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COUNTRY STUDY BOSNIA & HERZEGOVINA

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GENERAL INFORMATION ABOUT BOSNIA AND HERZEGOVINA

Bosnia and Herzegovina is situated in the western part of the Balkans peninsula. It borders with Croatia to the north, west and south and with Serbia and Montenegro to the east. It covers the area of 51,197 km², with (estimated) population of 3,800,00; the capital is Sarajevo.

The country also has a 13 km long coastline along the Adriatic Sea around the town of Neum. Bosnia and Herzegovina is a mountainous country with 62% of the land more than 700 m above sea level. The Dinaric Alps cross the country from its western border with Croatia to the southeast. The highest peak is Mount Maglic, rising to 2,387 m on the border with Serbia and Montenegro. The country also has 10 other mountain peaks higher than 2000 m and 40 peaks between 1500 m and 2000 m. The north is heavily forested, while the south has flatter areas of fertile soil used primarily as farmland.

CLIMATE

The country is situated between the continental and Mediterranean climatic zones, which creates three local climatic areas.

The **northern** inland territory has a moderate continental climate with warm summers and cold, snowy winters. Average temperature in January is from -0,2°C to 2,0°C, in July 20°C to 22°C, and average precipitation of about 800 mm.

The **mountain** areas above 700 m have a mountain climate with snow. The annual precipitation in the inland and Alpine region is between 1,500 to 2,500 mm.

The **south** has an Adriatic - Mediterranean climate with sunny, warm summers and short, mild, rainy winters, and an average annual precipitation of 600 to 800 mm. The average temperature in Sarajevo, in the continental zone, is -1°C in January and 20°C in July.

The varying climatic conditions in Bosnia and Herzegovina offer wide possibilities to the agricultural production, both in terms of crop choice and cultivation of land farming, fruit-growing, vine-growing, vegetable growing and forage crops and in terms of livestock production.

SHORT HISTORICAL BACKGROUND

Until 1991, Bosnia and Herzegovina was one of the six constituent units of former Yugoslavia, with population of 4,377,000 (1990) and US\$ 2,429 GDP per capita. After the dissolution of the former state, Bosnia and Herzegovina was internationally recognised as an independent state in April 1992 and become a member of UN in May same year. The war, which broke out in 1992, was ended by the Peace Accords, agreed in Dayton (USA) and signed on 15th of December 1995 in Paris. The Peace Accords defined the Constitution of Bosnia and Herzegovina and established a complex state, composed of two entities and one State District:

- Federation of Bosnia and Herzegovina (FB&H) with 51.08% of territory and 61.32% of the population,
- Republic of Srpska (RS) with 48.92% of the territory and 38.68% of the population,
- After arbitration (*Brcko Arbitration - Arbitral Tribunal for Dispute over Inter-Entity Boundary in Brcko Area, Final Award: ANNEX, 5 March 1999*), Brčko District was officially established on March 8, 2000, one year after an arbitration process. The territory of the District belongs simultaneously to both entities, the Republic of Srpska and the Federation of Bosnia and Herzegovina, in condominium.



Fig. 1. Administrative map of Bosnia and Herzegovina

Bosnia and Herzegovina Parliament is the highest legislative authority and it has two Houses:

- House of Representatives
- House of People

The highest executive body on the state level is the Council of Ministers with six ministers. The state has a **“Three-Presidency”** (Serb, Croatian and Bosniac).

The entity legislative authorities are represented by two-house parliaments:

- House of Representatives
- House of People

There are four administrative-territorial levels in Bosnia and Herzegovina as shown below.

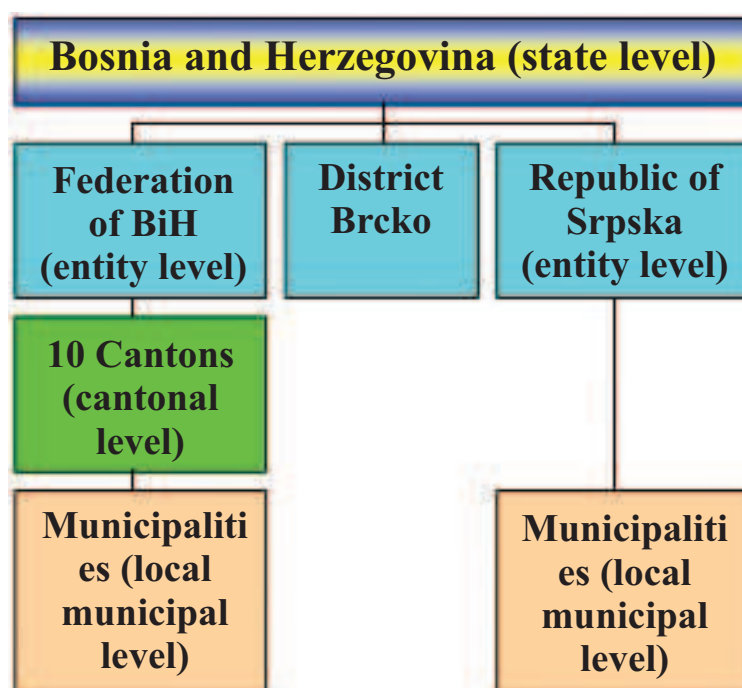


Fig. 2. Administrative structure of Bosnia and Herzegovina

GENERAL CHARACTERISTICS

Agriculture is the essential activity for rural areas and the basic occupation of its inhabitants, as well as crucial for maintaining ecological balance and for environmental protection. Agricultural and ecological conditions in Bosnia and Herzegovina are, generally speaking, favorable for most types of agricultural production.

Within the framework of the planned strategic development of Socialist Federal Republic of Yugoslavia, the republic of Bosnia and Herzegovina, as an integral federal unit of former Yugoslavia, was envisaged to provide raw materials and energy for economic development of the country and space for development of basic and military industry. Relatively large hydro and thermal energy potentials and large supplies of coal and metal ores, enabled it to produce more than half of the Yugoslav output in coal, 70% of the output in metal ores, iron, aluminium, lead and zinc and almost 50% of the electric energy. Also, substantial part of former Yugoslavia's chemical industry (which used nitrogen and chlorine as basis) was situated in Bosnia and Herzegovina.

Therefore, the intensive exploitation of natural resources, for which mainly obsolete and highly polluting technologies were used, and the resulting degradation of environment, along with the fact that it was the state (and not the market) that dictated the prices of raw materials and energy, did not offer chances for balanced development in which economy and environment would be in harmony, in other words, did not open the prospects for sustainable development of Bosnia and Herzegovina.

In spite of the difficult situation caused by the war, Bosnia and Herzegovina managed, through several regional international programmes launched in 1997 and later, to join in the efforts of development and implementation of the idea of sustainable development. The above programmes were primarily regional Mediterranean and Danube programmes, such as, for example, the Mediterranean Action Plan (MAP) (Assessment of sustainable development in Bosnia and Herzegovina, 2004).

The war also resulted in the loss of export markets, which are difficult to re-establish. In general, there are few resources to compete on international markets through subsidies. Bosnia and Herzegovina has signed bilateral free-trade agreements with some countries, but it has not

succeeded in increasing its exports, largely due to non-customs-related measures, poor organization and the lack of export products. There is also a problem in meeting the requirements of international markets in food quality and standards in the food and food-processing industry. The processing industry is weak, although in milk, meat and fruit and in the vegetable sector some progress has been made with the help of foreign capital. (Assessment of sustainable development in Bosnia and Herzegovina, 2004).

Among the small-scale private farms three broad groups are apparent. Commercial (> 5 ha) rely wholly on farm income and account for 16 percent of rural households and 50 percent of farm land. Part-time farmers (2-5 ha) represent 30 percent of rural households and use 35 percent of farm land. Their incomes derive from farm production and sales and from non-farm wage employment. Rural residents (< 2 ha) represent 54 percent of all rural households but use only 15 percent of farm land. These people, many of whom are elderly, rely heavily on non-farm income sources. (FAO, 1999a; FAO, 1999b)

Table 1. Pre-war (1981) Indicators of Land Access and Fragmentation (*Statistic Bulletin 101, 1981*)

Area (ha)	Number of Farms	Percentage of Total Area
Up to 1	180.673	33,8
1 - 3	178.138	33,3
3 - 5	86.272	16,1
5 - 8	56.115	10,7
8 - 10	16.661	3,1
more than 10	14.669	2,9
Total	534.528	100,0

More than half the holdings are less than 2 hectares from which it is impossible to earn an adequate living. The disadvantage of the small size of the farms is further compounded by fragmentation of holdings which seems to vary in extent from one region to another. Some sources quote an average holding having eight separate parcels.

The sector has been recovering very slowly. The country's environment is favourable for many types of agricultural production, but it is unlikely that conditions permit intensive, commodity-oriented production on a worldwide scale.

The main problems in agricultural sector in Bosnia and Herzegovina are following:

- stagnation and negative trends in the sector
- unresolved legal status of farmers and their families
- transformation of the sector, which would enable the establishment of market conditions, including foreign competition, has not been carried out
- lack of adequate policy towards the sector (credit policies, incentives, legal regulations etc.)
- lack of a development perspective
- lack of structural harmonization between primary production and processing lack of adequate protection of domestic primary agricultural production
- neglect of professional institutions
- challenges of accession to European and world associations.

Based on mentioned problems it could be concluded that main priorities for agricultural sector in Bosnia and Herzegovina are:

- activating natural and human potentials
- increasing competitiveness of the sector and of its productive subjects decreasing dependence on the imports of agricultural products
- decreasing the overall trade deficit
- improving demographic coverage of the vital territories
- increasing employment
- shaping a sector which will contribute to economic growth
- reforming of working and living conditions in rural areas to enable the population to realize their
- economic, cultural and social potentials improving and preserving the natural environment, in parallel with the promotion of the sustainable and ecological agriculture

AGRICULTURE IN NATIONAL ECONOMY: SOCIAL AND STRUCTURAL ASPECT

Agribusiness in Bosnia and Herzegovina was never an export locomotive but after the war the sector produced less than at any time in its history. Food imports are about 1 billion KM per year. Grey imports play a very significant role undermining efforts to develop local agriculture and a food processing industry. Total war damage has been estimated at US\$ 4.5 billion of which about 3 billion occurred in the Federation of Bosnia and Herzegovina and about 1.5 billion in the Republika Srpska. In some areas, up to two thirds of farm assets and livestock were lost. Approximately more than 1 million people left the country and up to 200,000 are dead or missing. This situation and limited purchasing power after the war led to significant changes of demand for food products. At the end of the war, the agro-processing industry was operating at less than 10 % of its pre-war capacity due to heavy damage to buildings and equipment. In addition, the raw material supply and sales channels had been disrupted.

In the former Yugoslavia there was almost same amount of uncultivated arable land (fallow etc.) in 1990 compared to 1950. During that time in Bosnia and Herzegovina agriculture land was increased for 15% (331000 ha). Bosnia and Herzegovina had 22% of agricultural land out of cultivation in 1990 that was 2.5 times over the Yugoslav average (Statisticki godisnjak SR BiH, 1990). Pre-war agriculture marketing and processing focused on the domestic market, with exports limited to processed fruit and vegetables and speciality products such as baby-beef, berry fruits and medicinal plants. Bosnia and Herzegovina's (state level) gross domestic product (GDP) in 2001 was KM 10.233 billion, of which primary agricultural production represented 12%, i.e. KM 1.228 billion. In the same year, agriculture also accounted for 0.7% of the total consolidated budgets of the State, the entities and the cantons. In the overall foreign trade deficit, agricultural products represent a significant share at US\$ 200 per capita (compared to US\$ 73 in Croatia). Domestic food production covers only 35 to 40% of needs, which is much lower than before the war, when it accounted for about 60%. Bosnia and Herzegovina is not self-sufficient in any major agricultural product except potatoes. The country imports about three quarters of its total demand for milk and other dairy products, and the situation with beef and veal is similar. Since milk production acts as an engine for the development of all agriculture in Bosnia and Herzegovina, the reliance on imports has acted as a barrier for the development of the whole sector. Based on indicators of agricultural productivity, Bosnia and Herzegovina is at the bottom of the European scale. The age structure of the population working in agriculture has deteriorated, since young people seek better living conditions in towns and abroad (United Nation Economic Commission for Europe, New York and Geneva, 2004).

The Federation of Bosnia and Herzegovina (FBiH)

Federation of Bosnia and Herzegovina covers 2,605,579 ha, of which 1,258,796 ha are classified as agricultural land, an area equivalent to 0.56 ha/capita. A large part of the land is of medium quality in mountainous areas with usage limited to livestock grazing. Less than 20% of agricultural land is suitable for more intensive agriculture, most of it in low-lying river valleys. Still about 10% of agricultural land cannot be used due to land mines. State farms cultivate 6% of the land. Market share is low due to post-war damages of market outlets and subsistence needs.

The decentralisation of government in post-war Federation of Bosnia and Herzegovina has resulted in considerable autonomy for canton governments. Each of the ten cantons has its own agriculture department that is responsible for monitoring, regulation and the collection of agricultural statistics. These activities are administered by a canton minister for agriculture, supported by inspectors for agriculture, veterinary, water resources and forestry and a small administrative staff. As before the war, most of the 89 municipalities employ an agricultural officer, an agricultural inspector, a veterinary inspector and a veterinarian. Approximately 350 people are currently employed within this system (FAO, 1999a).

Republic of Srpska (RS)

Republic of Srpska covers 2,505,300 ha, of which 1,298,619 ha are classified as agricultural land. The per capita availability of land is higher (0.93 ha/capita) than in Federation of Bosnia and Herzegovina. Only 25% of agricultural land (340,000 ha) is suited for intensive production. Most of it on relatively fertile, but slow draining, acidic soils along the Sava river. Only 4,300 ha were irrigated before the war. State farms cultivate 12% of the land. Some 258,000 small-scale private farmers use

the rest of the land. As to be expected, also in Republic of Srpska rural unemployment is high.

Also Republic of Srpska agriculture marketing and processing focused on the domestic market. Due to a significant fall in population and significant drop in consumer incomes after the war, the demand for food products switched from high to low priced items (FAO, 1999b).

LAND USE AND PRODUCTION

The total surface area of the agricultural land in Bosnia and Herzegovina is about 2.5 million hectares, i.e. about 50% of the state territory or 0.7 ha/per capita. Of the total agricultural land, about 40% is on altitudes up to 500 m above sea level, 35% from 500 to 1000 m above sea level, and 25% above 1000 m a.s.l. 68% of the total agricultural land in Bosnia and Herzegovina is arable land and 32% are meadows. Fertile lowlands compose 16% of the total agricultural land in Bosnia and Herzegovina, 62% are less fertile hilly-and-mountainous areas, while Mediterranean area accounts for 22%. Natural conditions in lowland areas are favourable for sustainable agricultural production and modern market economy. With additional investments of capital into modern technology, the yield of crops could increase by 50%, particularly in the rehabilitated water supply areas of Bosnia and Herzegovina (200,000 ha). The I-IV class soils are to be found in the valleys of the Una, Sava, Vrbas, Bosna, Drina, Sana and Spreca rivers. In these valleys it is possible to organize a sustainable production of cereal crops (wheat, barley, soybean, corn), breeding of cattle in barns, large-scale growing of fruit (plums, apples, pears), and vegetables, medicinal herbs and industrial plants. In the highlands of Bosnia and Herzegovina there are less valuable agricultural lands. In these areas it is possible to organise cattle breeding and complementary agricultural production. The war laid these areas completely waste, leaving behind large strips of land covered with mines (20% of rural areas were mined). For environmental, economic and social reasons, it is both necessary and justified to revive the highlands. It is possible to engage in sustainable cattle raising, healthy human food and animal feed production, complementary production and services, growing of barley for breweries, potato growing, etc.

Table 2. Land Use in Bosnia and Herzegovina per capita (A Medium-Term Agriculture Strategy for the Federation of Bosnia and Herzegovina and Republika Srpska. Annex 3)

Use	Hectares per capita in the Federation	Hectares per capita in Republika Srpska
Arable land and gardens	0,17	0,38
Orchards and Vineyards Total	0,02	0,034
agricultural land	0,45	0,8

Agricultural lands of the Mediterranean region cover the territory of the southern Dinarides up to Illyric-Mesian ecological-vegetation region. Karstic polyes (fields, valleys) in this area cover about 170,000 hectares. Frequent floods prevent organising sustainable intensive agricultural production on about 40% of this land. During the war (1992-1996), the capacities for intensive agricultural farming in the Mediterranean parts of Bosnia and Herzegovina were destroyed. It is necessary to undertake reconstruction and expansion of these capacities as high priority. It could be possible to organize intensive greenhouse and open-space agricultural farming, vine-growing, large-scale growing of citrus fruits and vegetables, freshwater fish farming and bee-keeping. Over 30% of the sub-Mediterranean area is under highland pastures, in which about one million head of small animals could be raised (goats, sheep, cattle). (Assessment of sustainable development in Bosnia and Herzegovina, 2004).

The level of use of natural resources, particularly land, is the second important indicator of the situation in agriculture. In 2001, 50% of arable land in the Federation of Bosnia and Herzegovina and 33% in Republika Srpska were unused, and arable land continues to shrink, which could lead to the total collapse of this sector. This is due to a number of factors, for example, the abandonment of agricultural land, pending issues related to its privatization, a lack of investment and poor organization.

Natural conditions in lowland areas are favourable for sustainable agricultural production and in some areas for market-based agriculture. The north was oriented to more intensive agriculture than the centre because of natural characteristics. Before the war, Bosnia and Herzegovina used to

harvest up to 6 metric tons of grain per ha; the yield is now only about 2 tons. Only a fraction of agriculture is market-oriented; it acts more as a factor of social stability, particularly for the rural community. Even small farmers try to sell their products - mainly milk and meat. Experts estimated that a minimum of 5 head of cattle on a farm could provide enough income for one person (one job). The fact is, however, that though such a small herd may represent a substantial and relatively permanent source of income for a family, it cannot ensure a reasonable living standard on a family farm. (United Nation Economic Commission for Europe, New York and Geneva 2004).

There is no register of agricultural holdings in either entity, although some basic land data are collected, a soil map on a scale of 1:400,000 was completed in 2003, and agro-ecological zoning was carried out in the same year (by the Institute for Agropedology). In addition the Food and Agriculture Organization of the United Nations (FAO), in collaboration with the Institute for Agropedology in Sarajevo, the Agricultural Institute in Banja Luka and the Agronomic Institute of Mostar University, published some basic land use and soil data on a scale of 1:200,000.

The land-use structure changed after the war, with more land left unused. Furthermore, large areas have been devastated, arable land has been abandoned, large tracts of land are mined, and fires in recent years have burned thousands of hectares of agricultural land and forests. Although there are no exact data from land-use monitoring, estimates suggest that, on average, at least 50% of the agricultural land is underused or unmanaged. The situation in Republika Srpska appears to be slightly better. (United Nation Economic Commission for Europe, New York and Geneva 2004).

The situation is the worst in areas that were abandoned by refugees who have not returned. About 200,000 hectares are mined, and it is estimated that it will take 40 years to clear all the mines in agricultural areas. Some 10,000 hectares are damaged by ore mining, and only 10% have been rehabilitated. In addition, 3 of the 14 investigated sites had been contaminated with depleted uranium (DU). Usually soil contamination is found up to 200 metres from the contamination point (where DU was used), and in these areas DU in drinking water and air was reported. (United Nation Economic Commission for Europe, New York and Geneva 2004). The cost of clearing mines is estimated at between 3 KM and 12 KM per m² depending on "type of terrain, density of vegetation, density of residual surface metal and density of mines" with an average of about 7 KM to 8 KM per m². With the passage of time the vegetation will tend to get thicker the cost of de-mining will increase.

The ratio of city to rural population has also changed as result of the war activities. That ratio is, according to estimate of Institute for Statistic and Institute for Health Protection of Bosnia and Herzegovina, 80:20 in favor of city population. This ratio is multicausal and forced war migrations have a determining role.

Table 3. Structure of land use in Bosnia and Herzegovina (National Environmental Action Plan 2002)

	FBIH (ha)	RS (ha)	FBIH (%)	RS (%)
Total area	2.609.579	2.505.300	51,0	49,0
Forest and Bare Land	1.500.179	1.209.590	55,3	44,7
Agriculture land	1.258.796	1.298.619	49,2	50,8
Fertile Fields and gardens	508.062	671.599	43,1	56,9
Agricultural cultures	461.360	616.548	42,8	57,2
Orchards	41.395	54.358	43,2	56,8
Vineyards	5.307	693	88,5	11,5
Meadows	248.291	236.922	51,2	48,8
Pasture	505.443	358.734	58,3	41,7
Agricultural land per capita	0,56	0,90		
Field and gardens per capita	0,23	0,46		

Job opportunities in rural areas, outside of agriculture, do not exist. Low intensity mixed livestock and cropping systems predominate.

In the crop structure, cereals represent about 60%, of which about three quarters are corn. Vegetable production is highly labor-intensive and is carried out on smaller plots. The diversity of environmental conditions in the country enables the production of almost all types of vegetables. There is a high level of self-sufficiency in vegetable production, and processing and exporting of

vegetables should be seen as the next step. Similarly, the production of fruit and wine can be organized on smaller plots, with a relatively high income per unit of area. The objective is to cover 90% of consumption demands in continental fruits by 2007. The production of berries is highly profitable and labor-intensive, and has export potential. Domestic producers must meet international standards, and they need to have a joint market strategy.

About 10% of arable land is used for the production of fodder crops, of which the different types of clover represent 75%. To optimize the resources, rationalize the production of milk and meat of grazing cattle and decrease the dependency on imported concentrated fodder, it is necessary to increase the amount of fodder crops sown on arable land.

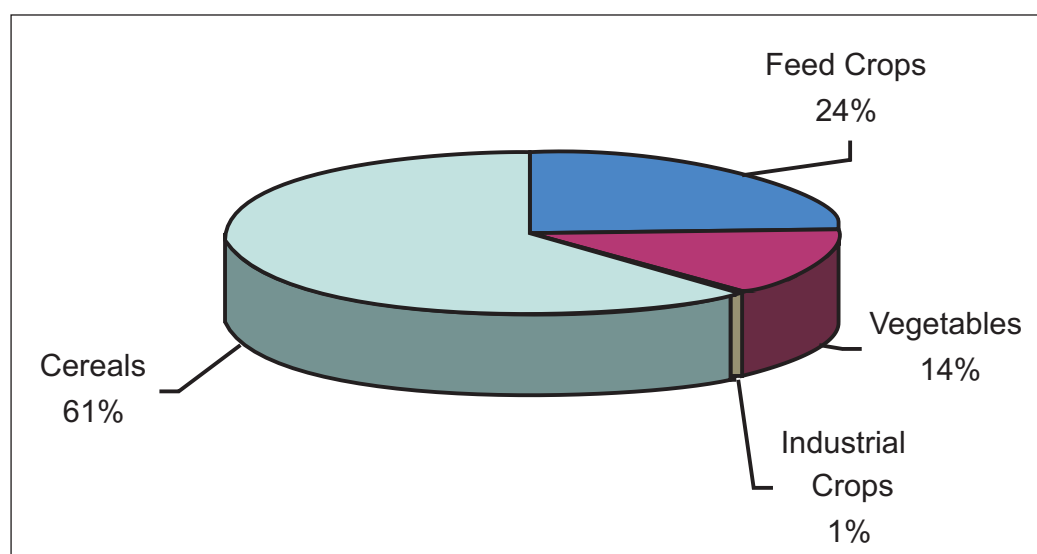


Fig. 4. Area sown in Bosnia and Herzegovina 1999/2000 (Statistical Bulletin 2001)

The share of domestic seed production is only 5-10% of the overall consumption of certified seed, although the consumption of certified seed is significantly lower than the actual needs for quality seed. This is one of the basic reasons for the low yields and the spreading of plant diseases and harmful organisms.

AGRICULTURAL POLITICS AND THE STRATEGIES FOR ITS DEVELOPMENT

Agriculture is one of the most important national sectors, not only from the economic point of view, but also from the point of food security, a stable rural society and the environment. There is no overall agricultural strategy, but for the Mid-term Development Strategy (2004-2007) agriculture is one of the priorities. The issues that it covers range from the legal and institutional framework, funding, science and education to land management, environmental impact, livestock production, plant production, industrial crops and ecological production.

The present situation concerning the physical planning of farmlands is unsustainable, seen from the point of view of modern organisation of market-oriented production. The process of repossession of abandoned and occupied property is very slow. Part of this space is also being used by the international military forces, collective accommodation centres and newly constructed refugee settlements. There are many cases of excessive construction of housing and business facilities, roads and other infrastructure, petrol stations, power plants, telecommunications, electric power, water supply and other utilities on fertile farmlands.

The overriding objective given in the Mid-term Development Strategy is to redevelop the agricultural sector to its pre-war level, to strengthen its competitiveness and to take into account the challenges and difficulties stemming from international integration processes. The Strategy also seeks to:

- Strengthen human capacity and increase employment;
- Reform working and living conditions in the rural areas to enable the population to realize its economic, cultural and social potential;

- Improve and preserve the natural environment, while promoting sustainable and ecological agriculture;
- Decrease the country's dependence on the imports of agricultural products;
- Decrease the overall trade deficit; and
- Improve demographic coverage.

Privatization

In a country where agricultural land is scarce, policies that promote optimal land use are fundamental to the future of the agricultural sector. Current policy remains largely as it was before the war, with a strong emphasis on private landownership. Before the war, approximately 90% of agricultural land was owned by individual farmers, 6% by State farms and 4% was managed by farm cooperatives. Few agricultural producers have the capacity for commodity production. The average size of a farm is about 3.5 ha further divided into 7 or 8 separate parcels (plots). Such fragmentation has been under way for the past 50 years as a result of nationalization and agrarian reform, as well as inheritance legislation.

The current Law on Property Inheritance (from the former Yugoslavia) allows the successors to inherit a proportion of the real estate, or the land is split according to the will of the deceased owner. This Law also established a maximum size for private farms, at 10 ha of land. (United Nations Economic Commission for Europe, New York and Geneva 2004).

Agricultural land is not yet privatized, while the privatization of agricultural enterprises has been formally but not always successfully finished. The number of owners is growing continuously and the size of the holdings is getting smaller. This fragmented structure impedes any serious production and management schemes in modern agriculture, and it is too optimistic to expect large-scale structural improvement in the next five years.

About 100,000 hectares of very good quality arable land remains in State ownership. The privatization process started in 1999, with the privatization of small and medium-sized businesses. Privatization is a prerequisite for future development, and it is expected that the State will facilitate and speed up the process. Private ownership, with its accountability, will also likely improve the environmental situation, in particular the identification of environmental damage and polluters.

The main problem is the fact that there are no nationwide strategic documents, particularly in agriculture, or they are still in the pipeline. While some are implemented as projects in the cantons or in institutes, the lack of coordination of all those activities is crucial at more central levels.

Institutional framework

There is no State ministry for agriculture, but there is a State Veterinary Office under the direct responsibility of the Ministry of Foreign Trade and Economic Relations. This Ministry is responsible for some other agriculture-related activities as well, including exports, imports and responding to international markets.

The Office seems to be working well, but there is one particular area that needs more attention, namely the disposal of animal waste, as discussed above.

Almost all agricultural responsibility lies with the two entities: the Federation's Ministry of Agriculture, Water Management and Forestry; and Republic of Srpska's Ministry of Agriculture, Forestry and Water Management. In addition, within the Federation, there are seven cantonal ministries of agriculture. In three cantons (Sarajevo, Gorazde and West Herzegovina) the agricultural sector is under the auspices of the economy ministries. There is a Department of Agriculture and Forestry in Brcko District. Inspection is the responsibility of the entities and the District.

Financing

In the absence of agricultural legislation and multi-year programmes, yearly incentive packages were created, but they did not allow producers to have a long-term view for their production plans. In

2001, budgetary allocations for incentives to agricultural production amounted to about KM 20 million (about 0.7% of consolidated budgets). In Bosnia and Herzegovina, 1.5 to 2% of gross agricultural product is allocated to incentives, which is many times lower than in neighbouring countries and much less than estimated in the Mid-term Development Strategy. In order to achieve the Strategy's agricultural objectives it is estimated that at least 3% of budgets (of the State, the entities, the cantons and Brcko District) would be necessary in 2003-2007, as shown in the table below. There are two major types of State-funded agricultural support schemes, one is for milk and the other for tobacco production.

In 2002, Republic of Srpska adopted its Law on Procurement and Allocation of Resources for the Development of Agriculture and Rural Areas, which stipulated that, in the future, at least 4% of its budgetary revenues would be allocated for agriculture. In 2004, the Rulebook on the Conditions and Procedure of the Agricultural Subsidies Allocation (Official Gazette RS 28/04), regulating the procedure and rates of financial subsidies for agricultural production, was adopted. In 2003, the Government approved an Agricultural Trust Fund of KM 22,665,900, of which 6,108,000 was designated for crop production, and 3,600,000 for livestock. However, in the 2003 budget, this fell short, the amount budgeted being only 2.35%.

In 2003, the Federation of Bosnia and Herzegovina allocated KM 12 million to agricultural subsidies for animal, crop and vegetable production, fishery and bee-keeping, with the biggest share given to milk and tobacco production, and to investments in new orchards. Some cantons also provide small amounts from their budgets to agriculture. There is no support for non-production-oriented agriculture. There are no funds provided anywhere in the country directly to agriculture and the environment; funds are primarily meant to intensify production, boost yields and increase income.

Donations and credits were used to revitalize and strengthen agriculture, but the results failed to meet expectations, in most part because the projects were conceived and managed with a "top-down" approach. Poor credit repayment rates are another reason for the current unfavourable policy towards farmers. Potential farmers, entrepreneurs and other investors do not have access to adequate and favourable credits. There has been no continuity of the action, and the results are therefore minor. In 2003, Republika Srpska began to subsidize interest rates (at the level of 6%) for agricultural credits from its budget. This measure slightly increased the availability of credits.

Table 4. Estimated agricultural incentives (2003-2007) (United Nation Economic Commision for Europe, New York and Geneva 2004)

Budgets	2003	2004	2005	2006	2007
Total (million KM)	40	60	80	100	120
Entities	35	53	70	88	105
Cantons	3	5	6	8	9
Brcko District	2	3	4	5	6

Agricultural policy must be based on strengthening the competitiveness of the sector, taking into account, at the same time, the challenges and difficulties which will be the result of international integration processes.

In order to renew and manage the agricultural resources in Bosnia and Herzegovina in a sustainable manner, an integrated strategy of production, marketing and financing is needed. It is necessary to introduce technological changes in order to be able flexibly to adjust the agricultural produce to the needs of the market (buyers). The laws of supply and demand, liberalisation of prices, investments and financial transactions determine such process (Assessment of sustainable development in Bosnia and Herzegovina 2002).

BASIC INSTITUTIONS PROVIDING TRAINING IN AGRICULTURE AND RURAL DEVELOPMENT

There are seven faculties of agriculture at the level of Bosnia and Herzegovina:

1. Faculty of Agriculture Banja Luka,
2. Faculty of Agriculture Srpsko Sarajevo
3. Faculty of Agriculture Sarajevo

4. Faculty of Agriculture East Mostar
5. Faculty of Agronomy West Mostar
6. Faculty of Agriculture Tuzla
7. Faculty of Agriculture Bihac

The status and funding of professional institutions in Bosnia and Herzegovina have not been resolved, which poses a major problem, since for a long period of time, farmers in Bosnia and Herzegovina will lack economic power to be able to participate in the funding of these institutions.

There are also differences in the way in which advisory services are organized. Republika Srpska has had its Agricultural Advisory Service (2-3 persons per region) since 2002, financed by its Ministry of Agriculture, Forestry and Water Management and this is a good basis on which to build. Advisory services are provided free of charge. There is no comparable system in the Federation, although some of the cantons have set up such services. There is also no public financing for advisory services in the Federation despite widespread agreement on the need for an effective extension service, and an acceptable institutional framework has yet to be developed. In both entities, the advisory services, as well as other public institutions in agriculture, are running out of funding for their future operations.

There is no formal State-wide body to coordinate agricultural activities or monitor the environmental impact of agriculture across the country. But at least two State laws have already been adopted: the Law on Cooperatives and the Law on Veterinary Medicine. They coordinate State action, and apply to both entities and to Br ko District. Unfortunately, without a State ministry of agriculture, implementation of these Laws is problematic.

Rural development is in its infancy, and no ministry has clear responsibility in this area, although the Ministry of Agriculture, Forestry and Water Management in Republika Srpska is considering establishing a department for rural development, which would play a coordinating role.

CONCLUSION

In both entities of the state, farms are small and the family has to search for labor-intensive production systems with low capital requirements. The high percentage of absolute pasturelands favors cattle and sheep production. In economic terms: opportunity costs for labor and pasturelands is low, which gives intensive livestock production systems such as dairy and poultry or horticulture a competitive advantage. Furthermore, these sectors provide various fresh products preferred by local customers. Competition on the domestic market from imported products is fierce. Slovenian, Serbian, Croatian, Hungarian, Italian and German processed food products dominate the market. This is especially the case for higher value added food products.

It would be important to intensify agricultural farming in Bosnia and Herzegovina, the more so if we take into account the fact that the Bosnia and Herzegovina agricultural sector is currently producing less than half the food that the domestic population needs, so that presently the main item on the list of imports are foodstuffs, accounting for more than half of the total value of imports. Sustainable agriculture could significantly increase the food production, significantly reduce poverty in Bosnia and Herzegovina, and at the same time preserve the healthy environment and ecosystem as a whole.

HISTORY AND DEVELOPMENT OF ORGANIC AGRICULTURE

Organic production in Bosnia and Herzegovina is in the beginning stages of development, and the organics market is still undeveloped. Limited quantities and selection of organic products can be found in large supermarkets and in a few specialized stores. Most consumers find organic products expensive and believe the products are for people with health problems. Consumers also believe that most locally produced foods are similar to organic products because of Bosnia's traditional agricultural practices.

Agriculturalists in Bosnia and Herzegovina believe that organic production would be competitive against modern agricultural production of the developed countries. Bosnia and Herzegovina average farm size is small, the hilly and mountainous land conditions are unsuitable for large-scale cultivation, and the high unemployment rate provides a cheap labor force for labor-intensive production. The recent war has resulted in even lower agricultural chemical use and reduced industrial pollution.

Although pollution still tends to be “insignificant”, almost nothing has been done regarding nature preservation. (Bosnia and Herzegovina Organic Products Ag Situation & Market Update, 2004).

DEVELOPMENT OF ORGANIC AGRICULTURE IN FIGURES

After the war, different information started to get to Bosnia and Herzegovina. A new movement of 'Organic Agriculture' was noticed. Different groups in Bosnia and Herzegovina recognized that organic agriculture in Bosnia and Herzegovina has some competitive advantage over high tech modern agriculture of the developed countries. Advantages were obvious and tempting and without mentioning ecological advantages: no need for mechanization, more labor-intensive production implies more work for people and since labor in Bosnia and Herzegovina is cheap, the produce would be competitive compared to developed world's Organic Produce. (Organska kontrola).

As a result of this movement at the level of Bosnia and Herzegovina exist 26 companies that are involved in collection of wild plants as well as distillation of essential oils. However, movement in organic animal husbandry has been made in the area of town Prnjavor where one farm for production of organic milk and meat exist.

ORGANIC AGRICULTURE ORGANIZATIONS

There are five certification bodies in Bosnia and Herzegovina:

1. IMO - Institute for Marketecology (Switzerland)
2. KRAV - (Sweden)
3. Soil Assotiation - (United Kingdom)
4. ICEA - Istituto per la Certificazione Etica e Ambientale (Italy)
5. OK - Organska kontrola (Local)

STANDARDS AND CERTIFICATION, STATE REGULATIONS

At the level of Bosnia and Herzegovina law about organic procudtion exist only in entity of Republika Srpska since the August 2004 (Official Gazette RS 75/04). This law regulate food production according to organic agriculture methods that are mainly based on regulations that exist in EU. This law cover following issues:

Main regulations

- Law appliance
- Principles of organic agriculture and products preparation
- Prerequisites that houshold must fullfil for organic production
- Conversion from traditional to organic agriculture normal
- Conversion from traditional to organic agriculture by steps (orchards, vineyards etc.)
- Main regulations related to organic production procedure (inspections, additives, seeds, chemicals etc.)

Plant production

- Fertilizers, pest and weed control
- Soil fertility maintenance
- Management of diseases, pests and weeds including growth hormones
- Soil fertilization
- Seed, nursery and vegetative material for propagation
- Wild collection

Animal husbandry production

- Principles
- Animal feedstuff
- Substances for disinfection
- Animal fastening
- Animal feeding
- Specific regulations related to feeding
- Reproduction

- Animal health
- Zootechnic measures
- Origin of animals for production
- Minimal age of animals before slaughtering

Beekeeping

- Registration for beekeeping and conversion period
- How to obtain bees
- Bee feeding
- Pollution
- Remedies
- Wing cutting on bee queen
- Handling
- Framework material for honey production units

Fish pond production

- Main prerequisites
- Conversion to organic production
- Main conditions
- Location of production units and their protection from pollution
- Location of collection areas
- Health and remedies
- Types and growing methods
- Feeding
- Other pre-conditions

Environmental care, protection of natural and cultural values

- Households obligations
- Pollution control

Technological processing and organic goods traffic

- Main standards
- Pest control and disease control
- Ingredients, additives and other means in technological processing
- Methods for technological processing
- Packing

Labeling

- Product that are not for human consumption
- Products for human consumption
- Other conditions
- Products that are processed at households
- Common regulations

Products from import

- Principles
- List of countries

Inspection system

- Control of all bodies involved in organic agriculture
- Operating inspection system
- Duties of organic food producers
- Duties of persons who prepare organic food and persons who import already produced organic food
- Actors in domestic traffic of goods
- Special prerequisites for animal husbandry product inspection
- Domestic certification bodies and prerequisites that have to fulfill
- Bodies from other countries for certification
- Unique obligations of bodies for certification issuance
- Special labeling for organic products
- Declaration and propaganda material for Bio (s) Srpska food
- Product declaration from Srpska organic production, oriented to export

Surveillance on law implementation Penalties

Competent body at level of Republic of Srpska for implementation of this law is Ministry of Agriculture, Forestry and Water Management.

STATE SUPPORT, POLICY INITIATIVES

Until now there are no subsidies for organic production in Federation of Bosnia and Herzegovina. In Republic of Srpska entity subsidies for organic agriculture are given on the basis of area that is used for production (per hectare). After formation of Ministry for agriculture at state level that is in process, situation about policies in organic agriculture should be changed.

TRAINING (INSTITUTIONS PROVIDING TRAINING IN ORGANIC FARMING, LEVEL OF COURSES, TYPE OF COURSES, CURRICULA)

Faculty of Agriculture at Banja Luka was established in 1992. Significant international collaboration starts by participation in TEMPUS project (JEP -13104-98), titled "Reorientation of Academic's Education in Agriculture - B&H". Up 1999 to 2001 year in frame of the Project, has realized cooperation with institutions in Europe: *BOKU- Vienna-Austria, Ina-Paris, Grignon-France, Justus-Liebig Universitat-Giessen-Germany, Universitat-Hohenheim-Germany*. Through the second TEMPUS Project (JEP - 16104- 2001) titled "*Development of Program for Student Mobility*" faculty evolved cooperation with University in Leida-Spain and University in Firenze-Italy. Also, Faculty was participant in Norwegian- Balkanic Project: "*Upgrading of Academic's Education in Investigation in Agriculture in Southeast Europe*"

Until now Faculty of Agriculture Banja Luka participate in following projects: "*Development of Ecological Agriculture*" that is financed by Swedish Government, South Eastern Developing Network on Plant Genetic Resources (SEEDNet), Norwegian - South Eastern Europe (SEE) Programme: "*Institutional Collaboration Between Academic Institutions in Agriculture, Forestry and Veterinary Medicine in Norway and Bosnia & Herzegovina, Croatia and Serbia & Montenegro*" 2006-2009.

Since two years ago faculty starts to develop activities related to promotion of organic agriculture in the region through seminars for producers. However, education of students has been started through establishment of new topics related to organic agriculture. Each topic about organic agriculture lasts one semester. The purpose of these topics is to educate students about organic agriculture development, production techniques, standards about organic agriculture etc. From academic year 2006/2007 faculty is going to start to educate students implementing Bologna declaration. However, one of courses for master studies will be organic agriculture.

Faculty of Agriculture has one international project in the field of organic agriculture:

SIAB - "Strengthening of services to farms and institutional support for the development of Organic Agriculture" coordinated by Mediterranean Agronomic Institute of Bari

ADVISORY SERVICE

Advisory services operating in organic agriculture still does not exist in Bosnia and Herzegovina. Educations of local companies that work in the field of wild collections were mainly done at workshops organized by foreign institutions. The main idea of these workshops is to "train the trainers".

SIPPO-GTZ is one of foreign partners that have projects in Bosnia and Herzegovina. One part is related to organic production and wild collection. Implementation of this project has been supported by SIPPO.

Objectives of this project are to stop over harvesting and to promote sustainable use of natural resources. Due to indiscriminate harvesting practices the need to change the traditional business characteristics has been arise. Non-Sustainable use was characterized so far by the trade of the products without any documentation. It is recommended that the companies in this program assure the sustainability by becoming organically certified for wild collection. In this way it can be assured a good documentation and proper management plans and sustainable use of resources.

Activities for implementation of these goals are:

- *Consultancy of companies* by incorporating sustainable and economic aspects, quality management and organization of “Train the trainers” seminars for collectors,
- *Supporting companies* in organizing local and international Seller-Buyer Meetings, organic Certification and participation at international trade fairs (Biofach, Germany; Health Ingredients Europe; Sana, Italy),
- *Strengthening* of Sector Associations and Business Support Services,
- *Improving* the overall development through the establishment of EU compatible product standards, improvement of the legal framework, development of the national strategy for sustainable use and preservation of medicinal and aromatic plants.

SIDA (Swedish International Development Cooperation Agency) implement project “Development of organic agriculture in Bosnia and Herzegovina”. The project aims at contributing to the establishment of a viable organic farm sector in Bosnia and Herzegovina. The project objective for the first phase is to form key elements of a viable organic farm sector and a general awareness about organic agriculture.

Activities include support to:

- a certification facility,
- the development of a certification body,
- the development of a regulatory framework,
- assistance in marketing,
- technical assistance and know-how to producers/projects,
- the establishment of an organic sector association, and
- the development of public awareness.

There were a number of actors in Bosnia and Herzegovina that have an interest in the project, i.e. farmers and their associations, collectors' associations and cooperatives, marketing and food processing companies for agricultural and wild products, local and international NGOs, public institutions and donors. Donors include GTZ and SDC and SIPPO, which are promoting the production and marketing of organic agriculture in Bosnia and Herzegovina. The NGO ECON was responsible for most of the ground work in the project. The project has been carried out in close co-operation with KRAV Kontroll AB.

RESEARCH (OVERVIEW OF MAIN INSTITUTIONS CARRYING OUT RESEARCH, LIST OF MAIN PUBLICATIONS)

Research related to organic agriculture in Bosnia and Herzegovina has been mainly supported by foreign organizations. In last few years topics about organic agriculture find their place at university level.

GTZ/SIPPO has published in 2003 “Manual for Collectors Based on Principles of Organic Production” in cooperation with experts from Faculties for Agriculture from Banja Luka, Sarajevo and Mostar. The main reason why GTZ/SIPPO decide to publish this “Manual for Collectors” is to support companies to train their collectors. The training of collectors is imperative and precondition of a sustainable and controlled collection of medicinal and aromatic plants. It is of great importance that every company, especially organic certified, organizes permanent training of its collectors during whole year.

The Manual consists of 2 parts: General part and Plant monographs. In the general part, main information that collectors should know about collection, post harvesting treatment, packaging, storage and documentation, is presented. The part with monographs consists of 40 plant monographs. Beside plant description each monograph consists of 3 photographs of plants in their natural setting, botanical survey as well as a photograph of a dried plant. Indisputable some omissions have been made in the “Manual for Collectors”.

Publications from Faculty of Agriculture Banja Luka:

Todorovic Vida, Dardic, M. 2006. Dissemination of *Allium ursinum* L. On the northwest of BiH territory. First The 1st IFOAM Conference on Organic Wild Production. Teslic, B&H

Gataric, Dj., Kremenovic Zeljka, Lakic, Z., Djuric, B. 2006. Production of yellow gentian (*Gentiana Lutea* L.) seedlings as a way for biodiversity protection. The 1st IFOAM Conference on Organic Wild Production. Teslic, B&H

Markovic, D., Concetta Vazzana., Calabrese Jenny. 2006. Possibilities for wild collection in post-war Bosnia as a result of land use changes. The 1st IFOAM Conference on Organic Wild Production. Teslic, B&H

Djuric, B. 2006. German chamomile *Chamomilla recutita* (L.), a suitable crop for conversion period. 4th Conference on Medicinal and Aromatic Plants of South-East European Countries. Iasi, Romania

Publications from Faculty of Agriculture Sarajevo:

Aleksandra Nikolic, Enida Stroil, Jasmina Beslagic 2006. Characteristics of BH organic market and its reflection to organic wild plants' products marketing. First IFOAM Conference about wild collection. The 1st IFOAM Conference on Organic Wild Production

CHALLENGES AND OUTLOOK

There are many challenges that Bosnia and Herzegovina is going to face in future related to organic agriculture. One of the biggest challenges is related to promotion of organic agriculture sector and their products for consumption to the common people. In order to promote organic agriculture on the right way educated persons are need for this work at the university level as well as level of Ministry of agriculture at both entities. Knowing that organic agriculture is based on renewable resources one of the challenges will be improvement of animal husbandry production due to their production of organic fertilizers. However, big producers should be educated about standards about number of animal per hectar in order to avoid problems with pollution of underground waters because they are mainly placed in flat areas. Farmer's education about composting of organic residues should be organized knowing that presently our farmers do not use these residues rationally, mainly they throw them away. One of the challenges is related to abandoned areas that are not covered by mines. Knowing that fields in these areas are not chemically treated more then 10 years it makes them suitable for organic agriculture without big investments. For these fields conversion period is not needed. Depending on level of isolation from fields that are cultivated these fields could be used for organic honey production. Most of the fields are not even cultivated and because of that now they are affected by secondary succession processes. This problem should be solved as soon as possible knowing that processes of succession lead to forest formation. From that point of view it is very important that local and entity authorities give support to refugees to return at these places. Restoration of local roads and other infrastructure is also necessary. By this way it is possible to influence younger population to migrate to the cities creating them good opportunities for normal life. As it was mentioned above support from local and entity authorities is highly needed.

Existence of many areas all around the Bosnia that are characterized by unattached nature gives them excellent opportunity to become important places for agro-eco tourism. Most of these areas have their own local products that should be registrated as local brand names. However, importance of these areas comes from their climatic characteristics that are habitat for different rare plant and animal species. Organization of agro-ecotourism can help in protection of local breeds of animals (see appendix 1).

Knowing that Bosnia has excellent geographic position related to EU this could be one of big opportunities for sustainable development through organic agriculture.

In order to establish sustainable agriculture production Bosnia and Herzegovina will face some problems related to changes in land use, which will be caused by:

- Need to increase agricultural productivity
- Realization of biodiversity conservation
- Pressure which coming from non-agricultural forms of land use
- Interaction between short-term agricultural land use and long-term management natural and rural landscapes
- Market demand for high quality food that are environmental friendly

FOREIGN TRADE OF AGRICULTURAL AND ORGANIC PRODUCTS

Within Europe, organic wild collection plays a significant economic role, particularly in Eastern Europe and specifically, in the Balkan countries (see figure about harvested quantity in 2005). This can be seen as indicator of difficult socio-economic situation in these countries. Collection of certified organic MAP's has a particular economic importance. Regarding the quality will berries and mushrooms are the dominant wild products in region (International Trade Center, 2006)

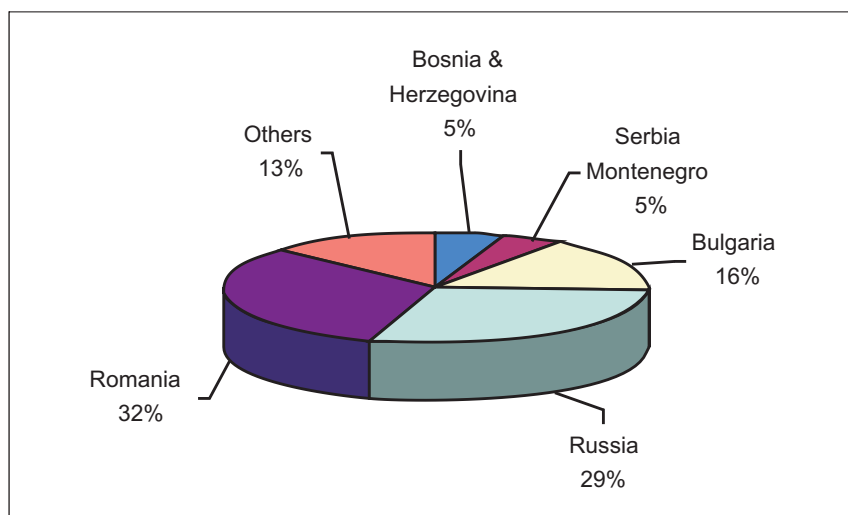


Figure 5. Organic wild collection in Europe

An EU study conducted in early 2002 estimated that the total market value of MAP's in Bosnia and Herzegovina was 50 million KM per year and the potential market value was 200 million KM at that time. Since then, demand for MAP products from Bosnia and Herzegovina has increased, particularly for raw materials and essential oils (Agribusiness and Textiles in Bosnia and Herzegovina).

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ANNEX 1

Biodiversity and Agriculture

Bosnia and Herzegovina has a high level of diversity in domesticated species of plants and animals. Today they, together with the wild species, represent a valuable part of the country's natural heritage. Though about 54 percent of land holdings occupy less than 2 hectares, most small-scale farmers nevertheless produce multiple products; the mixed habitats contribute to preserving biodiversity. These farmers usually grow fruit, including a wide spectrum of cherries, plums, apples, and pears, and several famous grapes for wine. Very important crops are various types of wheat, barley, oats, rye, buckwheat, and corn. In gardening there are varieties of potatoes, pumpkins, cabbage and peas, as well as of decorative, medicinal, and aromatic horticultural species.

Agricultural biodiversity is preserved in crop and animal production, sometimes even in the absence of organized and planned measures. The gene base of fruit trees was enriched for centuries during the Ottoman Empire, when consumption of fruit and juice increased. Beside rare natural fruit plants, there are several indigenous and traditional varieties of cherries, plums, pears and nuts, from which modern varieties have also been derived. Some typical traditional sorts are threatened by extinction because of diseases (e.g. "požegača plum attacked by the "šarka" or "plum pox" virus). Although new plant varieties are available for production, they generally do not taste as good and they are not so suitable for traditional agricultural products.

Table 1. Indigenous animal species and breeds

Species	Breed	Description
Horse	Bosansko – brdski konj	The total number of animals is not known, but there is a farm in Rogatica where pure breeds are kept. Horses of this type are found also on family holdings, but there is no breeding control.
Cattle	Gatačko govedo	The breed was introduced and selected centuries ago from so-called grey cattle <i>sivo govedo</i> and local <i>buša</i> . The cattle is not very demanding. It has a small shape and can survive even where grass is limited, as in Herzegovina. The pure breed is kept on a farm in Gacko.
Cattle	Buša	Is almost extinct. It is estimated that there could be 1,000-2,000 animals in the mountains. A serious study of the breed as well as gene protection is needed.
Sheep	Pramenka	The sheep is used for meat, milk and to a smaller extent for wool. It is still found in many places in the county (30,000 - 40,000 animals), although the type could be mixed with more productive foreign breeds. This type is still used for semi-nomadic pasturing. The sheep used to be moved every year from the area of Vlačić to the Pannonian plain (now in Serbia and Montenegro). It is still interesting because it is not demanding, and could be promoted as a part of a traditional lifestyle through ecotourism.
Dog	Tornjak	An indigenous breed, still found on Vlačići, Vranica and high mountains where it helps shepherds to protect sheep herds against wolves. Dog breeders association performs breeding control.
Trout	Lipan or Grayling	The endemic river trout is threatened with extinction, because of over fishing during the war, pollution and poaching. The fish farms of rainbow trout operate without proper infrastructure and control of their impact on river downstream (mixing with river trout and pollution of water with nutrients).