

Federation  
Of  
Bosnia and Herzegovina

**SECTOR SURVEY**

**AGRI-BUSINESS AND  
FOOD PROCESSING**

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## THE AGRI-BUSINESS AND FOOD PROCESSING SECTOR

### A. INTRODUCTION

This report presents an analysis of the capabilities of enterprises in the Federation of Bosnia and Herzegovina that are involved in any step of the process of producing food, i.e., the agri-business and food processing sector. For the purposes of analysis and reference, this sector has been segmented according to the United States Standard Industrial Classification (SIC) into four sub-sectors: Agricultural Inputs and Services; Commercial Agricultural Production -- Crops; Commercial Agricultural Production -- Livestock, Dairy and Poultry; and Food Processing groups<sup>1</sup>.

- *Agricultural Inputs and Services* consists of those establishments primarily performing soil preparation (e.g., land plowing, application of fertilizer), crop services (e.g., crop planting), veterinary services (services for farm animals) and other animal services (e.g., fur-bearing, pets), farm labor and management services (e.g., management services of citrus groves), and landscape and horticultural services.
- *Commercial Agricultural Production -- Crops* consists of establishments (e.g., farms, orchards, greenhouses, nurseries) primarily engaged in the production of crops, plants, vines, and trees (excluding forestry operations). These establishments are also involved in the production of mushrooms, bulbs, vegetable seeds, and hydroponic crops.
- *Commercial Agricultural Production -- Livestock, Dairy and Poultry* includes establishments primarily engaged in the keeping, grazing, or feeding of livestock for the sale of livestock or livestock products, for livestock increase, or for value increase. Livestock, as used here, includes cattle, hogs, sheep, goats, and poultry of all kinds.
- *Food Processing* -- consists of establishments engaged in manufacturing or processing of foods and beverages for human consumption, and certain related products, such as manufactured ice, juices, vegetable and animal fats and oils, and prepared feeds for animals and fowls.

Table 1 shows the structure of the agri-business and food processing sector in the United States and in the Federation of Bosnia and Herzegovina (BH). As shown, this sector in the Federation resembles the situation in the United States reasonably closely. While the sub-sectors in the Federation described above are not involved in the production and manufacturing of certain products, their activity resembled the situation in the United States closely. (Table 1 is at the end of the text, followed by a survey of establishments as an appendix).

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<sup>1</sup> The SIC is a classification system covering the field of economic activities by establishments, not enterprises, permitting analysis of economic activity by homogeneous grouping. An enterprise may have several establishments engaged in diverse economic activities. In BH, with the exception of the large state-owned conglomerates most enterprises are single-establishment enterprises.

In the Yugoslav era, i.e. before 1992, over 100,000 people were employed in the “Agricultural Products”, “Agricultural Services”, “Feed” and “Food Products and Beverages” industries, constituting 10.2 percent of the “economy” sector<sup>2</sup>. As of September 1997, this employment is estimated to be 17,600 and accounts for 6.7 percent of the “economy” in the Federation<sup>3</sup>. It is interesting to note that while the employment share of the core industrial sectors plummeted sharply between the pre- and post-war periods, the importance of agriculture and food processing within the economy as a whole has not increased. This incongruity cannot be fully explained due to a number of reasons including significant statistical discrepancies in data as well as their sources between pre- and post-war periods. A reasonable assumption is that employment has shifted to other sectors such as services (e.g., retail trade) and government. Moreover, this employment figure does not include “part-time” farmers who produce primarily for their own needs and sell some surplus on the market. Wages in this sector are around DM160 per month compared to DM240 in the “economy” sector. (The agriculture and food processing industries in the United States account for less than 2 percent of GDP and about 1.5 percent of total employment.)

Sales of agricultural products for the first nine months in 1997 (January to September) amounted to DM38 million (grain: 0.5; vegetables: 13.3; poultry and eggs: 0.7; milk and dairy: 4.3; fruits: 14; dried meat: 4.6; and other 0.6). At an annual rate and disregarding seasonal variations, the figure for the entire year would be slightly over DM50 million.

An approximate annualized figure for 1997 agricultural imports could be estimated at \$200 million and total consumer spending on food products would be \$230 million. A number of inferences emerge from the import data including under-estimating or under/non-reporting or “leakages” that were not recorded<sup>4</sup>.

About one half of BH’s total land area of over 5 million ha is agricultural land<sup>5</sup>. The Federation has about 600,000 ha of plow land, of which 10% is sown to fruits and vegetables, 5000 ha is occupied by vineyards, and the balance is grains and field crops. There are about 800,000 ha of pasture and meadow land suitable for grazing livestock. A significant portion of the land is mountainous and classified as forest rather than agricultural. Cultivation is usually in valleys

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<sup>2</sup> The “economy sector” in Bosnia and Herzegovina refers to those involved in economic activity and excludes Education and Culture; Health and Social Welfare; and Public Administration and Social Insurance.

<sup>3</sup> The estimate is based on data published in *Statistical Data on Economic and Social Trends*, Number 11, Year IV; November 1997; Bosnia and Herzegovina State Institute of Statistics, Sarajevo.

<sup>4</sup> The Federation currently has about 350,000 workers. An average salary of DM200 per month would yield an annual wage bill of DM840 million. Given the low level of income, it would be safe to assume virtually zero savings. Therefore, assuming a 50 percent propensity to spend on food, total spending on this category would be about DM400 million.

<sup>5</sup> Ha denotes hectare. One hectare equals 2.5 acres.

with grazing on the hillsides. The southwest would benefit from irrigation during summer months.

In the Yugoslav era, agriculture and food processing industries were insufficiently developed due to a myriad of reasons including deficient management skills, scant marketing skills, low productivity, promotion of heavy industry, removal or redirection of farm land and the ensuing impact on rural population, incoherent rural development planning, small farm size, lack of credit, lack of extension services, inferior equipment, inadequate soil maintenance, and lack of market.

Food processing in BH encompassed the following prior to 1992: grain mills, bakeries, dough production, maize processing, barley processing to malt for beer, oat processing, yeast production, cakes, candy and chocolate, animal feed (concentrate), potato processing, sugar production, fermented products, edible oil, beer production, meat processing, milk processing, fruit and vegetable processing, grape processing, egg processing, distilleries, children's food, dietetic food, ready-made dishes, herbal products, and tobacco processing.

At present, the high proportion of imported food would indicate that the local capacity is deficient in satisfying demand even at the current low purchasing power of the population. This would indicate that there are opportunities for import substitution.

## **B. AGRICULTURAL PRODUCTION**

### **1. Production Capability (Crops and Livestock)**

#### **a. Inputs**

All agricultural inputs are principally imported with the exception of animal feed. The Federation has the capability of producing nitrogenous fertilizers (e.g., ammonium nitrate, ammonium sulfate, anhydrous ammonia, aqua ammonia and other nitrogen based products). The plant in Lukavac currently does not produce fertilizers and other inputs. Because of lack of cash, most farmers are unable to purchase chemical fertilizers and rely on locally available organic that are less efficient.

#### **b. Crops**

As indicated above, the agriculture sector as a whole was not a dominant segment in the BH economy. Its share in the economy was lower than sectors such as construction, metals, and machinery. Agricultural production of crops and livestock was largely shaped according to the socialist model (e.g., state-owned co-operatives) and efficiency was not a key objective. As a result, yields were lower than western standards (e.g., wheat: 3.1 tons/ha, fruits: 8-10 kg/tree. The corresponding figures for wheat yield in the United States is about 5 tons/ha).

Since the Federation is largely rural, agriculture impacts on a large population of households. There are about 220,000 farm households. Available land per capita is 0.2 ha. Over 90 percent of agricultural land is within the private sector.

The average farm is between 3 and 5 ha, i.e., relatively small and largely inappropriate for modern mechanized farming. This land fragmentation is particularly constraining in the flatter areas where mechanization would otherwise be possible. In the hilly areas, farm size is typically larger than in the valleys and units are more often consolidated.

The substantial movement of population which has taken place during the war has resulted in many people occupying land to which they have no legal title; present estimates indicate that up to one third of the farmers with land title no longer occupy their own land. As in the other areas of the economy, issues of displaced persons complicate development policies.

Private farm systems in the Federation are largely mixed. Generally, these are low-output mixed farming operations and include grain, field crops, vegetables, and fruit (principally plums and apples) for the household.

Compared with industrial economies such as the United States, BH average yields are considerably lower for grain, potatoes, vegetables and other crops. Although BH conditions are not ideal for the crops grown, yield levels reported on some of the more efficient units in the past, suggest there is substantial room for technical improvement. The table below exhibits crop yields.

Production of crops fell considerably as a result of the war and consequent reduced availability of inputs. A seed distribution program implemented by UNHCR and the Food and Agriculture Organization ameliorated the decline in wheat production in the Federation territory.

Fruit production was also estimated to be down by about 50 percent, with 5-10 percent of trees destroyed. There has also been considerable damage to commercial vineyards and wine production facilities in the south, particularly in the Mostar area.

### **c. Livestock**

The dominant varieties of commercially produced livestock in the Federation in order of relative importance are cattle, sheep and hogs. There is also some breeding of goats and horses. The war took a heavy toll on the herd population, especially in the state sector. If before the war 80% of animals were owned by private farmers, today that percentage is probably closer to 95%.

In both state and private farms the technical performance of livestock is quite poor when compared to Western Europe. For example, milk yield is less than one-third and numbers of pigs slaughtered per sow per year, is about half of that achieved on efficient Western European farms. Poor livestock performance is due to a number of reasons including limited availability of feed in particular protein meals, as well as lack of extension services to private farmers. (In western

economies such as the United States and Canada, feed manufacturers are usually the best suppliers of extension services.)

Most establishments in this sub-sector are feedlots. Because of the decimation caused by the war, there is still very little cattle breeding in the Federation. Most commercial livestock operations import calves (chiefly from Croatia) and then raise them to six months (baby beef) or 12 months old before slaughter. These enterprises are not very large – the average herd size is under a hundred head of cattle. Feedlots in the Federation do enjoy a number of competitive advantages including good hilly pasture land to raise calves during the summer and an adequate local feed supply.

Most milk producers are small family operations. Herd size varies between one and six. Cattle breeds include Local Sivo, Siementhal and Frisian. Milking equipment is generally obsolete or non-existent, many cows are still milked by hand into buckets. Storage and refrigeration equipment is also lacking. Sanitary and hygienic conditions are not satisfactory by Western standards. Milk production is low – approximately 1,400 liters of milk per cow per year compared with over 7,000 liters per year in the US.

#### **d. Mechanization**

Based on 1991 figures of about 60,000 two-axle tractors, (63 percent with between 19 and 37 kW engines), and over 32,000 motor-cultivators and single-axle tractors, the mechanization level in BH was adequate prior the war. Because of the small farm size, many farmers did not have access to mechanical equipment or the ownership of mechanized equipment was not deemed as feasible. As such, there was a relatively high horse population (1 horse per 9 ha of cropped arable land).

The war affected the major part of the existing farm equipment. An estimated 70-80 percent of the tractors and implements were destroyed or stolen. Of the remaining equipment, only about 50 percent is in working condition due to maintenance problems and lack of spare parts. The equipment is mostly aged and in many cases, major rehabilitation work will not solve the mechanization problem in the medium term.

To overcome the shortage of specialized equipment at the farm level and given the small farm size, effective mechanisms of contracting agricultural services or hiring equipment need to be developed to allow access to suitable cultivators, seeders, planters, mowers, balers, etc., without incurring onerous cash outlays by farmers.

## **2. Market Opportunities (Agricultural Production)**

Domestic producers should concentrate on increasing their market share as well as improving quality. Important markets include:

Feed – Because of transport costs, Bosnian grown corn is very competitive with imports and adequate in quantity to meet local demand. At present farmers in the Tuzla region are reporting a corn surplus. Federation feed producers will need to increase imports of additives in order to increase quality.

Flour -- Federation flour will be competitive domestically if the tariff on imports remains in place to protect domestic producers and if transport costs remain relatively high. Otherwise, cheaper imports from more efficient flour producers in Western Europe could push local products off the market.

Fruits, berries, cheeses (e.g., Travnik, Livanjski) and herbal products -- These commodities offer increased scope for the domestic market and have export potential due to their reputation for good flavor and aroma.

Meat products -- Domestic consumption of lamb and beef is currently very low because of weak consumer spending power, especially outside Sarajevo. Traditionally, however, consumption has been high compared to Western European nations and should increase as consumer-spending power increases. Domestic consumption of pork is unlikely to return to pre-war levels because of the different ethnic composition of the population ensuing from the war.

Because of good local conditions, Federation beef should be competitive domestically. With proper marketing (and in the absence of punitive tariffs), the historic outlets of the Dalmatian coast should provide steady additional demand. The Middle East, especially the Gulf States, and Muslim South East Asia (Malaysia, Indonesia) represent some potential new export markets for *halal* slaughtered beef and lamb.

## C. FOOD PROCESSING

### 1. Manufacturing Capability

At present, the most significant companies are in regions surrounding Sarajevo, Zenica, Bihac and Tuzla. There are several players that dominate the activities in the food processing sub-sector. Profiles of a few key companies are presented below.

ECONOMIC PROFILE OF DOMINANT AGRI-FOOD COMPANIES FEDERATION OF BH				
Company	1991	1996		
	Sales DM Million	Sales DM Million	Active Employment	Inactive Employment
Agrokomerc, Velika Kladusa, <i>S</i>	83	21	1,340	2,560
Klas, Sarajevo, <i>S</i>	105	24	750	<10
Vispak, Visoko, <i>S</i>	25	8	120	20
Mljekara, Zenica, <i>S</i>	76	5	300	<10
Mlinpek, Bugojno, <i>S</i>	16	6	130	<10
UPI <sup>6</sup> , Sarajevo, Gorazde, <i>S</i>	21	8	230	215
Vegafruit, Gracanica, <i>P</i>	1	7	120	160 *

Note: *S* indicates state ownership, *P* indicates private ownership, and \* indicates seasonal workers.

- **Agrokomerc**

Agrokomerc was founded in 1972. In 1981, it was registered as a stock-holding company with 80 percent state ownership and 20 percent from small private shareholders.

In former Yugoslavia, the company's name was synonymous with processed foods. The company was involved in all of the sub-sectors: agricultural services; production of crops; production of livestock, poultry and poultry products, and dairy; and food processing. Several operations were and continue to be in the domain of the Federation.

During its peak years, Agrokomerc employed nearly 8,000 and maintained cooperative housing for 30,000 residents. It also had an engineering division that was involved in building sites for various operations.

The company suffered from the impact of the war but continues to maintain a good position in the market. The company's business plan includes expansion and production operation of a number of commodities: eggs (140 million), turkey (12,000 tons per year at around DM3 per kg.), chicken (13,000 tons per year), and rabbit (1,500 tons per year.) The marketing plan for these products is along the following lines:

- Eggs -- throughout the Federation (Bihac -- 25 million, Tuzla -- 40 million, Zenica -- 25 million, and Sarajevo -- 50 million)
- Chicken -- 80 percent within the Federation and 20 percent for the export market
- Rabbit -- 100 percent for the export market (Italy)

- **Klas**

<sup>6</sup> Reflects UPI Gorazde (Gorazde), UPI Pak Centar (Sarajevo), and UPI Zora (Sarajevo). These companies are state-owned but each is an independent legal entity and carries the UPI trademark.

Established in 1908, Klas is one of the oldest companies in the food processing sub-sector in former Yugoslavia. The company has four subsidiaries: *Zitopromet*, *Velepekara*, *Sarko* and *Sarajka*. Before the war, Klas was a majority socially owned company (73 percent). Currently, Klas' shareholder mix is comprised of 48 percent state capital (DM20.4 million) and 52 percent social capital (DM22 million). Klas is affiliated with UPI on a commercial basis.

In the 1980s, Klas was one of the principal five food processing companies in the former Yugoslavia. Before the war, sales of Klas reached DM70 million and the work force 1,200. War damage is estimated at DM7 million.

The main activity of Klas is manufacturing of flours, fodder, bread, baked goods, biscuits/cookies, pasta and other similar products. Total storage capacity is at around 80,000 tons. Daily capacities include: wheat milling -- 240 tons; bakery -- 110 tons; cookies, cakes and waffles -- 18 tons; and pasta -- 15 tons.

The main goals of Klas in the post-war environment are to secure a strong position in the domestic market by returning to pre-war capacity, focusing on exports, increasing domestic market share, and replacing imports through its own products.

- *Vispak*

Vispak, a food processing and packaging company, is located in the economically developed part of central Bosnia within the Sarajevo-Zenica corridor, 30 km from Sarajevo and 40 km from Zenica. Nearness to a main highway and an industrial gauge railway as well as an airport under construction should enable efficient delivery of goods in a cost-effective manner.

The company has been doing business successfully for over twenty-five years. It is one of the biggest and most well known producers of roasted and ground coffee in the Federation and BH as a whole. The coffee is mainly of "Espresso" variety, imported from South America. In addition, the company has the following product lines: spreads for bread, peanuts (roasted and shelled), teas, puddings, spice, vegetable fats (from palm oils in Malaysia), additives for bread.

Maintaining high product quality is a key objective of the company.

- *Mljekara*

“ZIM” (Zenica Industrija Mljekara) is involved in the production of: pasteurized liquid milk, yogurt, sour cream (with imported butter from Slovenia, Croatia, Czech Republic and EU), and cottage cheese.

Compared to the pre-war era, ZIM’s milk production has dropped by more than 50 percent from an average of 38,000 liters of milk per day. The company suffered some war damage and its operation was closed. It recommenced its operation in summer of 1996. Assets are valued at DM2.8 million (1996). ZIM has mixed ownership (90 percent state, 10 percent employees).

Some 1,500 farmers supply ZIM with 17,000 liters per day. They are located in Zenica, Doboj and Middle Bosnia..

Strengths of the company include familiarity with modern technology and reasonable facilities. Included in the weakness are a number of factors such as small-scale production, limited working capital, under-developed milk collection system, deficient marketing acumen, and outdated capital equipment.

- *Mlinpek*

The company was founded some twenty years ago. The main product is flour. There are two operations -- Bugojno and Jajca with respective daily flour production of 100 tons and 20 tons. The company has nominal control over two bakeries in the Herzegovina territory which produce close to 45 tons per day. Bugojno also has capability for other products such as feed for chicken, cattle and fish. The Bugojno plant is planning edible oil production.

- *UPI*

The UPI Business Association was established in 1972 through nine companies in the areas of agriculture, transport, industry and services. There were over fifty affiliates. UPI’s activities extended beyond agri-business and food processing and included primary agricultural production; food processing; catering; touring; engineering and consulting for the agri-business sector; wholesale and retail; and transport. It was among the largest companies in the “agro-industrial” sector and the economy of the former Yugoslavia. In the post-war Federation, there is a “UPI group of companies” and each one of them operates independently.

- *Vegafruit*

Vegafruit is a privately owned company. It was established around 1994. Sales in 1996 reached DM7 million up from DM4.5 million in 1995, reflecting a 57 percent increase. The company expects to maintain a robust growth in its revenue forecast. The 1996 work force of 120 has increased four times, from a year ago. Its products include juices, marmalade, tomato by-products, preserved vegetables (e.g., pickles) and sugar (cubes).

## 2. Market Opportunities (Food Processing)

Competition on the domestic market from imported products is fierce. Slovenian, Croatian, Italian, and German companies already dominate the market in most processed goods. Higher value added goods such as condiments, packaged snack foods, and frozen food products will be dominated by foreign producers for the foreseeable future, as Federation companies lack adequate capital, marketing know-how, or local inputs to compete.

Local bread and pastry consumption is fairly high -- annual consumption is assumed to be 150 kg per capita per year (assuming 30 percent higher than the U.S.). Local bakeries should control this market. The export potential of these products is limited because of their short shelf life.

Imported milk from Croatia, Slovenia, Italy and Germany dominates the Federation market although the local dairies have begun to gain some market share in recent months. Local dairies should be able to compete with imported UHT milk on price and taste. The short shelf life of domestic milk reduces its competitiveness on the local market and limits export potential.

Products derived from local fruits and berries -- juices, syrups, jams, jellies, and liqueurs have reasonable export potential. Certain cheeses produced in the Federation (e.g., Travnicki, Paski, and Livanski) have good reputations in former-Yugoslavia and possibly small export potential as a gourmet product to Western Europe. With proper marketing techniques, these products could penetrate a niche market.

## D. STRENGTHS AND WEAKNESSES

### 1. Strengths

The sector can build on the following strengths:

- **Opportunity for import substitution:** The majority of the Federation's food supplies are presently imported. This represents a unique opportunity for food processing companies to develop domestic products, both animal and vegetable, which can replace some of these imports.
- **Export potential:** Fruits and berries produced in the northern region were well known throughout Europe for high quality and aroma. The export potential for these crops as well as processed food products made from them still exists.
- **Low labor cost:** The agricultural economy of BH prior to the war was based largely on individual small landholders who produced some amount in excess of subsistence requirements for sale at local markets. These producers possess the necessary skill for small-scale production and for food processing facilities. However, there is a need to improve productivity.
- **Abundant land:** Although much of the agricultural land is in smallholdings, the

aggregate number of hectares available is large. The small landholders provide an opportunity for "contract farming" which is ideal for labor intensive operations such as animal husbandry, high value horticulture products, poultry and fish production.

- Health food: The use of chemical fertilizer in the Federation is lower than the average in Western Europe and other industrial nations. This should provide a potential for organic foods in high-income (e.g., Austria, Germany and Switzerland).

## 2. Weaknesses

The agriculture sector was based on a "co-operative model" and state ownership was the norm for food processing companies. The inefficiencies generally associated with this approach continue to limit the agriculture productivity.

- Small-scale holdings: It is not feasible to mechanize production and harvesting processes.
- Poor infrastructure: Roads serving the rural areas are not suitable for transportation of highly perishable, high-value horticultural products such as berries, fruits, and vegetables due to bruising of the product.
- Deficient agricultural extension system: Access to agricultural academic institutions and government services were limited due principally to increased emphasis on heavy industries. Although governments with their meager resources are attempting to remedy this.
- Weak intellectual property rights: Producers and breeders who develop improved crop varieties will be reluctant to share and transfer such technological advances to other producers due to apprehension that these will be propagated and sold without license.
- Mined areas: It is estimated that some 10 to 15 percent of agricultural land has been affected by land mines. This impedes the fullest use of productive land.
- Poor packaging: The processed foods in the Federation are largely imported which have high standards of packaging. The Federation processed food products suffer from poor packaging. In order to capture a market share, the manufacturers of processed foods will need to learn packaging in both functionality and design.

## E. SUMMARY AND CONCLUSIONS

The Federation's agri-business and food processing sector cannot be expected to compete on an international basis. For the agricultural production sub-sectors, it is unrealistic to expect exports with the exception of some very narrow niches (e.g., berries, herbal foods). These sub-sectors should concentrate on improving productivity in order to compete in the domestic market.

The food-processing sub-sector has considerable opportunities in replacing a wide array of

imports. As personal income grows with increased economic activity, consumption patterns will shift for high-end products. With privatization in place, as food processing companies become efficient and launch aggressive business strategies, they would likely capture the market share of products that are now principally imported. Juices, jams and other condiments are the primary categories. The Federation has a wide variety of fruits and vegetables needed to produce these items. The producers of agricultural commodities and manufacturers in the food-processing sub-sector should forge alliances so that both partners can seize market share of this basket of goods.

The following objectives can advance the competitiveness of the agri-business (production) and the food processing sub-sectors. Many recommendations noted below are targeted to strengthen certain inherent weaknesses and they apply to most other sectors of the economy (e.g., low labor productivity, weak management skills and inactive workers).

### 1. Agricultural Production

- *Reduce imports* ⇒ **Structural**

The fact that the Federation presently imports almost \$200 million of food and food products provides ample opportunity for domestic production. The import tariff may be temporarily justified to provide some protection for Federation agricultural producers in the post-war recovery period.

- *Promote local feed grain production* ⇒ **Strategic**

Landholdings are too small for highly mechanized large-scale production of grain, grains, and feed grains. Without domestic production of low cost feed grains, it is doubtful that large scale, highly sophisticated animal feeding facilities can be sustained.

- *Support small producers* ⇒ **Strategic**

The farmers who supply the “farmers’ markets” should not be dislodged. Many are from sub-rural areas and lack other means of an economic livelihood. The small-scale farm produce is their chief medium of self-reliance. If displaced from this occupation, they will enter the social safety net. This will further exacerbate the fiscal situation of all levels of government within the Federation. Measures should however be taken to promote their productivity.

- *Increased access to mechanized equipment* ⇒ **Strategic**

Increased access to mechanized equipment will improve the local productivity. This could be achieved via an association to minimize cash outlay by individual farmers.

### 2. Food Processing

- *Rapid privatization* ⇒ **Structural**

Privatization is at the top of the reform agenda in the Federation. It is now well accepted that the private sector will play the pivotal role in revitalizing the economy. The companies in the food processing sub-sector should be rapidly privatized and new businesses supported.

- *Shed inactive workers* ⇒ **Structural**

Most state-owned companies are obliged to maintain inactive workers and possibly pay their minimum wage along with contributions for social benefits. This is an unfair burden on these companies. It is necessary to allocate divisions of responsibility and accountability. The Federation government should take the responsibility for the social safety nets from the companies.

- *Increase labor productivity* ⇒ **Strategic**

High labor productivity and a conducive regulatory and fiscal environment are the catalysts for growth and attracting investment. With privatization initiatives underway, efforts should be made to increase labor productivity through training, mechanization and skills improvement. (This measure applies to the other sectors of the economy as well.)

- *Increase management ability* ⇒ **Strategic**

Companies in the Federation, like those in socially planned economies lack marketing and management skills necessary to compete in today's fiercely demanding environment. The management should be encouraged to network with foreign partners. The international community should support management training of these companies.

- *Form associations* ⇒ **Strategic**

The food industry in most industrial countries has gone through extensive changes over the past decade and it will change even further with the turn of the century. The industry will benefit from forming an association and networking groups with their foreign counterparts to learn advanced technological and become familiar with market forces.

## **Tables**

**Table 1. Structure of the Agri-business and the Food Processing Sector – United States and Federation of Bosnia and Herzegovina**

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## APPENDIX

### ESTABLISHMENTS SURVEY

This appendix presents two sets of tables with information on sector establishments in varying degrees of completeness.

Three data sources have been used to compile these tables:

- A survey of sector enterprises identified from industrial directories.
- The USAID Business Development Program-Business Consulting (BDP-BC) database.
- The World Bank-Emergency Recovery Project (ERP) credit line database.

Table series A1 presents information on the current status of establishments (or enterprises). All data are rounded to reflect an approximate level rather than an exact level, as the accuracy of all available information is not high. Most of the information presented reflects original information provided by the companies, however, some of the information shown, particularly capacity utilization and capital needs, reflects professional judgement on the basis of knowledge about the industry and BH economy.

- Set “a” represents the group of companies in the sector for which relevant information has been obtained through the survey, the BDP or ERP databases and reviewed either through direct contact with the companies or through data analysis.
- Set “b” represents the group of companies in the BDP or ERP databases which are not included in “a” for which some information exists or can be identified at present. Additional information to complete the table may be compiled in the future.

Table series A2 presents information on the relative competitiveness of establishments (or enterprises). All data are rounded to reflect an approximate level rather than an exact level as the accuracy of all available information is not high. As mentioned, most of the information presented reflects professional judgement based on knowledge about the industry and BH economy. Sets “a” and “b” are as defined for table series A1.