranean-coastal and Mediterranean-mountain vegetation belts, and the mowed meadows that are developed on the somewhat deeper, brown soil that is not rocky. These dry grasslands are characterised by a wealth of plant species, particularly the various species of orchids (*Orchidaceae*) that are strictly protected at both national and international levels.

Data are scarce for the Dinara area on the BiH side, though various types of grassland habitats also prevail. In the past, the entire Dinara area was used as pastures and mowed meadows. However, with the abandonment of these traditional activities, natural succession ensued and these grasslands are in the process of transition into shrubs or thermophilic woods and thickets of holm oak, and they are in danger of disappearing. Alongside the grassland habitats, the aquatic habitats of ponds and wells are also endangered, as are the traditional mosaic patterns of agricultural systems: plough fields, vegetable gardens, orchards and vineyards.

### Existing agricultural practices

Due to the climatic, geomorphological and vegetation characteristics on Mt. Dinara, livestock breeding is the primary branch of agriculture, while larger plough fields are present on the karst fields alongside Dinara: Kninsko Polje, Vričko Polje, Paško Polje and Sinjsko Polje in Croatia and Livanjsko Polje on the BiH side. The most important crops are grains and legumes, while wine-growing and orchards are less present, primarily in the southern foothills and around the houses, together with vegetable gardens. On the Croatian side, the municipalities that will be included in the borders of the future nature park have about 12,000 ha of agricultural lands, of which about 8,000 ha are in use, mostly as meadows and pastures. On the BiH side, data are only available for the Livno and Bosansko Grahovo municipalities, which have a total area of 130,000 ha of agricultural lands, of which 110,000 ha are meadows and pastures. The majority of plough fields have been abandoned, and the natural succession processes are advanced, even on the grasslands. Some estimates state that only about 25% of all arable lands on the BiH side are in use. This area was one of the worst affected by the conflict in the 1990s, resulting in huge abandonment and large areas infested with land mines.

The Dinara area is traditionally an area of nomadic mountain livestock keeping, and the Dalmatian and Bosnian herders have been raising their herds on these pastures for times immemorial. Long ago, more than 200,000 sheep were raised on the Croatian side of Dinara alone, kept by shepherds in almost 600 summer huts (*katuns*). Though there are 13 autochthonous breeds known in the Dinara area, the foundation of livestock production is based on only four breeds: Buša cattle, Dalmatian cattle, Dalmatian pramenka sheep and the Croatian spotted goat. Grazing usually takes place on state land, without charge, and it is very difficult to determine the precise number of livestock grazing on Mt. Dinara today, as the existing data is incomplete and difficult to isolate specifically for the Dinara area.

According to official data, the livestock fund on the Croatian side consists of 4,800 cattle, 35,000 sheep, 6,600 goats and 11,000 pigs. On the BiH side, data are available only for the municipalities Livno and Bosansko Grahovo, which have a recorded number of 5,140 cattle, 12,360 sheep and 2,600 pigs. However, the actual number of animals is likely higher, as the official data do not include herds of autochthonous breeds that are not subjected to selective breeding procedures.

According to the available data, there are currently no certified organic producers on Mt. Dinara. Traditional bee-keeping is represented. On the Croatian side, this practice is based on the Mediterranean strain of the grey bee, which feeds on winter savoury (*Satureja montana*), Jerusalem thorn (*Paliurus spina-christi*) meadows and honeydew.

## Agricultural producers

The precise number of agricultural producers on Mt. Dinara is difficult to ascertain, due to a lack of reliable data. Only 3,646 livestock breeders are registered on the Croatian side of the mountain. There are no reliable data for the Dinara area in BiH.

On the Croatian side, there are no significant food processing industries, and the number of small, private dairy farms is relatively low. In the Livno area, there are two large and several small dairy plants. The meat processing capacities have gone to ruin, as have the plants for the production of fruit juices and cabbage pickling, though small processing plants have been erected in recent years on the BiH side.

## Market and marketing

Agricultural producers from the Dinara area place their products exclusively on the local market. Considering that relatively little is left of the previous livestock fund, customers today most often approach the breeders themselves, negotiate on the price and purchase livestock or cheese from the few remaining producers. Any surpluses are placed on the market at regional centres: Knin, Vrlika and Sinj, at the fairs or markets for agricultural goods. The price of agricultural products follows the pricing on the agricultural goods market in the Dalmatian area and these products have no added value.

Considering that the Dinara area has always been a rural livestock area, the majority of the recognisable traditional products are based on goods of animal origin. Young lamb, goat and beef are well known. Lamb and goat roasted or baked under an iron bell are the traditional delicacies of the Dinara area. Processed meats include *prosciutto* and *panceta* (bacon) and smoked, cured lamb. Typical dairy products are mixed milk cheese, *kajmak*, *skuta* and butter. The widest known product is Livno cheese (*Livanjski sir*), which is produced in a total annual quantity of almost 3 million kilograms in the Livno municipality of BiH. Virtually 90% of this amount is produced by two dairy farms, and mostly from cow's milk, though according to the traditional recipe, it should consist of 80% sheep's milk.

Milled products include: bread, unleavened bread, fritters, maize breads, maize grits, and there are many specialties of cabbage and potatoes.

Like in other mountainous areas of BiH and Croatia, nomadic livestock keeping on Mt. Dinara, which largely contributed to the maintenance of the agriobiodiversity in the area, has largely disappeared. The survival of the traditional breeds and varieties in the Dinara area has become questionable. The greatest problems include depopulation and the abandonment of agricultural activities, the few remaining animal breeders are aging and lack heirs to continue farming, disorder in the land register and in pasture rights, lack of an auxiliary labour force, underdeveloped market and finally inefficient management of the predators conflict. The remaining livestock breeders have no intention of creating brands or redeveloping recognisable products, nor do they plan to start a certifying their organic production. There are certain indicators that herds of Buša cattle, sheep and goats are being preserved using the traditional grazing systems in the Dinara area, and there are still small areas of traditional crops, fruit and vegetable cultures.

## 2.3 The Neretva Delta

The Neretva Delta lies in the karst area of the outer Dinaric Arc. This area can be divided into three morphologically different parts: karst, lowland area of the delta, and the coastal belt. The Neretva River spreads into an alluvial delta in the final 30 kilometres of its course prior to draining into the Adriatic Sea. The 8,000 ha upper valley, with several lakes and a large marsh complex called Hutovo Blato is located in BiH, while the app. 12,000 hectare lower valley, defined by several regulated branches of the river, lies in Croatia. The proposed Neretva Delta nature park on the Croatian side encompasses the lowland region of the delta and the surrounding hills lining it, which due to their underground hydrological systems and springs, form an integral part of the Neretva catchment. The total area of

the proposed park is 24,850 ha. The area includes 49 settlements with a total population of 26,800 in three towns and three municipalities respectively: Metković, Opuzen, Ploče, Kula Norinska, Slivno and Zažablje. On the BiH side, the Neretva Delta lies within the municipalities of Stolac, Ravno, Ljubuški and Čapljina.

The fundamental phenomenon of the Neretva Delta area is the abundance of water: the river and its backwaters, lakes, *oka* (engl. eyes) which are small, deep, submerged karst depressions, a series of springs along the edges of the surrounding hills and a wide delta with lagoons and shallows. The significant characteristics of the area are the agricultural surfaces created by *jendečenje*, a traditional melioration method of creating fertile soil in water, by digging channels and transferring the dredged silt onto the newly created parcel of land.

In the area of the proposed Neretva Delta nature park, 22 terrestrial habitats types have been mapped on the Croatian side to date, with six transitional habitats and three marine habitat types. This complex of habitats is unique and one of the few remaining in the Mediterranean, and for this reason, the Neretva Delta has been included on the Ramsar List of wetland areas of international importance. On the BiH side, the Hutovo Blato wetland is a nature park and also a Ramsar site.

### Existing agricultural practice

Agriculture is one of the most important economic activities in the Neretva Delta, involving a large share of the population. Due to the climatic, geomorphological and vegetation characteristics, the Neretva Delta is an area where fruit and vegetable production is the most significant agricultural branch.

Over the past twenty years, agricultural land has been increasingly abandoned and is not adequately cultivated – neither on the Croatian nor on the BiH side. Therefore, some meliorated areas are being reclaimed by the wetland. The remaining land is fragmented, mostly unprofessionally cultivated and irrigated, and the result is a constant decline in its quality. In the Croatian part of the Neretva Delta, there are currently about 18,000 ha of agricultural land, though only about 7,000 ha are cultivated. On the BiH side, there are about 63,000 ha of agricultural land, and it is estimated that less than 40% of the available lands are cultivated.

The abandonment of agricultural lands is largely the consequence of the wartime events in the 1990s and the unresolved legal land ownership. These events are due primarily to the dissolution and privatisation of the former agricultural conglomerates owned by the state. A part of the agricultural land is not cultivated due to the salinification of the surface and ground waters. Still, this salinified water is used for irrigation, which has caused the creation of amorphous sediments, i.e. the appearance of saline deserts with infertile soils.

Mandarin orange plantations are the dominant crop on the Croatian side, where the autochthonous variety, *Zorica*, arose from the original variety, *Unshiu*.

On the BiH side, local grape varieties are grown: *Žilavka* (white) and *Blatina* (red). The intensive production of fruits and vegetables is present on both sides, and vegetable growing in greenhouses is increasing. Organic production is still in its infancy. However, initiatives for the organic growing of local varieties of olives and other cultures have arisen in recent years.

On the Croatian side, there is little livestock, with only 700 heads of cattle, 1,750 sheep, 820 goats and 150 pigs registered. The actual livestock fund is somewhat larger, as the official data include only those registered animals for which subsidies are given, in herds where selective breeding is carried out. The autochthonous breeds not subjected to selective breeding are not included in these statistics. On the BiH side, there are 1,920 heads of cattle, 18,200 sheep, 3,100 goats and 6,100 pigs registered.

Bee-keeping is also prominent in the Neretva area, based on the Mediterranean grey bee, which feeds on sage (*Salvia officinalis*), savoury (*Satureja montana*), Jerusalem thorn (*Paliurus spina-christi*) meadows and mandarins (*Citrus deliciosa*).

Figure 1. The Neretva Valley with intensive fruit and vegetable production in greenhouses. Source: Google Earth



### Markets and marketing

Considering that the Neretva area has always been a rural region, the majority of the recognisable traditional products are based on those from own agricultural production, fishing and hunting. Recognisable products include lamb, young goat and veal. Traditional delicacies of the Neretva region are lamb or goat baked under an iron bell, roasted on a spit, or boiled with onions, cabbage and carrots. Boiled duck and eel and frog stew are also prized. Among the processed meat products, *prosciutto* (ham) and *panceta* (bacon) are smoked and cured meat delicacies. Formerly, the smoked, cured sheep's or goat's meat, called *kaštradina* was also prepared. Cow's and sheep's milk, often mixed with goat's milk, is traditionally used to produce mixed cheese (*sir iz mišine*), while semi-hard and hard cheeses are produced throughout the region.

Among fruits, figs are common and often dried by the population, while a traditional treat is grape juice cooked with spices (*čukter*). Among beverages, wine, traditional grape brandy and homemade pomegranate juice are common.

Agricultural producers from the Neretva region place their products on markets throughout BiH and Croatia. The prices of agricultural products follow the prices on the agricultural products market of BiH and Croatia and have no added value (premium products). On the Croatian market, recognisable Neretva products are: mandarins, watermelon and tomatoes, early cabbage and other vegetables. However, these products are not branded, and organic production in present only sporadically.

## 2.4 Durmitor National Park and Sutjeska National Park

Mt. Durmitor, situated in Montenegro, is the second highest mountain massif of the Dinaric Arc after Prokletije / Bjesket e Namuna. Durmitor National Park, including the basin of the Tara River, has been recognised by the international conservation community as an area of exceptional significance since 1977, when the Tara River basin was inscribed in the list of biosphere reserves as part of the 'Man

and Biosphere' programme. The remaining part of the national park was listed on the World Natural Heritage List in 1980.

Durmitor has remarkably rich floral diversity, with presence of alpine and alpine-arctic floral elements. The southern slopes, particularly in the canyon valleys, are the convergence areas of sub-Mediterranean and even Mediterranean floral elements, while the peat bogs of several of the lakes represent enclaves characteristic of the Siberian taiga. The vegetation cover includes numerous plant communities of forest ecosystems, mountain meadows and pastures, rock fissures, rocky grounds, screes, snow beds, peat, freshwater ecosystems, etc. Forests cover a relatively small area, though some have very rare natural elements, such as the Black pine (*Pinus nigra*) forest at the locality *Crna pada*, with grandiose trees up to 50 m tall and over 450 years old. Of the 1,325 species of flora on Mt. Durmitor and the surrounding canyons, 898 species belong to the high alpine flora (altitude greater than 1,500 m). A total of 15% of the high alpine flora of Mt. Durmitor (122 species) are endemic, and of the overall endemic flora of Mt. Durmitor, 77% are high alpine endemics.

Sutjeska National Park is the oldest and largest national park in BiH, established in 1962. It encompasses the mountain area at the border of BiH and Montenegro, containing parts of the Piva and Drina Rivers and the headwaters of the Neretva River, and the mountain massifs Bioč, Vučevo, Maglić, Volujak, Lebršnik and Zelengora.

Sutjeska National Park is one of the most diverse complexes of ecosystems in BiH. The entire area of the park is characterised by exceptional beauty and a diversity of landscape forms – valleys, dense forest complexes, mountain pastures and high alpine peaks. In addition to the glacial lakes, called *gorske oči* (engl. mountain eyes), this area also stands out for its deep canyons: Sutjeska, Hračvka and Jabučnica. The park has a very rich fund of wild game and rare plant species, including numerous endemics. It contains the Perućica Strict Nature Reserve (1,391 ha), where any human intervention has been strictly prohibited since the establishment of the park. The national park covers an area of 17,250 ha, of which 66% is covered by forests and the remainder is made up of meadows, pastures and the bare ground above the tree line. The park abounds in numerous geomorphological and geological phenomena, such as caves, cirques, canyons and more.

### Existing agricultural practices

Agriculture in the areas of Durmitor National Park and Sutjeska National Park is primarily based on extensive, traditional livestock breeding, which positively reflects on agrobiodiversity: it maintains grassland habitats, roots grassland flora, facilitates seeds distribution, etc. This also favours the fauna that inhabits grasslands. Animal husbandry in both national park areas is still largely based on the autochthonous breeds (e.g. Gatačko cattle) and the use of local varieties of agricultural crops. Unfortunately, data on the autochthonous animal breeds and plant varieties are lacking. In both park areas, there are no significant agricultural processing capacities. There is a refrigerating plant for storage and processing of fruits at Kopači (Sutjeska National Park), whose capacities could be expanded.

The agricultural production of Durmitor area is oriented towards the production of milk, meat, wool, potatoes and the collection of non-timber forest products. Individual farms are primarily outside the national park zone, and the park lands are used for the summer grazing that lasts from June to September. A longer grazing period is not possible due to the harsh climate and extended winter period, which can last into May and already begins in October. Shepherds stay in *katuns* (engl. shepherd huts) with their herds over the summer months. They are a particularly recognisable part of the landscape. Agricultural lands cover about 35,000 ha of Mt. Durmitor, most of which are grasslands. However, only a small portion of these are in use.

The great majority of households (about 90%) have fewer than 10 heads of cattle. However, in Durmitor National Park and the surrounding areas, sheep breeding is the primary agricultural branch. The majority (about 90%) of all farms have up to 200 sheep. There are no farms with more than 500 sheep registered in any of the municipalities of the Durmitor region.

There are no reliable data concerning the size of agricultural lands in the area of Sutjeska National Park. However, it can be said that very little of the area is utilised. Agricultural lands are under strict control with regard to the development of infrastructure and the use of pesticides. The climatic conditions are the limiting factor for the development of fruit and grain crops such as wheat and maize. Among the vegetables, the conditions are best suited to the production of potatoes.

Pastures and meadows in the park cover about 1,500 ha and are primarily used for the grazing of cattle and sheep during the summer months. Vučevo is a vast mountain plateau, surrounded on three sides by the Sutjeska, Drina and Piva Canyons, with the towering Mt. Maglić on the fourth side. This area is virtually without water, though rich in forests, meadows and pastures that serve as grazing ground during the summer months, when the katuns once again start functioning. There is estimated to be about 8,000 heads of cattle, 28,000 sheep, 1,000 pigs and 60,000 poultry in the broader area of Sutjeska National Park.

### **Agricultural producers**

There are a total of 7,497 farms on Mt. Durmitor, representing 15% of the total number of farms in Montenegro registered in the Farm Register in 2010. Most of these farms have an area between 1 and 3 ha.

In the Sutjeska area, agricultural production has been reduced to the level of production for own needs of the agricultural producers, also without organised production. The war devastation of the 1990s caused a massive migration of the rural population, and many holdings and orchards were abandoned and have since become overgrown. The age structure of the remaining agricultural population is not favourable. The rural population is concentrated in larger settlements, while the majority of small settlements have been deserted. A total of 570 agricultural holdings have been registered in the Gacko municipality. In the Sutjeska area, the 'Drina' agricultural unit deals with farming within the framework of cooperation with the Youth Detention Centre. The dominant branch of this unit is animal husbandry, with more than a thousand chickens and a hundred heads of sheep, and a fish farm on the Krupica River at Jeleče, which has an annual capacity of about 100 tonnes of fish for consumption.

### **Market and marketing**

The majority of farmers in both national park areas produce their products, primarily meat and dairy products, for their own needs. Sales are secondary, often spontaneous and unorganised. Products are sold to relatives in cities, local restaurants, local shops, while some customers come from afar. As a rule, products do not achieve higher prices than usual.

The greatest problems in the agricultural sector in general in the municipalities of both parks are the abandonment of farms and depopulation, migration to cities, the lack of infrastructure or its poor maintenance where it exists, lack of adequate support from the state in the form of financial support and buy-offs. The disappearance of the cooperative system or any form of association between individual farms and producers is an obstacle for better product placement and achieving more favourable conditions for the procurement of equipment, machinery and input materials.

In both parks, there are great opportunities for livestock production through the building up of 'mini' farms of sheep and cattle, with the emphasis on the production and processing of milk and meat. There are also good conditions for the gathering of forest products and medicinal herbs. Bee-keeping is a traditional activity and can be further developed. However, despite the obvious potential for the development of this area in the sense of traditional agriculture and sustainable use of the land, there is little understanding among the local community about what a protected area means and what its potential is in the sense of socioeconomic development.

Autochthonous products characteristic for the Mt. Durmitor area, in addition to meat, are the *prjlo* and sheep's *skorup* cheese, which are unique products on the Montenegrin market, produced in the traditional way and kept in a sheep skin (*mješina*) which guarantees the purity of the product, free from any chemical additives. The wealth of habitats for medicinal herbs gives the opportunity for the collection of herbs and the preparation of various herbal teas. A part of the population collects medicinal and native plants, which are then purchased at the local buy-off centres. Occurrence of forest products such as blueberries, strawberries, raspberries and rosehip offers an excellent opportunity for the production of homemade juices, liqueurs, jams and sauces that could be offered as an authentic product of this region – however, these activities are still in their infancy.

## 2.5 The potential transboundary Tara-Drina Biosphere Reserve

The backbone of the potential cross-border Tara-Drina Biosphere Reserve, is the Tara National Park with its surrounding areas on the Serbian side, and several municipalities in BiH along the Drina River. Tara National Park covers an area of 19,175 ha. It lies in the far west of Serbia and encompasses part of the course of the Drina River between Višegrad and Bajina Bašta, the mountainous parts of Mt. Tara and its slopes towards the Drina River, the Kremnan Valley and part of the Zlatibor region, and two larger artificial lakes: Zaovine and Vrutci.

The Tara National Park area is very poorly populated, with fewer than 50 residents per km<sup>2</sup>. The settlements have a rural character and are scattered, which greatly hinders the installation of infrastructure. Demographic decline and a negative age structure of the population are evident. The rural settlements in the area of the future Tara-Drina Biosphere Reserve have lost virtually half of their population in the last few decades (in comparison to 1948).

The broader Tara region has been identified as an Important Plant Area (IPA). The area of Tara National Park represents a Prime Butterfly Area (PBA) in Serbia. Tara National Park, Šargan-Mokra Gora Nature Park and the Zaovine Protected Landscape form part of the Emerald network.

The area of the potential Drina biosphere reserve on the BiH side has not been granted protection in any category. A preliminary protection study for the territory of the municipality of Srebrenica is currently being prepared by the Institute for the Protection of the Cultural, Historical and Natural Heritage of Republika Srpska.

### Existing agricultural practices

In general, the villages in the area of the potential Drina biosphere reserve belong to the scattered, mountain type of village, which are experiencing depopulation processes and a low standard of living. The residents of these areas have traditionally worked in agriculture. About half of the area is forested, and agricultural areas are primarily under pastures and meadows, making animal husbandry the most significant agricultural branch. The reduction of the population in the majority of villages and the deterioration of the age structure has resulted in a stagnation of and decline in agricultural production. Farms are small and fragmented, with obsolete machinery.

In the broader area of Tara National Park (the three municipalities in which the park is situated: Bajina Bašta, Užice and Čajetina) there are about 15,000 farms and 68,000 ha of agricultural lands.

In the structure of agricultural areas, meadows and pastures are predominant, making animal husbandry the main branch of agricultural production. The total number of livestock in all categories in the municipalities of Bajina Bašta, Užice and Čajetina is 23,000, with 105,000 sheep and 21,000 pigs.

The total area of arable land is relatively small, and industrial and forage crops and tobacco have always been represented in the farming production of this area. Vegetable growing is well developed: vegetables are grown in virtually every settlement, from household yards and gardens to greenhouses.

Fruit growing also has a long tradition in the Drina River region, orchards are mostly archaic, small in size, production is not lucrative though the fruits are of high quality and processed according to the traditional heritage, which gives it added value. In terms of the number of trees and significance, plum is the most important fruit. Though used fresh, dried and in jams, the traditional making of plum spirits has particular significance in the area. Berries are becoming an increasingly important product, particularly raspberries, and their market price is increasing. Among vegetable crops, potato is the most common.

In these areas, livestock is becoming increasingly intensive and more modern. New breeds of livestock are being introduced and large fattening farms are being opened, while some traditional branches of animal husbandry are being abandoned (horse and goat breeding). Among the processing capacities in agriculture, the most widely present are meat and dairy processing. The 'Zapis Tare' dairy company buys milk from throughout the national park and surrounding areas, processes and sells cheese and dairy products, and places its products on the entire Serbian market.

Medicinal herb plantations, the collection of medicinal plants and non-wood forest products are becoming more common, though in practice it is generally unplanned and amateur and not adequately monitored and sanctioned by the municipal and republic inspection services.

The area of the potential Drina cross-border biosphere reserve on the BiH side includes the municipalities of Višegrad, Rogatica and Srebrenica. All data for this area must be taken with some reserve as there has not been a population census or agriculture census conducted since 1991, particularly with respect to all the changes that have occurred in this area in the past 20 years. In comparison to the cadastral data, the actual use of arable lands is significantly lower. The majority of private agricultural lands have been abandoned and are not cultivated.

Agricultural production is, for the majority of the population, the only source of earnings. Production at farms is mixed and extensive, and farm holdings are fragmented. Meadows and pastures dominate and make up approximately 70% of the agricultural lands in the area of these three municipalities in BiH.

In Višegrad, Rogatica and Srebrenica municipalities, there is a total of 584,740 ha of plough fields, of which almost half are not cultivated or lay fallow. Grains are grown on 217,000 ha, industrial crops on 5,033 ha, vegetables on 36,824 ha, and feed crops on 64,098 ha. The main cultures grown are potatoes and wheat. The production of maize is very low in Rogatica, however, this municipality produces several ten times more potatoes than the other two municipalities. Barley is grown in very small quantities in all three municipalities. The production of fruit is very uneven by municipality. In Višegrad and Srebrenica, plums are the most common fruit grown, while apples are most common in Rogatica. Sour cherries are poorly represented in the Višegrad and Srebrenica municipalities and not grown at all in the Rogatica municipality. It is interesting to note that in Višegrad, unlike the other two municipalities, apples are poorly represented in fruit production.

The livestock fund is humble, facilities are outdated and the breed composition of livestock is poor. Agricultural producers do not have adequate machinery and equipment.

### Markets and marketing

The municipalities in the Tara National Park area are known for their cured meat products (beef *carpaccio* and pork *prosciutto*, Užice bacon, Užice sausages, cured lamb), beef and lamb meat, alpine milk products (Zlata cheese, Užice *kajmak*, peppers in cream), berries (raspberries, blackberries), fruit (apples, plums), production of potatoes (seed and market), fruit spirits (juniper berry, mint, grape), medicinal herbs, forest products (mushrooms, strawberries, blueberries, etc.), honey products (forest and meadow honey) and Eastern brook and Rainbow trout.



Special note is given to the large production of premium quality raspberries that are bought-off and exported. The annual production is around 35,000–40,000 tonnes, accounting for 40% of the production in Serbia.

For the purpose of preserving product authenticity, a collective quality stamp has been created for the traditional agricultural products of the Užice region - IN NATURA, under which the products are marketed and their names protected. For that purpose, a special quality control system has also been implemented to verify the naturalness and authenticity of products.

Tourism is very significant to the region partly thanks to Zlatibor, one of Serbia's leading tourism centres with a tourism tradition of 110 years. This represents a significant potential for the placement of agricultural products.

On the BiH side of the potential Drina biosphere reserve, and particularly in the Srebrenica municipality that was severely hit in the war events of the 1990s, a significant role in the rebuilding and development of agriculture was played by international development agencies, such as TIKa, JICA, UNDP and CESVI, which stimulated the establishment of agricultural cooperatives and associations. These organisations work to improve agricultural production by bringing together agricultural producers, organising buy-offs and the placement of agricultural products, rebuilding the livestock fund, development of the sheep breeding subsector, development of the dairy subsector, organizing the production of table eggs, growing a large number of apple, sour cherry, pears and plum orchards and raspberry, blackberry and strawberry plantations with the use of agro-technical measures, development of greenhouse production of early vegetables. The Srebrenica municipality earmarks significant funds for stimulating the development of agriculture, primarily to aid the spring and autumn planting, above all for social categories, and to attempt to guide this development in coordination with the above mentioned international organisations.

### 3. Relevant EU policies and support

With farming covering about half of the EU land area, Europe's biodiversity is linked inextricably to agricultural practices. EU nature protection policy acknowledges that sound agricultural management practices can have a substantial and positive impact on the conservation of the EU's wild flora and fauna. Traditional farming contributes to safeguarding certain natural or semi-natural habitats. Many valuable habitats and the presence of species have a direct interdependence with agriculture (e.g. many bird species nest and feed on farmland). Thus, biodiversity in agro-ecosystems is under considerable pressure as a result of intensified farming and land abandonment.

At the EU level, implementation of the Birds and Habitats Directives forms the cornerstone of Europe's nature conservation policy. However, in official communications on halting biodiversity decline, the European Commission has clearly expressed that biodiversity conservation goals in Europe cannot be met only by protecting particular habitats or species, or designating certain areas such as Natura 2000 sites. It is also essential to support the land uses that favour biodiversity across the wider countryside.

The Biodiversity Action Plan for Agriculture was adopted in 2001. It is based on the use of a number of EU Common Agricultural Policy (CAP) instruments benefiting biodiversity. This includes measures that encompass environmental requirements integrated into market policy (cross-compliance) and targeted environmental measures that form part of the Rural Development Programmes (e.g. agri-environment measures and payments for Natura 2000 areas). The priorities of the Action Plan are the promotion and support of environmentally-friendly farming practices and systems that benefit biodiversity directly or indirectly; the support of sustainable farming activities in biodiversity-rich areas and the maintenance and enhancement of good ecological infrastructures, and the promotion of actions to conserve local or threatened livestock breeds or plant varieties.

Traditional agricultural landscapes form part of the cultural and natural heritage, and the ecological integrity and the scenic value of landscapes make rural areas attractive place to live and recreate. The CAP stresses the importance of preserving the farmed landscape and promotes the development of agricultural practices while preserving the environment and safeguarding the countryside. Farmers are encouraged to continue playing a positive role in the maintenance of the countryside and the environment. This is achieved by targeting aid at rural development measures promoting environmentally sustainable farming practices, such as agri-environment schemes and enhancing compliance with environmental laws through a reduction in support payments in the case of non-compliance of these laws.

The fairly recently established concept of High Nature Value Farming (HNVF) recognises the causality between certain types of farming activity and natural values, such as high levels of biodiversity or the presence of species and habitats of conservation concern. HNV farming is characterised by a combination of: (1) low intensity of land use and (2) presence of semi-natural vegetation, and, in many cases, (3) presence of a landscape mosaic. Typically, farming practices that preserve and enhance biodiversity are associated with low intensity grazing or mowing practices on semi-natural vegetation.

#### 3.1 Agri-environment measures

Agri-environment measures are designed to encourage farmers to protect and enhance the natural characteristics on their farmland. This includes the protection and conservation of soil, air, ground and surface water, wildlife habitats and species, traditional agricultural landscapes and high nature value (HNV) farmland.

Agri-environment policies offer farmers regular payments in return for providing an environmental management service, though these are not typical subsidy or income support payments. Farmers must work to deliver the environmental benefits, either by maintaining or introducing clearly defined

management practices. These practices produce a specific environmental benefit, above and beyond the level of protection already provided by environmental legislation.

The practices targeted by agri-environment policies can be very diverse, but generally speaking have two broad objectives: to stop or avoid negative impacts on the environment (by discouraging harmful practices) or to maintain or create positive impacts on the environment (by encouraging beneficial practices).

Agri-environment payments offered to farmers are partly financed by the EU's rural development budget (EAFRD), and partly by the Member State's national or regional budget. In convergence areas – areas where the GDP per capita is less than 75% of the EU average - the EAFRD budget contributes up to 80% of the eligible public expenditure on agri-environment payments, and up to 60% in other areas. Member States may additionally finance agri-environment schemes entirely with their own funds, though all agri-environment schemes implemented in Member States (even if not co-financed by EAFRD) must be approved by the European Commission and must follow certain basic principles.

Member States are expected to design agri-environment programmes, schemes and actions that will deliver their own and EU environmental priorities, and are well adapted to their agricultural, environmental and social context. Schemes restricted to certain areas are described as “zonal”, and schemes available across the entire territory of a country are called “horizontal” schemes. Most Member States have both types of schemes within their agri-environment programmes. Examples of commitments covered by national/regional agri-environmental schemes are: environmentally favourable extensification of farming; management of low-intensity pasture systems; integrated farm management and organic agriculture; preservation of landscape and historical features such as hedgerows, ditches and woods; conservation of high-value habitats and their associated biodiversity, etc.

Agri-environment schemes were first introduced into EU agricultural policy during the late 1980s as an option to be applied by Member States. Since 1992, the application of agri-environment programmes has been compulsory for Member States in the framework of their rural development plans, whereas they remain optional for farmers.

Around 600,000 farmers in the EU receive agri-environment payments for measures implemented on 17.5 million hectares. The EU expenditure for agri-environment measures for 2007–2013 amounts to nearly EUR 20 billion, or 22% of the total expenditure for rural development.

Organic agriculture is one of the possible activities that could be supported through the agri-environment measures. Since intensive agriculture is one of the major reasons of biodiversity loss, through habitat degradation and pollution, there is increasing pressure upon farmers to reduce the environmental impact of their operations. Organic farming is one of the best and most sustainable answers to the problems of modern farming. This is a management system that is widely applicable, economically viable and has proven to protect soil, water and reverse the declines in biodiversity. On this ground, EU CAP provides specific area payments for organic farming.

The production and placement of organic products with labels and logos on the EU market follows a strict certification process that must be complied with. Both farmers and processors must at all times respect the relevant rules prescribed in the EU regulation. They are subject to inspections by inspection authorities to ensure their compliance with relevant legislation. Payments supporting conversion to and continued organic farming are part of the EU MS agri-environment programmes.

**Box 1. The Agri-Environment Measure under SAPARD and IPARD, Source: European Commission**

SAPARD (Special Accession Programme for Agriculture and Rural Development) was the European Union's pre-accession programme for agriculture and rural development in the countries of Central and Eastern Europe (now new EU MS) in the pre-accession period introduced in 1999. One of the eligible measures in national SAPARD Programmes was the agri-environment measure. Although seven applicant countries planned to implement this measure, their ongoing national support schemes, the complex nature of the measure, the lack of GIS systems and the resource need of an accreditation process prevented five of them from implementing the measure. Only two countries, Czech Republic and Slovakia, have implemented it. Under this measure, only 48 projects, mainly support to semi-natural grassland maintenance, have been supported with a sum of EUR 1.8 million.

In the Financial Perspective 2007–2013, the SAPARD programme was replaced by the 5<sup>th</sup> component of the IPA programme – Rural development (IPARD). Croatia is currently implementing this programme and Montenegro is still preparing its IPARD Rural Development Plan. Although an agri-environment measure is also eligible under IPARD, neither Croatia nor Montenegro gave priority to this measure and it will not be implemented during the pre-accession period. IPARD funding is not yet available in BiH or Serbia.

**3.2 Payments for Natura 2000 sites**

The Natura 2000 network is an EU-wide network of nature protection sites created to conserve more than 1,000 endangered and endemic species and approximately 230 natural habitat types as described in the EU Birds and Habitats Directives. Agricultural producers whose farms are part of Natura 2000 sites are entitled to payments that compensate them for the incurred costs and lost income resulting from implementation of required nature protection measures. This financing is allocated on an annual basis and per hectare of cultivated agricultural land. Private forest owners or their associations are also entitled to payments which compensate them for costs incurred in and losses resulting from the limitations in use of forests and other forest areas due to the implementation of nature protection measures in Natura 2000 sites.

**3.3 EU schemes of geographical indications and traditional specialities**

In addition to the above mentioned payment schemes supporting biodiversity-friendly farming, there are several EU schemes of geographical indications and traditional specialities promoting and protecting the names of quality agricultural products and foodstuffs. The objective of these schemes is to lay down rules for the protection of geographical indications and designations of origin so as to add value to certain specific high-quality products from demarcated geographical areas, thereby promoting the diversification of agricultural production in a rural development context. These products are often linked to traditional farming practices that contribute to safeguarding certain natural or semi-natural habitats.

The EU has three systems in place for promoting and protecting the names of quality agricultural products and foods:

1. Protected Designation of Origin (PDO): the name of a product that is produced, processed and prepared in a defined geographical area using recognised know-how;
2. Protected Geographical Indication (PGI): used to denote agricultural products and foods closely linked to a geographical area, in at least one of the stages of production, processing or preparation;
3. Traditional Speciality Guaranteed (TSG): does not refer to the origin but emphasises a product's traditional composition or traditional mode of production.

These systems encourage the diversification of agricultural production, protect the product names from misuse and imitation and help consumers by providing information on the specific characteristics of the products.



Figure 2. The PDO, PGI and TSG logos of the European Union.

In 2007, PDO and PGI agricultural products had an estimated wholesale value of EUR 14 billion. The list of products ranges from hay to beer, from mineral water to cheese, from meat, fruit and vegetables to pastries.

Cheese accounts for a third of the total PDO/PGI turnover, and 8% of the cheese produced in the EU is protected. Names entered in the register include Grana Padano, Gorgonzola, Roquefort, Camembert and Feta. To qualify as Roquefort, for example, cheese must be made from milk of a certain breed of sheep, and matured in the natural caves near the town of Roquefort-sur-Soulzon in the Aveyron region of France, where it is inoculated with the spores of a specific fungus (*Penicillium roqueforti*) that grows in these caves.

Almost 5% of the beer consumed in Europe is PGI beer (Münchener Bier, Českobudějovické Pivo, etc.). The main meat products are dried, cured products such as Prosciutto di San Daniele and Schwarzwälder Schinken.

In order to benefit from the PDO/PGI protection, applications from non-EU producers can also be sent either via the national authorities of the non-EU country (e.g. from a ministry, government agency, or the embassy accredited to the EU) or directly by the producer group in the non-EU country, or their representative.

These applications must contain a product specification including following elements:

- the name of the PDO or PGI;
- the description of the product, with an indication of its main physical, chemical, microbiological and organoleptic properties;
- definition of the geographical area;
- information proving that the product originates from that area;
- information justifying the link between the product and the geographical area;
- description of the production method and, if appropriate, the authentic and unvarying local methods as well as information concerning packaging;
- the name and address of authorities or bodies that verify compliance with the provisions contained in the product specification;
- any specific labelling rule for the product in question;
- any requirements laid down by community or national provisions.

If the application is successful and the name is registered, then producers complying with the product specification and controlled by a control body or national authorities can use the name.

A detailed description of the application procedure and additional information can be found at the following website: [http://ec.europa.eu/agriculture/quality/schemes/index\\_en.htm](http://ec.europa.eu/agriculture/quality/schemes/index_en.htm).

Although there is no registration fee for the registration of PDO/PGI in the EU, there are a number of costs related to this process. These costs can be associated with the creation of an organisation of producers that will carry out the project of registration, promotion and the control, costs associated

to the registration procedure, such as definition of the product specification, exchange of information with the European Commission, and costs associated to controls that have to be performed. The specification of PDO and PGI agricultural products implies setting up regular controls of the entire production process. This means that the producers have to spend money to ensure that their products meet all the requirements set out in the specification.

However, the registration itself has no automatic economic, social or environment impact and will not add quality to the traditional product or create a market demand for it out of nothing. The overall procedure is quite demanding and requires a strong and rather professional producer organisation that will initiate, carry-out and control the whole process.

## 4. Relevant national policies and support in Dinaric Arc countries

In recent years, the agricultural policy in all four countries of the Dinaric Arc has been marked by continual efforts to respond to the pressing needs of agriculture and rural areas along with the harmonization of the national support measures with the CAP requirements. Extensive farming practices, characterized by low levels of mechanization and/or chemical inputs and especially the low levels of marketed production, are considered a significant barrier to contemporary market competitiveness. The scope of support and budgets are changing frequently, though production subsidies to intensive agriculture always remain the dominant form of agriculture policy support.

Overall, not much has been done in the Dinaric Arc region in terms of support for continuation and diversification of traditional land use practices. Some forms of assistance are available from the national budgets to support organic farming and conservation of autochthonous breeds of domestic animals.

The governments in the region have taken steps to protect some key species and habitats. The areas under official national (protected areas) and international designations (Ramsar, Emerald) have been increasing in recent years. Additionally, initial steps to set up the Natura 2000 network, as the centrepiece of the EU's biodiversity policy, are being taken in most of the countries. A large number of the future Natura 2000 sites are located in agricultural areas. It is a requirement of the EU Birds and Habitats Directives that those habitats and species for which the sites are designated are maintained in a favourable conservation status. Because high biodiversity levels usually correspond to low agricultural outputs and small-scale traditional farming practices, most of the farmland in proposed Natura 2000 sites are located in marginal farming areas rather than in intensively managed arable land. Therefore, it is necessary to work out effective conservation measures that farmers who live and work in these regions can easily adopt.

### Bosnia and Herzegovina

In BiH, the Ministries of Agriculture of the two entities have adopted agriculture sector development strategies. Livestock production is stressed in all national strategies, with forage production of high importance in developing the sector, but without recognizing the natural values of low-intensity farming systems.

The average annual budget (2008–2010) for agricultural support in BiH was EUR 83 million. The main groups of support measures are: (i) direct support measures to producers; (ii) rural development support measures; (iii) market support measures, and (iv) general services to agriculture. Direct support measures to production take up the largest percentage of the agricultural budgets.

The classification of rural development measures is the same as that in the EU, and is divided into four axes - Axis 1: Improving the competitiveness of the agricultural and forestry sector; Axis 2: Improving the environment and the countryside; Axis 3: Quality of life in rural areas and diversification of the rural economy, and Axis 4: LEADER and other measures for rural development. The budget for rural development support measures fluctuates significantly from year to year, and the largest portion of funding for rural development is designated for the modernization of agricultural holdings. In 2011, EUR 150,000 was allocated to support the certification of organic farming.

### Croatia

As Croatia has recently become an EU Member State, it has aligned its policies with the EU *acquis communautaire*. Economic instruments used to support agriculture in Croatia are carried out via policy measures in the three basic pillars similar to the EU: (i) direct payments; (ii) rural development measures

and (iii) market support measures. In 2009, total direct payments to Croatian agricultural producers amounted to EUR 426 million, which is an average of EUR 327/ha.

Up until Croatia's accession to the EU, support to rural development encompassed:

- i. measures within the scope of the EU funded IPARD programme;
- ii. support for insurance from potential damage to production in agriculture;
- iii. support for the preservation of autochthonous and protected breeds of domestic animals;
- iv. support for capital investments in agriculture;
- v. support for the income of agricultural holdings;
- vi. support for organic and integrated agricultural production; and
- vii. support for areas with difficult management circumstances in agriculture.

Support for agricultural production includes higher per hectare basis support for organic agriculture—up to EUR 675/ha for vegetables and perennials, EUR 600/ha for arable land, and EUR 306/ha for meadows and pastures. Headage payments for autochthonous and protected breeds have been granted since 1994. Annually, these payments are up to EUR 400 per head of cattle, EUR 267 per horse, EUR 133 per donkey and EUR 47 per sheep or goat.

Croatia made use of the SAPARD EU pre-accession fund and now is implementing its successor IPARD, through which a total of EUR 175 million was planned for the period 2007–2013. These resources could be used for projects for the following EU-defined measures: Measure 101 “Investments in agricultural holdings to restructure and to upgrade to Community standards”; Measure 103 “Investments in the processing and marketing of agriculture and fishery products to restructure those activities and to upgrade them to Community standards”; Measure 301 “Development and the improvement of rural infrastructure”; and Measure 302 “Diversification and development of rural economic activities”. Unfortunately, Croatia has decided not to implement the agri-environment measure under the IPARD programme. This is a pity since these assistance programmes are aimed as preparatory pilot measures that contribute to building the necessary practical experience (both at the administration and farm levels) and institutional capacity to implement comprehensive and effective agri-environment schemes that will be co-financed by the EU in the future.

Croatia has already prepared its proposal for Natura 2000 areas. By its date of accession to the EU, Croatia will have to propose sites for more than 250 species and 70 habitat types important for protection within the Natura 2000 network. A number of the future Natura 2000 sites will be located in agricultural areas. Such areas account for around 690,000 ha (31%) of the 2.2 million ha that have been preliminarily designated as part of the Natura 2000 network. Within this area, mosaic landscapes with arable plots, vegetable gardens, traditional orchards and vineyards are most common (57%), while extensive grasslands account for 39% of such agricultural land. The EU Birds and Habitats Directives require that these habitats are maintained in a favourable conservation status. In practice, achieving this will depend on the farmers continuing to live and work in these regions.

## Montenegro

In Montenegro, one of the axes of the rural development policy refers to the sustainable management of natural resources, where three measures are implemented. Each of these measures is practically direct compensatory payments and they have a share of only 3.2% in the total agricultural budget. The measure “Sustainable use of mountain pastures” has the largest share of more than 60%, while the remaining 40% is directed to support the preservation of genetic resources and organic farming. This measure was introduced in 2010 and refers to payments per livestock unit grazed on mountain pastures. Since then, a total of 2,025 holdings and 25,250 livestock units (LU) of cattle, sheep, goats and horses have been supported by a headage payment of EUR 20 per LU (with a minimum of 5 LU to be eligible). The support is given to agricultural holdings practicing transhumance for at least two months per year.



The measure “Preservation of genetic resources in agriculture” refers to payments of 60 EUR per LU or per hectare for the conservation of autochthonous breeds and plant varieties. This is based on the action plan for the preservation and sustainable use of genetic resources in agriculture.

“Organic farming payments” are an additional payment per hectare for plant production (EUR 150 for arable land, EUR 250 for vegetables and perennials) and per livestock unit in animal husbandry (EUR 50 per LU, EUR 2 per poultry beak and EUR 30 per bee-hive).

Montenegro is in the process of accreditation of its IPARD programme though the pilot agri-environment measure was not selected for implementation under this programme.

## **Serbia**

Measures for support to autochthonous breeds of farm animals and organic farming are also implemented in Serbia. Support for autochthonous breeds of farm animals was provided in the period 2004–2010. A headage payment applies to a wide range of domestic breeds, i.e. hens, goats, sheep, pigs, donkeys, ponies, buffalos and cattle, for above a minimum number of adult animals. In order to be eligible for this measure, both farmers and animals have to be registered in the respective official registers. Although the budget for this measure was very limited (around EUR 150,000 annually), the number of animals increased steadily during the implementation period. The main problem was that the budget fluctuated annually and, in 2011, there was no budget for support to autochthonous breeds of domestic animals.

Support is also provided to organic agriculture, including organic grasslands in rotation and livestock since 2005. Organic management of pastures is not directly supported. Farmers have to be registered and controlled by an approved controlling body and they must continue the organic management for three years after receiving support. The beneficiaries are excluded from the other governmental subsidies (including subsidies for the conservation of endangered local breeds).

Serbia also introduced a pilot measure for the maintenance of highland pastures and grazing practices with GEF/World Bank funding in the region of Stara Planina National Park. A grant for grasslands management was offered to animal owners to a maximum amount of EUR 5,000. The key condition was that the owners’ flocks/herds had to spend a minimum of 90 days a year at pasture. Eligible costs included shepherd salaries, transport costs, costs for food, clothes and shoes for shepherds as well as camping equipment and dairy equipment costs. As a result of the pilot scheme, around 400 LU of cattle, horses, sheep and goats grazed at five different locations on a total 2,250 ha of highland grasslands.

## 5. Identification of development options based on existing features and assets of the region

The cultural landscapes of the Dinaric Arc region have many various traditional forms which nowadays are under severe threat. They originated from traditional land use in the past though their continuation is no longer economically viable. They are both labour and time-consuming with a high share of manual work, while resulting in small yields. To preserve these traditionally managed landscapes, value can be created by marketing the regional products that originate from these landscapes.



Figure 3. Livno cheese (Livnjski sir), traditionally produced from 80% sheep milk and 20% cow milk, is a traditional product of the Dinaric Arc region that is inextricably linked to traditional pasture management with the autochthonous Pramenka breed of sheep. Source: [www.okusihercegovinu.com](http://www.okusihercegovinu.com)

Based on the existing features of the Dinaric Arc region, Table 1 gives an overview of the types of landscapes that are especially under threat, together with the threats, cause of threat and cultivation needed to preserve them. The last column indicates marketable products that are produced in each of typical extensively farmed Dinaric Arc landscape.

Table 1. Features of the region, cultivation needed to protect these features and related marketable products

Type of landscape	Threat	Cause of threat	Cultivation needed	Marketable products
Species rich meadows and pastures	Shrub encroachment through lack of use	Cultivation not economically viable, terrain is not suitable for machinery use	Mowing or extensive grazing (sheep flocks, suckler cows), hedgerow maintenance	Lambs, wool, calves, cows, milk, cheese, butter, herbal teas, firewood from hedgerow maintenance
Extensive arable land	Shrub encroachment through lack of use; intensification; hedgerow clearance	Cultivation not economically viable (poor soil conditions); excessive usage of pesticides and mineral fertilisers	Extensive arable farming with crops and varieties adapted to local conditions	Potatoes, cabbage, rye and other cereals
Meadow orchards	Trees no longer pruned, they are aging, or felled; grass is no longer mown / grazed	Cultivation not economically viable (poor yield compared to modern plantations and varieties, labour intensive)	Extensive fruit-growing with varieties adapted to local conditions	Fruit and fruit products (juices, jams, fruit wines, dried fruit, etc.)
Vineyards	Vines no longer pruned, dry stonewalls falling down, shrub encroachment	Cultivation not economically viable (poor yield compared to modern plantations and varieties, labour intensive)	Extensive fruit-growing with varieties adapted to local conditions	Grapes, grape juices and brandies, wine

Table 2 outlines the products with high market potential from the five Dinaric Arc project areas and lists possible criteria for their branding. These criteria are based on traditional land use and low-impact land use practices (e.g. agri-environment measures for the protection of wild flora and fauna or organic farming).

**Table 2. Existing products with market potential and possible criteria for their branding**

Product group	Existing products with market potential	Possible criteria for branding
Dairy products	<ul style="list-style-type: none"> <li>• Milk</li> <li>• Livanjski cheese</li> <li>• "Lički Škripavac" cheese</li> <li>• Dry cheese from <i>mišina</i> (full fat cheese matured in a sheepskin bag)</li> <li>• Goat's milk cheeses (hard and soft goat's milk cheese)</li> <li>• Zarica cheese</li> <li>• Urda cheese</li> <li>• <i>Kajmak</i> (cream), Basa, Skuta</li> <li>• <i>Maslo</i> (rendered butter), sour milk</li> </ul>	<ul style="list-style-type: none"> <li>• Origin (birth, rearing) in the region</li> <li>• Autochthonous breed (e.g. <i>Pramenka</i>, <i>Buša</i>)</li> <li>• Animal welfare (stall area per animal; daylight; floor; group size, etc).</li> <li>• Duration of grazing cattle during the vegetation period</li> <li>• Prohibition of certain types of food (silage, GMO, soya etc.)</li> <li>• Use of certain types of food (regionally grown protein / legumes)</li> <li>• Specific method of processing milk</li> <li>• Certified organic product</li> <li>• Implementation of AE measures that contribute to the conservation of the respective landscape type, such as care of stone walls and hedges, grazing in meadow orchards, particular time and way of mowing to protect certain birds and plants</li> </ul>
Meat production	<ul style="list-style-type: none"> <li>• Lamb meat</li> <li>• <i>Drniš</i>, Dalmatian, <i>Užice pršut</i> (prosciutto)</li> <li>• <i>Kaštradin</i> (cured sheep meat)</li> <li>• <i>Pastrma</i> (cured beef or sheep meat)</li> <li>• Bacon</li> <li>• <i>Divenice</i> (sausages)</li> </ul>	<ul style="list-style-type: none"> <li>• Origin (birth, rearing) in the region</li> <li>• Autochthonous breed (e.g. <i>Pramenka</i>, <i>Gatačko</i> cattle)</li> <li>• Animal welfare (stall area per animal; daylight; floor; group size etc).</li> <li>• Duration of grazing cattle during the vegetation period</li> <li>• Prohibition of certain types of food (silage, GMO, soya etc.)</li> <li>• Use of certain types of food (regionally grown protein / legumes)</li> <li>• Specific method of processing and maturity of meat</li> <li>• Certified organic product</li> <li>• Implementation of agri-environment measures that contribute to the conservation of the respective landscape type, such as care of stone walls and hedges, grazing in meadow orchards, particular time and way of mowing to protect certain birds and plants</li> </ul>
Fruits and fruit products	<ul style="list-style-type: none"> <li>• Dried plums, apples and figs,</li> <li>• <i>Bestilj</i> (plum jam)</li> <li>• Plum and apple jams</li> <li>• Šljivovica (plum brandy)</li> <li>• <i>Bajinobaštanska klekovača</i> (juniper brandy)</li> <li>• <i>Travarica</i> (herb brandy)</li> <li>• <i>Lozovača</i> (grape brandy)</li> <li>• Čukter/ <i>Mantala</i> (sweet from grape juice)</li> </ul>	<ul style="list-style-type: none"> <li>• Certain selection of varieties</li> <li>• Stem size</li> <li>• Care of undergrowth</li> <li>• Specific method of processing</li> <li>• Implementation of agri-environment measures that contribute to the conservation of the respective landscape type, such as tree-cutting leaving dead wood in meadow orchards, care of stone walls and hedges, grazing, removing shrub encroachment, particular time and way of mowing to protect certain animals and plants</li> </ul>

Two successful examples of branding agricultural products and criteria related to nature conservation from German nature parks are given in Boxes 2 and 3.

Box 2. Cheese Route in Southern Schwarzwald Nature Park, Germany, Source: Southern Schwarzwald Nature Park



Lush meadows, shady woods, old Schwarzwald farmhouses, grazing cows, sheep and goats – this is the beautiful landscape of the Southern Schwarzwald Nature Park. This is where the milk comes from for the wide selection of delicious cheeses that are produced in 18 small farm dairies, from the Black Forest Bibilis cheese to soft, cream cheeses and the spicy mountain cheese. At their farm shops and farmers markets, farmers also sell all the specialties that Schwarzwald has to offer, such as homemade yogurt, freshly baked breads from a wood-oven, sweet jams and honey, delicious liqueurs and fragrant ham, bacon or smoked sausages. With this project, Southern Schwarzwald Nature Park continues the preservation of the unique cultural landscape with the motto: “Those who eat domestic cheeses actively contribute to the maintenance of the open countryside and manage the landscape ‘with a knife and fork’”.

Box 3. Lambs from the Altmühl Valley Nature Park, Bavaria, Germany, Source: Altmühl Valley Nature Park



The Altmühl valley in Bavaria is distinguished by its valuable juniper heathland, which is constantly under threat from shrub encroachment. In order to be able to sustain shepherding, the ‘Altmühltaler Lamm’ (Altmühl Valley lamb) regional brand was introduced in seven rural districts. Around 3,500 lambs are marketed under the brand

each year. The following extract from the guidelines shows the requirements on landscape conservation and regionality:

#### A) Professional conservation criteria

- At least 50% of the grassland surface area (according to the list of the surface areas of the lots) is relevant to conservation. Relevant to conservation in this sense means surface areas that have been concluded by contract according to the Bavarian agri-environment programme.
- Only surface areas cultivated without the use of pesticides, mineral fertilisers and liquid manure are considered.
- The working proprietor must rear sheep in flocks. Temporary grasslands are only tolerated if extensive grazing is guaranteed under appropriate contractual conditions within the context of the Bavarian agri-environment programme.
- Livestock is limited to a maximum of 1.4 LU/ha utilised agricultural area.
- A minimum density for grazing for optimal pasture quality is to be assured.

#### B) Criteria for regional production

- The business must have part of its surface area which is grazed by sheep in the “Naturpark Altmühltal” project area.
- Bought animal feed must originate exclusively from the rural districts of the project area.
- Albuminous animal feed as a protein supplement (e.g. legumes) is only allowed to originate from the rural districts of the project area. This applies after an initial period of adjustment.
- Transport of live animals may not exceed a journey time of one hour.
- Transparency and traceability of product routes must be guaranteed by the business.
- Marketing initiatives must comply with the objectives of the project.
- Purchase of lambs is only permitted from businesses involved in the “Altmühltaler Lamm” project.

## 6. Recommendations for support schemes for continuation and diversification of traditional land use practices

Many habitats and species that are in the focus of conservation efforts are the result of traditional low-intensity sustainable farming practices. Unfortunately, these practices are no longer economically viable and as a result, over large spans of the Dinaric Arc, agriculture has been abandoned or has become very extensive due to a lack of management and a decline in the farming population. Without management, the mosaic landscape and, in particular, semi-natural grasslands with their typical flora and fauna will disappear. Therefore nature conservation management funding, such as support for agri-environment schemes, covering the extra costs incurred or income foregone for farmers could encourage them to continue with traditional farming practices.

### 6.1 Suggested measures for the targeted sites with conservation potential

Croatia, as the 28<sup>th</sup> EU Member State, is currently preparing its first agri-environment programme. This programme will be implemented as a part of the 2014–2020 RDP and will be funded by up to 80% of the eligible public expenditure on agri-environment payments by the EU's rural development budget (EAFRD), and 20% by Croatia's national budget. Measures for biodiversity protection will be an integral part of the Croatian agri-environment programme.

The agri-environment type of measures and corresponding payments could be introduced in the remaining Dinaric Arc countries. They all have their national agricultural budgets in which rural development measures are playing an increasingly important role, and they have already had some experience with support to organic farming and **autochthonous breeds of domestic animals**. They have also commenced activities on the designation of national ecological networks and Natura 2000 sites, a great many of which will be located in agricultural areas, in particular on grasslands. The favourable conservation status of habitats and species in these areas depends exclusively on the continuation of traditional land use. Last but not least, all Dinaric Arc countries are on their path towards the EU, where all Member States are obliged to offer agri-environmental measures and corresponding payments to farmers who can voluntarily choose to implement them. These payments must encourage farmers and other land users to contribute to society as a whole by continuing to apply agricultural production methods that are consistent with the protection and improvement of the environment. Therefore, policy measures supporting land use practices preserving the traditional appearance of landscapes and biodiversity, together with corresponding funding have to be developed in all Dinaric Arc countries.

Table 3 gives a proposal for several agri-environment support measures for continuation and diversification of traditional land use practices. Together with the sustainable use of medicinal and aromatic plants and, where appropriate, conversion to organic farming, these measures could offer interesting incentives to farmers willing to continue with the management of valuable landscapes and habitats.

Table 3. Possible agri-environment measures with nature conservation potential

Measure	Rationale	Objectives	Description of measure	Management requirements
<b>Species Rich Grassland Scheme</b>	Species-rich, semi-natural grassland composed of distinctive mixes of grasses and wildflowers that grow on acidic, neutral or calcareous soils, often contain species such as orchids, and are also valuable for butterflies and other invertebrates. Active management of these habitats will maintain their value for wildlife, contribute to the protection of valued landscapes and promote good soil conditions.	<ul style="list-style-type: none"> <li>• Prevent the decline of landscape due to the loss of open landscapes,</li> <li>• Prevent abandonment of land,</li> <li>• Restore and maintain species-rich grasslands,</li> <li>• Protect karst biodiversity and fragile underground ecosystems,</li> <li>• Encourage farmers to continue traditional farming practices and extensive grassland management.</li> </ul>	<p>Practise extensive grassland management of mowing or/and grazing</p> <p>Management practices will include reduced nutrient inputs and will ensure that care is taken for the seasonal needs of grassland species</p> <p>Grazing will be managed in a manner that avoids both undergrazing or overgrazing, as both can cause a decline in species richness</p>	<p>As species-rich grasslands show considerable variation, specific measures will be elaborated for each grassland type.</p> <p>Management practices can include:</p> <ul style="list-style-type: none"> <li>• clearance of shrubs and small trees to enable regular mowing and/or grazing,</li> <li>• prohibition of the application of pesticides and mineral fertilizers;</li> <li>• mowing at least once per year,</li> <li>• all mown grass should be harvested as hay and removed;</li> <li>• compulsory stocking rate between 0.2 and 1.0 LU,</li> <li>• defined minimum number of days of the grazing period.</li> </ul>
<b>Meadow Orchards Scheme</b>	Meadow orchards are extensively managed traditional orchards, characterised by widely spaced high-trunk fruit trees of old varieties. They normally contain less than 150 trees per hectare on species rich grassland. They are habitats for a number of organisms such as wild plants, lichens, various insects and birds. They are a characteristic element in the region's rural landscape and a valuable genetic resource.	<ul style="list-style-type: none"> <li>• Maintain high-trunk orchards as traditional elements in the rural landscape,</li> <li>• Conserve diverse habitats comprising high-trunk fruit trees and species rich grassland in orchards,</li> <li>• Preserve traditional local varieties of fruit trees in orchards.</li> </ul>	Maintenance of meadow orchards	<ul style="list-style-type: none"> <li>• Restore meadow orchard trees by pruning and restocking with appropriate traditional varieties,</li> <li>• Defined minimum and maximum trees per hectare (e.g. 25/150),</li> <li>• Leave some dying trees, as these provide nesting holes for birds,</li> <li>• Establishing or re-introducing management of a grass sward and/or scrub control,</li> <li>• Manage the grass under the trees by grazing or cutting (at least once per year) to benefit wildlife species.</li> </ul>

<b>Local Breeds and Traditional Varieties Scheme</b>	Genetic diversity of cultivated plants and domestic animals is an important part of overall biodiversity and cultural heritage. Autochthonous livestock breeds have attributes that are particularly well-suited to harsh climatic conditions, difficult terrain and to grazing semi-natural vegetation, all of which are important in achieving conservation objectives.	Preserve the existing genetic diversity of local domestic animal breeds and cultivated plants.	Support will be given for the raising of local breeds and traditional crop varieties.	The subsidy will be paid per head of animal and per hectare of crop depending on breed and variety specific requirements. Eligible for the payment are animal breeds and crops listed in a special list of local breeds and endangered traditional varieties issued by the competent authorities.
<b>Hedgerows Scheme</b>	Parcels separated by natural hedges contribute to the biological and landscape diversity. Hedgerows improve the landscape's value and are efficient windbreaks. They host a large number of insects, and provide habitats for a range of birds and mammals. They are also a rich source of food for wildlife species throughout the year and can be consumed by domestic animals. The best hedges have a variety of woody and weed species at the base.	<ul style="list-style-type: none"> <li>• Preserve the mosaic landscape structure as a part of region's natural and cultural heritage,</li> <li>• Provide habitats for a range of wildlife species and allow migration and recolonisation of species,</li> <li>• Provide a wind barrier,</li> <li>• Prevent wind and water erosion.</li> </ul>	Support will be given for re-establishment and maintenance of traditional hedges	<ul style="list-style-type: none"> <li>• The hedgerow should contain at least five different autochthones or traditionally cultivated plant species,</li> <li>• One tree should be planted for every 25 metres of hedge,</li> <li>• No use of mineral fertilisers or pesticides within 3 metres of either side of the hedge,</li> <li>• Regular trimming in order to keep hedges in shape.</li> </ul>
<b>Dry Stonewalls Scheme</b>	Dry stone walls are traditional features in the Dinaric Arc region. They are important landscape elements and a part of the region's rich cultural heritage. They are also important habitats for reptiles, birds and small mammals.	<ul style="list-style-type: none"> <li>• Preserve the mosaic landscape structure as part of the region's natural and cultural heritage,</li> <li>• Provide habitats for a range of wildlife species,</li> <li>• Provide a wind barrier,</li> <li>• Prevent wind and water erosion.</li> </ul>	Re-establishment and maintenance of traditional stone walls at sites where stone walls have been traditionally present	<ul style="list-style-type: none"> <li>• Use of traditional design, materials and working methods,</li> <li>• Defined minimum length, width and height (e.g. 25x0.7x0.7 m),</li> <li>• No use of mineral fertilisers and pesticides within 3 metres of either side of the stone wall,</li> <li>• Regular checking and reparation of loose/fallen stones.</li> </ul>

## 6.2 Harvesting of wild medicinal and aromatic plants

For many decades, the Dinaric Arc region was one of the major source regions for medicinal and aromatic plants (MAP) imported by the EU. The political changes over the past 20 years have broken the collection and trade of MAPs in many areas in the region, though this activity has continued to have a significant economic importance for the local population.

Collection of MAPs offers employment and income opportunities, which depend on the conservation of the very resource. This might lead to a better understanding in the local population of the necessity

for conservation measures. Many MAPs grow on extensively cultivated land, such as meadows. These habitats are threatened by abandonment, which would result in the extinction of many medicinal plants. By putting a high value on these plants, incentives arise for maintaining the extensive land use in such habitats.

Sustainable use of medicinal and aromatic plants by setting quotas and extraction zones and by controlling and monitoring collection could represent a development option for the Dinaric Arc. At the moment, control of MAP wild harvesting is exercised either directly by regional inspectors of the administrative authorities or by species-specific permits or licences issued either by the state ministry responsible or by regional administrative authorities (see Box 4 with the example of Croatia).

Harvesting of wild MAPs is largely carried out by the local population, primarily persons belonging to poorer groups in society, people of advanced age or ethnic minorities. To some collectors, the wild-harvesting of medicinal plants provides a much needed additional income, to others it is the sole source of income, especially in BiH, where the economic situation in most rural areas is still very difficult and the unemployment rate is very high.

Buyers decide which plant species are going to be harvested, determine the prices, quantities and quality parameters (plant parts, collecting calendar, collecting tools, drying conditions, etc.). After harvest, collectors perform cleaning, separation, drying and in some cases cutting if buyers request it. As a rule, one or more intermediate traders and wholesalers are involved in the chain of MAP trade; direct marketing by individual collectors or collectors' co-operatives is uncommon. As a consequence, the share of the price earned by individual collectors is usually low.

**Box 4. Regulation of harvesting of medicinal and aromatic plants in Croatia. Source: Croatian Ministry of Environment and Nature Protection**

The harvesting of medicinal and aromatic plants is controlled by the Ministry of Environment and Nature Protection. The *Nature Protection Act* (OG 70/05, 139/08 and 57/11) and *Ordinance on the collection of protected wild plants for the purpose of processing, trade and other transactions* (OG 154/08) regulates the collection of protected wild plants for commercial purposes and the conditions and protection measures to preserve the favourable status of species and habitats. The Ordinance also stipulates the amount of protected wild plants that can be collected for personal use without the permission of the Ministry. Collection of wild plants can be carried out with the consent of the owner or right holder of natural resources.

The State Institute for Nature Protection sets yearly quotas for the collection of particular MAP species for commercial purposes. Quotas are set according to the state of the natural populations of the different species.

The use of MAPs for cosmetic, medicinal, colouring and aromatic purposes has a long tradition. MAPs from the Dinaric Arc region have an excellent reputation and could be used as a basis for the production of range of products such as herbal teas, cosmetics, food supplements, liquors, brandies, insecticides, fungicides, essential oil products, perfumes, flavouring liquids, cleaning products, etc. By developing products with added value, a higher share of the price could be earned by collectors, and more opportunities could be generated for the local communities for small-scale processing based on MAPs.

### 6.3 Support to organic farming

Organic farming plays a dual societal role. On the one hand, it provides products for the market responding to specific consumer demand for organic, preferably local and regional products. On the other hand, it delivers public goods contributing to the protection of nature and the environment, as well as to rural development.



There is a large body of evidence that organic farming protects soil and water and supports a much higher level of biodiversity than conventional farming systems. Organic farming applies many beneficial practices, reversing the trends in conventional farming that have caused the declines in biodiversity. Three broad management options are particularly beneficial to farmland biodiversity: prohibition/reduced use of chemical pesticides and inorganic fertilisers; sympathetic management of non-crop habitats and field margins, and the preservation of mixed farming.

**Box 5. Biodiversity benefits of organic farming. Sources: Organic Agriculture and Biodiversity (FIBL, 2011) and The Biodiversity Benefits of Organic Farming (Soil Association, 2002)**

A comprehensive analysis of 66 scientific studies shows that organically farmed areas have on average 30% more species and 50% more individuals than non-organic areas. In particular, birds, predatory insects, spiders, soil dwelling organisms and field flora benefit most from organic management.

In most of the studies, substantially greater levels of both abundance and diversity of species were generally found on organic farms:

- Plants: five times as many wild plants as in arable fields, 57% more species, and several rare and declining wild species found only on organic farms;
- Birds: 25% more birds at the field edges, 44% more in-field in autumn/winter; 2.2 times as many breeding skylarks and higher skylark breeding rates;
- Invertebrates: 1.6 times as many arthropods that comprise bird food; three times as many non-pest butterflies in crop areas; one to five times as many spider numbers and one to two times as many spider species;
- Crop pests: significant decrease in aphid numbers; no change in the numbers of pest butterflies;
- The field boundaries had more trees, larger hedges and no spray drift; the crops were sparser, with no herbicides, allowing more weeds; there was also more grassland and a greater variety of crop types.

However, these positive effects on biodiversity and differences in species diversity are especially noticeable after the conversion of arable and horticulture production to organic farming. The existing organic farming regulations in the EU and in the countries of Dinaric Arc region only indirectly promote grassland biodiversity (e.g. by limiting animal numbers on the farm, by banning mineral fertilisers and by prescribing organically produced concentrates). Therefore, from the nature protection point of view, conversion to organic farming seems to be more justified in the Neretva region, where the production of vegetables and fruits is very intensive, than in the other four pilot regions where extensive livestock production prevails.

Support for organic farming in the countries of the Dinaric Arc region is often seen as a significant opportunity for future development. In almost all relevant national and local policy documents and management plans of national parks, a link between the support for environmentally-friendly traditional land use practices, organic farming and tourism is considered the best approach. However, in reality the structural weaknesses of farms and regions rarely enable such integrated processes. Development of organic farming and rural tourism requires significant entrepreneurship and a variety of other skills, as well as capital. The existence of favourable natural conditions is a good precondition but is by far not enough.

Organic farming has to fulfil numerous requirements and rules, such as regular record-keeping of all farming activities and input purchases, inspection and certification procedures, adjustments of livestock housing, purchasing of certified organic plant, animal and seed material, adjustment of processing techniques, etc. Farming in the Dinaric Arc region is predominantly practiced by small-scale, (semi-)subsistence, elderly farmers. They have limited entrepreneurial skills, financial power and technical know-how. It is also questionable where and how could they find a market for their products and whether they achieve a premium price to justify these additional efforts and costs.

Nevertheless, for certain farmers in the region, conversion to organic farming could be an interesting option and therefore support to organic farming should be continued. In the framework of rural development measures, in addition to per hectare and headage payments, other support to organic farming could also be introduced, such as marketing and promotion measures, education, investment in processing and branding, etc.

**Figure 4. Organic products from figs (*smokva*) grown in the Neretva delta by the company Smokva Ostojić ([www.smokva-ostojic.com](http://www.smokva-ostojic.com))**



## 6.4 Mobile Advisory Teams

In many marginal farming situations, where socio-economic conditions are difficult, the above proposed support schemes will not be enough to encourage farmers to continue with traditional land use practices. Most areas of Dinaric Arc need a pro-active and integrated approach to rural development and specifically to farming strategies to give any hope of a sustainable socio-economic future. Small-scale farmers generally have a fatalistic and passive approach and will not take the initiative to solve practical problems to meet administrative, quality and other commercial standards. They need to be motivated, encouraged and informed by qualified advisors/animators. Community advisors/animators help promote and organise the participation of the local population in activities that help to make positive changes in their community. The role of the animator is to provide a focus for increasing community involvement, input in development programmes and increase of local skills through training and consultations.

Experience shows that such an approach can greatly increase the take-up and effectiveness of agri-environment and other schemes, stimulate marketing initiatives and diversification, attract additional funding and create an overall positive spirit and faith in the future. There are several good examples that show huge benefits for the environment and for socio-economic sustainability that can be achieved with a proactive targeted approach. Two such examples are the project implemented at Ponor Mountain and the Besaparski Hills by the Bulgarian Society for the Protection of Birds, and the ADEPT project in Târnava Mare, Romania (see Boxes 6 and 7).

### Box 6. The Bulgarian example, Source: Bulgarian Society for the Protection of Birds (BSPB)

The BSPB implemented the project “Conservation of globally important biodiversity in high nature value semi-natural grasslands through support for the traditional local economy”, from 2007 to 2011. A grant scheme for financing small farmers was developed and implemented. The scheme consisted of both area-based (Agri-environment and Natura 2000) payments and non-productive investments for preservation of HNV farmland.

Two mobile advisory centres were created, thus helping farmers to meet the preconditions and standards and to apply in the agri-environmental schemes. The scheme was launched after two years of preparation, during which the project team was able to meet and establish regular contacts with most of the farmers in the region. This allowed the proposed measures to be shaped in a way that is most beneficial and relevant to the needs of small farmers.

A mobile team of consultants provided advice and support to interested farmers, not only regarding the project pilot grant scheme, but also on how to apply for Bulgarian RDP support. They worked through the process with farmers, from the identification of their support needs, to the development and submission of the application, all the way through to implementation of the measures and final reporting. In the first year alone, a total of 47 applications were submitted, and of these, 44 were supported.

Such mobile advisory teams can be established within environmental and other NGOs, regional development agencies, national parks administration or entirely independently. Two to three advisors with complementary expertise (e.g. agronomist, biologist, economist) can form one such team and cover, for instance, one pilot Dinaric Arc area. These teams can be funded either through national budgets and/or from different other sources such as EU pre-accession funds, bilateral donors, GEF, etc.

**Box 7. The example of Târnava Mare in Romania. Source: ADEPT Foundation**

The NGO ADEPT Foundation (Agricultural Development & Environmental Protection in Transylvania) has been active in Romania since 2003. Its vision is to achieve biodiversity conservation at a landscape scale by working with small-scale farmers in order to create incentives to conserve the semi-natural landscapes they have created.

ADEPT focuses on an 85,000 ha area, Târnava Mare, a semi-natural landscape of remarkable biodiversity. It is a Natura 2000 site, however, ADEPT was aware that this designation alone would not conserve the area for its biodiversity and broader public goods benefits. Only local small-scale farmers can conserve the landscape and the survival of the grasslands depends on continued livestock farming.

ADEPT develops incentives so that the local population benefits from biodiversity conservation, including practical and effective agri-environment measures suited to the area, and grants based on recognition of the landscape as a Natura 2000 site. ADEPT trained small producers so that accession into the EU would not jeopardize traditional food production.

In 2005/6, ADEPT carried out a pilot agri-environment programme under the EU SAPARD pre-accession rural development programme, in close cooperation with the Romanian Ministry of Agriculture and Rural Development (MARD). These were the only grassland agri-environment agreements in Romania at the time. This pilot programme revealed a number of design problems that hampered small-farmer access: complexity of forms to be completed electronically, complexity of supporting documents required, need for repeated visits to the regional capital to submit the forms, etc. Under the pilot measure, ADEPT employed three full-time staff members for 6 months to promote the scheme and to help farmers complete and deliver the forms in 6 of the 8 communes of the Târnava Mare area. This proved to be very effective, with 97 farmers and 1,980 ha entering the pilot agri-environment scheme. The ADEPT Farm Advisory Service (FAS) was also effective in raising longer-term awareness in the area of the benefits to small farmers of the agri-environment scheme.

MARD responded to lessons learned under the pilot project by simplifying the application process for the equivalent grassland agri-environment measure launched in 2008. This helped take-up of the measure in the project area, much higher than for the SAPARD pilot programme.

Also, as a result of ADEPT's farm advisory actions, participation of Târnava Mare area farmers in the agri-environment measure was almost seven times the national average in terms of number of participants, and almost four times the national average in terms of area. It is also remarkable that a larger number of small scale farmers participated (as shown by average size of applications) as a result of the farm advisory actions. A direct impact of this advisory work was that in the eight communes of the area, 1390 small farmers on 17,641 hectares received an annual total of over EUR 2.5 million through access to agri-environment schemes. Without ADEPT's farm advisory support, the expected figure would have been some EUR 650,000.

## 7. Conclusions

1. Traditional low-intensity sustainable farming practices are no longer economically viable, and over large areas of the Dinaric karst, agriculture is being abandoned or becoming very extensive due to a lack of management and a decline in the farming population. Without proper management, the mosaic landscape and in particular semi-natural grasslands, with their typical flora and fauna, will disappear. Therefore, additional sources of income for farmers have to be found to encourage them to continue with traditional farming practices.
2. Based on the existing features of the Dinaric Arc region, two complementary approaches are suggested: (i) creating added value through marketing of typical/traditional regional products, and (ii) nature conservation management payments through agri-environment programmes.

Starting from the cultivation needed to preserve the four typical extensively farmed Dinaric landscapes (species rich meadows and pastures; extensive arable land; meadow orchards and vineyards), a number of marketable products have been identified. The existing products belonging to one of three groups (dairy products; meat products and fruits and fruit products) that have market potential were identified. The group of dairy products include: *Livanjski* cheese, *Lički Škripavac* cheese, dry cheese from “*mišina*” (full fat cheese matured in a sheepskin bag), goat cheeses (hard and white soft goat’s milk cheese), *Zarica* cheese, *Urda* cheese, *Kajmak* (cream), *Basa*, *Skuta*, etc. The group of meat products includes: lamb meat, *Drniš*, Dalmatian, *Užice pršut* (prosciutto); *Kaštradina* (cured sheep meat), *Pastrma* (cured beef or sheep meat), *Divenice* (sausages). The group of fruit products includes: dried plums, apples and figs, *Bestilj* (plum jam), fruit and herb brandies *Šljivovica*, *Bajinobaštanska klekovača*, *Travarica*, *Lozovača*, and a sweet from grape juice *Čukter/Mantala*. The branding and protection of geographic origin has been initiated for several of these products (e.g. *Livanjski* cheese, *Užice* and *Drniš prosciutto*), mostly with the assistance of international donor programmes.

It is far beyond the scope of this document to go into branding details for the identified products. However, some suggestions for possible branding criteria based on traditional land use practices and low-impact land use practices (e.g. agri-environment measures for protection of wild flora and fauna or organic farming) have been outlined.

In addition to the above mentioned agricultural products, an interesting option is the sustainable collection of wild medicinal and aromatic plants, which has a long tradition in the Dinaric Arc region. These plants are already used as a basis for the production of herbal teas and brandies, though the range of products could be much wider and include cosmetics, food supplements, essential oil products, perfumes, flavouring liquids and cleaning products, etc. By developing products with added value and appropriate branding, a higher share of the price could be earned by producers and more small-scale opportunities could be created for local communities.

3. Through agri-environment programmes, EU Member States are supporting land use practices that preserve biodiversity and the traditional appearance of landscapes. These measures are the only obligatory parts of rural development support in each EU MS. Agri-environment payments encourage farmers and other land users to apply agricultural production methods consistent with environment and nature protection. Five agri-environment measures based on the existing features of the Dinaric Arc region are suggested. These are measures for the protection of: (i) species-rich grasslands; (ii) meadow orchards; (iii) local breeds and traditional varieties; (iv) hedges and (v) dry stonewalls. All Dinaric Arc countries have already had some experience with support to one of the proposed agri-environment measures, i.e. for autochthonous breeds of domestic animals. Agri-environment measures can be financed from national budgets, in which rural development measures play an increasingly important role. These measures can also be financed through EU pre-accession programmes or international projects (e.g. Serbian Transitional Agriculture Reform (STAR) Project). With Croatia already in the EU, its agri-environment programme will be funded by

up to 80% of the eligible public expenditure by the EU's rural development budget (EAFRD), and 20% by Croatia's national budget.

4. Support for organic farming in the countries of Dinaric Arc region is often seen as a significant opportunity for future development. However, organic farming has to fulfil numerous requirements and rules and its development requires significant entrepreneurial skills. Structural weaknesses of the farms, limited financial power and technical know-how of farmers in the Dinaric Arc region present a serious obstacle for the development of organic farming. It is also questionable where and how could they find a market for their products and whether they achieve a premium price that would justify all these additional efforts and costs. Nevertheless, for a certain number of farmers in the region, conversion to organic farming could be an interesting option (e.g. for farmers in Plitvice Lakes National Park which has, with 1 million visitors per year, excellent potential for selling local organic products). All four Dinaric Arc countries already have measures to support the development of organic farming and these should be continued. In the framework of rural development measures, alongside the current per hectare and headage payments, other support to organic farming could be introduced, such as marketing and promotion measures, education, investment in processing and branding, etc.
5. The above proposed support measures will not be enough to encourage farmers to continue traditional land use practices. They need to be motivated, encouraged and informed. Therefore, it is suggested that mobile advisory teams are established to increase the local capacities through training and consultation. These teams can provide support to farmers and rural population in general in the identification of their support needs; developing and marketing of regional products; promoting agri-environment measures; meeting the required standards; developing and submitting applications; implementation of measures, etc. These mobile advisory teams could be established within environmental and other NGOs, regional development agencies, national park administrations or entirely independently. Two to three advisors with complementary expertise (e.g. agronomist, biologist, economist) could form one such team and cover, for instance, one pilot Dinaric Arc area. These teams could be funded either through national budgets and/or from different other sources, such as EU pre-accession funds, bilateral donors, GEF, etc.

## 8. References

Documents:

Case studies on Quality Products Linked to Geographical Origin: Balkans, FAO, 2008

Synthesis of SAPARD ex post evaluations, Evaluation Report Commissioned by European Commission DG Agriculture and Rural Development, Service Contract No. 30-CE-0315318/00-58, 2010

Izveštaj iz oblasti poljoprivrede za Bosnu i Hercegovinu za 2010. godinu, MVTEO BiH  
Regionalvermarktung Unseld: "Branding the Landscape – a Guide", Provincie Noord-Brabant, 2007

Plan upravljanja za Nacionalni park Una, Bosna-S, Sarajevo i Elektroprojekt, Zagreb, April/Travanj 2011.

Websites:

<[http://ec.europa.eu/agriculture/enlargement/assistance/ipard/index\\_en.htm](http://ec.europa.eu/agriculture/enlargement/assistance/ipard/index_en.htm)>

<[http://ec.europa.eu/agriculture/quality/schemes/index\\_en.htm](http://ec.europa.eu/agriculture/quality/schemes/index_en.htm)>

<[http://ec.europa.eu/agriculture/organic/home\\_en](http://ec.europa.eu/agriculture/organic/home_en)>





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