Directions for Developing Sustainable Agriculture in Serbian Municipalities of West Stara Planina

December 2006
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December 2006
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Two-thirds of the total land area in Serbia is used for agriculture, while more than one-tenth of the country’s population derives its subsistence from agricultural activities. Agriculture is one of the most important sectors of Serbia’s economy and offers significant potential for further development. The country’s natural agricultural conditions are generally favourable: the growing season is over 200 days long on two-thirds of agricultural land, while both soil quality and precipitation are sufficient. There are, however, significant impediments to development and competitiveness in Serbia’s agricultural sector, such as small farm sizes, an aging agricultural workforce, inadequate machinery, and a lack of market access. The unbalanced development that has occurred in the sector over the past few decades has resulted in significant social and environmental problems. Increased production creates environmental pressures in areas that are particularly appropriate for intensification, while mountainous and hilly terrain suitable for more extensive forms of agriculture suffer from abandonment. Agricultural incomes are very low and the availability of jobs and services in rural areas is deficient. These factors make agriculture — and rural life in general — unattractive, especially to young people, and this results in intensified migration to urban centres.

West Stara Planina, a mountainous region of approximately 6,000 km² located on the border between Serbia and Bulgaria, typifies what has been described above. Agriculture plays an important role in the local economy, but the region suffers from depopulation and abandonment. More than half of this transboundary region lies in Serbia, covering the administrative boundaries of four municipalities: Dimitrovgrad, Pirot, Zajechar and Knjaževac. Its ecological characteristics are defined by the westernmost section of the Balkan mountain range, which crosses the region from southeast to northwest. Due to its rich, agriculture-dependent biodiversity, a significant part of the region (1,422.2 km²) is officially protected as a nature park.

Since September 2001, West Stara Planina has been one of the three cross-border regions targeted in the Regional Environmental Center for Central and Eastern Europe (REC) project Transboundary Cooperation through the Management of Shared Natural Resources. The project is being implemented within the Regional Environmental Reconstruction Programme for South Eastern Europe (REReP) with financial support from the Swiss Agency for Development and Cooperation (SDC). The project operates in three transboundary regions rich in natural assets and facing particular developmental challenges: the Neretva Delta, Skadar/Shkodra Lake, and West Stara Planina. The main project objectives in West Stara Planina are: 1) to support and implement activities leading to effective cross-border management of natural resources; and 2) to enable local participants to improve living standards through the support and promotion of environment-friendly tourism, agriculture and traditional crafts. The publication of this book was made possible by the Ministry of Environment, Land and Sea of Italy.

A transboundary working group on environment-friendly agriculture has been established as part of the project, with group members having received training in organic farming. Study visits to organic farms in Serbia and Austria have been organised, and there has been a workshop regarding the preservation of agro-biodiversity and the branding of agricultural products. The transboundary project has provided support for concrete local initiatives, including the holding of a regional fair on Balkan agro-biodiversity and rural heritage. In addition, the Association for the Development of the Stara Planina Region has been established with the objective of boosting cooperation between municipal officials, NGOs and farmers’ associations.

The following strategic document has been prepared through an extensive process of data gathering and project-participant events. The study identifies possible directions for the development of sustainable agriculture in Serbian municipalities located in the West Stara Planina. It involves local authorities, farmers’ associations, extension services, environmental groups, NGOs and other (national and international) rural development bodies. The study is intended to provide a foundation for developing specific rural development action programmes and projects and to serve as a basis for improving existing municipal development strategies. The study also seeks to promote specific values related to local agriculture and to increase awareness regarding the interaction between agriculture and the environment.
Agriculture in West Stara Planina

The four Serbian municipalities in West Stara Planina are located along the southeastern border of the country, within the districts of Zajechar and Pirot. The municipalities cover nearly 5 percent of Serbia’s national territory (3,985 km²), while more than half the land in this region (comprising 243 communities and a population of 174,000) is used for agriculture. Recent trends show accelerated decline and an aging population in the region, which generates 1.6 percent of national GDP and employs 2.3 percent of the country’s active population. The region’s per capita income and GDP remain at about 60 percent of the national average.

The West Stara Planina region is divided into two main agro-ecological zones. The majority of the region’s surface area is located within the Balkan-Carpathian climatic zone stretching from the Djerdap Gorge on the Danube to the greatest heights of Stara Planina. The region’s key characteristics are relatively heavy precipitation (800-1,000 millimetres annually) and a thick and long-lasting snow cover. The extreme southern section of Stara Planina belongs to the Vlasina climatic zone, which features less precipitation, longer and more severe winters, and cooler summers. Soil quality in West Stara Planina is significantly lower than in other parts of the country. Richer alluvial soils predominate along larger rivers, while at higher elevations the soil cover (usually resting on red sandstone) is thinner and has a lower nutrient content. The region has a relatively dense river network, the main waterways of which are the Nishava, Timok and the Jerma.

Permanent grasslands used as either pastures or meadows cover more than half the land farmed in the region. The majority of remaining agricultural land is used for the production of cereals, fodder crops, industrial crops and vegetables, while vineyards and orchards cover a much smaller area. More intensive forms of production predominate in the vicinity of Zajechar, while meadows and pastures constitute the highest proportion of the territory located in Dimitrovgrad. Almost 73 percent of agricultural land is privately owned.

Part-time subsistence and semi-subsistence farming with limited access to markets is widespread in the region. The sector nonetheless plays a significant role in the local economy. In 2004 local agricultural activities generated nearly 3 percent of Serbia’s agricultural income, while the contribution of agriculture in these four municipalities to Serbia’s national income is nearly double the national average. A significant proportion of the local population is engaged in some form of farming, while more than 90 percent of those registered as actively engaged in agriculture are individual farmers. Salaries and wages are generally below the national average.

The region’s main assets in the development of sustainable agriculture are its expansive grasslands, its dense network of surface waters, and traditional local products such as hard yellow cheese, lamb and Pirot carpets, all of which offer high value-added market opportunities. There are, at the same time, natural impediments and other obstacles to the development and long-term sustainability of the region’s agricultural sector, such as poor soil, a harsh mountain climate, weak rural infrastructure, negative socioeconomic trends, lack of access to credit and other forms of support, and lack of information.

Directions for sustainable agriculture in West Stara Planina

Agriculture in West Stara Planina plays an integral role in the environment, with both positive and negative consequences. Most of the environmental pressures related to agriculture stem from the sector’s recent decline — abandonment due to decreasing livestock and a loss of interest among farmers in maintaining agricultural activities each playing a role. Due to the continued predominance of traditionally extensive forms of mixed farming in the region, the type of environmental stress associated with intensive production is less prevalent.

The most significant negative environmental impacts of agricultural activities in the region are: 1) loss of biodiversity stemming from the abandonment of permanent pastures and meadows; 2) loss of agrobiodiversity in traditional local breeds and plant varieties due to the introduction of more intensive, exotic breeds and the abandonment of traditional forms of farming; and 3) soil erosion due to overgrazing in pastures at lower elevations and near settlements. Among the specific positive environmental impacts of agricultural activities in the region are: 1) conservation of semi-natural grassland habitats; 2) provision of habitat for wildlife, including threatened or rare species; and 3) preservation of traditional domestic breeds and agro-biodiversity.

One must consider several specific inhibiting factors when examining the socioeconomic aspects of sustainability in the municipalities of West Stara Planina. There is increasing poverty among the rural population, and the incomes of those working in the agricultural sector remain extremely low; meanwhile there is an absence of efficient policy initiatives aimed at resolving these problems. Recent market changes have left local producers without access to former export markets, while the structure of agricultural production — based on part-time, subsistence and semi-subsistence farming — is highly uncompetitive. There is a lack of investment in agricultural production. Such a situation also inhibits the interest of new farmers and their willingness to undertake farming activities, either traditional or new crops and vegetables, while new initiatives in the food industry call for new inputs.
that would serve to encourage a return to farming in these rural areas. Extension services are weak and innovation in rural development is deficient, and both of these factors need to be addressed to rectify ill-conceived policies of the past that were intended to modernise and develop the sector.

Sustainable agriculture in West Stara Planina should be capable of providing present and future generations with a satisfactory standard of living and opportunities for personal, social and economic advancement. At the same time, agriculture in the region should preserve existing human-dependent natural resources and ensure that interactions between society and the environment promote long-term coexistence.

However, as explained above, current agro-ecological conditions in the region do not allow for the evolution of types of more intensive farming that can be productive enough to sustain households and agricultural businesses. Development efforts should therefore focus on promoting the evolution of traditional mixed-type farming in ways that are suited to meet the specific requirements of today’s competitive markets. At the same time, the unique natural assets of species-rich mountain grasslands should be preserved.

It has become clear that any potential solutions require the maintenance of extensive livestock production in an economically sustainable manner. Possible development strategies could include those which ensure that specific regional resources (products, traditions, culture and nature) can find a consumer market. Organic and other forms of certified “eco-production” with a supporting mix of alternative income sources, like tourism or forestry, also represent a feasible foundation for development. Available resources provide a sufficient basis for such development, with several regional products and other assets that could be used to successfully “brand” the region. However, some concrete problems related to production and its broader context must be addressed before any such development strategy can be implemented. Major improvements are needed in terms of quality and safety of processing, while local producers will need to become much more involved in the entire production chain — from the extraction of raw material to putting the final product on the market.

The pressing social problems of depopulation and poor infrastructure in settled areas need to be resolved as well. A solution to such problems might include complex programmes for farmers involving financial support for micro-investment, a detailed assessment of capacities and available natural resources, and research on indigenous know-how, breeds, and traditional farming models.
The Republic of Serbia covers an area of 88,361 km² and is situated in the Danube River Basin at the centre of the Balkan Peninsula. Serbia’s neighbours are Hungary to the north, Croatia, Bosnia and Herzegovina and Montenegro to the west, the former Yugoslav Republic of Macedonia to the south, and Bulgaria and Romania to the east.

The country is divided into three main regions: the Vojvodina Plains in the north covering an area of 21,506 km², the central flatland-hill-mountain region extending over an area of 55,968 km², and the hill-mountain-valley region of Kosovo (territory under interim UN administration) and Metohija in the southwest spread over an area of 10,887 km². These three macro-regions constitute distinct administrative units — Vojvodina Province, Central Serbia, and Kosovo.

The country, not including Kosovo, has nearly 7.5 million inhabitants and more than 6,000 settlements. Forty-four percent of Serbia’s population lives in rural areas. The region comprising Kosovo and Metohija is the most densely populated, with 180 inhabitants/km², followed by Central Serbia (104 inhabitants/km²) and Vojvodina with (93 inhabitants/km²).

Agriculture is one of Serbia’s most important economic sectors, and it harbours significant development potential. Two-thirds of the country’s total area is used for farming, and this land provides subsistence for more than 10 percent of the country’s population. Approximately two-thirds of Serbia’s rural population is involved in farming, while agricultural cooperatives and enterprises engage 4.4 percent of the national workforce. In 2004 the agricultural sector generated more than 17 percent of total national income.

Serbia’s natural conditions are generally favourable for agriculture. The growing season is more than 200 days long on two-thirds of all agricultural land, and the country’s soil — though predominantly acidic — and precipitation are not significant impediments. As a result, more intensive forms of production are worked on more than half of Serbia’s total agricultural area. Cereals, particularly wheat and corn, are grown on more than 60 percent of arable fields, which corresponds to more than one-third of the country’s total agricultural land. Fodder crops, industrial crops (e.g. sugar beets) and vegetables cover the remaining arable land in nearly equal proportion. Grasslands consisting of meadows and pastures represent the second most significant land-use form, covering more than one-quarter of farmed land. These meadows and pastures are either primary grasslands found in the lowlands of Vojvodina and on marshy terrain and in the mountainous areas above the tree line, or in secondary grasslands that once were forests. The majority of grasslands belong to the latter category, which is especially important for cattle and sheep breeding (see Chart 1).

Private farmers own almost 80 percent of Serbia’s farmed land area, while agricultural cooperatives and enterprises cultivate the remainder. Cooperatives and agricultural companies manage more than half of all pastures and 80 percent of fishponds and marshes, while private ownership predominates in terms of other land-use forms.

While agricultural conditions in Serbia are quite favourable, there are other factors that represent serious obstacles to sector development. Small average
farm size (three hectares), an aging agricultural population, lack of adequate machinery, and market inaccessibility for farmers are the most significant impediments to agricultural competitiveness. Also, the general level of technical know-how among farmers is low (especially with regard to new methods of production and product marketing), primary buyers of agricultural products exercise a market monopoly, extension services are weak, and a lack of communication and interaction among farmers inhibits the formation of producer groups. Exacerbating these problems are a lack of clear direction for development, insufficient financial and human resources at both the national and local government levels, and the absence of political commitment to make necessary structural changes.

Unbalanced sector development creates significant social and environmental problems. Intensification poses environmental pressures in such areas as the Vojvodina Plains and other lowlands that are particularly suited for intensive production, while mountainous and hilly areas appropriate for more extensive forms of agriculture suffer from abandonment. Incomes of those engaged in agriculture are nearly one-quarter lower than the national average, which makes the sector unattractive career-wise — especially to young people. In general, the level of development and availability of jobs and services remain significantly lower in rural areas than elsewhere, resulting in the migration of rural inhabitants to urban centres and an aging of the rural population. Seventy-five percent of villages suffer population decline, with the most severe declines occurring in remote hill and mountain regions.

About the project

Agriculture has been one of the central topics of Transboundary Cooperation through the Management of Shared Natural Resources, a project implemented between July 2000 and February 2007 by the Regional Environmental Center for Central and Eastern Europe (REC), with financial support from the Swiss Agency.
for Development and Cooperation (SDC). The project is among the first interventions to have been carried out in the framework of the Regional Environmental Reconstruction Programme for South Eastern Europe (REReP).

The project was carried out over three cross-border regions in SEE: the Neretva Delta (between Bosnia and Herzegovina and Croatia), Skadar/Shkodra Lake (between Montenegro and Albania), and West Stara Planina (between Serbia and Bulgaria). The project applied an overall methodology and common set of principles, but was also adapted to specific local needs and circumstances.

In West Stara Planina the project involved seven municipalities from Bulgaria and four from Serbia. On the Serbian side, the project area covered almost 4,000 km², which includes the administrative territory of the municipalities of Zajechar, Knjazevac, Pirot and Dimitrovgrad.

The project addressed the topics of sustainable tourism, environment-friendly agriculture, and nature conservation. The project sought to build stakeholder capacities where these issues are concerned, and to provide a wide range of opportunities for transboundary exchanges among local communities.

The West Stara Planina project also managed to establish a strong basis for continued transboundary cooperation and sustainable development of local communities. Following the signing of a letter of intent by the municipalities involved, a process for establishing the Euroregion Stara Planina was put in place to serve as an institutional foundation for transboundary cooperation and the promotion of sustainable regional development.

Much capacity building activity has taken place, and regular cross-border promotion events have been organised (e.g. annual summer festivals and summer camps) through which specific regional values have been promoted and communities on both sides of the border have been brought together. Following a joint analysis of water resources, forests, biodiversity and recent socio-economic trends, the project supported several pilot initiatives and activities. To mention but a few: the 150-kilometre West Balkan tourist trail and a network of tourist information centres have been developed; local environmental action plans (LEAPs) have been prepared for four Serbian municipalities; farmers’ associations and agricultural demonstration centres have been established; and documentation for the designation of a nature park on the Bulgarian side of the mountain has been completed.

The project helped local stakeholders to identify common priorities and to build a joint vision for future community development.

Pursuant to their specific interests, stakeholders from the Serbian side of West Stara Planina took the lead concerning activities on environment-friendly agriculture. The most important activities carried out in this field include the following:

- establishing a transboundary working group of stakeholders to focus on environment-friendly agriculture;
- delivering training on organic farming for members of the working group and other stakeholders;
- organising study visits of local stakeholders to organic farms in Serbia;
- organising a study tour for farmers, extension services and agricultural students to Austrian organic farms;
- holding workshops on agro-biodiversity conservation and the branding of agricultural products;
- promoting specific regional values;
- supporting the designation of nature parks.

**BOX 1**

The overall goal is to encourage cooperation between South Eastern European countries through the management of shared natural resources.

**Project objectives:**
1. Promote cooperation in the management and protection of key transboundary areas in South Eastern Europe that are of high nature conservation interest and offer significant potential for transboundary social interaction.
2. Promote local organisations and cross-border exchanges between local organisations and people in the interest of managing shared natural resources.
3. Promote technical networks at a regional level with a view to supporting the effective management of selected transboundary sites, as well as the integration of these networks in relevant national and international-level processes.

**Specific objectives (for West Stara Planina):**

- Support and implement activities leading to effective cross-border management of natural resources.
- Empower local stakeholders to improve their well-being through support and promotion of environment-friendly tourism, agriculture, and traditional crafts.
**INTRODUCTION**

- supporting concrete local initiatives: i.e. the establishment of the Centre for Sustainable Rural Development of the Knjazevac area, setting up an interactive demonstration farm in Dimitrovgrad, supporting the work of the NGO Agroprojekt Timok in promoting organic farming in Zajechar, and founding the Stara Planina Association of Farmers in Pirot;
- organising the regional fair on Balkan agro-biodiversity and rural heritage (every year since 2003);
- preparing concrete project proposals and supporting local stakeholders in project development efforts;
- establishing the Association for the Development of the Stara Planina Region, uniting several municipality officials, NGOs and farmers’ associations; and
- supporting the identification of directions for the development of sustainable agriculture in Stara Planina through the assessment of local conditions and the development of a strategic document.

**This document**

This paper was prepared with support from the Swiss Agency for Development and Cooperation and its publishing was made possible by the Ministry of Environment, Land and Sea of Italy.

The paper corresponds to the last point in the aforementioned list of activities carried out within the project. It intends to summarise the efforts of local stakeholders and the project team into a strategic document that identifies directions for the development of sustainable agriculture in the West Stara Planina region. It focuses on the Serbian side of the region (i.e. the territory of the municipalities of Dimitrovgrad, Pirot, Knjazevac and Zajechar) while allowing for possibilities to transfer the experience of Serbian stakeholders to the other side.

The process that led to elaboration of the present document was launched at the beginning of 2004, following the establishment of a transboundary working group on environment-friendly agriculture composed of representatives from local municipalities of the region. An extensive data-gathering process was launched in the second half of the same year. Detailed questionnaires were distributed among local municipalities and other relevant parties to collect information concerning demographics, socio-economic conditions, and key features of agriculture in rural settlements of the region. Surveying was concluded in November 2004, followed by presentation of the results to a wide range of stakeholders, such as municipality representatives, farmers’ associations, extension services, environmental NGOs, and local governments from several settlements.

The information collected was then discussed and verified with key stakeholders, who in turn were directly engaged in preparing an analysis of strengths, weaknesses, opportunities and threats (SWOT) of the sector and formulated a vision for local agriculture and rural development.

This document is a follow-up to the aforementioned process, and it has been prepared to further support the efforts of local actors. The draft version was discussed with local actors, and their comments have been incorporated in this final version.

Applying an open process that seeks to incorporate the views of stakeholders as much as possible is believed to be a basic precondition for future application of this document. Once adopted by local actors it could become an important basis for developing specific rural development action plans and projects, and for improving existing municipal development strategies. In more general terms, this paper seeks to promote specific values related to local agriculture, as well as to increase the awareness of farmers and the general public concerning the relationship between agriculture and environment. The latter is especially important in terms of a growing number of EU requirements.

The target groups of this document are representatives of local authorities responsible for developing local development plans, farmers’ associations, extension services, environmental groups and NGOs, and other actors involved in rural development in the

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**BOX 2**

**Joint vision of local stakeholders**

“Our common vision for the development of West Stara Planina involves economic and social revival, attracting and retaining young people, economic prosperity based on transboundary development of environment-friendly tourism and agriculture, and the preservation of nature and culture.”

- From the Letter of Intent for Transboundary Cooperation of the Municipalities of Dimitrovgrad, Pirot, Zajechar, Knjazevac, Belogradchik, Berkovitsa, Chiprovtsi and Chuprene, signed on July 8, 2005 in Knjazevac, Serbia.
region. At the national level, policy makers involved in rural development may utilise the options presented in the document when pursuing objectives similar to those identified throughout the work. At the same time, international organisations involved in regional development projects can turn to this document as a source of current and locally verified information.

Although this paper focuses only on municipalities located on the Serbian side of West Stara Planina, it represents the ownership of the aforementioned transboundary working group on environment-friendly agriculture. It serves as a model for similar initiatives on the Bulgarian side, and in future it is expected to become an important basis for transboundary actions in the field of sustainable agriculture.

Contents of the document are divided into three main parts. The first part examines some key aspects of sustainable agriculture in a general context. The second part gives an overview of the present situation and important trends concerning agriculture in the four Serbian municipalities of the West Stara Planina region. The third part looks at environmental, social and economic aspects of sustainability in a local context. It identifies the main environmental impacts and services of agriculture, key economic challenges and cultural assets, as well as specific opportunities and possible directions for development.
The Concept of Sustainable Agriculture

Basic principles

Since the United Nations made its Rio Declaration in 1992, sustainable development has become a globally accepted approach toward addressing the negative environmental impacts of human activities and to ensure successful coexistence of humans and the environment. In 1987 the World Commission on Environment and Development (the Brundtland Commission) defined sustainable development as “meeting the needs of the present without compromising the ability of future generations to meet their own needs” — the achievement of which is a global objective today.

These considerations have particular relevance where agriculture is concerned. Although agriculture accounts for a relatively small share of industrialised economies, the sector remains one of the largest in terms of land use. This creates serious environmental pressures, but can also steer the way toward maintaining the natural resource base (land and biodiversity, for example) and culturally valuable rural landscapes. The agricultural sector's immediate connection with rural development and its complex relationship with the environment are largely reflected in the Sustainable Agriculture and Rural Development (SARD) concept, which perceives agriculture as a multifunctional sector — with not only economic, but also social and environmental outputs. As part of Agenda 21 (see Chapter 14) adopted at the Rio Summit, the SARD concept has been adopted by many countries and organisations.

Sustainable agriculture is also an issue of major concern in the European context, and is receiving greater attention within the EU’s Common Agricultural Policy (CAP). Recent CAP reforms focus more and more on sustainability aspects, and agro-environment has emerged as a key element of EU agricultural policy since 1992. The overall reform process seeks to move away from a purely production-oriented policy in order to implement the structural changes necessary for integrating rural development and environmental aspects.

Some practical aspects of sustainability in agriculture

At a more practical level, farming has several important aspects that determine to a great extent whether or not agriculture can be sustainable over the long term. These include:

- sustainability and rationality of land use according to specific local production conditions;
- clear and respected rights and responsibilities of farmers concerning sound land management (good farming practice);
- remuneration to the agricultural sector for providing social and environmental services that cannot be sold as market products; and
- properly functioning markets delivering sufficient income to farmers, and a production portfolio adjusted to specific market needs.

BOX 3

The FAO Council defines sustainable agriculture and rural development (SARD) as:

“...management and conservation of the natural resource base, and the orientation of technological and institutional change in such a manner as to ensure the attainment and continued satisfaction of human needs for present and future generations. Such sustainable development (in the agriculture, forestry and fisheries sectors) conserves land, water, plant and animal genetic resources, is environmentally non-degrading, technically appropriate, economically viable and socially acceptable.” (FAO 1989)
Most of these will first appear at the policy level. However, when implemented in a concrete, local context, they become important factors in achieving agricultural sustainability at the local level, and in determining which directions should be taken to achieve it.

Land use in agriculture is rational when a method and intensity of production is in perfect accordance with specific growing conditions, both in terms of production potential and environmental sensitivity. Applying such an approach should result in the avoidance of both over-exploitation and under-exploitation. One of the basic preconditions for agricultural sustainability is the application of a land use system that establishes an appropriate level of production intensity, while getting maximum efficiency out of the most suitable farming equipment. Agricultural policy should identify these differences in farming equipment. Agricultural policy should define those minimum environmental requirements which farmers need to respect when running their farms.

Beyond a rational land use system, farmers as land managers making everyday decisions concerning production will define not only the type and quality of their products, but also the sustainability of land resources. It is important that clear principles and parameters be defined in this respect, and these parameters (often included in the code of Good Farming Practice) also define those minimum environmental requirements which farmers need to respect when running their farms.

Very often, however, farmers will need to deliver more than products grown in season. Agriculture contributes to society in many other ways, such as maintaining agriculture-dependent biodiversity, protecting land resources, and maintaining traditional countryside and agricultural landscapes. In most cases, consumers do not pay for such services. In fact, most such services are performed at a loss to the farmer, or at least require additional investment. One of the main objectives of current agricultural and rural development policies is to find appropriate solutions to ensure that farmers are compensated for providing such services to society. Support mechanisms that serve such purposes will play an important role in maintaining the countryside and ensuring the sustainability of traditional rural lifestyles.

On the other hand, consumers are becoming more interested in environment-friendly agricultural products and specific rural services. This has created new market niches and will likely provide new opportunities for farmers to diversify activity and develop new sources of income. However, to utilise such opportunities still requires great effort from farmers and substantial government support.

### National policy context for agriculture and rural development

The recently launched national strategy on agriculture, prepared under the guidance and supervision of the Ministry of Agriculture, Forestry and Water Management, is an important step toward sector revitalisation and providing a basis for long-term sustainability. The strategy is recognised and highly valued by all relevant international players, and has also received the necessary support for national-level implementation. In many respects, it has opened a new chapter in the history of Serbian agriculture, and should help to overcome the uncertainties of the past several years.

Sector transformation is foreseen to encompass three main elements: 1) completing the transition from a centralised, planned economy to one that is fully market-based; 2) achieving accession to the European Union; and 3) radically restructuring and modernising the entire agricultural sector.

The strategy is based on a very realistic assessment of what the country can and cannot expect from its agriculture over the coming years and decades. It is predicted that Serbian agriculture:

- can generate much more wealth than it does now, and therefore make a significant contribution to recovery and growth of the overall economy;
- can produce safe and high-quality food that is attractive to consumers both in Serbia and abroad;
- can protect and improve the natural environment, which will please Serbian citizens and help toward developing a profitable tourism industry;
- can make changes necessary to allow Serbia to join the EU and the WTO, and to benefit from both moves;
- can provide a short-term buffer to help ease the effects of painful restructuring; but
- cannot continue to employ the number of people it does now, nor generate acceptable living standards through the currently dominant structure of small, mixed farms.

The new strategy defines completely new roles for players. To start with, the government will no longer stand in for markets by purchasing agricultural products at artificial prices. It will support instead the development of a corrected market environment, and will provide support mechanisms to increase producer competitiveness in order to reach potential markets. Future support will differ between subsistence farmers and those producing for markets; for the latter, credit lines, grants and — for a limited period — some subsidies will be provided.
Such a shift in the role of government means that producers will have to rationalise production and boost product competitiveness. Primarily, this means that producers must:

- find ways to produce efficiently (introducing modern technologies or improving existing ones, purchasing new equipment, standardising production and product quality, introducing food-safety standards);
- cease forms of production that are proven to be inefficient in given circumstances (intensive corn production at higher altitudes, intensive dairy farming and other forms of indoor livestock production);
- diversify production (introducing the production of medicinal plants, rare wild fruits, wild animals or fish);
- diversify sources of income (by introducing different forms of processing and increasing the added value of products, developing agro-tourism and rural tourism); and
- improve product marketing (through developing marketing strategies, local markets and brands, targeting niche markets, adopting certification systems).

Achieving all these objectives and receiving ministry support will require viable local initiatives to replace the former top-down approach. Only communities taking a proactive approach will be able to benefit from government support (legal, financial and knowledge-based), which will ensure that limited funds will be spent where chances for success are most guaranteed.

In recognising the fundamental importance of agriculture in the rural economy, rural development (a key component of the concept of Sustainable Agriculture and Rural Development) became one of the main pillars of the new strategy. In 2004, for the first time in its history, the Ministry of Agriculture, Forestry and Water Management allocated a budget line explicitly targeting rural development measures (e.g. diversification of agriculture and rural economy, increased efficiency of farming, and added value through local processing).

Although the strategy is environmentally sensitive in general, matching production with specific environmental concerns is not greatly emphasised. The existing Law on Environmental Protection and Spatial Planning offers some opportunities and specific control mechanisms, but these aspects are not yet fully covered — especially not at the local level.

This gap leaves a special niche for locally driven actions, which are very much needed to ensure that valuable natural resources are not destroyed. According to the new Law on Local Self Governance, local authorities have the right and obligation to plan local development and provide, together with government, appropriate incentives and enforcement mechanisms. Local governments also have the right to influence spatial planning, and through that to ensure coordination in taking various decisions, in planning strategies, programmes and activities, and in integrating environmental concerns into local development processes.
The predominantly mountainous transboundary region of West Stara Planina, located along the border between Bulgaria and Serbia, covers an area of more than 6,000 km². An area of 3,985 km² lies in Serbia, while 2,099 km² lies in Bulgaria. The project area is located within the administrative boundaries of eight municipalities: Dimitrovgrad, Pirot, Zajechar, and Knjazevac in Serbia, and Belogradchik, Berkovitza, Chiprovtsi, and Chuprene in Bulgaria. The area has a total population of more than 200,000.

Ecological characteristics of the area are very much defined by the westernmost section of the Balkan mountain range, Stara Planina, which crosses the region from southeast to northwest. West Stara Planina represents a much dissected section of the Balkan Mountains, with many peaks and valleys, with a high altitude of 2,169 metres (Midjur) and a low altitude of 347 metres on the Serbian side. Average elevation within the project area is about 600 metres, and the greatest extent of the national border runs along its main crest. The project area is located within the temperate continental climatic zone, although local climate is greatly influenced by local geographic conditions, altitude being the most important factor.

Due to its rich biodiversity, significant parts of the region are officially protected nature conservation zones. On the Serbian side, the Stara Planina Nature Park was established in 1997 on a territory of 1,422 km². The new Land Use Plan for the Tourist Region and Nature Park of the Stara Planina Mountain recommends a decrease of the park territory to 1,143 km², and designates three management/protection zones. According to the plan, 3.65 percent (41.6 km²) of park territory would be dedicated specifically to nature conservation, allowing a strict protection regime tolerating zero or greatly limited human disturbance. The second zone, allowing some human activity, but with important limitations, would cover 17.2 percent of the area (196.8 km²), while recreation and agriculture would be allowed in the remaining 79.15 percent (904.9 km²).

The land use plan serves as basic tool for further planning within the protected area and its immediate surroundings. The plan covers an area of 154,190 hectares, including the newly proposed park territory of 114,300 hectares and a neighbouring area of 38,390 hectares located within the administrative boundaries of the Knjazevac and Pirot municipalities.

The territory covered by the land use plan is of great importance, but not only from a nature conservation perspective. It includes several settlements and important grazing and grassland areas that create excellent conditions for combining agriculture, tourism development and nature conservation.

In the following sections, the focus is only on the Serbian parts of the transboundary region of West Stara Planina. Data and analysis will be provided for the administrative territory of the four municipalities (Dimitrovgrad, Pirot, Zajechar, and Knjazevac). Wherever available data allows, the focus is on conditions within the nature park and its surroundings (i.e. the land use plan area).
General information

The four Serbian municipalities of West Stara Planina are located along the southeastern border of the country, within the districts of Zajechar and Pirot. They extend over an area of 3,985 km², covering 4.5 percent of the national territory. More than half of the land (59.8 percent) is used for agriculture (close to the national average), while 34.4 percent is covered with forest.

The region has a total population of about 174,000, corresponding to some 2.3 percent of the total national population. These people live in some 243 settlements, most of which are villages. The population density of the area is about 42 people per km², which is less than half the national average. The aging of the population — especially in more remote rural settlements — is generally more advanced than elsewhere in the country. The share of inhabitants over the age of 65 years is higher, while the number of those aged 14 years and younger is significantly lower than the national average. Recent population trends in the region also show significantly faster depopulation. Since 1991 Serbia’s total population has dropped by 1.7 percent, while in municipalities of Stara Planina the decrease exceeded 10 percent between 1991 and 2004 (see Chart 2).

More than one-third of all settlements (78) are located within the park or its immediate surroundings, and thus fall under the nature park land use plan and the Stara Planina tourist region. Three of them are now abandoned, and most of them are small (100 or fewer inhabitants). The land use plan area covers 38.7 percent of the municipalities’ administrative territory. More than half (54 percent) of this is farmed, while almost 40 percent is covered by forests.

The Stara Planina region generates 1.6 percent of Serbia’s GDP and employs 2.3 percent of the total active population. At the same time, GDP and national income per capita remains far below the national average of near 60 percent, and unemployment is slightly higher (145.5/1,000 inhabitants). It is striking that average salaries and wages in the region are less than two-thirds of the national average.

<table>
<thead>
<tr>
<th>Area (km²)</th>
<th>Zajechar</th>
<th>Knjazevac</th>
<th>Dimitrovgrad</th>
<th>Pirot</th>
<th>All four municipalities</th>
<th>Serbia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zinc (km²)</td>
<td>1,068</td>
<td>1,202</td>
<td>483</td>
<td>1,232</td>
<td>3,985</td>
<td>88,361</td>
</tr>
<tr>
<td>Number of settlements</td>
<td>42</td>
<td>86</td>
<td>43</td>
<td>72</td>
<td>243</td>
<td>6,164</td>
</tr>
<tr>
<td>Number of inhabitants</td>
<td>64,809</td>
<td>35,744</td>
<td>11,355</td>
<td>62,733</td>
<td>174,643</td>
<td>7,463,157</td>
</tr>
<tr>
<td>Population density (inh/km²)</td>
<td>61</td>
<td>30</td>
<td>24</td>
<td>51</td>
<td>42</td>
<td>111</td>
</tr>
<tr>
<td>Agricultural land (%)</td>
<td>63.7</td>
<td>58.4</td>
<td>60.4</td>
<td>56.7</td>
<td>59.8</td>
<td>66</td>
</tr>
<tr>
<td>Forests (%)</td>
<td>29.8</td>
<td>40.1</td>
<td>31.3</td>
<td>33.9</td>
<td>34.4</td>
<td>24.3</td>
</tr>
<tr>
<td>Unemployed/1,000 inh.</td>
<td>124</td>
<td>132</td>
<td>179</td>
<td>147</td>
<td>146</td>
<td>130</td>
</tr>
<tr>
<td>GDP/capita (dinars)</td>
<td>89,206</td>
<td>71,713</td>
<td>69,591</td>
<td>119,937</td>
<td>87,612</td>
<td>137,934</td>
</tr>
</tbody>
</table>
In municipalities of the region the overall level of education is lower than in the country as a whole. While the share of people without education is lower and of those with primary education is somewhat higher than the national average, the share of people with education higher than the primary level remains consistently lower (see Chart 3).

**A short history of agriculture in West Stara Planina**

West Stara Planina is characterised by its closely interwoven Bulgarian and Serbian rural culture. Balkan nomadic tribes often crossed this harsh, mountainous region, brought their knowledge and habits, and established communities in the region that eventually became more similar to each other than to those of their original homelands.

The region grew prosperous and famous for its good pastures, sheep products (cheese, meat and wool carpets) and pottery. Inhabitants depended on an intensive trade network that brought their products to the Republic of Dubrovnik on the Dalmatian coast, and even to such distant lands as Egypt and North America. The region’s perfectly organised system of primary production, processing and trading, traditions and rich experience in organising cooperatives provided welfare to the rural population for centuries.

Eventually, however, the “Balkan powder-keg” exploded, which had an inevitable influence in the highlands of West Stara Planina. Communism after World War II brought the most difficult period. The population formerly engaged in agriculture — a sector primarily based on private property — strongly discouraged traditional activities and lifestyles. Local communities were squeezed out from rural environments, and many moved to newly established industrial centres. Properly functioning traditional forms of production organisation were replaced by communist-model collectives, and at a later stage, by large state-owned industrialised farms that turned peasants into industrial workers. Also, these models were imported from different natural and social environments and did not apply to the region. Smallholders and private farmers had no chance of survival on centralised markets, and this resulted in gradual abandonment of the region. The process accelerated when heavily subsidised large-scale state farms collapsed, leaving the remaining rural population with few options.

Local industry collapsed at the beginning of this century due to political crises and subsequent economic hardships. Many citizens turned either to part-time farming or the grey economy as the only means of gaining a subsistence income. With a surge of migration to villages for afternoon and weekend farming — often with little output — agriculture re-emerged as an important segment of the local economy.

Although private ownership of land never disappeared completely from West Stara Planina’s villages, much of the most productive land remains abandoned to this day. Rapid depopulation of the region is not only erasing traditional agricultural knowledge, but is also having an impact on ethnic and cultural identity. In former times, rural communities were sustainable managers of local natural resources, but loss of knowledge and interest in leading traditional lifestyles is having an immediate impact on cultural richness and regional biodiversity. For example, the region’s species-rich grasslands that depend on traditional farming are becoming overgrown and degraded.

**Ecological conditions for Farming**

Serbia’s agro-ecological characteristics — especially climate — vary according to geographical position, topography, altitude, exposure, slope direction, atmospheric circulation, precipitation and proximity to the sea. In fact, the country has 22 distinct agro-ecological regions: four in Vojvodina, 12 in Central Serbia, and six in Kosovo (province under UN interim administration).
Most of the West Stara Planina region belongs to the Balkan-Carpathian climatic zone, which stretches between the Djerdap Gorge on the Danube and the main crest of Stara Planina. Annual precipitation of 800-1,000 millimetres (mm) and a thick, long-lasting snow cover are the key regional characteristics. The southernmost parts of Stara Planina — in the vicinities of Pirot and Dimitrovgrad — belong in the periphery of the Vlasina climatic zone, which is characterised by less precipitation, longer and more severe winters, and cooler summers.

Average annual precipitation is very much in accordance with the region’s geographical patterns. In the lower parts, annual rainfall is about 600-650 mm, and only 560 mm near Pirot (370 metres above sea level). This value increases to 700-820 mm between the altitudes of 600-700 metres, 1,100 mm at 1,650-1,750 metres and over 1,200 mm in higher parts. The average number of days with snow-cover is near 60, with extreme highs of 180 days at the highest altitudes.

The region’s annual mean air temperature (see Chart 4) is about 10˚C, with extremes of above 20˚C in July and -2˚C or lower in February. Above 1,700 metres the average temperature varies between -10.1˚C and 10.5˚C, with below-zero temperatures five months out of the year. Above 1,950 metres, the annual mean temperature is just 2˚C, and does not climb above freezing for seven months out of the year.

West Stara Planina has a relatively dense river network, with 21 catchments and six inter-catchments (i.e. 27 hydro-morphological units). All rivers flow indirectly into the Danube River. The density of the river network is between 0.602 km/km² and 1.912 km/km². There is one transboundary sub-basin within the borders of the nature park (that of the Nishava River), which contains three cross-border rivers — the Nishava and Visochitza, which flow from Bulgaria to Serbia, and the Staninska, which flows from Serbia to Bulgaria. Two more rivers flow along the Serbian border, but are located at the regional periphery: the Timok flows through the municipalities of Zajechar and Knjaževac, while the Jerma, flowing from Bulgaria to Serbia, cuts through the region at the southern parts of Pirot and Dimitrovgrad.

Compared to the larger, lowland regions of Vojvodina or central Serbia, soil quality in West Stara Planina is quite poor. Richer alluvial soils dominate along larger rivers like the Nishava or Timok, allowing for the development of semi-intensive arable land farming. At higher elevations, red sandstone-based soils are characteristic. Soil cover in the region is usually thin, more sensitive to erosion, and is relatively low in nutrient content.

CHART 4
Monthly mean temperatures in West Stara Planina

CHART 5
Use of agricultural land in municipalities of West Stara Planina
Land use and ownership conditions

More than half of West Stara Planina’s farmed land is covered by permanent grasslands used either as pastures or meadows. Many of these species-rich grassland areas are located at higher elevations. Most of the arable land is used for the production of cereals, fodder crops, industrial crops and vegetables, while a small portion is allocated for vineyards and orchards (Chart 5).

In comparing land use patterns in Stara Planina with national-level figures, the significantly higher share of pastures, meadows and vineyards is the most striking — the latter two twice as common as in the rest of Serbia. At the same time, the share of arable land is naturally lower.

There are important differences between the region’s four municipalities concerning use of agricultural land. Because the area surrounding Zajechar has the most favourable agro-ecological conditions for more intensive forms of production, its share of arable land is the highest (roughly the national average of 66 percent). At the same time, Dimitrovgrad has the highest proportion of meadows and pastures, which cover more than three-quarters of this area’s agricultural land. Differences in this respect between Knjaževac, Dimitrovgrad and Pirot are relatively small, however, ranging between 8 percent for meadows and 18 percent for pastures.

Knjaževac is where orchards comprise the highest share of agricultural, while grape production covers a greater proportion of land in Pirot and Zajechar. In spite of these trends, grape and wine production has more of a history in Knjaževac, where this tradition is being worked into plans to attract tourism.

Today almost 73 percent of the region’s agricultural land is privately owned and cultivated by individual farmers and family farms. Arable land, orchards and vineyards are usually cultivated in smaller parcels, the majority of which are in private ownership. The situation is somewhat different with meadows and, especially, pastures. Cooperatives and agricultural firms own nearly two-thirds (64 percent) of pastures (see Chart 6).

Main features of production

According to Serbia’s Spatial Plan — which among other things defines planning principles and criteria for conservation and use of natural resources through 2010 — West Stara Planina’s most important courses of agricultural production are livestock breeding and fruit and grape growing. The plan describes significant parts of the region as “mountainous livestock-raising areas,” while other areas are principally identified as “mount-
tain meadow areas.” Most valleys are designated part of a “livestock-raising, fruit and grape-growing macro-region,” while some are earmarked solely for grape production. Intensive agriculture — i.e. crop farming combined with animal husbandry — is restricted to a very small part of the region located along the Timok River, close to Zajecar.

These characteristics happen to be highly reflected in actual production figures. In 2004 the region made significant contributions to the national production of grapes (8.6 percent), beans and fodder crops; the production of cereals (wheat and maize) remained relatively low. Average yields (kg/hectare) of plant products from more intensive arable land farming — such as wheat, maize, sugar beets, sunflowers and potatoes — were and remain far below national averages, while national production averages for grapes and beans were higher. Production averages calculated for meadows and pastures signal that productivity remains below average. Still, the fairly high share in total production (over 6 percent) underscores the importance of local agriculture. (Production figures for some key crops and plant products in 2004 are presented in Table 3 below.)

Livestock numbers of recent years — especially those of sheep, horses and goats — have dropped dramatically nationwide. Between 1995 and 2004 the number of sheep in Serbia fell by nearly 50 percent, and this has had especially adverse effects on traditional sheep-breeding regions like West Stara Planina. Still, according to 2005 livestock figures, sheep breeding remains the region's most important animal husbandry sector, accounting for more than 4 percent of the country's sheep stock.

### Agriculture in the local economy

Although part-time subsistence and semi-subsistence farming with limited access to markets is widespread in West Stara Planina, the sector still plays a significant role in the local economy. In 2004 local agricultural activities in the region brought in almost 3 percent of all national income gained through agriculture. It is even more striking that in the four municipalities of West Stara Planina the contribution of agriculture to national income is almost double that of the national average; the figure is highest in Knjazevac, and lowest in Pirot where local industry is more important (see Chart 7).

A significant proportion of the local population is engaged in some form of farming, although weakness-

### Table 3

**Production of some key crops in municipalities of West Stara Planina**

<table>
<thead>
<tr>
<th>Crop</th>
<th>Amount</th>
<th>Zajecar</th>
<th>Knjazevac</th>
<th>Dimitrovgrad</th>
<th>Pirot</th>
<th>All four municipalities</th>
<th>All of Serbia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheat</td>
<td>Tonnes</td>
<td>30,216</td>
<td>14,797</td>
<td>3,186</td>
<td>16,437</td>
<td>64,636</td>
<td>2,758,017</td>
</tr>
<tr>
<td></td>
<td>kg/ha</td>
<td>3,566</td>
<td>3,318</td>
<td>3,313</td>
<td>3,510</td>
<td>3,427</td>
<td>4,132</td>
</tr>
<tr>
<td>Maize</td>
<td>Tonnes</td>
<td>41,987</td>
<td>18,338</td>
<td>2,157</td>
<td>20,674</td>
<td>83,156</td>
<td>6,569,414</td>
</tr>
<tr>
<td></td>
<td>kg/ha</td>
<td>3,812</td>
<td>3,945</td>
<td>3,210</td>
<td>4,078</td>
<td>3,766</td>
<td>5,347</td>
</tr>
<tr>
<td>Sunflowers</td>
<td>Tonnes</td>
<td>707</td>
<td>2</td>
<td>55</td>
<td>0</td>
<td>764</td>
<td>437,602</td>
</tr>
<tr>
<td></td>
<td>kg/ha</td>
<td>1,799</td>
<td>500</td>
<td>100</td>
<td>0</td>
<td>600</td>
<td>2,319</td>
</tr>
<tr>
<td>Beans</td>
<td>Tonnes</td>
<td>884</td>
<td>581</td>
<td>76</td>
<td>1,128</td>
<td>2,669</td>
<td>59,939</td>
</tr>
<tr>
<td></td>
<td>kg/ha</td>
<td>650</td>
<td>1,313</td>
<td>1,833</td>
<td>1,057</td>
<td>1,213</td>
<td>1,163</td>
</tr>
<tr>
<td>Potatoes</td>
<td>Tonnes</td>
<td>8,525</td>
<td>3,767</td>
<td>1,499</td>
<td>7,614</td>
<td>21,405</td>
<td>990,782</td>
</tr>
<tr>
<td></td>
<td>kg/ha</td>
<td>7,940</td>
<td>4,523</td>
<td>7,732</td>
<td>8,187</td>
<td>7,096</td>
<td>10,950</td>
</tr>
<tr>
<td>Forage — Meadows</td>
<td>Tonnes</td>
<td>14,100</td>
<td>20,289</td>
<td>17,369</td>
<td>36,373</td>
<td>88,131</td>
<td>1,309,738</td>
</tr>
<tr>
<td></td>
<td>kg/ha</td>
<td>1,403</td>
<td>1,368</td>
<td>2,155</td>
<td>2,466</td>
<td>1,848</td>
<td>2,100</td>
</tr>
<tr>
<td>Forage — Pastures</td>
<td>Tonnes</td>
<td>6,483</td>
<td>4,206</td>
<td>4,512</td>
<td>12,203</td>
<td>27,404</td>
<td>452,711</td>
</tr>
<tr>
<td></td>
<td>kg/ha</td>
<td>699</td>
<td>215</td>
<td>314</td>
<td>379</td>
<td>402</td>
<td>562</td>
</tr>
<tr>
<td>Grapes</td>
<td>Tonnes</td>
<td>17,341</td>
<td>6,818</td>
<td>88</td>
<td>12,214</td>
<td>36,461</td>
<td>424,511</td>
</tr>
<tr>
<td></td>
<td>kg/plant</td>
<td>1.0</td>
<td>1.1</td>
<td>0.8</td>
<td>1.0</td>
<td>1</td>
<td>1.2</td>
</tr>
</tbody>
</table>
es in the farm registration system prevent this from showing up in national statistics. It is, however, a notable characteristic that more than 90 percent of those registered as actively engaged in agriculture are individual farmers. At the same time, only about 3 percent of all agricultural employees are officially employed, which reflects a relatively small share of companies and other business organisations.

Low income from agricultural activities and generally poor living conditions in rural areas are some of the main reasons that few in Serbia are pursuing farming careers. The case is even more pronounced in the municipalities of West Stara Planina, where regional salaries in the agricultural sector are as low as half the national average.

### Advantages and disadvantages of developing agriculture in West Stara Planina

#### Advantages

When one considers future opportunities for developing sustainable agriculture, West Stara Planina’s primary regional advantage is that its existing agro-ecological conditions and available agricultural resources lend themselves well to reintroducing traditional forms of extensive livestock production. Also, the local availability of traditional products can create opportunities for producing marketable, high value-added products.

Surface-water resources (streams, springs, rivers) are quite evenly distributed in the region, and are sufficiently clean to support livestock production. It is, however, a difficult task to ensure the availability of a sufficient number of water extraction and drinking places in highland pastures used for grazing. In order to ensure that available forage materials are properly utilised, the water quality of streams and river valleys should also be maintained. Due to the region’s low population density and low-intensity economic activity, even generally extensive agriculture is unlikely to pose much of an environmental threat. If, however, economic development speeds up, risk of pollution (e.g. from human waste, illegal dumpsites and livestock waste) will likely increase significantly.

Expansive grasslands are the main resource for local agriculture. Not only are they important agriculturally, but they also have nature conservation value because of their range of fauna and plant communities. Sustainable utilisation of these grasslands is not ensured today, however. A great part is abandoned, leading to degradation and overgrowth with shrubby vegetation. In the past, grasslands at lower elevations were also subject to different land reclamation measures aimed at increasing naturally low productivity, and to make them more suited to intensive production through reseeding and fertilisation. As a result of these efforts, species composition in these grasslands has become far more simplified and much less valuable in terms of biodiversity.

Traditional products such as hard yellow cheeses (e.g. Staroplaninski or Pirotski cachcaval), lamb and Pirot carpets are other important agricultural assets of the past. Unlike many other agricultural products produced in the area, these are typical to the region; and they could, if properly marketed, bring good opportunities to local farmers. Under the current circumstances, however, few are taking advantage of this potential. Poor marketing, lack of brand protection and improper labelling are mostly to blame. At least Pirot carpets were awarded official “designation of origin” certification in 2002, which could bring significant gains in terms of marketing this product. Approximately 30 to 40 weavers (all women) produce approximately 250 square metres of Pirot carpets annually. The amount produced prior to World War II was around 20,000 square metres.

### TABLE 4

Livestock production in municipalities of West Stara Planina (January, 2005)

<table>
<thead>
<tr>
<th>Municipality</th>
<th>Cattle</th>
<th>Pigs</th>
<th>Sheep</th>
<th>Cattle/100 ha cultivable area</th>
<th>Ewes/100 ha agricultural area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zajechar</td>
<td>10,365</td>
<td>28,296</td>
<td>19,423</td>
<td>17.6</td>
<td>63.0</td>
</tr>
<tr>
<td>Knjazevac</td>
<td>7,210</td>
<td>13,448</td>
<td>20,507</td>
<td>15.2</td>
<td>46.0</td>
</tr>
<tr>
<td>Dimitrovgrad</td>
<td>2,760</td>
<td>1,408</td>
<td>5,105</td>
<td>18.6</td>
<td>22.3</td>
</tr>
<tr>
<td>Pirot</td>
<td>10,065</td>
<td>7,151</td>
<td>19,399</td>
<td>26.7</td>
<td>35.4</td>
</tr>
<tr>
<td>All four municipalities</td>
<td>30,400</td>
<td>50,303</td>
<td>64,434</td>
<td>19.5</td>
<td>41.7</td>
</tr>
<tr>
<td>All of Serbia</td>
<td>1,079,020</td>
<td>3,164,986</td>
<td>1,575,907</td>
<td>25.4</td>
<td>94.6</td>
</tr>
</tbody>
</table>
Disadvantages

A few natural limitations, plus weak rural infrastructure, negative social-economic processes, lack of information, credits and other forms of support are significant barriers against long-term sustainability and strengthening the agricultural sector in the West Stara Planina region.

Thin, often-poor soil and a severe mountain climate are characteristics of most agricultural land at higher elevations, which clearly limits possibilities for use. The situation is far less challenging in the valleys, depending on factors such as exposure, slope direction and other geographic conditions.

Such conditions have shaped this sector for centuries. Although there are local responses and traditional production methods, they are difficult to apply in practice. First of all, the rural infrastructure is extremely weak. Roads are bad, the road network is insufficient, the water supply and public waste collection system is poor, and public transportation is badly organised. Farm buildings and production infrastructure are also in bad shape, while the food supply and social and healthcare services are insufficiently organised. Specific farming-related services (e.g. extension and veterinary services) are often unavailable or too expensive for mountain farmers. All these factors make life extremely difficult, especially in smaller villages, and are direct causes of depopulation in the region.

Still, it is becoming more widely recognised that there are absolute prerequisites for developing profitable businesses. Individuals and local groups have developed several initiatives to revive agricultural traditions, improve processing and marketing of indigenous products, and develop rural tourism. However, lack of credits, insufficient support from government institutions, and lack of knowledge remain severe obstacles.

The government has only recently addressed these difficulties, but several measures are being introduced to overcome limitations, such as:

State support for agriculture development: the Rural Development Grant Scheme of the Ministry of Agriculture, Forestry and Water Management

From the Official Gazette of the Republic of Serbia, Nos. 106/05 and 108/05

The 2006 Rural Development Grant Programme of Serbia’s Ministry of Agriculture, Forestry and Water Management was launched in February-March 2006. Although the country has no specific agro-environment programme, the scheme includes some agro-environmental support measures.

The programme offers co-financing for a range of activities to be implemented by farmers, NGOs, agricultural cooperatives and local governments up to EUR 2,000 per farmer and EUR 55,000 per legal entity. The total operating budget for the programme is approximately EUR 8 million.

Marginalised rural areas (sometimes called “less-favoured areas”), defined according to geographic conditions, soil quality, erosion, flooding threats, and the presence of nature conservation regimes, are given special attention, and are offered better opportunities. Forty-nine Serbian municipalities are classified as less-favoured areas (LFAs). Three municipalities in West Stara Planina (Pirot, Dimitrovgrad and Knjazevac) are included on the LFA list.

Concrete measures of the programme include the following:

1. General measures
   a. Import of livestock for breeding (50 percent co-financing for LFAs, 40 percent for others)
   b. Purchase of agricultural machines (50 percent co-financing for LFAs, 30 percent for others)
   c. Construction/renovation of stables (50 percent co-financing for LFAs, 30 percent for others)
   d. Development of storage facilities, coolers, drying facilities and other equipment for primary products (60 percent co-financing for LFAs, 40 percent for others)
   e. Improvement of rural infrastructure: e.g. electricity supply, water supply, local and village roads, water supply and wastewater systems, renovation of cultural centres, equipment for rural development centres, business incubators (60 percent co-financing for LFAs, 50 percent for others)
BOX 4 (CONTINUED)

State support for agriculture development: rural development grant scheme of the ministry of agriculture, forestry and water management (continued)

2. Diversifying rural household activity and developing alternative sources of income
   a. Construction/renovation of houses, development of tourism facilities for rural tourism (50 percent co-financing for LFAs, 40 percent for others)
   b. Equipment and adaptation of buildings for producing traditional crafts (50 percent co-financing for LFAs, 40 percent for others)

3. Development and promotion of local products and rural values
   a. Promotion of indigenous products (60 percent co-financing for LFAs, 50 percent for others)
   b. Conservation and promotion of rural customs, economic, cultural and social values (60 percent co-financing for LFAs, 50 percent for others)

4. Capacity building for rural development and organisation of rural communities
   a. Education for strategic planning and implementation of rural development projects (50 percent co-financing for LFAs, 50 percent for others)
   b. Support for the establishment of associations and cooperatives (50 percent co-financing for LFAs, 40 percent for others)
   c. Support for integrated rural development projects, e.g. restoration of traditional rural households (50 percent co-financing for LFAs, 50 percent for others)
   d. Establishment of demonstration farms serving education purposes, establishment of food processing and tourism capacities (50 percent co-financing for LFAs, 30 percent for others)
   e. Support for regional cooperatives, farmers’ associations, local governments and others to carry out rural development programmes (50 percent co-financing for LFAs, 40 percent for others)

5. Rural landscape protection and conservation
   a. Forestation and other measures to recover degraded land and halt erosion (50 percent co-financing for LFAs, 50 percent for others)
   b. Support for maintaining grazing in high mountain areas, e.g. employing shepherds, training sheepdogs, purchasing equipment, providing infrastructure for summer shelters (50 percent co-financing for LFAs, 50 percent for others). Support for management of high mountain meadows (e.g. 90 EUR/ha for mowing)

6. Support for organic farming
   a. Education for planning and implementation of organic agriculture projects (50 percent co-financing for LFAs, 50 percent for others)
   b. Support for establishing organic demonstration farms, as well as processing and tourism capacities with links to organic farming (50 percent co-financing for LFAs, 50 percent for others)
   c. Support for cooperation initiatives, organised study tours and visits to organic farming fairs (50 percent co-financing for LFAs, 40 percent for others)
   d. Obtaining certificates for newly established organic farms (50 percent co-financing for LFAs, 50 percent for others)
   e. Conversion from conventional production to organic farming: crop production in conversion (EUR 90/ha for vegetable and fruit production in conversion; EUR 125/ha for animal farming in conversion — EUR 90/head of cattle, EUR 20/small ruminant, EUR 1/hen
• long-term credits provided through banks to ensure financial means for mechanisation, purchasing equipment, improving processing capacity, and upgrading the quality and safety of food products;
• favourable short-term credits to support the purchase of necessary input for starting up and running production operations; and
• a special grant scheme to provide government co-financing of up to 30-50 percent to support rural infrastructure development, rural tourism initiatives and farm investments (see Box 4).

The distribution system, however, is not yet fully satisfactory, and is particularly slow to reach highland farmers. Funds are managed by the Ministry of Agriculture Forestry and Water Management, which lacks a sufficiently decentralised delivery structure. Also, payments are to be based on clear registration and special farm and household insurance policies, although many farmers still require more effort and knowledge to gain access to these funds.

There needs to be important improvements made to legislation, the existing institutional establishment and the information network in order for farmers to take full advantage of these government initiatives and to utilise them effectively as a force to drive local development.

The current institutional set-up is especially weak at the local level — i.e. those units and institutions that could bring knowledge, information and support directly to farmers. Besides inspection services, only county-level governments, municipality offices and local community offices are able to deliver substantial support toward developing sustainable agriculture. The Ministry of Agriculture, Forestry and Water Management’s extension and advisory services, being regionally organised, can only act as intermediary bodies for disseminating knowledge, and are not able to provide the much-needed day-to-day support to farmers. Most farmers are very traditional, lack knowledge in new production technologies, farm economy, marketing, food safety and food quality, and are used to the outdated system in which the government provided markets for products and ensured a regular income.

There is also a lack of certification and quality control organisations focusing on organic agriculture, which limits opportunities for farmers to develop in this direction. The only national certification body remains beyond reach for most farmers, as it is too expensive and has no local representation in West Stara Planina. Local agricultural NGOs are making an important contribution by providing relevant information to the region’s farmers, but greater support is needed to establish cooperatives and producer groups, to create special monitoring and advisory services, and to provide training to farmers.

The current legislation has certain unfavourable aspects. For example, the Law on Cooperatives makes it difficult and expensive to operate such groups, while legislation regulating land inheritance is driving further fragmentation of holdings.

Important steps have been taken recently to enhance farmers’ access to market information. One of these is that the Ministry of Agriculture, Forestry and Water Management has established the Serbian Marketing Information System, through which information is disseminated via the internet and weekly television programmes that are typically not accessible in some settlements in West Stara Planina. As some parts of the region lack even basic telephone and TV service, computers and the internet are unthinkable luxuries for most farmers.
Environmental services and impact of agriculture

Agriculture and the environment are so closely related that the sector is quite different from other sectors of the economy. The sector uses the greatest amount of land by far, and grows directly from the production of natural processes it maintains. Some farming methods, meanwhile, seriously undermine standards of food safety, and contribute to biodiversity loss and environmental degradation. At the same time, many valued rural environments (e.g. traditional landscapes or mosaic-like farm networks that preserve biodiversity or semi-natural habitats) are the direct results of traditional agriculture. A few examples of the environmental impacts of farming and related processes are presented in Table 5.

In West Stara Planina most environmental pressures related to agriculture are the result of recent sector decline, decreased livestock and waning interest in farming as a profession. As traditionally extensive forms of mixed farming techniques are still dominant in the region, environmental stress and negative tendencies typical of intensive production systems are less apparent. Some of these techniques still represent a real risk and therefore deserve attention. Natural and semi-natural grasslands adapted to mountain climate and poor soil are highly sensitive to intensification. Dominant soil types — alluvial soils in the valleys and those developed on red sandstone at higher altitudes — are unable to buffer chemicals and thus ensure protection of watercourses, reservoirs and springs.

Box 5 gives a summary of the negative as well as positive impacts of farming and specific farming-related environmental services in West Stara Planina.

Biodiversity and agriculture in West Stara Planina

It is recognised both nationally and internationally how important it is to preserve the natural environment in West Stara Planina. Thirty-six percent of the region (142,220 hectares) has enjoyed nature park protection status since 1997. Although park territory is expected to decrease by almost 28,000 hectares, actual managed territory, based on a specific land use plan, will be expanded to 154,190 hectares. There is also the expectation that by the end of this decade the park will be recognised as a UNESCO “Man and Biosphere” reserve.

### TABLE 5

<table>
<thead>
<tr>
<th>Relationship</th>
<th>Processes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pollution of the environment</td>
<td>• Build-up of nitrate and other mineral residues</td>
</tr>
<tr>
<td></td>
<td>• Pesticide residues</td>
</tr>
<tr>
<td></td>
<td>• Salination</td>
</tr>
<tr>
<td></td>
<td>• Ammonia and methane emissions</td>
</tr>
<tr>
<td>Depletion of environmental resources</td>
<td>• Inappropriate use of water and soil</td>
</tr>
<tr>
<td></td>
<td>• Destruction of semi-natural and natural land cover</td>
</tr>
<tr>
<td>Preservation and enhancement of the environment</td>
<td>• Creation/preservation of landscapes, habitats, land cover</td>
</tr>
<tr>
<td></td>
<td>• Preservation of genetic diversity in agriculture</td>
</tr>
<tr>
<td></td>
<td>• Production of renewable energy sources</td>
</tr>
</tbody>
</table>
The park, and large areas beyond its boundaries, is host to a great variety of landscapes, habitats, natural phenomena and cultural heritage. Extended semi-natural grasslands — which, together with the less predominant alpine natural grasslands, form a continuous belt along the mountain range — count among the most treasured natural assets. Grasslands at lower elevations are surrounded by woodland patches. Some of the medicinal plant species (e.g. *Gentiana lutea*) have recently become endangered due to excessive collection and careless picking techniques.

Biodiversity in these grasslands depends heavily on continued grazing, especially by sheep flocks, which were formerly present in much higher numbers. Their gradual disappearance and subsequent abandonment of mountain grasslands has drastically altered the natural composition. Natural succession processes speeded up during this time and valuable grassland species have been replaced by tree species (*Betula verrucosa, Crataegus spp., Populus tremula* and *Salix spp.*), bushes (*Juniperus nana, Juniperus communis, Rosa spp.* and *Vaccinium spp.*), and by herbaceous species (e.g. *Veratrum album, Pteridium aquilinum* and *Verbascum spp.*). The appearance of these species represents a significant change in grassland structure and botanical composition. The intensity has varied, and the region’s grasslands have become less valuable and less suitable for grazing.

The decline in extensive animal breeding is harmful not only to grassland diversity. The Egyptian and griffon vultures (*Neophron percnopterus* and *Gyps fulvus*) have disappeared as the number of sheep has fallen. Revived grazing in high mountain grasslands is also of great importance of protecting of birds of prey, meadow birds and mammal species like the ground squirrel (*Citellus citellus*), marbled polecat (*Vormela peregusna*) and others that rely on grassland diversity for nutrition and shelter. Flora and fauna from the meadows and pastures represent a biotope comprising at least six types of herbaceous habitats (pseudo-steppes and meadows), all of which are prioritised for protection. The habitats are distributed throughout low and medium-altitude belts of West Stara Planina (usually below 1,400 metres) and predominantly on a calcareous rock base. These meadows and pastures are habitat for the aforementioned ground squirrel (a globally threatened species), nine “priority status” birds of prey, corncrake (*Crex crex*), a great number of petrophyllous and grassland birds, and other species of high conservation value. The decline in sheep breeding that started 15-20 years ago has speeded up the succession process, and has brought on the rapid appearance of ruderal species, shrub and tree vegetation in place of rich, herbaceous plant associations. This process poses a grave threat to an ecosystem that harbours many elements of European and global conservation significance.

Besides its natural value, semi-natural grassland biodiversity is also an important resource. These areas contain valuable genetic material for forage grasses and legumes, are ideal for sheep breeding, and provide the basis for beekeeping and honey production. The production and processing of medicinal and aromatic plants offer potential for diversifying income sources of the local population.

**Conservation of agro-biodiversity**

Mixed flocks of indigenous sheep, goat and cattle breeds, along with traditional extensive farming systems, have shaped West Stara Planina’s landscape and local culture for centuries. The region’s meat and dairy products, very high in nutrition, are still part of local tradition.
Traditional dairies (*mandra*) produce autochthonous cheese products such as kachkaval, urda and white ewe’s cheese, while wool from the zackel sheep is used for traditional weaving and carpet-making in Chiprovtsi (Bulgaria) and Pirot (Serbia).

Migration to urban centres and accelerated ageing of the local population has resulted in a steadily dwindling agricultural workforce. Since there are no clear counteractive trends, farmers are slowly losing specific local cultural heritage and indigenous knowledge, while the region is losing its rich agro-biodiversity. This also has a clearly negative impact on regional biodiversity. Indigenous breeds of domestic animals are well adapted to the local conditions — namely, coarse forage of mountain pastures and harsh mountain conditions. More intensive breeds, even though they bring higher yield, cannot efficiently utilise these pastures. As a result of the widespread introduction of modern breeds a very specific and non-sellable environmental service of agriculture remains neglected. This is the sustainable management of pastures, and through that, the maintenance of biodiversity.

Expressed concretely, the key problems and threats concerning the conservation of domestic animal resources in the West Stara Planina Mountains are:

- inbreeding and further decline of genetic material and genotype diversity of livestock species;
- systematic cross-breeding of indigenous breeds with imported, more productive breeds (e.g. merino sheep), which continues more or less unsupervised;
- dwindling interest in livestock farming in most rural areas of the country, due to social and economic insecurity;
- lack of functioning local and national mechanisms for implementing conservation programmes specifically targeting preservation of indigenous breeds; and
- lack of initiatives promoting specific values of indigenous breeds, and failure to market products and activities related to their keeping.

The preservation of rare and highly valuable breeds should play a key role in biodiversity conservation efforts in West Stara Planina. Conservation can also be linked to actions supporting rural revival, the development of sustainable agriculture, and rural tourism.

Many of the breeds listed in Table 6 are considered in the government’s conservation programme, but immediate action is needed to improve their conservation status, such as the following:

- more efficient allocation of limited funds available for agro-biodiversity conservation;
- introduction of specific monitoring systems, including tagging of individual animals and establishing information systems;
- identification of traditional animal products, and marketing them in the context of diversifying rural income and creating specific local products with high added value (local specialities and niche products);

<table>
<thead>
<tr>
<th>Species</th>
<th>Local breeds</th>
<th>Conservation status in Serbia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cattle</td>
<td>Busha</td>
<td>Disappearing</td>
</tr>
<tr>
<td>Water buffalo</td>
<td>Local breed</td>
<td>Disappeared</td>
</tr>
<tr>
<td>Goat</td>
<td>Balkan goat</td>
<td>Endangered-maintained</td>
</tr>
<tr>
<td>Sheep</td>
<td>Pirot-strain zackel</td>
<td>Endangered</td>
</tr>
<tr>
<td></td>
<td>Svrljig-strain zackel</td>
<td>Not at risk</td>
</tr>
<tr>
<td></td>
<td>Bardoka-strain zackel</td>
<td>Endangered-maintained</td>
</tr>
<tr>
<td></td>
<td>Karakachan sheep</td>
<td>Endangered</td>
</tr>
<tr>
<td>Horse</td>
<td>East European Pony (Bosnian/domestic mountain pony)</td>
<td>Critical-maintained</td>
</tr>
<tr>
<td>Donkey</td>
<td>Local breed</td>
<td>Endangered</td>
</tr>
<tr>
<td>Pig</td>
<td>Mangalitza</td>
<td>Endangered</td>
</tr>
<tr>
<td>Poultry</td>
<td>Svrljig hen</td>
<td>Endangered</td>
</tr>
</tbody>
</table>
• support for concrete actions targeting the conservation of indigenous breeds in tandem with related activities, such as establishing interactive demonstration farms that combine rural tourism, direct marketing and small-scale processing of foodstuffs; and
• launching centrally supported programmes that provide subsidies to farmers keeping indigenous breeds, especially in areas where this can counteract further abandonment of mountain pastures.

Indigenous farm animal breeds are important resources for economic development and secure livelihood. Their high genetic diversity has allowed them to adapt to the most extreme mountain environments, through which they can provide a range of products and functions. It is an important research and development goal to systematically evaluate breeds in the context of local production systems. A quantitative assessment of genetic diversity should be carried out, and the relationships between breeds and programmes in terms of effective management should be also assessed. Rural development plans could provide a good framework for measures targeting the conservation of agro-biodiversity.

Sustainable agriculture in a local social-economic context

When addressing the development of sustainable agriculture, one must consider a few aspects of the region’s social and economic conditions — either as important limiting factors or as driving forces to build upon. The most important aspects are:
• rising rural poverty — especially among those who work in agriculture — and a lack of efficient policies to counteract this tendency;
• market changes of recent years and a lack of access to former export markets;
• uncompetitive production structure, and a predominance of part-time, subsistence and semi-subsistence farming;
• inability to invest in re-starting farming and recovering abandoned land (which is typically viewed as a good opportunity);
• weak extension services and lack of innovative approaches to rural development; and
• a history of poor policies leading to a misguided approach to sector modernisation and development.

According to a World Bank study, poverty is more pronounced in rural than urban areas, and rural communities of southeast Serbia, including those in West Stara Planina, are among the poorest in the country. Due to a dependence of the rural poor on natural resources, continued destruction of the natural resource base, and particularly to forest ecosystems, is expected. These are important considerations that will need to be addressed while moving toward increased agricultural sustainability. Taking such steps goes hand in hand with attempts to eradicate rural poverty. West Stara Planina’s municipalities depend greatly on agriculture, despite the fact that farmers earn little for their efforts. Additionally, generally low levels of education make it difficult to change one’s work profile. It is important that legal and policy frameworks are properly adjusted to these conditions, and this involves balancing the multiple interests of safeguarding development of the region’s natural resource base alongside local community welfare.

On a more practical level, there are several challenges in attempting to boost the competitiveness of regional farming: market changes, lack of sufficient human resources and support systems, and the negative consequences of past agricultural policies.

Agriculture in West Stara Planina was formerly important in the production of livestock products like hard yellow cheese and lamb — products that comprised a significant share of national agricultural exports. In fact, exports were crucial for the mountain regions of eastern Serbia, and the dominant systems at the time involved semi-intensive ruminant production. Nowadays, the situation is radically different. Export shares of West Stara Planina agriculture are practically non-existent, and former markets in Europe and the US are inaccessible. Although true data are difficult to access, it is clear from official statistics that animal husbandry, especially sheep breeding, is still the main source of income for most farms of the region. Milk, lamb and cattle production account for the majority of agricultural output, and nearly all crop production (cereals, forage and grassland crops) is valorised through livestock production.

Small-scale farming is predominant in the region, but with reduced competitiveness and without any real links to wider markets. Most farms produce primarily for private consumption, and only small surpluses are delivered to green markets or family members and friends in urban areas. The widespread phenomenon of subsistence farming itself is usually the result of outside sources of income also failing to produce an income to meet all basic household needs. There is just a small group of family farms that produce exclusively for the market. There used to be many more, however, and these farms represented an important group of players in a significantly stronger rural economy — based mostly on sheep dairy products. This situation ultimately collapsed due to a continuous decrease of sheep flocks during the last 30 years, and finished off
by the violent social, economic and political changes of the past 15 years.

However, there appears to be a groundswell of interest in returning to rural areas and restarting farming or increasing production. A participatory assessment conducted in the rural areas of Dimitrovgrad in 2002 proved that at least half of those already involved in agriculture expressed an interest in increasing production, and approximately the same share said that with some assistance they would be willing to invest in some kind of agricultural activity. Additionally, those who switched to working in industrial centres several years ago — having managed to generate savings — are now interested in returning to rural areas to begin some form of production on their abandoned farms. However, knowledge and experience for implementing such initiatives is lacking, as is the investment needed for new machinery, technology and buildings.

These initiatives also lack the support of a solid advisory system. Advisory services are poorly organised, possess limited knowledge on more innovative approaches to rural development, and are unable to apply modern methods of knowledge in a local context. At the same time, they must play a key role in finding new alternatives for farmers — despite some unfavourable developments. Modernisation throughout the last several decades has completely abandoned mixed farming systems, which are traditionally much better adapted to specific local conditions. The region's severe climate and soil non-versatility meant in the past that small-scale farms were dependent for success on combined agriculture involving processing, agricultural and non-agricultural activities. Instead of supporting intricate and cleverly adapted farming systems, large state farms were established in their stead, with small-scale private farms having to fend for themselves while lacking infrastructure to gain greater access to markets.

**Rural indigenous knowledge and its development potential**

Traditional knowledge of production and processing is one of the most important agricultural assets in

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**BOX 6 Traditional products of West Stara Planina**

Being a traditional sheep breeding region, West Stara Planina has three important local sheep products of renown. Their production, meanwhile, has declined seriously in the past few decades. These products are:

- Staroplaninski/Pirotski kachkaval, a hard, yellow cheese;
- Stara Planina/Pirot lamb; and
- Pirotski kilim wool carpets from Pirot.

Pirot’s cheese has the most potential for bringing higher incomes to local farmers. While market demand for this product has been growing recently, there are a few factors that hinder the product’s full potential, such as:

- Lack of raw materials — In spite of recent conservation efforts the Pirotska Pramenka strain of zackel sheep, the main source of milk used for cheese production, has nearly become extinct in the region. This is part of a broader negative tendency toward livestock decline in the region (50 years ago there were more than 50,000 sheep in Dimitrovgrad; today there are less than 4,000).
- Lack of producer incentives — Buyers often delay their payments for purchased milk; also, there is no marketing strategy, and the procedure for protecting designation of origin (PDO) for kachkavl cheese is not yet fully developed.
- Low hygienic standards of animal farms — Hygienic conditions for on-farm production and processing of milk are far below required standards, and farmers lack the necessary education and technical background to overcome this.
- Compromised product quality of cheese products — Hygienic problems have resulted in the production of cheeses inferior in quality to those of former times; the lack of suitable raw materials (e.g., a continuous decrease in sheep’s milk content in kachkaval cheese) and processing equipment could seriously jeopardise product reputation if not addressed effectively.
- Loss of traditional knowledge — Rapid rural depopulation has resulted in fewer traditional cheese makers and the disappearance of traditional equipment.
- High unemployment among women — Milk processing and cheese production are tasks that have been traditionally performed by women. If farming proves more successful, milk processing and marketing of traditional products
West Stara Planina. As an important component of the region’s rich agricultural heritage, traditional livestock farming and fruit and vegetable production — along with favourable and clean environmental conditions for some types of agricultural production — offer real opportunities for developing agriculture into a profitable business. Ensuring simultaneous environmental and financial sustainability, however, requires that traditional production deliver products of exceptional quality that achieve market recognition and command premium prices. Optimum pricing schemes would not only reward a richness of quality, but would compensate for environmentally sound production methods. In order to create a stable market for such products, a far more proactive approach to marketing is required. More efficient techniques are needed to inform consumers of the value and originality behind such products. Fairs, media promotion, lobbying, and higher profiles in business districts of larger towns or near motorways can all be put to good use.

In general, utilising the above opportunities that emerge from the availability of indigenous knowledge entail the following:

- significant diversification of agricultural production;
- supporting farmers with new knowledge disseminated through formal and non-formal education;
- strengthening links between different stages of production, processing and marketing; and
- strengthening local and regional markets.

Traditionally, production in West Stara Planina has been very diverse, with a few products sold on markets and others produced only for private or local consumption. Very often the production of various agricultural products — plant and animal products — has also been combined with the collection of non-wood forest products (forest fruits, medicinal plants, etc.) and services such as hunting, fishing and apiculture. Developed over centuries, the regional model builds on the traditional agricultural household and corresponds today with family farms, and should be seen as the basis for developing agricultural businesses.

An approach toward farming diversification should consider the use of animal breeds and plant varieties that are highly resistant to pests and diseases, as this limits the need to use chemicals. Well adapted traditional breeds offer excellent opportunities in this regard, and allow for achieving such goals combined with: rehabilitating traditional, mixed-farming systems; producing special niche-market products; and linking agriculture to rural tourism development. However, this also entails using traditional production methods that comply with modern standards of food safety and quality.

Organised processing and marketing strategies are crucial to the financial sustainability of such forms of production. Extensive livestock production on semi-natural grasslands of lower productivity cannot be maintained if products are sold at standard prices to large dairies far away. Specialty products, rather, need to be priced accordingly. This entails processing that is organised locally, and smaller farms not able to maintain their own processing units need to establish groupings through which they can ensure product profitability of high value-added products and services. It is difficult in Serbia to ensure farming’s environmental and financial sustainability because of a lack of support mechanisms to reward farmers for the provision of special environmental services (e.g. agro-environmental schemes for maintaining grasslands). At present, environmentally sound farming systems cannot stand in for economic efficiency, as there are no mechanisms in place to ensure that society pays for the delivery of environmental services. At the same time, to not respect environmental standards undermines a product’s added value. This puts greater emphasis on successful product marketing, which in this case should be built on a clear understanding of current domestic and foreign markets.

Opportunities for developing sustainable agriculture: conclusion and recommendations

In the overall framework of sustainable development in West Stara Planina — when it becomes sustainable — agriculture should be able to provide satisfactory living standards for present and future generations, as well as opportunities for personal, social and economic development. At the same time, agriculture in the region should sustain existing natural resources and ensure that interactions between society and the environment drive sustainable, long-term coexistence between society and natural ecosystems.

It has already been made clear that the region’s agro-ecological conditions do not allow for the development of more intensive farming that is productive enough to sustain households and agricultural businesses on its own. Development efforts, therefore, should focus on assisting traditional mixed-type farming, but in a way that can meet the specific requirements of today’s competitive markets. Besides ensuring that market demand is met, the practical issue of maintaining species-rich mountain grasslands needs to be solved. It is now clear that any such solution will require extensive though economically sustainable livestock production.
General solutions include those which can ensure that specific regional values will find a special place on the market where consumers appreciate these values and are willing to pay extra for them. More specifically, organic production or other certified (and marketable) forms of “eco-production” — supported through a mix of alternative income sources like tourism or forestry — is perceived as one very feasible solution. Available resources are well suited for such developments, and there are several products and other assets that could be used to successfully “brand” the region.

Before implementing such solutions, however, the means of production and their broader ramifications need to be addressed. Major improvements are needed concerning the quality and safety of processing, and local producers will need to become much more involved in each link of the production chain. Pressing social problems like depopulation and inadequate rural infrastructure need to be solved as well. Some responses might include: complex education programmes for farmers that involve financial support for on-farm micro investment; detailed assessments of capacity and available natural resources; or studies and research on indigenous knowledge, indigenous breeds and traditional farming models.

Responses identified by local stakeholders through working meetings dedicated to identifying directions for the development of sustainable agriculture are presented below.

Strengthening the role of local authorities

All four municipalities in West Stara Planina have recently begun elaborating development strategies. These documents, however, address agriculture in only a general way, and sustainable agriculture has still to be identified as a top overall priority. A thorough analysis of natural resources is also missing.

The following could be proposed to support local-level efforts to develop sustainable agriculture:

- incorporating concepts of sustainable development and sustainable agriculture into strategic development determinations of local authorities;
- designing targeted programmes with concrete actions, timetables and responsibilities of relevant stakeholders for providing knowledge and resources to farmers;
- identifying the financial means needed for completing such programmes, and developing strategies for improving rural infrastructure;
- supporting coordination between municipalities on both sides of the border (Serbia and Bulgaria) so that planning and implementation takes on a harmonised, regional approach;
- maintaining up-to-date community level databases concerning the overall context of agriculture development (available resources, land, waters, households, infrastructure) through establishing a network of monitoring and rural development centres and demonstration sites;
- supporting the development of a detailed and regularly updated database on available human resources, ideas, knowledge, experiences and initiatives in every village, organisation and enterprise;
- analysing existing strategy documents of regional municipalities, assessing harmonisation levels, and identifying possible conflicts with national strategy documents on poverty reduction, millennium development goals, and agricultural and rural development;

**BOX 7**

**Directions for sustainable agriculture in West Stara Planina: Analysis of the current situation by local stakeholders**

**Vision**

1. Livestock production — cattle breeding, sheep breeding, goat breeding, beekeeping, fish production, and introducing alternative agriculture practices such as snail production (lumbricoculture).

Opportunities for developing additional sources of income:

- building protected brands of traditional products;
- using autochthonous breeds and varieties;
- further developing traditional processing, and producing unique traditional products;
- developing small-scale processing capacity and family-run processing units; and
- developing organic production and increasing quality standards.
Directions for sustainable agriculture in West Stara Planina (continued)

2. Fruit production — cherries, plums, walnuts, blackberries, raspberries, strawberries, blueberries, and aronia.

Opportunities for developing additional sources of income include:
• building protected brands of traditional products;
• strengthening small-scale production; and
• developing organic production and increasing quality standards.

3. Production of vegetables and medicinal plants

Opportunities of boosting income include:
• developing and supporting small oil-processing units; and
• developing small-scale processing capacity and family-run processing units, and revitalising local traditions.

Problems
1. The poor financial situation and lack of financial means results in:
• lack of favourable credit opportunities to support on-farm investments like purchasing agricultural equipment, developing on-farm processing capacities, and purchasing production inputs; and
• lack of financial investment means for developing and upgrading off-farm infrastructure such as rural infrastructure, tourism facilities and capacity, etc.

2. Lack of institutional support mechanisms and governmental support results in:
• lack of organisational support (e.g. adequate administrative structures, certification bodies, and mechanisms for supporting the establishment of producer groups and associations);
• inability to respond to functional problems (state legislation is still not in line with EU requirements, existing regulations are not enforced, the Inheritance Law is driving farm fragmentation, market monopolies, etc.); and
• public poverty and currently limited markets for local products.

3. Lack of human resources, along with technical and financial limitations of households engaged in farming caused by:
• lack of capacity, and a decreasing and aging agricultural population;
• inadequate human resources: poor education among farmers concerning economic and ecological aspects of production and processing, which has negative effects on their ability to establish associations; low level of education for agriculture extension services; and, weak formal agricultural education.

4. Lack of market development initiatives including:
• few development initiatives for rural tourism, winter sports, hunting, spa tourism, educational tourism, etc.;
• lack of activity to promote local products and culture; and
• need for developing new marketing channels such as home delivery, supermarket displays, “you-pick” or direct sales from farm to retail customers, fairs and other local events.

Opportunities include:
• rich historical and cultural heritage as a potential for tourism development;
• rich traditions in animal breeding, fruit production and vegetable production;
• potential to enlarge the market for local products through more aggressive, positive marketing of the area in large urban centres and abroad;
• local expertise and indigenous knowledge;
• favourable climate;
• identifying goals that are harmonised with local interests, and which, through local stakeholder consensus, stand a good chance of being implemented; and
• identifying gaps in data and relevant information, and seeking ways to fill such gaps.

How to proceed according to the local agro-economic situation

As discussed earlier, according to currently available information, West Stara Planina’s rural economy is based primarily on extended semi-natural grasslands (meadows and pastures) with generally low productivity, forests of various composition, and limited areas of valley and valley terraces suitable for producing various vegetable and fruit crops. Grasslands are the basis for livestock production, while forests are used mainly for timber production. The latter, however, provide good opportunities for developing additional sources of income from non-wood products and other types of agro-forestry activity.

In the current circumstances, the most promising ways to create innovative models for production, processing and marketing are the following:

• develop opportunities for the mass production of “safe food” (i.e. organic mutton, beef and horsemeat);
• encourage self-sufficiency in ruminant raising based on exploitation of available grassland resources and cereal crop production;
• support countryside revitalisation through targeted programmes and integrated development based on the diversification of mountain economies;
• improve the organisation of traditional mixed farming on small properties, and establish cooperatives to strengthen capacity for local processing of dairy and meat products;
• systematically identify autochthonous products with high global market potential, and explore possibilities for their protection following international standards;
• modernise small-scale foodstuff processing units and raise levels of expertise;
• support game, hunting and fishing-related business developments;
• support development of local household processing capacity for non-wood forest products, such as forest fruits and medicinal plants; and
• support agro-tourism products from traditional family farms.

Agriculture in a rural development context

Serbia’s new agricultural strategy specifies rural policy development tasks at both the national and regional levels. There is a clear intention to ensure higher efficiency of rural development plans by making them more rooted locally. Besides being highly sensitive to environmental issues, the strategy sup-
ports the development of decentralised structures to support rural development and regional cooperation with neighbouring countries. This implies that any strategy for developing sustainable agriculture in West Stara Planina must involve greater general interest in rural development. There is essentially a dual aim in giving the rural economies some regional diversification, namely:

- to ensure that agricultural income extends beyond just farmers; and
- to ensure that agriculture can fulfil its potential in delivering income by providing markets for agricultural products.

It is especially important in protected parts of the region that tourism is perceived as one of the keys to diversification and alternative sources of income. Diversity of products must, however, also be a part of local tourism development. It is impossible to build very much without a broad range of products, so it is wise to build on as much natural and cultural heritage as there is to offer. Small-scale local operations can offer sport tourism, eco-tourism, ethnological tourism, agro- and rural tourism, adventure and cultural tourism, spa tourism, and hunting and fishing services. These offerings not only provide several employment opportunities, but also ensure greater flows of consumers and agricultural products. Special marketing schemes, such as organic vegetable boxes or fairs, can be developed to ensure that a larger flow of visitors provides an additional market for local agricultural products.

**Market competitiveness and efficient farm management**

While there seem to be many options for enlarging the regional market for key agricultural products (directly targeting large-scale consumers, supermarkets, public authorities, etc.), getting any of them to work requires greater capacity and changes in approach from local farmers. Small-scale farms cannot ensure that buyers will receive consistently high-quality products in required quantities — a major drawback. The establishment of groupings and new-type cooperatives is a tested response that works in many countries and should be widely promoted in West Stara Planina. An organisational infrastructure that ensures a stable market presence is also a prerequisite for reaching public organisations that always apply tendering procedures in purchasing.

To reach such levels of development requires major improvements in farming competitiveness. It is often the case that the production structure is adequate, but that production and farm management need to be made more efficient. Farmers need to significantly improve their farm management skills and become real business managers. There is currently too little focus on production efficiency: farm-level production costs go unmonitored, and cost-efficiency is not taken into consideration in terms of making technology upgrades.

Opportunities for increased farm management efficiency generally include the following:

- decreasing input costs by using more sustainable systems (closed production chains);
- decreasing capital loss through introducing innovative technologies;
- improving and adapting product standards and quality to ensure a wider market; and
- changing production structures according to market demand.

A more proactive approach to marketing might include the application of a wide range of techniques, such as providing regular production-related information to large purchasers in the region, or organising regular fairs. However, using such tools depends very much on the level of organisation of local farmers. This could be improved through education, training, best practice examples, TV programmes, study tours, lectures from farmers and experts with similar expertise, research and monitoring work, regional networking and promotion, exchanges of experiences within the region, and more. Several governmental research programmes exist that are poorly understood and not utilised as tools for local development. Research institutions are generally alienated from local beneficiaries, while such research capacity represents great resource potential to solve local development problems. Initiatives toward establishing links with researchers and educational institutions are greatly needed.
## Annexes

### Annex I: Useful Addresses

<table>
<thead>
<tr>
<th>Organisation or institution</th>
<th>Contact information</th>
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</thead>
<tbody>
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<td>UOGSR: Association of cattle breeders (Torlak)</td>
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<tr>
<td>KnjaZevac Area Association of Fruit Growers</td>
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<td>KnjaZevac Area Association of Fruit Growers</td>
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<td>KnjaZevac Area Association of Fruit Growers</td>
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Annexes

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Endnotes


2. REReP is a regional initiative launched after the Kosovo conflict in 1999 that aims to ensure that environmental aspects are not overlooked in efforts toward reconstruction and economic stabilisation taking place in South-East European countries.


<table>
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<td>Overall goal: To encourage cooperation between South-East European countries through the management of shared natural resources</td>
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<td>2</td>
<td>Joint vision of local stakeholders</td>
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<td>3</td>
<td>The FAO Council defines sustainable agriculture and rural development (SARD) as:</td>
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<td>4</td>
<td>State support for agriculture development: rural development grant scheme of the ministry of agriculture, forestry and water management</td>
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<td>6</td>
<td>Traditional products of West Stara Planina</td>
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<td>7</td>
<td>Directions for sustainable agriculture in West Stara Planina</td>
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</table>
THE REGIONAL ENVIRONMENTAL CENTER FOR CENTRAL AND EASTERN EUROPE (REC) is a non-partisan, non-advocacy, not-for-profit international organisation with a mission to assist in solving environmental problems in Central and Eastern Europe (CEE). The center fulfills this mission by promoting cooperation among non-governmental organisations, governments, businesses and other environmental stakeholders, and by supporting the free exchange of information and public participation in environmental decision making.

The REC was established in 1990 by the United States, the European Commission and Hungary. Today, the REC is legally based on a charter signed by the governments of 28 countries and the European Commission, and on an international agreement with the government of Hungary. The REC has its head office in Szentendre, Hungary, and country offices and field offices in 17 beneficiary countries, which are: Albania, Bosnia and Herzegovina, Bulgaria, Croatia, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, the former Yugoslav Republic of Macedonia, Montenegro, Poland, Romania, Serbia, Slovakia, Slovenia and Turkey.

Recent donors are the European Commission and the governments of Austria, Belgium, Bosnia and Herzegovina, Bulgaria, the Czech Republic, Croatia, Denmark, Estonia, Finland, Germany, Hungary, Italy, Japan, Latvia, Lithuania, the Netherlands, Norway, Poland, Slovakia, Slovenia, Sweden, Switzerland, the United Kingdom, and the United States, as well as other inter-governmental and private institutions.

Directions for Developing Sustainable Agriculture in Serbian Municipalities of West Stara Planina