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Analysis of the current situation of the Food
Consumer Sciences Knowledge System in the
Western Balkan Countries

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Introduction

A general objective of the Focus Balkans project is to improve competencies and understanding in the field of consumer food science in the Western Balkan countries. The scientific results of this research will make important contribution to the public health and consumer protection and to the achievement of the objectives of FP7. The specific objectives are to: develop a network of universities, institutes, high schools, consumer organizations, NGOs and private enterprises active in the field of food consumer science that are able to develop joint research activities; have a better understanding of food consumers in the WBCs, with a focus on products with positive nutritional properties.

The analysis of the knowledge system is one of the outputs in WP2. This report is description of the knowledge system of consumer research related to food in the WBC (identification of the core and satellite actors to be involved in the network between specialists in food consumer science). The general purpose of WP2 is, besides scanning the current situation, also the identification of the most relevant players in food consumer science. The work can be described as an attempt to answer three main questions: Who? What? Where? The output of this part of project is besides the report also the database – directory of relevant institutions, and organization with their contacts and description of their role and activity in food consumer science (<http://www.focus-balkans.org/?p=97>).

The aim of this report is to scan and describe the current situation in WBC. The knowledge system is composed of several entities that are the stakeholders of this system, as institutions or individual groups working in the fields of food consumer science. Its aim is to localize the knowhow and experience regarding food consumer science in WBC.

1. Knowledge System concepts

1.1. GENERAL DEFINITIONS

1.1.1. System

Systems underlie every phenomenon and they are limited only by the observer's capacity to comprehend the complexity of the observed entity or item. In that context, a *system is an organized structure consisting of interrelated and interdependent elements (entities or parts) which continually directly or indirectly influence one another to maintain their activity and existence.* All system elements are organized in order to achieve the common purpose – the goal of the system, and they maintain dynamic relationships. The system is composed of sub-systems. Simultaneously every system is a part of a larger system. It is also important to mention that system shares common properties with other systems that help in transferring understanding and solutions from one system to another.

The systems are divided into two categories: (1) closed systems – theoretical constructs which have solid boundaries and where only the components within the system are assumed to exist in a self sufficient state; (2) open systems – systems that have permeable boundaries through which they continually exchange influences with their external environment – the larger system in which they exist. Generally, in the practice the system is capable of evolving as a whole as a result of external pressures.

1.1.2. Knowledge system

According to previous general system definition, a knowledge system consists of elements connected with common goal which can be achieved through their interactions and interrelations. The system improvements can be viewed as continually system elements evolution as a result of external opportunities and threats. The key words within knowledge systems are elements/stakeholders and their relationships. The knowledge system is composed of elements that are key actors in this system, as institutions or groups of individuals. The relationships between the stakeholders are exchanges of knowledge, in three forms: (1) information (data base, standard updating, change leader within an organization, etc.); (2) knowledge (combination of information within a professional practice already gained: new method, new procedure, etc.); (3) Competencies (skills involving several knowledge which acquisition requires learning a new routine).

1.2. FEATURES IN THE KNOWLEDGE SYSTEM IN FOOD CONSUMER SCIENCE

Knowledge system in the area of food consumer science is concentrated on science of food and science of food consumer behaviour, but also on the state administration performance and research and information level. Generally, contemporary food consumer science mainly relay on social and policy issues concerning food choice and risks taken by the end consumer. It is often oriented to studying how to encourage consumers to adopt consumption patterns more in the line with recommendations from research findings on nutrition. Furthermore, it can be seen as a specific leading food consumer science system goal today.

Starting from the features mentioned above, parallel with general analysis of system elements and their relations, the specific FCS systems and their interrelation would be investigated. Those systems and their interrelations are organized as follows:

	System	Elements
1	Socio-economic actors	Farmers, producers, processors, industry, retailers
2	Public decision system (driven by the politics)	Public administration, Ministries
3	Information and knowledge	Research institutes, NGO, BDS, associations, schools
4	End user	Consumer

Adaptation from BRUNORI & al. 2007

The specific analysis of the systems and their interrelation mentioned above are generally incorporated within basic analysis of most recently used approach to the food consumer science knowledge system. The basic contents of this review are following:

- (1) Food consumer science knowledge system models in most of WBC, based on existing elements of the system and interrelation within them;
- (2) Analysis of the basic statistic elements for each WBC;
- (3) Analysis of food consumer science knowledge system in each country - overview of the systems and elements;
- (4) Conclusion on the food consumer science knowledge system in WBC;
- (5) SWOT analysis of the food consumer science knowledge system in WBC;

1.3. MODELS OF THE FCS KNOWLEDGE SYSTEM

The globalisation of the commodities and food markets has increased dramatically over the past decades. In agricultural sector, according to the arguments presented by the different WTO-members around the table of negotiation, it appears that old players on world market are asked to share their market shares with countries which have recently increased their agricultural and food production, and which claim for more market access and less export subsidies. The consequences of this turn of globalisation are plenty. Of course, it is important to stress that overall, globalisation of the markets is a concern not only for agriculture and that generally, and the old world has widely benefited from the increase of the world markets. Three key trends affect how the food system and the agro-food knowledge system develop. First, there is a shift from local to national, regional and global markets with some larger players increasingly seeing the world as a global market and organizing to be active in it.

Second, a growing economic concentration of power in any of the sectors – from farm input suppliers such as agrochemical, energy or equipment companies to traders, retailers and caterers – means that fewer and fewer firms control more and more of the market.

Third, it is to look for ever better, more certain, more effective tools to help control the risks faced by the different actors and to secure the desired benefits. The various tools for control used are science and technology, information, management and laws, rules and regulations.

As a matter of fact, in this period of rapid and drastic changes, the various actors in the food system are engaged in a struggle over whose will have **power** and **control** over the production and supplies of food and how the **benefits** and **risks** arising from different activities will be distributed. These tensions can create some more uncertainty on the markets. Therefore, to consolidate a food knowledge system is for primary importance (SPORDELER & al., 2002).

In order to analyse and compare the situations over the WBC, we have elaborated some archetypes of food knowledge systems. None of these archetypes can be found in a real country. But it helps to position the main players in the food knowledge systems in each country. These archetypes allow as well characterising the main trends in possible further evolution in the different WBC. In fact, these archetypes are foreseen as main possible stages in the evolution of the food knowledge system, because a knowledge system in continuously

moving, adapting itself to the new social, economical, technical and institutional conditions. For example, the internet is a force which has completely changed the functioning of the communication between all the actors. The control about the information towards consumers and citizens (who are the same people in two different roles) is less possible than before.

So, in the reality, there is no complete evolution from one archetype to another, but some of the dominant actor can play a different role or be totally absent, changing the logic of interaction between the actors, and the relationships of power, control, and therefore the distribution of benefits and risks. This demarche is therefore only an entry to explore the reality and facilitate the comparison, the conclusions have to be done at the end in order to get a better understanding of the current situation and possible evolution, a knowing about the main stakes and the future debate around consumer sciences between the actors composing the food knowledge system in the WBC.

The 4 archetypes we propose are the following.

Archetype 1: State driven economy

The food system is driven by the State, as it is/was in socialist countries with planned economy. The tendency over time leads to an under-adaptation between supply and demand because the producers do not perceive any market signal. So at long term, food production becomes totally disconnected from consumers demand in terms of quality and quantity.

Archetype 2: Liberal economy

The food system is driven by retailers, who are operating an optimisation led by the logistic as main factor. It engaged the food production and the agriculture to an industrialisation, because the retailers are asking for fewer suppliers and because the concentration at supplier level is the only way for them to recover some market power. In fact, the power of these stakeholders is really very dominant. Therefore, some topics of the public health should poorly be taken into account (obesity for ex.). Consumer associations lobbies and therefore public institutions have to fight against these tendencies.

Archetype 3: Impotent state model

The pressure for quick liberalisation of the economy is very strong. Institutions are very weak; the laws are not fully enforced. Governments are unstable. NGOs are growing but remain too weak, because pushed by international donors and insufficiently embedded in the civil society. Consumers associations are neither representative nor linked with the political and administrative level. Business Development Services are not or weakly developed. The grey economy is pretty important but not leading the economic development. Some of the negative effects of the liberal model are clearly undermined by the NOGs' role. In this case states have a developed legal framework and agencies, which have often been subject to internationalisation / Europeanization, but nevertheless the state struggles to implement laws at the ground level. This may be because of insufficiently funded public administration, a capture of public offices by party officials which are subject to corruption / clientelism, and / or a civil culture which sanctions no-compliant behaviour. Such countries are characterised by a deep cynicism toward to the state and a burgeoning informal / black economy.

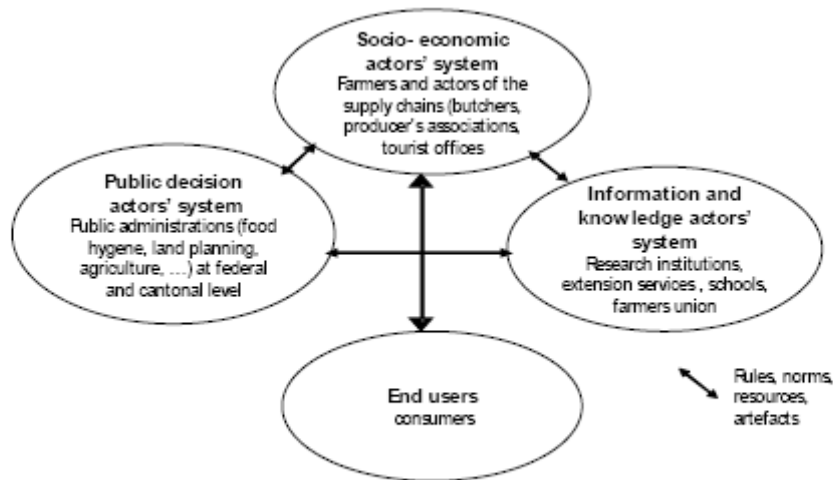
Archetype 4: Socio-democracy (State regulates the economy)

The confidence of the consumers toward food can be time to time put into doubt through new or false practices (beef hormones, Mad Cow disease, pollutions, antibiotics in meal, etc) but State can act in order to enhance it again through measures of food chain traceability and controls. Consumers are taken into account, with the help of strong consumer NGOs, supported by State. In that archetype, more and more strong norms and independent controls are imposed by the State. Private sector is under a certain public control on the basis of competition and public health laws. The institutions are strong enough to establish the rules and implement them.

Regarding the knowledge system and its interaction with three other systems, we can represent this as a system of interactions between 4 types of systems: the public decision

system (driven by the politics), the socio-economic system (actors' system engaged in the agricultural and food sectors), the information and knowledge actors (research institutions, extension services, schools, farmers unions) and the consumers/users.

Figure 1 : Four categories of actors involved in innovation



Source: BRUNORI & al. 2007

Bearing in mind all mentioned facts, the aim of the analysis in all countries involved in the project is to record the current situation (description of elements that constitute the systems), and then to make a detailed analysis of relations between the most important systems in Food Consumer Science. Majority of Western Balkan countries are similar by level of development of Food Consumer Science that can be defined by **impotent state model**. According to characteristics of development of this science, Slovenia doesn't belong to impotent state model, but it can rather be described by Socio-democracy (State regulates the economy).

2. Basic statistics of Western Balkan Countries

Analysis of FCS knowledge system will cover several countries in WBS: Slovenia, Croatia, Serbia, Bosnia and Herzegovina, Montenegro and Macedonia. Let's start with some basic figures on each country, in order to have better idea on the context.

Figure 2 : Some basic statistics for each country

COUNTRY	SLOVENIA	CROATIA	BIH	SERBIA*	MON	MK
Inhabitants in millions	2.0	4.7	3.9	7.5	0.7	2.0
Average salary in €	850.0	610.0	350.0	330.0	250.0	150.0
Average household members	2.87	2.99	3.29	2.97	3.43	3.58
Unemployment rate (registered, relative to active population)	7.5%	16.7%	/	23%	/	44%
Unemployment rate (the Labour force survey, relative to active population)	5%	12.4%	29%	14%	/	37.2%
Percentage of poor	/	11.1	22.9	6.6	/	20
Climate	Sub-Mediterranean Alpine Continental	Continental Mediterranean	Moderate continental	Continental	Mediterranean Continental	Mediterranean Continental
Last census	2002		1991	2002	2003	2002
Ethnic structure	Slovenians 83.06%	Croats 89.63%	Muslims 43.48%	Serbs 82.86%	Montenegrins 43.16%	Macedonians 64.18%
	Serbs 1.98%	Serbs 4.54%	Serbs 31.21%	Hungarians 3.91%	Serbs 31.99%	Albanians 25.17%
	Croats 1.81%		Croats 17.38%		Bosnian 7.77%	

*Figures without Kosovo

** Sources of data are: official statistical office data, statistical yearbooks and other publications, census data, estimations based on research.

WBC can be understood, geographically, as one region. However, countries created after the split of Yugoslavia differ from each other by numerous parameters. For the time being, Slovenia, whose membership in the European Union primarily defines its essential difference from the other Western Balkan countries, is the most different from the others. In the following analysis which primarily concerns FCS, this will be clearly presented. Namely, as it was already mentioned, all Western Balkan countries belong to the transition model in terms of development of FCS, while Slovenia can be proud of its socio-demographic model. The largest in terms of number of citizens is Serbia, followed by Croatia and Bosnia and Herzegovina. In terms of development degree, Slovenia is the most developed by far, followed by Croatia and Serbia. Other countries of the Western Balkans are in a significantly worse economic position. This is illustrated by GDP, average salaries, unemployment rate and other indicators.

Figure 3: Gross Domestic Product (GDP) in current prices, in million Euros in Western Balkan Region, 2001-2008

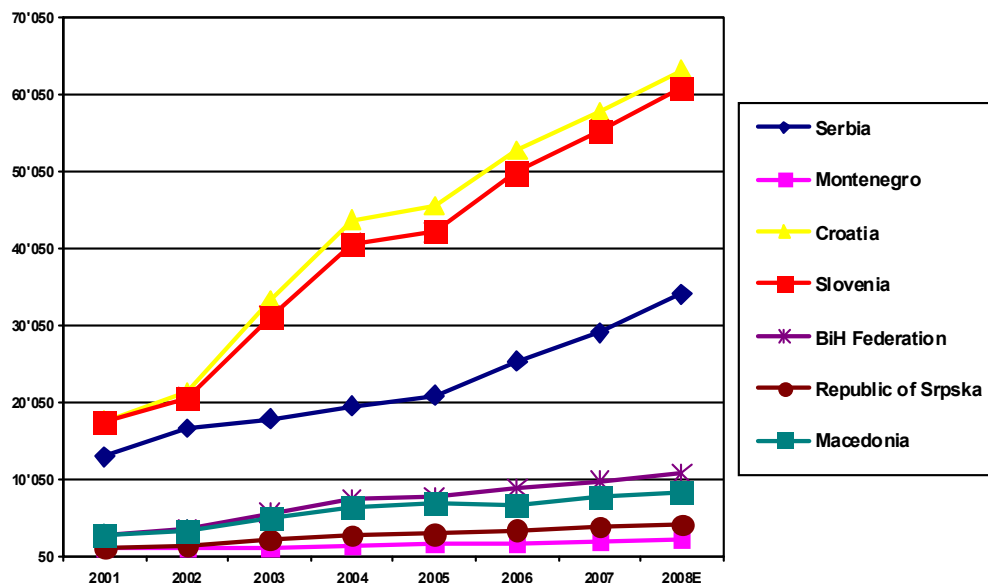


Figure 4: Average monthly expenditure and household expenditure, 2007

	Slovenia	Croatia	BIH	Serbia	MON	MK
Food and non-alcoholic beverages	18.0	32.6	31.3	33.7	35.4	41.7
Alcoholic drinks and tobacco	2.8	3.7	3.6	3.9	3.5	4.3
Clothes and footwear	7.7	8.0	5.1	5.2	8.2	7.6
Housing, water, electricity and other fuels	12.8	13.7	23.5	18.6	12.9	10.4
Furniture, household equipment and maintenance	7.4	5.1	6.9	3.1	5.1	6.2
Healthcare	1.8	2.5	3.7	4.1	4.0	3.0
Transport	18.1	11.4	9.9	8.5	11.0	8.4
Communications	5.0	5.1	2.5	3.4	6.1	4.5
Recreation and culture	10.3	6.2	3.8	5.8	3.9	4.1
Education	1.1	0.7	1.0	1.4	2.3	0.9
Restaurants and hotels	4.0	3.3	2.6	4.6	2.7	4.9
Other goods and services	11.0	7.7	6.2	7.8	5.1	4.0
Personal consumption - total	100%					

With increase of living standard, share of expenditures for food in total consumption will be decreased. From the economic point of view, demand side of market plays a vital role in development of a food consumer system. Therefore, consumer's readiness to pay for food can be measured both by household's income and expenditure. A significant growth in household income and expenditure was recorded recently, in most of the WBC. It is addressed to the period 2002-2007. At the same time, changes have occurred both in the structure of income and the structure of expenditure. It is going to be seen how the global economic crises will influence the household expenditure in WBC.

Consumption structure clearly shows the best economic position of citizens of Slovenia, where household income is spent on food and drinks to the least extent, while in all other countries of the Western Balkans this percentage is distributed relatively equally (31% – 41% range). Richer the country is, higher living standards of its citizens are - a lower the percentage of household income spent on food. The most is spent on food in Macedonia, then in Serbia, and the least in Slovenia. In Slovenia, expenditures are high for transport, recreation, culture and education.

3. Food Consumer Science Knowledge System in Bosnia and Herzegovina

3.1. SOCIO-ECONOMIC ACTORS IN BIH

Farmers

The overall fertile soil area in Bosnia and Herzegovina is 1,585,000 ha (or 62% of the agrarian ground area): 765,000 ha in BiH Federation and 820,000 ha in Republika Srpska. Arable covers 1,018,000 ha or 19, 9% of the overall soil, out of which 478,000 ha or 47% are currently untilled. There is around 0.59 ha of agrarian area per capita, 0,36 ha of which are arable and gardens. 45% of agrarian ground area is covered with hills (from 300 to 700 meters altitude), whereas these hills are of a medium quality and suitable for semi-intensive stock-farming. The mountain area makes 35% of agrarian area (above 700 meters altitude). Nevertheless, the great altitude, the ground fall and the ground infertility all narrow down the possibility to use these areas for anything more than grazing land during spring and summer. Less than 20% of agrarian area (which is half of the overall fertile soil) is fit for intense farming, and most of it is situated in northern lowland and river basins.

Officially, the agriculture-nutrition sector (agricultural production and food processing) covers 7.4% of BiH employees. Still, the primary agricultural production is the most significant economy sector when it comes to the possibility of informal employment. If we consider the single farming households and the partially market-oriented households, the estimation is that the sector covers between 20% and 50% BiH employees (both formal and informal). It is estimated that the exact measurement of informal economic activities would add 60% to the official gross national product, and the agricultural sector input would make one quarter of the rate. The fact that less than 1,000 farming households are registered as business subjects shows that the tax collection within the agricultural sector will be expensive and long-term. Small private households are often divided into 7 – 9 smaller parcels, all of which represents a problem when it comes to improvement of productivity and the overall efficiency. Though the size of the fertile area of single households might be bigger, the field fragmentation greatly limits the adoption of modern agrarian systems. Unlike the small private farms, the state households are usually much bigger. Still, the former state households are out of function or are in the unfinished process of privatization. Therefore, it is impossible to draw the investors and improve management.

It is estimated that there are over 500,000 households in BiH (note: only the official listing of households is entered into the animal marking register, which is 135,000 current households in BiH in 2007). It is also estimated that over 50% of these agrarian households are the size less than 2 ha and more than 80% is the size less than 5 ha.

Food production

More than 80% of the soil is fit for **cattle breeding**: there are plenty of unused pastures; there is a tradition of cattle breeding; Productiveness of the milk production in BiH is still under the EU level (currently 6 186 l/per a cow). 80% of milk farms in BiH produce milk only for their needs or are semi-commercial households with three or less cows. **Meat production**- The low level of self-sufficiency and the unused capacities of slaughter houses and meat processing factories (with the customers who prefer the local meat) can represent an opportunity to develop the overall sector. **Food grains and industrial crops**: Corn - 195,600 ha (62%); wheat - 90,000 which has decreased down to 73,300 ha (23%); barley, oat, rye and other - 47,400 ha (15%). An average yield has been around 20% lower than the EU average (4.2 t. /ha for all food grains in BiH in comparison to 5.7 t./ha in EU25). Most of the locally produced food grains are used as fodder. In the year 2006, 1,009,000 t or 75.5% was used as fodder. The rest, 225,000 t or 16.6% was used for humans and less than 8% (121,000 t) for the needs of industry. A great deal of locally produced food grains (33% in average) are used on farms and never reach the

market. **Industrial crops:** Starting with 2004, there has been an increase in the production of rape and soya mostly in northern parts of Republika Srpska and Brcko District (*Bimal* in Brcko District produces vegetable oils). **Fruit:** The major types are: 10.4 million of plum trees (60%); 3.7 million of apple trees (21%); and 1.7 million of pear trees (10%). From 2000 until 2006, the number of productive trees had grown for 2 million, and most were the apple trees (1.3 million), but there has been a tendency to grow small fruits (especially strawberries and raspberries). **Vegetables:** This sector plays a great role in gross agrarian output, with a potential for further growth. The most important breed is potato with 450,000 t per year. It is grown in hill and mountain areas and it represents more than one half of the overall vegetables (60%). The next are cabbage and kail (85,000 tone per year), some of which is used as fodder. There is an equal coverage of tomatoes, paprika and cucumbers. **Viticulture, grape:** The official estimation by OIV for the period between 2000 and 2004 says that there are 4,000 ha of vineyards in Bosnia and Herzegovina. Most grape in Herzegovina is grown in small vineyards (0, 3 ha to 0, 4 ha), and only few vineyards are the size of 10 ha or more.

Farmer organisations

There are many collective farms in BiH, and the number in both Entities is rather equal. Number of collective farms in BiH in total is 135 (RS 66, BiH Federation 63, Brcko District 6). There have been a lot of omissions in the last ten years and some of the collective farms have been on their own with a lot of transgression when it comes to collective-farm rules. Problems with collective farms have been left unsolved for a long period, which is why some strategic questions have not been answered: finances, collective-farm property, staff surplus, unpaid bills and salaries.

The Collective Farm Law of RS (adopted in 1999) and Collective Farm Law of BiH (adopted in 2003) have created legal conditions for the collective farms management and an opportunity to revitalize the sector. But the application of the Laws has been very difficult and the whole process will take a lot of time. By this, we mean the refund of the collective farms property and the registration of the property. The collective farms nowadays meet many obstacles in their work. Usually it is the legacy of the previous system: collective farms' policies being influenced by the workers, the surplus of administration workers, the management not meeting the law regulations, the management are taking quite some time to adopt the modern principles of the international collective-farm union, professional staff training lasts too long, etc. There are also big differences between the collective farms, as the newly founded ones are taking less time to adapt to the modern principles of management and they actually belong to the farmers (which is not the case with many collective farms).

Processors Important processor industries are: milk processing, meat processing, flour processing, sugar products, and production of oils. Discussed will be only the most important ones. The *milk production* sector has shown a great improvement in its capacities in the post-war period, and in 2004 there were 55 creameries with the capacities of 1,5 million litres. In the *meat-processing* sector there are nowadays (apart from many small slaughterhouses) about 30 middle-size and big slaughterhouses and about 20 meat-processing factories. Some of these newly founded slaughterhouses and processors apply high quality standards. The most produced meat products are sausages, bacon, ham and raw meat. The local market is dominated by the three biggest meat-processing companies, which manage to export part of their high quality products into the neighbouring countries. When it comes to *fruit and vegetable processing*, there are around 20 processing companies in Bosnia and Herzegovina today. The market is dominated by two companies (one in Republika Srpska and one in BiH Federation) with the yearly capacities of 30,000 tone making products such as juice, jam, pickles, preservers and some traditional food (e.g. ajvar). There are also *beverages and mineral water* factories, which have also had a growth in their capacities. *Wine production and viticulture* unofficial estimations show that there has been a growth of production over the recent years thanks to the fact that vineyards planted after 2000 provide between 80,000 and 110,000 hectolitres.

In food industry in Bosnia and Herzegovina, there is the largest growth of number of small and mid-size companies founded after the war. The biggest contribution to the economic development of the country is made by the meat and milk processing industry, with the largest number of new companies in the last twelve years. A great number of companies in the food sector, both pre-war and post-war companies, have the old and inadequate equipment.

When we consider the pre-war companies, only those privatized by the foreign investors have new and modern technology, whereas the old owners mostly prefer to work with the old equipment. In the post-war companies, the new investors usually decide to buy the used equipment in order to improve their production process. Only a small number of mid-size companies, which are thought to be the more significant producers in Bosnia and Herzegovina, make investments to buy the new modern equipment, which would help them capitalize on the usage of raw materials, water and energy. The management systems in compliance with ISO standards not being legally obligatory, most companies haven't introduced these standards yet. HACCP system had recently become legally binding so most companies decide to introduce this standard first. On the other hand, bigger companies are export-oriented so they have already introduced the aforementioned standards or they are in the phase of introduction.

Processors associations

Manufacturers and merchants are organized within the Entity level chambers of commerce. At the same time, there are groups which do not operate within the chambers. In BiH Federation, there are also chambers which operate on the cantonal level.

Within the Foreign Trade Chamber of Bosnia and Herzegovina there is a group of meat manufacturers and processors with an aim to articulate clearly the joint problems in the sector and advocate these problems at the authorized institutions. The meat producers in all sub-sectors are complaining about not being protected enough from the imported competition and bad quality. On the other side, the processors are complaining about high customs taxes. The associations are urging the Government to organize the sector and improve the state boundary control in order to reduce the illegal import and ensure the application of the Law on quality/hygiene. They are also asking the Government to support the milk production sector. Other problems that must be addressed are better communication and interaction among the producers, slaughterhouses, meat processors, distributors and sellers in order to simplify and reduce the complexity and expenses of the chain of trade.

Distributors

The food market in Bosnia and Herzegovina has drastically changed over the last ten years. Many local and foreign investors' supermarkets have been opened in all the bigger towns in BiH and this fashion has endangered the small shops and grocery shops. In the near future, this trend will bring more and more supermarkets overtaking the small shops. This whole process considerably influences the local food manufacturers who want to sell their goods to the supermarkets. Bearing in mind that BiH has a serious deficit when it comes to food, it is very important that the local manufacturers learn how to meet the requests of the newly opened shops.

Wholesale

The wholesales are present on BiH food market through two dominant forms of activities. On one side, there are typical wholesales chains of supermarkets, for which this is the only type of activity. When we consider consummation of fresh food (fruit and vegetables), the wholesales play an important role. Currently, the wholesales dominate over the fruit and vegetables import. Supermarkets do not buy fresh fruit and vegetables directly from the farmers. Instead, supermarkets usually rely on the combination of wholesales and collective farms when they purchase fresh fruit and vegetables. The other group of wholesales facilities is elite shopping centres such as Mercator, Konzum, Tempo and Interex, which have no retail sales reserves of their own but they register their reserves on the wholesales.

Retail

Food retail sales sector in BiH is rather split, with many local chains of supermarkets, which do not run business on the state level. Interex supermarkets are the only exclusively present in the whole of Bosnia and Herzegovina, but even they have small share in the market. There is a rapid growth of supermarkets and hypermarkets in Bosnia and Herzegovina: the number of their facilities is growing as well as the rate of employment, the number of customers and investments. This fast growth attracts new companies to the market and some of them will have a strong impact on the competition both midterm and long-term. Most supermarkets have done little research on the market. They all have an idea of their average customer but

none of them can give a clear profile on one such shopper. Domestic manufacturers and producers are only capable of meeting some of the needs of great supermarkets. When they buy fresh fruit and vegetable, retail sales facilities do not act in accordance with the class of quality, EUREPGAP, or some other standards. Most of the grocery shops rely on the whole sales so it is up to them to take care of meeting these conditions. Taking into account the current trend, most medium and huge urban markets will be over flooded with supermarkets in the next 3 to 5 years.

3.2. PUBLIC DECISION SYSTEM IN BIH

The Ministry of Foreign Trade and Economic Affairs (MFTEA)

MFTEA is a Ministry in charge of running foreign trade politics on BiH level, and also in charge of creating customs politics, a unique economic and trade environment, customer protection, competition, veterinary medicine, and it coordinates sectors within the field of agronomy, tourism and environment. This ministry prepares and coordinates activities which help create distinctive legal regulations concerning food, and it also coordinates preparations for the basic laws which deal with veterinary medicine, phytosanitary problems, quality control and food protection. The Ministry forms the bodies that are directly responsible for the implementation of these issues. All the activities mentioned above are in compliance with both the BiH laws and Constitution and international obligations within the field.

The Ministry of Civil Affairs

This ministry is in charge of running tasks under BiH authority, which means setting basic principles for the activity coordination, balancing between the Entity administration plans, and defining international strategies within the field of medicine, technology, education, geodesy, geology and meteorology.

Ministries of Agriculture, Waters and Forestry

(BiH Federation level, Republika Srpska level, and the Section for Agriculture, Waters and Forestry in Brcko District): These all hold the primary responsibility for the development and improvement of the production of food (both floral and animal origin), fishing and hunting, protection and usage of agricultural soil, food industry, and production of fodder, water protection, veterinary medicine, phytosanitary issues, and forestry.

Cantonal Ministries

All of the Cantons (BiH Federation territory is divided into ten cantons) have their own agricultural administrations within the Cantonal Ministries of Agriculture, Veterinary, Forestry and Waters or Ministries of Commerce (the organizations may vary). Apart from the cantonal regulations, these authorities are in charge of applying BiH Federation regulations and running inspections. Most cantons have their own inspection sections, which are taken from the ministries.

Ministries of Health

(the Ministry of Health and Social Care of Republika Srpska, the Ministry of Health of BiH Federation, and Health Department of Brcko District): Along with their primary authority over the public health protection, these ministries are also responsible for the food and water regularity (including the sanitary inspection at the state borders). According to the new legislation on the Entity level inspections, the health and sanitary inspection (in Republika Srpska) and health, sanitary and pharmaceutical inspection (in BiH Federation) are excused from the Ministries and are formed under the authority of special organisations Inspection Administration Office in both Entities.

Ministries of Trade

The Ministry of Trade and Tourism of Republika Srpska, the Ministry of Trade of BiH Federation, and Business Development Department of Brcko District): These are all in charge of goods

traffic, tourism, hotel management, market reserves, goods and service prices, consumer protection, goods reserves, joint market functioning, small enterprises, etc.

Ministries of Science

The Ministry of Science and Technology of Republika Srpska, the Ministry of Education and Science of BiH Federation): These ministries guide, supervise and support scientific researches and develop the high-education and technological sectors, which are the basis of the social, economic and human progress and the factors of development of a knowledge-based society.

Ministry of Education

According to the local and foreign experts' analysis, BiH education system is in a great need of reforms. In order to run the education system reform, it is necessary to balance a whole range of compromises, which makes the process more complicated. The structure of the education management is complex: the system in RS is centralized and in BiH Federation there are ten cantonal ministries, but in Brcko District the system is autonomous. The legal part of the reform does not mean the change of the management structure, which represents a handicap. In BiH there is no Ministry of Education on the state level but only on the Entity level. In BiH Federation there are also cantonal ministries, which are partially in charge of the education sector. These ministries are often in charge of science, culture and sport as well. They are organs of the state management of the cantons and they run management, expertise and other tasks set by the law, and which refer to the authorities of the Cantons within the field of education. The authorities in the field of education in Cantons are set by the laws adopted by the Cantonal Assemblies (The Law on Pre-school Education; The Law on Elementary Education; The Law on High School Education; The Law on College Education, etc.). The planned tasks are run in different Ministry sectors, and most Ministries have pedagogical institutes.

The educational system reform in BiH started in 2000. Though it is one of the conditions to join the Council of Europe, it seems that the reformers are still at the beginning of the process. 'The Dayton Agreement presupposes no mechanisms for cooperation between the Entities, which puts a powerful ideological weapon into the hands of nationalism', says the Joint Study for BiH made by UN organizations in Bosnia and Herzegovina. The parallel educational systems for Serbs, Croats, and Bosnians set during the war have adopted political aspects, which make them three completely different systems. In 2002, the mission of OSCE in Bosnia and Herzegovina founded an education sector with the intent to support the educational reforms in BiH. The after-war politics of fragmented education system obviously damaged OSCE mission to make BiH a stable and safe democratic country with strong human and constitutional rights. The basic goal of the Mission was to promote the political and legislative changes in order for BiH to develop a system attainable and efficient for all its citizens, regardless of their national origin, sex, or social status, which would also support a long-term stability and safety.

Towns and municipalities

In BiH Federation, the municipalities have the authority limited down to local demands regarding animal protection, taking measures to ensure good hygiene and healthy environment, running the cadastre books and real estate files, human rights protection, running politics on environment protection, dealing with natural recourses on local level and using funds gained from the resource exploitation. Some laws show that Cantons can pass some jobs to municipalities (for instance, inspection supervision in veterinary medicine). In Republika Srpska, municipalities and towns (being the units of local jurisdiction) are in charge of making development programs and their own budget, supervising the construction, maintenance and usage of local roads and public assets, meeting the needs of the citizens, protecting the environment, and running the tasks passed on them by RS authorities. According to the regulations within the field of agriculture and veterinary medicine, some inspection tasks in RS are given to the municipalities (the fitness of plants and animals, seed control, etc.).

BiH Veterinary Office

It is a steering organization within MFTEA, which is in charge of preparing regulations concerning veterinary medicine (international trade), veterinary inspections on state borders,

coordination of the activities between the Entity authorities and international cooperation. The Agency for animal marking also exists within this office.

BiH Federation

The authority organization is rather complex when it comes to BiH Federation. There are three horizontal levels of authority (State, Entities and Cantons) with separate constitutional authorizations including the executive and regulatory activities. Apart from the complexity of organization, which is rather difficult, there is also a lack of veterinary personnel in the Federal Ministry of Agriculture, Watery and Forestry and in the cantons, all of which represents a serious limitation to an efficient and well-coordinated veterinary medicine and food production control. Capacities for the laboratory analyses in BiH Federation and their support for the inspections are badly coordinated, dispersed and very often duplicated, all of which disables them to meet the EU and other international requests. Consequently, the quality may vary: for instance, diagnosis and analysis of products are done at a Veterinarian Institute at the Sarajevo Veterinarian College and in some cantonal laboratories in Sarajevo, Tuzla, Mostar, Zenica and Bihac. All these laboratories offer service which undoubtedly varies.

Republika Srpska

When it comes to veterinary and food protection in Republika Srpska, the authority organization is far less complicated. The major problem here is, apart from the limited personnel, a high number of local authorities (municipalities) which are involved in running the inspections. When we talk about the private sector veterinarians, their job has to be clearly defined, meaning which job they are responsible for, which are their standards and who gave them the authorization. In order to rise above these problems, it is necessary to establish a solid system of centred coordination and monitoring on both state and entity level. Besides, complete laboratory analyses are done exclusively at the Veterinarian Institute in Banjaluka, leaving the remote parts of Republika Srpska (the eastern territory) without the necessary diagnostic capacities. Nevertheless, there is a branch of the Institute placed in the town of Bijeljina but it still does not have the full diagnostic capacities.

The State Office for the Plant Protection

It was founded in July 2005 given the authorities similar to the ones held by the State Veterinary Office. In practice, in BiH there are still laws on the entity level regulating the area of plant soundness, plant protection, seeds, plant breeding, crop breeders' right protection, and mineral fertilizers. These tasks are run by the Entity Ministries of Agriculture, Agriculture Department in Brcko District, Federal Inspection Department in BiH Federation, State Inspection Department in Republika Srpska, Public Safety Department – Inspection Office in Brcko District, and many other colleges, institutes and laboratories authorized by the ministries. To establish an efficient BiH phytosanitary system, it is essential to have the Entities and Brcko District organization in agreement with the BiH level organization. This is crucial because of the fact that according to the regulations of the phytosanitary legislation it is established that the BiH level Department is obliged to adopt regulations in cooperation with the authorities of the Entities and Brcko District.

Public Health Laboratories

Seven laboratories haven been approved to carry out official bacteriological analysis and eight to carry out official residue analysis. Bacteriological analysis is carried out in water and Fishery Products (FP) of establishments. Analysis for Listeria is not carried out since BiH legislation has no provision for official analysis of Listeria (as of 2005). The NRL has been recently equipped by USAID/Lamp and will be further supported by FAO in establishing testing capacities in virology.

Inspection bodies

BiH Food Safety Agency

It is an independent organization the authorities of which are determined by Articles 53 and 54 of Law on Food. Not counting all sorts of scientific research on food and fodder risk, the Agency initiates, prepares and conducts regulations based on Law on Food, and it is a contact to the activities of BiH Codex Alimentarius Commission. The Agency is obliged to

cooperate with the authorities from the Entities, Brcko District and other relevant institutions when it comes to performing all these duties.

Inspection Administration Office

In the year 2006, the inspectional supervision on the Entity level was set as a part of Inspection Administration Office, which functions as an independent organization. When it comes to performing tasks in the field of food and fodder safety, the following inspections are in charge: market-tourist inspection (in BiH Federation), or market inspection (in Republika Srpska), healthcare-sanitary inspection (in Republika Srpska), or sanitary-healthcare-pharmaceutical inspection (in BiH Federation), agricultural and veterinary inspections.

Brcko District Inspections

Phytopsanitary, agriculture, veterinary, healthcare and market inspectorates are organized within the Public Safety Department under the name of Inspection Sub-department.

3.3. INFORMATION AND KNOWLEDGE IN BIH

Public Research and Education Institutions

In Bosnia and Herzegovina, the education within the field of agriculture is organized throughout high schools and colleges. This whole system is supervised by the Entity Ministries of Education but in some cases the cantons have their own education authority which only makes the system work harder. Based on the report on the agriculture professionals education, done over the recent period, it is said that there is more highly qualified staff than the market needs, which is why many of them, after they graduate from college, cannot find a job (even if they gain some extra education). Those who do get a job usually work at the public sector. The education within the field of agriculture is organized throughout high schools and colleges which exclusively deal with production or some parts of this sector.

Research Institutes

Research institutes in BiH operate as legal entities, but there are some which exist within the colleges. There are four separate institutes of agriculture working today in BiH (two in each Entity), and there are also three cantonal Institutes of agriculture, an Institute of Genetic Engineering and Biotechnology, and numerous veterinary stations. Most of these institutes (except Vaso Butozan Veterinary Institute) have up to 50 employees in the research field.

Institutes for Public Health (IPH)

They are responsible for the control of sanitary conditions in food production and comprise, and are 8 of them in BiH.

Institutes of Public Health are in charge for sanitary hygiene. Most of the IPH operate laboratories under their hygiene department with a sanitary chemistry and a microbiological section (clinical microbiology). Sanitary chemical testing covers quality control of food and hydrology, safety of drinking water and waste water. Microbiological testing covers control of food, drinking water and swaps. The department controls sanitary and hygiene conditions of FBO, retail, restaurants etc. by over-viewing their sanitary minimum requirements, taking also samples of foodstuff and swaps. Some are testing for bio residues, but not at the same level as veterinary laboratories.

Universities and vocational schools

In BiH there are 14 high schools which educate agriculture technicians. In the agricultural production sector, there are faculties of agriculture, two faculties of technology (including food production technology), one faculty of forestry and one college of veterinary. Most faculties lack the permanently employed faculty staff (up to 50), others have between 50 and 100 employees, whereas only Sarajevo College of Veterinary has more than 100 faculty staff. Most faculties engage teachers from other universities from neighbouring countries in cases when they do not have their own staff in certain areas of research. Most research in the area of agriculture is done through bilateral projects and EU projects. It should be stated that a great number of these institutions have relatively small capacities for running researches.

There are five universities in BiH Federation and two in Republika Srpska: Sarajevo University; Banjaluka University; Tuzla University; East Sarajevo University; West Mostar University; Dzemal Bijedic University in Mostar; Bihac University; Sarajevo University and Banjaluka University are the biggest and most important ones due to the number of their colleges and the number of their students. At a lower level of agriculture education are high schools and there are 14 of these in Bosnia and Herzegovina.

One of the major problems of the university level education in BiH is the structure of ministries in charge. There is no ministry in charge of science and technology at the state level but only at the Entity level. In BiH Federation, besides the Entity Ministry, there are also cantonal ministries, which only make the situation more complicated. The other major problem which is so rarely spoken about is the fact that diplomas from most of these colleges are not verified abroad. Over the last years, there has been a tendency to open private universities, which mostly teach law, economics, management and information technology. Most of their faculty is from the country but they also have many teachers from the neighbouring countries.

Marketing research companies

The need for the services provided by these agencies is evidently growing along with the process of privatization and introduction of regional companies. The local marketing agencies are mostly focused on the market communications as they create and run campaigns for their clients and communicate with different target groups of population. There are some world-wide-known marketing companies present on the BiH market (IPSOS, GfK) and they provide services both in Bosnia and Herzegovina and in other countries in the region.

Among other things, these companies deal with advising based on the market researches. Their field of action covers brand management, management advising, innovations, media, trend forecasting, internet (web) strategies, and data mining. They base their activities on networks of regional coordinators and a huge number of poll-takers covering the whole of BiH territory.

Most often, in their work these companies combine the world (a group provides global level knowledge) and local knowledge (BiH branch employs local experts for the domestic market).

NGO's

There has been an explosion of non – governmental organizations in Bosnia and Herzegovina over the last ten years. At first, the war influenced the course of action of these organizations as they were focused on humanitarian work in order to diminish the devastating war consequences. After ten years of experience, today the non-governmental sector in BiH plays a significant role in influencing the social processes in the country. Still, it must be said that they are constantly facing certain problems when it comes to cooperation with Government, local authorities and their institutions.

State Agriculture Extension Services (BDS)

The matter of organization of the agricultural advisory service in BiH is not yet solved on the state level. There are significant differences within the organization between the two Entities. In Republika Srpska it is called the Professional Agricultural Services Agency (with 38 employees). The Agency is treated as a legal entity and it is liable to the RS Government through the Ministry of Agriculture, Forestry and Watery of RS. The Professional Agricultural Services Agency covers through its actions the whole RS territory.

The matter of organization of the agricultural advisory service in BiH Federation is not solved as well because there are only cantonal sections with no legal foundation and institutional authority and liability, and no unified plan of action. In Brcko District, there are three advisors in the agricultural section.

BDS to processors (or Private BDS)

There are private laboratories in BiH providing service to industry and official control (i.e. Herkon in Mostar to the Agricultural Inspectorate at the border) while other private laboratories want to offer their services to official control in order to use their state-of-the-art equipment most economically.

3.4. END USER- CONSUMER

Consumer

As the number of supermarkets grows, more and more shoppers will change their habits. Typical shopping habits here are that in supermarkets people buy products with late date of expiration (can milk, tin can and dehydrated food), at city market they buy fresh fruit and vegetable and meat is bought in butchers'. The expansion of supermarkets will change these habits, especially if they are opened in the vicinity of the consumers. Even though the city markets and butcher shops will not disappear, more and more shoppers are going to buy meat, fruit and vegetable in the supermarkets. Therefore, it is expected that the supermarkets might want to invest more in these supplies so as to appeal to new clients. Retail sales sector in BiH keeps transforming, since the supermarkets are slowly pushing grocery shops out of the market.

The food habits have changed over the last several years, and the consumers have become more and more sophisticated and demanding. Despite the increase of production, the domestic food industry is still incapable of meeting the market requests, especially when it comes to innovative or well-processed products. The local market is still a great challenge and potential for the domestic production in case that the technology, hygiene, management and marketing are improved to the competitive countries' level.

An average consumption of food grains in Bosnia and Herzegovina is estimated to be 122 kg/per person (USAID, 1999) or more, and it is very low in comparison to other countries. The overall consumption of food grains is 500,000-545,000 t. The consumption of milk in BiH is estimated down to 300-400 million litres per year or minimum 100 litres/per person. This is a significant growth in comparison to the pre-war period consumption. Most of the consumption is covered by the local production. The consumers trust the preserved milk more than any other in the country, especially when they consider hygiene. Thus, there has been an expansion in consumption of yoghurt, fresh cheese and cream, which are mostly imported. In the end of 1990s, the meat consumption fell down and in 2000 it was estimated to be 70 kg/ per person. The structure of meat consumption has also changed which resulted in lower needs for expensive beef or lamb and bigger consumption of chicken (50% bigger). It is estimated that in BiH people consume around 380 million eggs yearly. The economic standard of consumers as well as raising their awareness, in combination with fresh fruit and vegetables, might increase the desire for these products. The same refers to processed fruit and vegetables (juices and preservers) and frozen fish. The consumption of beverages, mineral water, sweets and snacks has grown over the last five years due to import and intense marketing.

Consumer Associations

The organized consumer network in Bosnia and Herzegovina is highly evident in great economic centres. Apart from the consumer associations, which function as non-governmental organizations, there are also the state and entity level institutions interacting with the consumers both directly and indirectly: the Consumer Protection Office, operating within the Ministry of Foreign Affairs of BiH; The Consumer Protection Office of Republika Srpska; The Consumer Protection Council of BiH Federation; On the BiH territory there are 15 registered consumer associations, eight of which are in Republika Srpska, six in BiH Federation and one in Brcko District.

All of these consumer associations mostly operate on local level, i.e. in the towns they were founded. Fundamental goals of the consumer associations are: To clarify consumers' perception of their rights; To promote and protect the consumers' rights; To lobby for the changes of legal boundaries; To prompt citizens to form the consumer protection groups; To educate and connect citizens; To make citizens regain their trust when it comes to domestic firms and products. As to achieve these goals, consumer associations run projects which would help inform and educate the consumers, and, at the same time, make influence on the Ministries and services in charge in order for them to adopt certain laws and regulations concerning the consumer protection.

During the recent period, consumer associations in Republika Srpska have been actively participating in the implementation of a project named „An educated consumer– a

protected consumer". The project has been supported by the Ministry of Trade and Tourism of RS. It involved a great number of info stands at which the consumers were offered handouts with the information on the consumers' rights, healthy diet, food additives, product declaration, etc.

3.5. SWOT BIH specific

Weaknesses

To high number of higher education institution (Universities, high schools)

Opportunities

Powerful groups investing on agri-business could be keen to invest in R&D

Threats

Fragmented research budget preventing synergies between project
Overall political uncertainty

4. Food Consumer Science Knowledge System in Croatia

4.1. SOCIO-ECONOMIC ACTORS

Farmers

Due to well-preserved nature and water, Croatia has an advantage over other developed countries and is able to produce a variety of food of both high quality and health for consumers. The importance of ecological agricultural production has been identified, both for domestic consumption, as well as the possibility to sell through tourism and export. There are more than 1,700 companies registered for agriculture, and they employ some 20,000 employees. Croatia has a total of 1.2 million hectares of agricultural land. About 1 million hectares of this is cultivated and the remainder consists of pastures, moors, reeds and fish farms. 81.5% of cultivated land and a little more than 80% of the total livestock are privately owned. According to the List of agriculture from 2003, the average size of agricultural land is **1.07 million hectares** out of which **84%** is owned by family rural economies, while **16%** is owned by corporate subjects. From data entered in the Register of rural economies of the Ministry of agriculture, forestry, and water management for 2003 follows that the total surface of agricultural land is **849.549 ha**, which is approximately **79%** of total agricultural land.

Productivity level

The family rural economies in Croatia own on an average 2.9 ha. Only 2.6 % out of total number of economies own over 10 ha of land's surface. The family economies are poorly rational and inadequately equipped, and they can hardly provide high-quality production for the market. The desire for acceptance of new knowledge and technologies is weakly expressed. The joint co-operative marketing is not developed. The old socialist farm cooperatives were established on coercive principle, not organized in terms of marketing, and new market associations have not been established at all. It is necessary to create IT system which will help family economies in restructuring agricultural production and creating such production units which will produce for certain market segment and satisfy in terms of quality and quantity, price, assortment, packaging, and optimum distribution channels according to consumers' requests and desires. Development of family economies in Croatia can be carried out only by way of adaptation of family economies to the new market economic system, by keeping up with new technologies and acquiring new knowledge.

Production

Various types of climate, relief and soil are favourable for the production of a wide range of agricultural products: from farm and industrial crops to vineyards; from continental to Mediterranean fruits and vegetables. Agriculture is complemented by tourism, which is another important economic sector. In the production of wheat, corn, poultry, eggs, honey and wine, Croatia has reached self-sufficiency. Through a system of subsidies that includes a large number of agricultural products, the Government is trying to revive production and increase producers' income. Food and drinks production is an important field of economy in all countries. The most profitable within those sectors in Croatia are the production and processing of tobacco, beer production, processing of milk, tea and coffee and the production of soft drinks. At the same time, these branches have attracted the bulk of foreign investments, and some exceptionally successful companies operate within them. The share of agriculture and food industry in GDP in 2003 amounted to 6.50 %, and it registered decrease in relation to the previous year. Food and beverages industry participates with 19.8% in gross added value of processing industry of Croatia, while production of tobacco products participates with 2.6%. There are currently nine food products that are protected as Geographic Indication or Designated Origin: Prosciutto from Istria and Driš, Torkul olive oil, Cetina cheese (which is not really a geographic indication), Baškotin bread from the island of Pag, Dingac wine, cheese from the island of Pag, Slavonian kulen (type of salami) and an old

Slavonian plum brandy (šljivovica). In agriculture production of cereals is in the first place, than production of forage crops and oil crops. Potato and tomato are the most represented vegetables in the production structure. Apples are produced the most, then plums and tangerines. Wine growing is an important agricultural branch with centuries-old tradition, especially because the production is carried out in the areas on which the majority of agricultural crops cannot be grown. Catch, cultivation, and processing of fish represents an important source of existence of population of Croatia. In addition to tuna, sea-bass and gilthead predominate in cultivation of sea fish. Cattle breeding is characterized by small production capacities of family rural economies, which predominate in this agricultural branch.

There are numerous **farmer organisations** in Croatia, formed usually on regional basis.

Processing industry

In addition to agriculture, Croatia has a diverse and well developed manufacturing and food processing industry. The capacity of this industry is sufficient to satisfy the needs of domestic market as well as the markets of neighbouring countries. In 2007 in the industry of food, beverages, and tobacco approximately 45,700 employees were registered or 18% of total employed persons in the processing industry. In comparison with other branches of processing industry the production of food, beverages, and tobacco employs the largest number of people and achieves the highest total revenue.

Processors associations

Since 1994, the Agriculture, Food Industry and Forestry Department has been organised in associations, councils and groups. These organisational forms constitute the basis for all departmental activities. Four associations have been created: Agriculture and Related Industries Association, the Livestock Raising and Related Industries Association, Fish and Fish Processing Industry Association and Wood and Wood-processing Industry Association, accompanied by 18 groups. However, not only the Agriculture, Food Industry and Forestry Department at the CCE Headquarters deals with these matters, but also the departments for agriculture and the food industry of the 20 county chambers.

Distributors

Distributive trade holds a significant place in Croatian economy as 36.1% of registered companies employing 17.9% of workforce. Its share in GDP amounted to 10.9% in 2007. Trade is facing major challenges, such as stronger competition in the domestic market, concentration and take-overs, introduction of new technologies, new forms of retail trade, e-commerce and globalisation. The future development of distributive trade will depend on its ability to adapt to market demands and to the legislation formulated to ensure the creation of an efficient system for the protection of market competition.

Food distribution in Croatia is characterized by: high level of concentration and cooperation between various mediators; development of self-service – it provides a direct and free approach to product; Widening of sales assortment – increased demands of buyers, more similar products, the shop makes selections (according to the principle of quality, price and packaging). The problem of channel's blocked state appears; development of new techniques of sale – telemarketing, cash & carry system, catering;

4.2. PUBLIC DECISION SYSTEM

Ministry of Agriculture, Forestry and Rural Development

Professional and administrative work for minister and state secretaries, communication with the Government, Croatian Sabor and legislative bodies and other ministries, protocol, coordination of international collaboration, public relations.

Veterinary laboratories

Croatian Veterinary Institute, with a long and rich tradition since 1933, the scientific and professional-Diagnostic and analytical institution which offers comprehensive activities gives immeasurable contribution to carrying out veterinary activities in the Republic of Croatia. Veterinary Service Act ("Official Gazette" no. 70/97, 105/01 and 172/03) Institute are vested in the tasks of monitoring and studying the situation infectious and other diseases of animals and training methods for their suppression. On matters of detecting, tracking and studying the phenomenon and the diagnosis of infectious and other diseases, and in proposing better methods for their prevention and suppression work and subsidiaries Institute - Veterinary Institute Križevci, Veterinary Institute Rijeka, Split Veterinary Institute, Veterinary Institute Vinkovci and the Centre for poultry farming Zagreb.

Ministry of Health

The Ministry of health and welfare of the Republic of Croatia performs activities related to protocol, as well as other activities for the minister and state secretaries;

Ministry of Economy, Labour and Entrepreneurship

The Government of the Republic of Croatia and the Ministry of Economy, Labour and Entrepreneurship, as its constituent propose complete legal and other solutions, in order to ensure an optimal climate for the development of economy and society, as a whole.

Strengthening of entrepreneurship, reduction of taxes, increasing employment, strengthening of the social security system, reduction of state spending and a greater emphasis on the role of science and new technologies in the economy are the main priorities of the Government's economic policy.

This Ministry unites three extremely important and interrelated segments: economy, labour and entrepreneurship. The main issues this Ministry will address in the upcoming mandate are promotion of domestic production and export, investment promotion, assistance with restructuring of large economic operators, in order to enter markets independently and successfully, but also creating a stimulating climate for a quicker development of Croatian entrepreneurship. Moreover, they will support cooperation between large and small economic operators, work on the suppression of the grey economy, implement steps in order to make a slow and inert administration more efficient and available to entrepreneurship and economy as a whole. Finally, their goal is to solve a current issue of unemployment with all available assets, which can only be done with the increase of production and export.

4.3. INFORMATION AND KNOWLEDGE

The Faculty of Agriculture is the leading high education and science institution in the field of agriculture and related sciences in the Republic of Croatia. During the past 88 years, more than 12,000 students have graduated and completed their postgraduate and doctoral studies at our faculty. Today, they are successful businessmen, producers, directors, scientists, teachers and ministers, not only in Croatia, but all over the world. The greatest potential of Faculty of Agriculture is human resources with more than 400 employees (most of whom have high education), our material resources - modern classrooms, studies, laboratories, experimental stations, and the pleasant burden of our tradition. It is organised through various departments and laboratories.

The University studies at the Faculty of Agriculture are organized in three educational cycles: Undergraduate studies, Graduate studies, and the Postgraduate studies. Students can also enrol in the Postgraduate Specialist studies of Fisheries. The Doctorate procedure outside the Doctoral studies according to the so-called old program can be completed till 2011.

The Croatian health insurance institute ("HZZO") has been established for implementing the primary health insurance and performing of other tasks according to the Health insurance law from 2001 and the Health protection law from 1993.

The Council for agricultural research (VIP) by way of the Fund for applied and development research in agriculture (Fund) promotes strategic agricultural research on family rural economies. For this purpose, VIP promotes participation of the very agricultural manufacturers in setting research priorities, research implementation and research financing. The purpose of the Fund is to increase competitiveness of agricultural sector on domestic and world market by way of scientific applied research which will increase the quality of agricultural products and level of satisfaction of domestic consumption. The main aim of the Fund, that is, Council's activity is to stimulate process of knowledge transfer from scientific institutions to rural economies, by way of agricultural counselling service, and for the needs and at the initiative of the very farmers. This mechanism of knowledge transfer will be indirectly strengthened by the research policy and procedure of bringing priorities of applied research, and it will at the same time connect researchers and food manufacturers in direct contact.

Vocational schools

The educational programs for agricultural technicians are carried out in 6 agricultural schools, and education of agricultural experts of various specialist trainings is organized on two faculties (Faculty of agriculture in Zagreb and faculty of agriculture in Osijek), as well as on the Institution of higher farming education in Križevci.

Private research entities

Today in Croatia there are approximately fifteen research entities (Accent, AC Nielsen, GfK Croatia, Hendl, Heraklea, Puls, Target, Valicon) . They are especially, within the Croatian chamber of economy/Trade sector, organized in the ASSOCIATION FOR MARKET RESEARCH. Six to seven are the leading ones, and they provide all types of research services and cover over 70% of research industry market. In the trend of general globalization and on the research market in Croatia, in addition to domestic agencies, the branch-offices of large world players are also present. Today, in this manner, all interested clients can be provided with the entire services.

State Agriculture Extension Services (BDS) – State institutes

There is a network of approximately 7 leading state institutes in the food consumer science area. They are also responsible for food safety issues and carry out inspections of food retail premises. Their primary tasks are to giving technological recommendations, instructions and practical examples for demonstrating new technologies and new management methods, and studying available knowledge and skills necessary for development of agricultural production; activities necessary for insurance of necessary technological and legal conditions for investing into fruit growing; protection of plants from pests; proposes measures for establishing health status of plants and plant products, performs chemical and biological research of resources for protection of plants, carries out systemic education on protection of plants, and trains expert personnel for the activities of observing, predicting, and suppressing these phenomena; keeping wine-growing cadastre, analysis, and search, as well as evaluation of grapes, must, wine, and other products from grapes and wine; monitoring the changes in agricultural land, and especially contents of harmful substances in the soil.

BDS to processors (or Private BDS)

Development agencies define entire development of a region they cover. The purpose of development agencies is to stimulate economic development of a region in accordance with the adopted plans and strategies, that is, to coordinate between the plans and strategy of regional development policies adopted on the state level and its implementation on lower levels; therefore, the actual corporate subjects. It is important to manage regional development in order to reduce differences in the level of development between certain regions. The regional development policy which is defined on the state level, and the regional agencies are key in its implementation, seeks to achieve 2 goals: balancing of economic development of all regions within a certain country and increase in efficiency of the entire economy.

4.4. END USER- CONSUMER

Retail and shopping behaviour

The retail network in Croatia is still atomised, being dominated by small shops (under 100 sq m). However, large retail establishments figure more and more prominently due to changes in the way of living and new customer needs. From the beginning of 2002 until the end of March 2008, the Ministry of Economy, Labour and Entrepreneurship received 141 requests and gave 104 consents for the construction of shopping malls larger than 3,000 square meters or with an area of 1,500 square meters if they are located in an area incorporated in one trading complex. The latest development trend is moving in the direction of construction of modern shopping centres that provide different shopping services and entertainment in one place. They are becoming places for socialising. Based on the estimate of the CCE Trade Department, over 2,000,000 square meters of large retail facilities with more than 1,000 square meters of selling space have been built in Croatia over the past 15 years. The share of the top 10 traders was some 16.6% six years ago, while it amounted to 62.7% in 2007. The largest share of 34.6% in the retail market in Croatia is still held by small shops, which is tending to decrease. On the other hand hypermarkets (17.1%) and supermarkets (32.1%) are steadily increasing their market share of the retail market. Preferences for supermarket are higher among younger people and people with higher education. The second most popular type of store is minimarket preferred by 19 % of customers; however the share is slightly declining. 7 % of Croats prefer hypermarkets as their main shopping place for food¹.

Consumer Associations

Until the day of adoption of the Consumer protection law (in 2003), Croatia, as well as the countries of ex-Yugoslavia, together with Albania, has been "a white surface" which indicated the countries in Europe which did not regulate the consumer rights. Registered are 22 consumer associations in Croatia.

Until today, since the adoption of the aforementioned Law, a series of documents which regulate the consumer rights have been brought. Consumer protection status is not even close to satisfactory, is almost completely opposite to what should be promoted and achieved by normative regulation.

Some obstacles are: The Consumer protection law should undergo significant amendments as soon as possible; The Council for consumer protection established at the Ministry of economy, labour and entrepreneurship is an advisory council of minister of the Ministry of economy, labour and entrepreneurship, which does not have obligation to accept conclusions of the Council or present them to the Government of the Republic of Croatia; 1/3 of associations' representatives are in the Council, which makes them almost without influence; The Council of telecommunications services users is the advisory body of the Agency for telecommunications, although originally it should have had the possibility of making decisions on user requests according to the Law.

4.5. SWOT Croatia specific

Strengths

Good Yugoslav legacy with number important industries and retail channels

Weaknesses

Highly integrated Value chains with big group producing raw material, processing and distributing important share of food consumed domestically.

¹ Gfk, Household consumption

Old guard in Research and academic Institutes in key positions often conservative, do not speak English, not updated on the new fields of research and approaches, often insecure and not open for international cooperation

Opportunities

Powerful groups investing on agri-business could be keen to invest in R&D
Candidate country's status.

The Accession Partnership between Croatia and EU sets the following priorities: "Ensure adequate capacity to take up EU-funded research projects" and "continue to take and implement actions to facilitate the integration into the European Research Area."

Threats

Absence of reaction of the State regarding cartel and monopoly positions

5. Food Consumer Science Knowledge System in Macedonia

5.1. SOCIO-ECONOMIC ACTORS

About 49% of the total area of the Republic of Macedonia, or 1.16 million hectares, is agricultural land, split almost evenly between cultivable land and pastures. Further 37% of the land is forest, while the rest includes lakes and urban areas. The majority of the cultivable land is arable land, vineyards and orchards and meadows. The country is largely hilly and mountainous;

Most of the arable land of R. of Macedonia is cultivated by **small farmers** (average farm size 1-3 ha). The rest is under production by large private ex-combinates or is still under state-owned, loss-making management of those enterprises. Agricultural holdings are divided as individual agricultural economies and agricultural enterprises which exist in the country. There is large majority of individual agricultural economies in the country compared to agricultural enterprises. Much of agriculture production is irrigation dependant with old but functioning systems (20 000 to 40 000 ha in east central Macedonia).

Farmers' education levels and technical knowledge are relatively high, but lack of openness to new technologies, shortage of available markets and small production volumes are limiting a spirit for innovation. Political conditions have made investments into the university and extension systems less efficient and have further delayed reforms.

Differences in the regions of the country defer in the land use, as well as in the growing species of plants. From the total cultivated land in the country of 537419 hectares, 81.7% are arable land and gardens, 2.4% are orchards, 4.7% are vineyards and 11.2% are meadows. For the regional distribution, arable land and gardens are distributed all over the country with slightly higher prevalence in the region of northern and south-western part of the country. Vineyards are condensed in the central and south-eastern part of the country, which is the largest vineyard region in the Balkans. Orchards are distributed mostly in the south-western part of Macedonia where is the largest apple production region in the country. Meadows are, as arable land and the gardens, distributed throughout all country, but with significantly lower quantity than them. For the arable land (total of 439 000 ha in year 2006), 298 000 ha are sown areas, of which 190 000 ha with cereals, 23 000 ha with industrial crops, 51 000 ha with vegetable crops, 34 000 with fodder crops and 1000 ha with plant nurseries. 140 000 ha are fallow and uncultivated arable land.

Vegetables are the most important sub-sector within Macedonian agriculture. Over 750,000 tons of vegetables are produced on a total area of about 60,000 hectares. The land area devoted to vegetables and output has been growing steadily in recent years. Macedonia is a net exporter of processed and preserved vegetables, particularly processed peppers and other preserved vegetables such as gherkins, cucumbers and mushrooms. Currently, the most significant vegetable production is that of tomatoes, peppers, cabbage, melons and watermelons as well as cucumbers and root plants such as potatoes. These crops have traditionally been produced in Macedonia, along with other garden vegetables such as beans, onions, garlic, leeks, green peas, string beans, cauliflower, lettuce and eggplants. Recently, agricultural producers have introduced new types of non-traditional vegetables, such as broccoli, Brussels sprouts, Chinese cabbage and asparagus.

Fruit production in Macedonia is mainly concentrated in areas about 300 to 800 meters above sea level in the western part of the country. Due to different altitudes, there are many different microclimate areas with special climatic conditions suitable for fruit production. Over 150,000 tons of fruit are produced on an area of about 15,000 hectares on some 7.6 million fruit trees, about half of which are apple trees. Enterprises engaged in fruit production mainly produce top-quality fruit, with an average area under orchard of about 30 ha.

Out of the total cultivated land, organic farming has a share of around 0.1%. Wild collection has the highest share, representing approximately 0.1% of the cultivated area and 0.01 % of wild collection under pastures and forests. Most of this land is located in the highlands.

Grape processing industry is one of the best developing processing branches in the country. Small wineries advanced in their technology and overrun big companies in producing quality wines, most of them for export. Numbers for grape processing and wine production are as follows: 254 308 tons/year is collected from primary producers and 37 009 000 litres are produced by processing grapes. 79% of that production is made from private wineries and the production of wine participate with 17-20% of agriculture GDP in Macedonia.

The country now has 73 registered wineries, with more than a third of these – most of which were founded over the last decade – specialising in quality wines. Ironically, domestic consumption is a low priority, so much so that wine is Macedonia's second-most exported product, following tobacco. Presently, 90% of its wine is sent abroad – 80% as bulk (a major chunk is for Germany, which prefers it sweetened) and 10% as bottled. But the drive for quality has fuelled an increase in volume – between 2005 and 2007, exports of Macedonian bottled wine rose by 75%, from 5.4 million litres to 9.5 million litres. And with that, export markets have been expanding. Serbia, Montenegro, Croatia, Bosnia and Herzegovina, the Russian Federation and Slovenia are the main recipients of bottled Macedonian wines, but recently more quantities are arriving in the UK, Japan, Sweden, Poland and the US.

Meat processing industry is still not developed considering capacities and possible conditions for development. State owned big farms from the past were privatized and some of them work well on the market. But, some of the big companies failed to continue its adjustment to the market conditions and were either closed due to bankruptcy or work with very little of their capacities. The same counts for the livestock slaughtering facilities in the country which partially work during the year, particularly around Easter and Christmas when meat export is larger than through the rest of the year (most of it is lamb exported in Italy and Greece). 7500 tons of veal meat was processed in 2006, 8633 tons of pork and 3715 tons of poultry meat. Still, this is very little to satisfy Macedonian market (Ex: 6% of market needs for poultry), so large quantities of meat is imported from different countries (Brazil, Poland etc.).

Milk processing industry is also important for Macedonian economy. There are few big milk factories in the country which absorb most of the milk production and are distributed in different regions in the country. Annual cow milk production for 2006 was 291 220 000 litres. Another foreign investment in the country in 2006 facilitated the process of milk production. That was the establishment of new dairy in Skopje named Swedmilk. That broke the previously established market of existing dairies and absorbed large quantities of milk. Primary producers were also satisfied since they had bigger choice and better prices for their milk. Unfortunately, nowadays Swedmilk is in big financial problems and the producers haven't received money for their milk for few months which lead to protests of the farmers. There are negotiations for solution and also, due to that problem, another dairy in Macedonia, in the city of Prilep is reopened to absorb milk from the farmers in the country.

Even the **production** is improving a lot need to be done. There is strong push towards planned production of agricultural products, both from the government and from the farmers associations, based on their training, knowledge and the experience from the EU farmers. That is based on pre-selling of products which will be cultivated with agreements and terms defined between the primary producers and retailers which will buy their products. Big retail companies from the neighbouring countries (primarily Greece, Serbia and Croatia) have established their offices in the country and along with domestic companies have created strong market which absorbs almost all of the primary production of fruit and vegetable.

Changes in production which will lead to more efficient production, meaning higher production and more efficient land use are based on applying of measurements which are dictated from retailers (from the market needs in the country of their origin). That is related to investments in machinery and novel technology and also growing of plant species which were not grown in Macedonia so far (apple, grapes and other) and there is need for them in

the markets in the EU. Those investments, if applied, may lead to production of species which are more valued on the markets and may bring higher revenues for the primary producers.

Associations of fruits and vegetables producers are registered in the Register of the Federation of Macedonian Farmers. The objective of the associating is to emphasize and sublimate issues concerning fruit and vegetable production, as well as the producers' interests. The main activity of the associations is to promote and represent the producer interests when negotiating with processors and purchasers. Some of the associations provide marketing services, and facilitate access to the foreign markets. In this regard, the associations provide educational and know-how programs, access to market information, as well as exchange of experiences with similar foreign associations. A small number of these associations have fruit and vegetables storage facilities at their disposal. The associations' activities are funded by membership fees, i.e. members' self-financing and by individual projects donations.

In 2003 few local associations joined together in a **national organic federation**, called Biomak, headquartered in Kavadarci. Soon the federation was joined by trade companies and processing facilities, which were interested in processing and trade of organic food, but also by associations which only declared they intended to do organic production, but had not regulated such an intention legally (with their Statutes, etc.).

Such developments were not welcomed by the farmers i.e. by the producers of the primary agricultural production. Therefore, in July 2006 a new – purely farmers' and purely organic – federation was registered, the national federation of Associations of Producers of Organic Products "Biosan", headquartered in Skopje.

At the moments Biosan brings together 8 local organic associations. It operates on the entire territory of the country. Biosan is open to admit new member organizations as long as they can fulfil the minimum criteria for admission – to be registered in court as organic associations (de jure) and to have in their own membership at least one farmer who has received an organic certificate for their production (de facto).

Processors

The agriculture sector plays an important role in the country's economy. 5100 enterprises in Macedonia deal with production and processing of food. There are few processing companies operating in organic industry. Two companies are processing and trading wild collected products and producing for example dried herbs/tea and mushrooms preserved and processed fruits (mostly wild berries) as well as juices, juice concentrate and jams. Most of the production is export oriented, due to the limited local market. Another company is producing vinegar. Furthermore there are some capacities for processing on the farmers level (e.g. honey, juice, bread, essential oils).

The agri-food processing industry has always played an important role in the Republic of Macedonia. Over the last 10 years of privatisation, the industry suffered from political changes and difficulties in adaptation to market economy. The recovery and market-oriented focus is gaining ground.

Officially, one fifth of the working force is employed in agriculture, but the real figure is probably double. Agriculture has always served as a shock absorber for the socio economic and structural changes in industry and other sectors of the economy. This industry has a large potential of development in the future since Macedonia is agricultural country and have diversity of primary food production that is a base for the food processors in creation of quality products. Still, assessment is that this industry should modernize its equipment and it should produce more refined products. Fruit and vegetable processing factories are private owned and are situated in the area of the country with large production of vegetables like tomatoes, paprika, cucumbers, mushrooms and fruits like apple, pear and plums. Processors seek for subsidies from the government since, they claim, they cannot fight the competition with the cheap imported processed food from abroad.

Tobacco, wine, vegetables and fruits are the main agriculture exported commodity. Tobacco and tobacco products represent almost half of total agricultural exports. Other

important export commodity is bulk wine. The country is also a net exporter of processed and preserved vegetables, such as processed peppers or preserved gherkins, cucumbers and mushrooms. Agricultural products represent 15-17% of all total country's exports.

Macedonian Processors Association is the only association of processors in the country and is a partner of processors in activities of promotion, cooperation and protection in front of the Government. Its power is hard to assess since there is no much data about their activity and still they are the only one subject of that kind.

Wholesale

Relatively open market in the country with high number of distributors of both domestic and international processors. Multinational companies present and dominate at the market.

Fruits and vegetables are marketed at the wholesale or retail domestic markets. At the wholesale markets, large amounts of imported, or produce from domestic growers are accepted, temporarily stored and prepared for further sale. Organized wholesale markets do not have sorting, classification and packing facilities at their disposal, necessary to fulfil the particular marketing requirements. The adoption of marketing strategies through introduction of new regulations in line with the EU standards is necessary for the strengthening of these facilities. A large portion of produces are retailed to the so-called Green Markets, and thus distributed do the end consumers. Recently, the wholesale markets assumed an increasingly important role in distribution of the produce.

Retail

All type of retail service is present in Macedonia: self-service and small sales chains, supermarkets owned by domestic and international retailers (Vero, Tinex, Tediko, Ramstore, Pevac, Tus); hypermarkets owned by international retailers.

5.2. PUBLIC DECISION SYSTEM

State administration consists of mostly the same institutions as in other countries. Hereby we will only mention the most important institutions connected to FCS.

Administrative bodies competent for food safety are the Ministry of Health, Food Directorate and the Ministry of Agriculture, Forestry and Water Economy: Veterinary Directorate, Plant Protection Directorate, Public Health Institutes and State Agricultural Inspectorate.

Veterinary Directorate is authority competent for safety of foodstuff of animal origin in all production and marketing stages, pursuant to the Law on Safety of Food and the relevant provision referred to in the Law on Veterinary Health. On the whole, the Veterinary Directorate is an administrative body with competencies and responsibilities of a national veterinarian service.

The food testing laboratories in the Republic Institute for Health Protection provide an impartial and confidential service to the Food Directorate. Since December, 2006 the Laboratories in the RIHP has been accredited for testing of some parameters by the National Institute for accreditation (a certification body), as well as reaccredited in 2008 and 2009 (confirmed on an annual basis by surveillance visits from the National Institute for accreditation) for additional number of testing parameters with ISO 17025.

Ministry of Science

The agricultural scientific institutions are as follows: Faculty of Agricultural Sciences and Food; Faculty of Veterinary Medicine; Faculty of Bio-Technical sciences; Faculty of Forestry; Institute for Agriculture; Institute for Livestock; Institute for Southern Vegetables (tropic, exotic); Institute for Tobacco; Hydro-Biological Institute;

5.3. INFORMATION AND KNOWLEDGE

Research

The following five Institutes for research and development carry out researches in the area of agriculture and forestry: Agricultural Institute, Institute for Cattle Breeding, Institute for Tobacco and Institute for Southern Fruits, as well as the Veterinary Institute in the area of veterinary health, which was integrated within the Faculty of Veterinary Medicine. Part of researches was carried out through the high educational institutions from the area of agriculture, in particular Faculty of Agricultural Sciences and Food, Faculty of Veterinary Health, Faculty of Biotechnical Sciences and Faculty of Forestry.

The Ministry of Education and Science paid 74,718,865 Denars for this purpose, (1.221.126 euros) (1999 - 2004 period). In addition to this fund, the Ministry of Education and Science have granted 5,050,000 Denars (82.531 euros) on co-financing of 10 development and innovation projects. Although the Ministry of Agriculture, Forestry and Water Economy has no obligation to finance agricultural researches, it is however included in conducting scientific projects with funds sourced in regular annual programmes of the sectors and directorates.

Furthermore, the Ministry of Agriculture, Forestry and Water Economy initiated program for applied researches in the 1999 – 2002 period, supported by the World Bank through the Support of the Individual Agricultural Producers Project. The goal of the project was instigation of creative proposals on research projects directly concerning practical problems of farmers, and possible technological and management innovations that would directly or indirectly reduce the costs and increase the production profitability. The research projects were directed towards testing management and technological innovations, in line with the principles of on-farm research. Furthermore, the testing were carried out at several producer facilities located in a single agro-ecological zone, during which inspected producers implementing traditional technology and production management are clearly defined.

24 research projects were carried out for a period of three years. Additional financing of seven projects on market innovations research was provided.

The *Agricultural Research Institute (ARI)* is in part government funded (salaries of 36, of which 20 scientists, out of 460 employees) with most funding coming through project grants. ARI consists of four departments: Plant Protection, Genetics, Soil Science and Biotechnology, plus one seed control laboratory.

The *Tobacco Research Institute (TRI)* is government funded and serves a struggling tobacco industry and growers (40-50 000 small family farms).

The *National Extension Agency (NEA)* with 100 extension officers and 30 branch offices is funded by the Ministry of Finance and its main function is to give advice to farmers.

The *Macedonian Agro Business Marketing Activity (MABMA)*, or *Land O'Lakes Programme* is a large program mostly for the dairy and meat industry, implemented by the very large American dairy cooperative of the same name, with funding from the American Agency for Information.

Agricultural secondary schools: In the country, there are state agricultural secondary schools. The Ministry of Education and Science announced vacancies for 1,300 new students in six different divisions of the agricultural secondary schools based in 10 towns in the Republic of Macedonia. Higher education in agriculture is not especially attractive to the younger generation, thus each year more than 30% of the vacancies are not filled. The largest numbers of students who register in the secondary agricultural schools come from the rural areas. About 10%-15% of the registered students do not finish their education studies.

Agency for promotion of entrepreneurship of the Republic of Macedonia (APERM) -

State owned agency established to realize the program for promotion of the entrepreneurship and creation of competitiveness of the small business in Macedonia and other programs adopted by the Government in this area. APERM's strategic framework for

support of the SME development in the country is defined by the following documents: Small Business Development Strategy, Program on measures and activities for promotion of entrepreneurship and creation of competitiveness of the small business in Macedonia and Law for creation of the APERM. For the purpose of the greater coordination National Council for Competitiveness and Entrepreneurship is founded as an advisory body of the Government.

Agency for Promoting the Development of Agriculture of the Republic of Macedonia

Activities: Collaboration with farmers associations and local self-governments by participation of advisors in establishment of the associations as well as participation in their boards aimed at better functioning of the same.

Consult the agricultural producers toward production of crops, and other products in compliance with the market needs.

Among other activities, one of the most important for the FCS is professional training of the agricultural producers by organizing seminars, courses, consultations, etc. During a year, AIDA comes into contact with 1600 farmers, holds 6 seminars, 70 one-day trainings, 40 practical educational meetings, and group meetings with an average of 1.000 – 1.200 farmers.

Education in organic farming

The main role of education in organic farming is to increase the level of public awareness, knowledge and information of organic issues among experts, farmers, and other stakeholders in the organic chain.

Organic farming has been scarcely present in the regular national educational system, as the result of which farmers had low level of knowledge about the organic agriculture, and the consumers' insufficient understanding of the benefits from the organic food.

In spite of that, some positive initiatives took place in the regular educational system. For example, the concept of organic farming was introduced into the secondary agricultural schools through practical fieldwork on school training land fields. An Organic Forum was established with two representatives from each agricultural school – the idea is that these teachers become trained in organic farming techniques and responsible for implementation of organic farming activities through practical lessons in the schools. The Forum made sure each school implements particular organic activities which do not overlap other schools, so that all 8 schools together will cover several different aspects of organic farming (composting, vegetable production, grape production, animal husbandry, etc).

Finally, after more than a year of independent work on practical activities in the area of organic production, the Vocational Education Development Bureau, as part of the Ministry of Education and Science, endorsed the introduction of "Organic Agricultural Production" as a facultative subject in the fourth year of education in secondary agricultural schools from September 2007.

At an academic level only the Faculty of Agriculture and Food Science has a Department for Environmental Agriculture, which includes some modules related to organic farming. Simultaneous efforts have been made to institutionalize the non-formal education through the establishment of e.g. the Centre for Applied Research and Permanent Education in Agriculture which was founded to develop agriculture including organic agriculture, through strengthening of human capacities.

Non-formal education is a very useful tool in offering a solution of problems in organic agriculture, organic processing and technology transfer to all parties involved in the organic sector. Thus, establishment of educational centres and expert groups within non-formal education are complementary alternatives to formal education.

5.4. END USER – CONSUMERS

The main characteristic of the product which influence his/hers decision to buy the product is still the price. That is due to economic situation in the country, high number of unemployed people and people with low incomes which makes them consumers that only look for cheap, and not for quality product. Nevertheless, people who have higher incomes are pickier in their buying and also more educated about the quality of the food products that they buy. They mostly shop in big supermarkets and hypermarkets and better know how to assess the products which are more suitable for their taste and health. Those people have more confidence in big retail stores knowing that they offer products with confirmed quality, either from domestic production or imported.

Still, there is presence of products which are advertised on TV and don't have guarantee of their quality. That particularly refers to the food supplement market and products which are advertised as supplements. Retailers of these products tend to target population which is not aware how to assess the quality of the products (elderly) and are not educated about their nutritional needs. Food supplements market is the area where there is no clear alienation among countries in the EU and countries which tend to join EU like Macedonia. It is up to the state authorities to make efforts to "hunt" those kind of market products and maybe more important, to raise awareness among people about the importance of knowing how to assess food safety. Other problems exist at small retailers which don't have conditions to fulfil standards of GHP and HACCP in their work.

There is one **consumer association** in Macedonia. The Consumers Organizations of Macedonia was established in 1996 and is a non-governmental, non-political and not-for-profit organization with the main purpose to perform active, constructive and complete protection of the consumers in the free market conditions. The organizations became well-known very quickly after its establishment. This is because they undertook a huge range of activities in the field of protection of the consumers.

5.5. SWOT FYR Macedonia specific

Strengths

National network easy to build due to the size of the country and the high concentration of key players in Skopje

Dynamic private sector aiming at quality high added value products (e.g. wine) investing in R&D (oenologists for France, Italy)

Weaknesses

Small size of the country is a strong limitation for education, research in terms of financial and human resources.

Research and education institutes but well link with international research network

Opportunities

Possibility to develop regional cooperation (common language and old Yugoslav researchers/ professional networks)

EU funds promote regional cooperation

Threats

Old networks need to be handed over to new generations before the senior researchers go to pensions.

Presence of different ethnic groups and tensions between them can reduce cooperation, information flow, etc

EU access blocked by Greece because of the country name

6. Food Consumer Science Knowledge System in Montenegro

6.1. SOCIO-ECONOMIC ACTORS IN MONTENEGRO

Food production and agriculture still play an important role in the economic development of the Republic of Montenegro. The share of agriculture, hunting and forestry in total GDP of Montenegro is 11,3%. The share of food, beverages and tobacco in total household expenditures in Montenegro (average number for total number of households), is relatively high with trends reducing from 56,6% (2000) to 48% (2004).

Participation of primary agricultural production in GDP of Montenegro is 10.7%. Especially intensive development in recent years has been registered in the sector of livestock breeding. In the primary agricultural production, according to the official statistics, there are about 2700 people which is about 1.7% of the total employees in Montenegro. In the last few years, total agricultural production has grown to around 13%, especially in certain sectors where the specially intensified was potatoes and vegetables production from the protected areas, as well as the production of chicken meat (Ministry of Agriculture, Water Management and Forestry)

Agricultural area in Montenegro covers 38% of total surface area (2003). Agricultural land resources, with total area of 518.067 ha or about 0,84 ha per capita, represent the important economic attribute to the country. According to this indicator Montenegro is amongst the leading countries in Europe. Only Ireland has larger agricultural area per capita in the EU (1,10 ha), while the average (EU-25) is 0,36 ha (2003). Nevertheless, the agricultural area is not adequately exploited. This is the consequence of the geological composition that predetermines the dominance of low production value soil. Arable land, orchards and vineyards occupy only 58.262 ha or 12% of total agricultural area.

Structural as well as natural conditions influence most the dispersion of types of the agricultural holdings according to production type. Taking into account the structure of the agricultural land and natural conditions, it may be emphasized that conditions in a large part of the country are mainly suitable for livestock or at least combined livestock-crop production. Among the total number of surveyed households, 55% of them predominantly manage livestock production, and the rest of 45% oversee crop production activities. Characteristic differences between regions exist.

One of the main characteristics of the agricultural structure in Montenegro is that in the last decades it has remained relatively stagnant. This is opposite to the prevailing trends of European countries, where the number of farms declined, along with intensive technological advances, while the concentration and specialization of agricultural production increased. This kind of structural changes in Montenegro represent more of an exception than a rule. Agriculture in Montenegro is still experiencing problems with fragmented land and ownership structure, the poor level of technology, which causes a low level of productivity and a low level of incomes for people employed in this sector. According to them the average size of farms is highly unfavourable, since those areas do not exceed 5 hectares dominant (85%). The average farm size in Montenegro is similar to the farm structure in prevailing part of the countries of South-East Europe. Unfavourable farm structure in Montenegro is accompanied with low level of production potential of agricultural land.

The general estimate is that the agricultural households in Montenegro are moderately equipped with mechanization. According to some expert estimates, not even every other household owns a tractor as one of the key instrument of mechanization. In surveyed households, tractors, side-cars, attachable parts for tractors and other working machines (the most frequent are motor-cultivators with attachable parts), amounted to about 60%. Only 45% of households dispose of different devices and equipment for households (milking machines, refrigerators, equipment for wine production, for honey production, irrigation

system, pumps, mills, and wine equipment). There are no great obstacles to the technological modernization of agriculture that would enable better efficacy and quality of agricultural production. This is evident from the experiences of various investment programs of support, where with relatively small financial means for basic technologic mechanization (machines and equipment), excellent results were achieved.

The volume of market-oriented production on agricultural holdings in Montenegro is relatively low. However, there are significant differences between individual sectors, and certain distinctions might be noted between different regions. There are two main streams in the livestock marketing world. These are the marketing of live animals and the marketing of animal or processed products. As far as the volume of production and marketing of live and slaughtered animals is concerned, results of the survey show that, for example in cattle production, 90% of the market surpluses of cows and older categories are sold on the market and of calves 82%: and the rest is consummated in the household. We must emphasize here that younger beef categories up to the age of 12 months prevail (with almost 90%). This kind of correlation between the marketing of younger and older categories is proof that farmers are willing to sell calves to the market, and that they rarely resolve to fatten them. The reason might be found in low prices of older heads, bad organization of buy up, and the lack of animal feed (silage) for cheap and efficient fattening.

According to data provided by the Ministry of Agriculture, Forestry and Water Management and the register on the raw milk in dairies, only 10 and 15% of the total raw milk production is directed to dairies. The predominance of some regions in the marketing of raw milk is the result of the existence of processing capacities (dairies) in these regions. On-farm processing generally, especially milk is extremely developed. In areas where there is no, organized milk collecting, or where collecting is badly developed, overall milk is processed into different kinds of cheeses, and then sold to the market. If we compare the volume of raw milk sold to dairies, and the volume of on farm processing of milk to cheese, we may conclude that there is a reversed proportion between the organized buying of milk and the volume of cheese processing. Sheep and goat milk are mainly processed in farms and sold to the market as processed products. The main processed products are cheese and skorup (specific type of fat spread made from butter), while goat milk is processed into cheese only. Field crops production for marketing occurred only in 20% of households. Crop production is mostly aimed at livestock consumption or household consumption and only 8% of the total production is sold on the market. Subtropical fruit production is mainly market-oriented, while continental fruits are almost always difficult to sell, partly because of the distance, and partly due to the lack of a labour force, equipment and the like, so they are often underused. When we consider the production and trade of grape, a significant amount is processed on farms, so one part of it is sold in form of products - wine and brandy.

Olive is the oldest subtropical culture on the Montenegro coastline. Despite the potential for production of olive oil of excellent quality, production is extremely extensive, which is why the existing capacities are not adequately used (below 50%). The yield size varies and it changes from 300 tons a year in poor harvest year, up to 4.000 tons in fertile years. As statistical yield data divide the total collected yield (collected from less than half a number of trees) with the total number of olive trees, this causes the data on olive yield to remain permanently low.

Wine and Grape Production can be grown in Montenegrin vineyard zone due to favourable climatic conditions. In grape assortments, grape varieties (90%) for production of red prevail.

The main limiting factors in arable **crop** production are the following: low fertility of land, inadequate basic processing and pre-sowing preparation, inadequate selection of species and hybrids, unfavourable plant constitution, diseases and pests, unfavourable rainfall distribution, climatic stresses, as well as low educational attainment of agricultural producers.

The production of **vegetables** is characterized by the lack of intensive arable land production and inadequate sowing structure. The fact that vegetable production in Montenegro is regarded as a supplementary activity causes the production of low quantities of products, designated for local market purposes only. Vegetable production in protected structures is also insufficiently developed (carried out at only 60 ha), although in the last few years the development of production in protected structures has been intensified.

Livestock production is the largest contributor to Montenegro's agricultural economy. The importance of the livestock sector becomes even more evident since the ruminant breeding allows for utilization of less productive areas (permanent grassland), that prevail in the structure of total agricultural land in Montenegro, which has led to the situation that currently

leading livestock sectors are cattle and sheep production. The volume of total livestock production has increased. The largest growth compared to 1992 is in cattle production (average annual rate 2,6%), while sheep production declined (-2,6% annually), although this reduction has been slowed down in the last three years. Cyclic oscillations are characteristic for pork production without some special trends. Sheep production is also a very important sector of livestock production and economically is just behind cattle production. Sheep production possesses triple production features: meat-milk-wool. As the wool has not been adequately valorised in the last 15 years, we can now say that the production is mainly concentrated on dual-purpose production: meat-milk.

Poultry production fell evident up to 1999, and then production moderately rose. Significant changes have occurred in the poultry production of Montenegro in recent years, ranging from creating numerous family farms for egg production, the expansion of broiler production, to the founding of slaughterhouses and processing capacities for this sector. In the last few years, poultry production has constantly grown, above all with the fattening of chickens. According to the Ministry of Agriculture data more than 1,5 million broilers and more than 2000 tons of poultry meat in 2004 were produced. In the last few years turkeys are also bred in smaller percentage mainly for self-consumption, a fewer number is intended for market purposes.

Significant improvement is also evident in the production of eggs also. Besides one large farm (former public), capacity of 120.000 layers, a number of family farms were also founded, with a capacity of a few hundred up to few thousand layers. Intensive production in Montenegro today numbers about (according to the Ministry of Agriculture and Association of poultry farmers' data) 250.000 layers in cage systems, which results in the production of about 75 million pieces of eggs. In extensive production on family farms, about 600.000 layers and other poultry species are grown, and the production of eggs estimates at about 60 million pieces, mainly used for household consumption.

Beekeeping in Montenegro has a long and rich tradition. The presence of several climatic zones, large areas under grassland and pastures and ample karstic area with abundant flora and plenty of honey plants, provide favourable climatic conditions for the development of this economic sector. The importance of beekeeping lies not only in the production of honey and other bee products, but also in the role bees play in the pollination of plants, and that way they directly influence increase in the yield of various fruit, field crop, meadow and other cultures. The total annual production of honey moves between 400-700 tons. Only a small per cent of this production is marketed through retailers, and most part is marketed on greenmarkets, or by the so called sales on the doorstep.

Production of **wine** is one more sector where optimal trends in beverage production are registered. Moderate positive trends are evident in beer and alcohol beverages production also. The production of beverages (especially non-alcohol beverages and brandy) confronts the problem of the existence of domestic products that do not comply with regulations. Lately, there has been some interest for packaging of spring water and two new companies have begun with production, and few of them got a permission to use springs.

Processing in meat industry has been significantly developed in recent years. There are a number of smaller facilities, but the capacities of ten major are the most significant, out of which four meat industries that with capacities and range of products cover the markets in the region. Few objects have a certified quality system and implemented HACCP system. Also, there are a large number of small drying facilities and several larger engaged exclusively in drying meat and production of traditional Montenegrin meat products. Among facilities for the production of fish or fishing, there are industrial facilities.

According to data provided by Monstat (2004) the food processing industry in Montenegro generated about €83 million of gross domestic product in 2002, which is about 6% of total GDP. Nearly one-fifth of a total came from tobacco production. According to available data provided by the Ministry of Agriculture the total value of food processing industry is €203 million. The sector of meat processing and preserving of meat represented more than half of the value. This large discrepancy points to unreliability of statistical data that probably don't include new private companies that came into existence over the past few years.

According to the same analysis, this sector generated 6.266 jobs, of which 824 were temporary ones. Tobacco industry has the largest share of employees (20,2%), followed by bakery production (15,9%), and beer and brandy production (14,0%).

Montenegrin food processing industry has an unfavourable structure of enterprises by size. About 70% of enterprises employ less than 15% workers, and only four enterprises employ more than 250 workers. The average number of employed people is less than 40, and the medium value only 6. Unfavourable structure of enterprises, unfavourable technical equipment, negatively influences competitiveness of agro-food industry. In order to gain competitiveness it is necessary to achieve technological modernization that would result in improving economic efficiency and quality of products. The main problem, largely influenced by the low level of technological equipment of agro-food operations in Montenegro, is the introduction of international sanitary-hygienic standards.

There are significant challenges to be met in improving the competitiveness, and two most important ones are: a) improvement of competitiveness of quality food products with adequate prices and b) stable partners - buyers of raw material in the food processing industry of domestic chain.

Distributors

In the period of joint state Yugoslavia (SFRY), in Montenegro there were several large firms which had large number of retail facilities, as well as their own production of bread, milk and dairy products, meat, fish, etc. In the transition period these firms were disintegrated or expired. In the last decade the companies which involve the chain of supermarkets and smaller retails have been established, and in addition to retails they involve import and wholesale. Opening the supermarkets has been started in last two years (VOLI, Delta).

Cooperative Union of Montenegro

The work of the 61 cooperatives in the Republic of Montenegro is coordinated by Cooperative Union, since it is burdened with mortgage from earlier period. The Union is in institutional and financial crisis. Law on cooperatives treat the cooperative as an organization of physical persons without developed mechanisms of capital investment in cooperatives, and founding capital is also not regulated (the only source of capital are the cooperative shares).

The activities of the Union are related to providing assistance to cooperatives, in the field of legal status and their assets, as well as in the field of development, marketing, organization and, cooperation.

The **Association of Agricultural Producers** is an umbrella organization uniting professional associations of agricultural producers in Montenegro. This association includes 40 other associations which, more or less, involve producers of the same sectors of agricultural production. As some association disappears and others appear, it is very difficult to review them according to municipalities. Most of the Associations are registered as nongovernmental organizations. There are a few specialized associations, like Union of bee-keeping associations united in the Union of the Beekeeping Organizations, Association of Tobacco producers, Association of Protected areas producers, Association of Poultry producers, etc.

6.2. PUBLIC DECISION SYSTEM IN MONTENEGRO

Ministry of Agriculture, Forestry and Water management as a governmental body of the Republic of Montenegro is responsible for proposing and implementing policy for agriculture. The Ministry proposes to the Government the share of subventions and other incentives (Agro-budget) in total budget of the Republic, as well as a series of other documents, acts and regulations, necessary for the harmonized functioning of agriculture in Montenegro. Ministry takes care of the implementation of health control of animals, follows market conditions and price trends of the basic agro-food products, and enforces legal matters related to this area, as well as inspection control in agriculture.

The Ministry is divided into three sectors: Agriculture Sector, Forestry and Hunting Sector and Water management Sector, as well as Department to follow up incentive measures, prices and market, Unit for normative legislation matters in the field of Veterinary, the Unit for prosecution and Service of general affairs. The Agriculture Sector deals with the following issues: current and developmental policy, normative activities, administrative surveillance and law implementation and other regulations in area of agriculture and agro-industry through two departments: Department for agriculture and Department for Inspection Surveillance.

The Veterinary Directorate is a special organ under the authority of Ministry of Agriculture, and is responsible for conducting managerial and related expert services such as: follow up and early diagnosis of transmittable diseases, prevention, suppression and eradication of specific transmittable diseases with animals, conducting veterinary, preventive, diagnostic and other research in the Republic; trade of all live animals, products of animal origin, animal feed in internal trade and trade across the border of the Republic. It is also responsible for conducting issues related to public interests, determining fulfilment of veterinary-sanitary conditions for veterinary purposes and for monitoring other activities in buildings where production, identification and registration of animals is conducted, developing programs of annual monitoring and prevention of transmittable animal diseases and zoologist on the territory of the Republic. Laboratory is responsible for the activities related to specialist-diagnostic and research activities on the territory of the Republic of Montenegro aimed at protecting and improving the health condition of animals, protection of animals from diseases and other illnesses, discovering and diagnosing animal diseases, conducting programs of animal health protection, controls in order to secure health standards of raw materials, food and products of animal origin, feed and water for animals, research work, veterinary education and public awareness and other.

Laboratories for food and drinking water in Montenegro are organized within the Biotechnical Institute, Public Health Institute, Center for Ecotoxicological Research and DZ Bar. According to the existing Rulebook on Sanitary Safety of Drinking Water, control of the food safety in the Republic can be performed only by the public health institutions. Requirements related to the personnel and equipment are prescribed by the special ordinance related to the public health supervision for health and other organizations performing analysis and super analysis of food. Additionally, special regulation prescribes requirements for internal laboratories. At the end of 2006 and beginning of 2007, Commission for Food Safety has established expert commissions for evaluating fulfilment of working requirements for each existing laboratory. Assuring the safety and quality of food and proper nutrition through law regulation which will be harmonized with European and international standards represents the basis and important component of the Strategy for food safety, designed, according to the Program of the Government of Montenegro for 2006, by the Ministry of Health the Ministry of Agriculture, Forestry and Water Management with participation of experts from relevant institutions. **Basic Strategy objective** for the food safety and nutrition is protection and improvement of public health by minimizing health and social difficulties which have appeared as a consequence of the food borne diseases. The part related to Law regulation came from joint state. The development of new legislation is in progress in the different fields, and these legislations will be harmonized with EU standards and specific needs of the country. The majority of this legislation has been applied. There is a need for better provision of information of consumers about their rights and methods for protection of their interests.

The National Strategy for Sustainable Development of Montenegro recognizes as priorities the following activities:

- a) improving life quality related to health (promotion of healthy life styles) and
- b) protection and improvement of population health status with specific attention to vulnerable groups which is in compliance with the Strategy for Food Safety

6.3. INFORMATION AND KNOWLEDGE

The **University of Montenegro** was founded on 29 April 1974. In that year, three faculties: Faculty of Economics, of Engineering and the Faculty of Law from Titograd, two colleges: Teaching College from Nikšić and Maritime Studies College from Kotor and three independent scientific institutes: for History, for Agriculture and for Biological and Medical Research from Titograd, signed an Agreement on Association into the University in Titograd. During the thirty years of its existence, the University has developed in accordance with the possibilities and requirements of time. University of Montenegro is located in 5 towns: Podgorica, Nikšić, Cetinje, Kotor and Herceg Novi. The University comprises 14 faculties and one college.

Only few universities in their Curriculum have topics in the field of nutrition and food. Considering that these are official data from school year 2004/05 there is not Pharmaceutical Faculty and Agricultural Faculty which have connection to foods and food consumption which have been established in the last 2-3 years.

The Biotechnical Institute is a member of the University of Montenegro and conducts educational, research-scientific and expert service activities in the field of agriculture. Education at the Biotechnical Institute is a new activity at the Institute. From the middle of 2005, within the Institute, a Study program for Agriculture started with two departments: Plant and Livestock production.

Research-scientific activity is carried out through the organization of fundamental and applied research in the field of fruit production, vineyard production, field crops production, plant protection, livestock production, agro economy, veterinary, forestry, fresh water fisheries and protection of the environment.

Expert activity of the Institute is carried out through extension services (consulting and projecting) and a wide range of laboratory services to third parties; organization of specialist trainings, fairs, exhibitions, etc.

Institute for Biotechnology is the oldest research institution in Montenegro. Its unit, Centre for Subtropical cultures in Bar, was founded in 1937. Immediately after World War II, Agency for Agricultural Research in Titograd and Agency for Cattle-breeding in Nikšić were founded and the experimental station in Bar was transformed into the Agency for Southern Cultures and Wine-growing. Afterwards, in 1950 Diagnostic-veterinary station was formed in Titograd, and in 1952 Station for Fruit Growing was formed in Bijelo Polje. All these units became parts of the Agricultural Institute, which is the Institute of Biotechnology today.

Institute for Biotechnology covers the fields of agriculture, veterinary medicine and forestry, and it is organized within ten scientific-research centres throughout Montenegro:

High school education in Montenegro can be gained in five schools for agriculture, food processing and veterinary, where students are educated for agricultural purposes. Only one of them is vocational (high-school in Bar) while most of them are mixed schools. These vocational schools exist in Podgorica, Berane, Andrijevića and Savnik up to now. These schools educate agricultural technicians of different profiles (field crops technician, fruit production technician, vineyard production, vegetable production, livestock production, veterinary, milk production, tobacco production, meat production, bakery technician, etc.). The number of students in specialized high schools, especially agricultural sciences is in decline. Reform of high school education is in progress and new programs are being developed, and the old ones are being reformed.

6.4. END USERS - CONSUMERS

According to available information in Montenegro, at least in the last 10 years there has not been conducted any studies on consumers, neither by nongovernmental sector nor state institutions.

However there are some data on **population health status** - the leading cause of morbidity in Montenegro is due to circulatory and malignant diseases, 73,11%. The most frequent diagnostic categories in the morbidity structure are heart diseases of lung origin, diseases of brain capillaries and ischemic heart diseases. The obesity is one of the most often risk factor for occurring chronic diseases. The research results show that about 13% of children under five are obese. The highest values of this indicator are in children at second year of age, at 12-23 months, where 21% of children are considered as overweight (MICS). According to the preliminary results of LSMS study conducted in Montenegro in 2008, 55% of adult population is overweighted, and in children and young people aged 7-19 years this percent is 21%.

There are significant regional differences regarding nutrition of population, particularly related to the structure of meals and meals' preparation manner. Average meals are satisfactory from the energy aspect; however the so called risk food is dominant, while the protective food as a source of high-value proteins, minerals and vitamins is not sufficiently represented. Therefore, in the total energy value of a daily meal, around 10 % of the energy comes from the proteins, and over 33% from fat.

Growth of consumption per capita is recorded in all products, except in sheep and goat meat, which remained fairly constant. Beef meat was a major product within the meat consumption structure. Poultry meat records the most significant growth trends. In addition, a significant growth in consumption was recorded with other meat categories, including smoked meat products. Meat consumption grew at an annual rate of +5,3% in the period under review. Milk consumption (total quantity in milk equivalent) moved between 200 to 300 kg per capita, reaching the peak level in 1996, and staying at the level of 250 kg since 2002. The increase in milk consumption, on an annual average rate of 3,0% emphasized the significance of this victual in consumption of the Montenegrin population. The potato is also very important for consumption in Montenegro, consumption in last year compared to the base year increased by about 67,9%. In the period between 1992 and 2003, the increase of fruit consumption is evident fluctuating from 35 kg to 65 kg per capita (109%), and also with vegetables, ranging from 102 kg to 146 kg per capita (43,1%). Wine consumption also registers a growth from 1,9 l (1992) on 2,6 l (2002) or 36,8%. The share of milk and dairy products as well as processed meat and meat products is at the recommended level in relation to the food pyramid, while the visible obesity is present in high percentage significantly more than the recommended values. Share of fruit and vegetables as a biologically significant components ranges 3,5-4%, which is significantly less in relation to the proper diet recommendations. Relatively small portion of fish is consumed, and its representation is relatively low compared to other foods from this group.

6.5. SWOT Montenegro specific

Strengths

National network easy to build due to the size of the country and the high concentration of key players in Skopje

Weaknesses

Small size of the country is a strong limitation for education, research in terms of financial and human resources.

Research and education institutes but well link with international research network

Due to the size of the country, some institution simply do not exist

Opportunities

Common language and old Yugoslav researchers/ professional networks enable the development of regional cooperation

EU funds promote regional cooperation

Threats

Old networks need to be handed over to new generations before the senior researchers go to pensions.

Presence of different ethnic groups and tensions between them can reduce cooperation, information flow, etc

Competition of other sector more profitable than food industry (tourism, real estate, mining) could be an obstacle to the investment in knowledge in the sector that plays only a marginal role in the overall GDP.

7. Food Consumer Science Knowledge System in Serbia

7.1. SOCIO-ECONOMIC ACTORS IN SERBIA

Farms in Serbia can be divided in two sub-sectors: (1) agribusiness sector; (2) family farms sector. First is composed of corporate farms – enterprises (agrokombinates) both private and socially-state owned, and cooperative farms. Family farms can be divided in another two categories: they are organized either as market oriented farms (entrepreneurs) or traditional (subsistence) oriented farms. Throughout second half of XX century **Agrokombinates** were identified as the basic expanded reproduction proponents in the country. They reached average size of 1.600 ha with existence of farms with more than 10.000ha (even with 20.000ha) of cultivated area in state or social ownership. Most of the Agrokombinats have by now passed through a preliminary stage of privatization, in which they have been transformed into shareholding “mixed enterprises”, with the state still remaining as the majority shareholder. Only few of them were privatized. In the past, the Agrokombinats were effectively large state-run businesses, now overwhelmed with problems of management; under-investment and over-manning that plague almost all former state enterprises. Today, they are the dominant suppliers of pig meat and eggs, and they share approximately equally the market with the private sector in the major arable crops, in beef and sheep meat, and in grapes for wine. **Small-scale family farms**, typical for a peasant economy, have been prevailed in the private agricultural sector. In 1991 up to 5 ha holdings share in total number was above 76%. In 2002 same indicator was near to 86%. In the region of Vojvodina the same indicator in the first year was 79% and according to the last census data 76%. If we track indicator level by two census data in eleven years period, agricultural household's average size was slightly improved in Serbia (large private holdings - over 15 ha).

Productivity levels in Serbia are generally lower than in the EU, while market forces are applying pressure on the agro-food sector to improve productivity and quality. Productivity of farms is low due to limited use of inputs and technologies. This reflects the limited commercialization of Serbian farms, many of which practice “low input-low output” farming with a large share of production consumed on-farm. A large number of very small backyard livestock farms, for example, use feed produced on-farm at low productivity levels. Further improvements in productivity can be achieved through investments in farmers' knowledge and capacity to adopt modern farm management practices including GAP.

Most important Serbian **food products** are: **flour** production is currently running at over 500,000 tonnes per annum; **fruit** and **vegetable** processing industry is well developed and has the potential to become an (small) export engine of the country; Annual **wine** production in Serbia has averaged 1.85 million HL over the past five years, the dominant share of total wine production has been produced on family farms; **sugar** exports account for about 12% of total Serbian agricultural exports; most of **dairy** companies operated in Serbia have already been privatised and a lot of new are established; **beverages** production of distilled alcoholic beverage, wine, beer and malt, mineral water and soft drinks is a very important sector in Serbia;

Majority of production comes from small farms much of which is never marketed through official channels but consumed either on farm or through a network of family, friends and regular contacts. A part of this small-scale production is officially marketed (that is, it is captured in official statistics) but the marketing chain is short, with, typically, produce being sold via small local processors. Officially, only a small part of the output from this small-scale sector reaches a wider regional or national market. According to the official statistics 81% of cereals, 93% of potatoes, 78% of apples, 79% of milk, 68% of pig meat is spent on farms or is being sold to family and friends. These data show that the percentage of sale that hasn't been evidenced is extremely high so it is highly probable that there is substantial unrecorded trade through various channels.

Farmer's organizations are currently emerging as a market force and have the potential to improve cooperation between farmers. In turn their bargaining power is improved as well as their ability to arbitrage supply and prices, by reducing input costs through bulk purchasing and VAT recovery, and supporting product aggregation, for example through milk collection and cooling along main arterial routes.

An important number of farmer organisations exist in Serbia. However, they might be categorised according to the type of activities they carry out and the level of representativity. First category is consisted of "Old cooperatives" – around 800 established before or just after II World War. They have property (land, storage machinery, offices...) and therefore are mainly oriented to production. Majority of them are under bankruptcy. The second category is represented by so-called "Private cooperatives". They are formed under Cooperative Law but in reality they are private companies with 10 (legal minimum requirements) founding members who are friends or relatives of the company owner. They are financially more efficient than other cooperative type and they are main contractor in the cereals, oil and sugar sector. Third category is formed of recently established "New cooperatives". They are following ICA cooperative rules and facing with plenty of problems to establish good market position. There are about 50 of them across the country. Along with cooperatives, *clusters* could play an important role. They represent natural unity of agricultural producers, enterprises, professional organizations, scientific-research institutions, marketing agencies ... A few forms of this kind of producers organizations in elementary level persists in Serbia today.

The processing industry is extremely important for Serbia, since its intake in the national gross products and employment status is one quarter. The Serbian Food Industry contributed in 2006 some 4.53% to the overall GDP and with 33% share is the most important sector within the manufacturing Industry. Food-processing enterprises are large single employer in the industrial sector, with 84 000 employees in the year 2006 (or 5.7% of total labour force). More than half of all exports are food products, with processed fruits and refined sugar being the most important food export commodities.

Due to the existing capacities, it represents a significant potential, but at the same time a significant problem which arose in the last decade. Generally food processing capacities can be divided into: 1) primary processing and preservations of agricultural products, processing of animal and fish products (mills, silos, slaughterhouses, cooler trucks, sugar plants, oil plants, drier plants, etc) and 2) production of processed products for wholesale.

Serbia has an obvious overcapacity in most sectors. Even the best-run processing lines do not attain a 100 per cent capacity rate. Much of the capacity is inherited from the socialist period when high production levels were a target and profitability was not an objective. Some of the capacity is technically obsolete and could not be utilized anyway. The introduction of EU standards into food production processes will increase this rate of obsolescence.

Processors associations are not strong enough. The position of the producers is not adequate, in terms of pricing. For farmers, the position is more serious as they produce a fresh product subject to rapid deterioration. Their selling opportunities are limited. Those who buy off the commodity and many organizers take the whole profit with interests from the producer. As far as domestic market is only place where domestic food processors are oriented on, there will be no need in current condition to enforce associations among processors. The processors associations are more likely to show their activities in the area of export oriented processing – like in beverages industry – especially for water and juice production.

Wholesale

The decline of centralized organizations responsible for the majority of marketed produce and the rise of smaller individual farms has highlighted the need for different physical facilities and market infrastructure. While some products will continue to be delivered direct to a processor or to a wholesaler with the market being simply the participants in contact with each other by phone or through the internet, other products will pass through a series of physical markets before reaching the consumer in the future. It is noticeable in fruit and vegetables that wholesale markets barely exist. In so far as they do exist, they appear to

operate from the back of trucks on a temporary basis. It can be concluded that permanent wholesale market in which a wide range of product is continually available for retailers and caterers and to which farmers can send their product for sale on a commission basis doesn't exist yet. In the larger cities of Serbia, typically operate so-kind wholesale markets, not like in developed countries. They look more like huge green markets organized at regular basis.

Retail

Larger farmers have been developing direct contracts with buyers (processors or retail) and produce tightly specified outputs to order. It happens in conjunction with processors, particularly the market for frozen produce, where management and time and speed of harvesting are key factors in quality. Others supply supermarkets directly. The food retail side is likely to be transformed over the next ten years as supermarkets take an ever increasing market share and set their own specifications for produce (standards, incidentally, which are higher than those required by legislation). Currently, only few farms could meet these higher retail supper channels standards. Food sales chains in Serbia may be divided into three groups: (1) self-service and small sales chains; (2) supermarkets; (3) hypermarkets.

7.2. PUBLIC DECISION SYSTEM IN SERBIA

Ministry of Agriculture, Forestry and Water Management (MAFWM)² is currently one of the leading institutions in the development of food safety policy in Serbia, supported by its Veterinary and Phytosanitary Directorates, which have a regional network of offices throughout Serbia. The MAFWM drafts laws and regulations in relation to food production, processing and labelling. The MAFWM is in charge of the enforcement of many aspect of food quality control through different decentralized bodies.

The MAFWM is also providing incentives for producers to upgrade production standards. In 2005 the Ministry of Agriculture initiated financial support to Serbian enterprises, especially those involved in the EU market, for the implementation of a harmonized HACCP system. Ministry of Agriculture will focus on further subsidizing the implementation and certificate awarding of food safety systems whereby exporting enterprises with certificates will be encouraged to participate in food fairs. In addition, exporting enterprises will be encouraged to introduce standards of those countries importing from Serbia (BRC, IFS) including standards in the field of primary agricultural production (GLOBALGAP).

Ministry of Health (MoH) is organized by following sectors: (1) Sector for Organization of Health Services and Health Inspection; (2) Sector for Health Insurance and Financing in the Health System; (3) Sector for Drugs and Medical Devices; (4) Sector for European Integrations and International Cooperation; (5) Sector for Sanitary Inspection; (6) Sector for Public Health and Programmed Health Protection. Among the wide jurisdiction of the MoH, the Sector for Sanitary Inspection and Sector for Public Health and Programmed Health Protection play an important role in controlling food quality and improving citizen nutrition.

The MoH performed inspections covering: sanitary and health control in the field of health correctness of food and items for general use in production and trade; control of sanitary-hygienic state of facilities under sanitary supervision.

Ministry of Trade (MoT) places consumer rights within the Department for trade, prices and consumer protection which, among other things deals with the following: definition and implementation of consumer's protection policies, programming and monitoring of implementation of national and yearly documents in consumer protection. At the same time it gives recommendations related to consumer information and education, prepares researches, studies, analysis related to consumer protection, participates in inter-sectoral

² www.minpoli.sr.gov.yu

bodies that discuss the issues related to consumption, and cooperates with international and regional consumer organisations.

The Council for consumer protection is formed as advisory body within the Ministry, that participates in the policy development related to consumption rights, drafting of yearly programmes for consumer protection, takes initiatives for new or amendments to existing legislation, and gives recommendations and proposals related to all questions linked to consumer rights. It can form various expert teams to assist in dealing with particular issues. Ministry of trade is providing funding support to the consumer associations in Serbia for their activities related to education of consumers on their basic rights and protection and in particular in the following issues: financial, public and health services and labelling of products and services and the fund for 2008 is approximately 7 million RSD (€ 100,000).

Ministry of Science (MoS) is responsible for public administration activities related to: System, development and advancement of scientific research activities to support scientific, technological and economic development; Definition and implementation of the policy and strategy of S&T development; Definition and implementation of the programs of scientific, technological and developmental research; Training and development of researchers; Definition and implementation of innovation policy; Stimulating entrepreneurship, transferring knowledge and technologies into the industry, development and advancement of the system of innovation; Development of the system of S&T information and the program of S&T infrastructure; Research in the field of nuclear energy, security of nuclear objects, etc.

7.3. INFORMATION AND KNOWLEDGE IN SERBIA

Public Research and Education Institutions

Serbia has a comprehensive education system, which is organized through a number of schools and universities. The whole system is under the authority of the Ministry of Education, which is responsible for the design and the implementation of the curricula. Under the Ministry of Education institutions involved in this higher education system undertook a reform of its teaching methods and curriculum in accordance with the Bologna declaration, with the aim of integrating itself into the European Higher Education Area.

Public Health Institutes

The MoH has a network of approximately 36 regional public health institutes, which are also responsible for food safety issues and carry out inspections of food retail premises.

Universities

The Universities centres in Serbia are organized at the regional level. Six public universities exist today: (1) The University of Belgrade; (2) The University of Novi Sad; (3) University of Nis; (4) University of Kragujevac; (5) University of Novi Pazar; (6) University of Pristina. Besides public higher education institutions, a few private higher education organizations are functioning today. Most of them are oriented to the business management and economics. The most important universities and their faculties that are connected with this project field of research are listed below.

The highest educational institution of Belgrade and Serbia, the Belgrade University has 31 faculties, 8 scientific institutes and a library. Its roots date back to 1808. The first Serbian University was formally founded on February 1905. Today, around 60,000 students study at the University, within about 150 undergraduate degree programs, about 1,700 graduates - within the graduate degree programs, and a considerable number of students - within the specialist training courses. Since its foundation, the University in Belgrade has produced approximately 260,000 graduated experts of different skills, around 14,000 masters, and 8,500 doctors of science/arts.

Vocational schools (secondary or high schools)

Serbia has around 60 agricultural middle schools spread throughout the country teaching aspects of agriculture and food technologies. At secondary level, the vocational training

schools are criticized by the agro industry for not producing the type of skills that businesses need nowadays to compete in a market economy. They are isolated units within their regional sector and have failed to utilise practical resources around them. Current reforms address many of these issues through introducing training programs that can support the local economy or at least establish links to it. The agricultural schools seem to target mainly the education and training of agricultural technicians needed for the agro-processing sector, the semi-managerial positions in Agrokombinats and the public service. However, private farmers cultivate most of the land. This needs to be addressed. More emphasis should be put on farm business management and practical farming skills. Programs (day courses) should also be made available to private farmers.

Marketing research companies

The most important existing Market Research Agencies in Serbia are following: IPSOS Strategic Puls, GFK, AGB Nielsen Media, Synovate, MEMRB Retail Tracking, ACNielsen, TNS Medium Gallup, MASMI. Total turnover of those Companies in Serbia are around 13 million €. They are specialized for Market, public opinion and media surveys. Most of them are part of multinational world chains. Meaning that "know how" from the western modern markets are transferred to Serbia, mostly in methodology and survey standards, as well as branded solution surveys. Research in FMCG sector is one of the biggest departments of mostly all Research Companies in Serbia. Research is consisting of qualitative and quantitative surveys. Almost half of the surveys are finalized and tuned in the regional centres of the world wide producers. The most typical surveys are: blind test, brand awareness, consumption habits (usage and attitude studies), price sensitivity test, package testing, household consumer panel, retail audit, brand awareness...

NGOs

A dozen **NGOs**, primarily human rights, anti-war, and women's NGOs (most Belgrade-based) were founded in the early 1990s. In the area of food system all consumer associations are formed as NGOs. Other NGO organizations that have been involved in the food system functioning in Serbia are mostly oriented to the training for agricultural producers. For example, a numerous seminars were organized for the purpose of organizational improvements of agricultural production in the form of cooperative organization (FES, European movement in Serbia, ADF ...). Other important fields of NGO sector engagements in the area of food system are promotion of alternative production systems (organic agriculture), business plan education, management improvement and promotion of local action groups.

Number of these NGOs, have been created after the change of regime in 2000 and have operated thanks to international donors funding. Organisation such as AGRONET, Natura Balkanika, have been able to capture these funds and been very active in awareness and training projects. However, as donors are phasing down, the challenge ahead for these organi Number of these NGOs, have been created after the change of regime in 2000 and have operated thanks to international donors funding. Organisation such as AGRONET, Natura Balkanika, have been able to capture these funds and been very active in awareness and training projects. However, as donors are phasing down, the challenge ahead for these organisation is to be able to identify alternative source of funding to ensure sustainability

State Agriculture Extension Services (BDS)

The agriculture sector is supported by a publicly funded extension service delivered primarily by 34 contracted Agricultural Stations and a limited number of private advisors and NGO that are not licensed yet. In Vojvodina, the Government of the Province support directly certain tasks of the agricultural stations on its territory.³

The existing agricultural extension service in Serbia has many shortcomings unrelated to limitations in funding. Among these, crucial is the narrow specialisation of the whole extension service towards crop and livestock production, with only random expansion of expertise towards agro economy, farm management and farmer cooperation. At the same time, this

³ www.polj.savetodavstvo.voivodina.sr.gov.yu

does not meet the farmers and processors needs regarding food safety and quality standards or accessing premium and niche markets or providing information and marketing support. The government acknowledges these weaknesses and has put forward a proposal for reforming the current system taking into consideration the European experience.

The extension service is focused entirely on the technological and production segment, without suitable links to the environment conditions and animal welfare, development of organic farming, associations, supporting the multifunctional development of rural areas... The newly set network of Rural Development Centres (11 in all regions of Serbia) serves mostly to facilitate use of funds available through support measures of the Ministry of agriculture of Serbia.

The expected reorientation of extension services could play an important role in assisting farmers and processors to adjust to a less protected and subsidized economic environment through increasing producers' knowledge to improve productivity on farm and factory efficiency and to adopt the standards required to become competitive on both domestic and international markets. The advisory services will also be a key player in helping farmers to access future IPARD funds

Serbia Investment and Export Promotion Agency (SIEPA) is well established in its support to Serbian companies when doing business worldwide, as well as helping to bring foreign investors and buyers. It has been very much involved in the development of the export opportunities for the agribusiness sector, in particular fruit and vegetable as well as organic production. Actively backing the activities related to standardisation, labelling and product development for the export markets, some of the examples of successful product development with SIEPA support are companies like Foodland, Mondi Serbia, Fresh&Co, Nektar, Marbo, Aleva, Polimark etc.

BDS to processors (or Private BDS)

Independent, private professional organizations in the food system in Serbia are responsible for certification and standards implementation. For the certification of food products in Serbia only four foreign companies are authorized. That is specifically addressed on certification of organic production, GLOBAL GAP certification and control of the product with the protected geographical origin. For the certification of food products in Serbia only four foreign companies are authorized. These are part of Swiss Certification Company SGS, Evrocert, Solo e salute and Organic Control System.

7.4. END USER – CONSUMER IN SERBIA

Shopping behaviour of consumers and their habits depend on numerous factors: degree of development of the country, presence of various sales chains, but also culture and tradition of the country and consumers. Shape of shopping behaviour varies from country to country, but also „levelling” of consumer characteristics is noticeable. Globalization affects presence of global brands, presence of global sales chains, as well as global campaigns (lesser and lesser adjusted to local consumer). All this forms a typical consumer in Serbia, as well as in other countries. On a personal level, shopping habits are determined by demographic variables: age, education, income, gender, place of residence. All these categories also determine lifestyle of an individual, so form of shopping behaviour is an important characteristic of life style.

Various forms of shopping exist: daily forms of shopping when small sums of money are spent on food product; bigger shopping, done more rarely and with bigger sum of money spent. Mini markets are the most frequently visited places for daily small shopping in Serbia. Where do consumers shop (data obtained by the Brand Puls survey⁴)? Places visited daily, where

⁴ Brand Puls data: Strategic Puls, 2008, national representative 2000 respondent sample size

consumers spend less than 1000 RSD (around 12 €) are bakeries, small shops with one cash register, green market and kiosks. Consumers in Serbia go for small shopping to the nearest shops, buying everyday product categories, with a shorter shelf life. When the spent sum is bigger than 1000 RSD, (around 12 €), consumers go also to hypermarkets, and then in supermarkets. Sometimes, big shopping is also done in small shops. Expectedly, men rather go to liquor discount stores, and women to drugstores. Also expectedly, in non-urban municipalities, consumers visit supermarkets and bigger self-service less, especially for everyday purchase, since there is a lesser number of them in those areas. Frequency of small and big shopping: small shopping is usually done 4 - 6 times a week, while big shopping is usually done once a week or 2 - 3 times a month. When making a decision where to go shopping, vicinity of shop plays crucial role when everyday shopping is concerned. Then follow prices, and then quality of products. All other criteria are less important (politeness, variety of offer, security and sanitary conditions). In the fast way of living, when a modern man in Serbia is exposed to various responsibilities, it is natural that vicinity, rather than price, affects decision about shopping, especially when behaviour of consumers who live in Belgrade is concerned. Politeness of staff is more important for older consumers, while they value less: working hours, special offers and promotions. Working hours are less of a determining factor in case of older consumers who live in Belgrade (their lifestyle is characterized with certain temperateness and relaxation). It seems that the biggest difference in shopping habits is conditioned by place of residence. All other demographic variables (gender, age, even income) don't have the same influence as place of residence does. Consumers with higher income shop significantly less in small shops with one cash register, so we may assume that the richest people go for big shopping most, they do it more rarely, but they buy bigger quantities of products necessary for a household.

Consumers' confidence in quality and safety of products like meat, fruit, vegetables, bread and baked goods is far bigger in case of products sold in big chains and supermarkets, than in small shops that are not a part of any chain. This may be explained with bigger turnover, which necessarily leads to better quality of products.

The data obtained by the **Eating Habits** research⁵ show that the citizens of Serbia, when they dine at home, eat soup and potatoes the most. Most frequently consumed are also beans and meat in third and fourth place, respectively. Viewed according to region, the citizens of Belgrade favour soup, potatoes and meat the most. Citizens of Eastern and Western Serbia most frequently eat beans. In Eastern Serbia, potatoes come second while people in Western Serbia prefer their soup. All other dishes are remarkably less frequently consumed in the regions. Meat (except lamb) and traditional dishes, beans and cabbage rolls, are the most popular dishes in Serbia and Montenegro. Interestingly enough, the most frequently consumed foods are often not the most favourite ones. Thus, for instance, our people eat soup and potatoes more often than they would like to, while meat is more popular than affordable. It is also very interesting that, although we see cabbage rolls as our favourite national dish, we actually eat them less frequently than we would like to. On the other hand, although we learn that fish is healthy and exceptionally nutritious since early childhood, it is ranked only in the middle of the list of most popular dishes and even lower, near the bottom of the list of most frequently consumed food products. The main reason is the price, particularly that of the better quality fish. The data show that city dwellers are less overweight than their rural counterparts. Chances are that faster pace of life and larger exposure to various stress-causing factors plays a certain role in keeping urban population more or less within the normal weight category. In addition, although organic food is more available in rural regions, people living in cities probably pay more attention to health aspects of eating (calories, percentage of fat taken with certain food products, combination of foods...). Data obtained from Brand Puls shows that around 70% of the 15+ population in Serbia does not agree with the statement "Most often I prepare instant food", sowing that cooking is a usual life stile, part of living in Serbia. People in Serbia think that in general health is the most important aspect of life (followed by family), but 33% does not care enough about healthy food.

⁵ *Eating habits in Serbia and Montenegro, Source: GfK Belgrade, 2006.*

Consumer Associations in Serbia are organized on regional level. The most important / the most influential consumer's organizations in Serbia are: (1) National Consumer Organization of Serbia; (2) Consumer Protection Association of Vojvodina; (3) Consumer Protection Movement Belgrade. Generally observed, the consumer associations as independent non-governmental organizations play a unique role in identifying main obstacles by giving important support to consumers before, during and after the consumption of a specific good. They represent consumer interests (firstly health and safety) and thereby they are one of the most important stakeholders in food consumer system.

7.5. SWOT Serbia specific

Strengths

Good Yugoslav legacy with number of key institutes located in Serbia, as well as important industries and retail channels

Weaknesses

Old guard in Research and academic Institutes in key positions often conservative, do not speak English, not updated on the new fields of research and approaches, often insecure and not open for international cooperation

Highly concentrated retail sector with DELTA group in clear dominant position

Significant vertical integration

Opportunities

Powerful groups investing on agri-business could be keen to invest in R&D

Strong position to negotiate regional partnership in the field of R&D, production and trade

Threats

The strength of the agriculture sector production could lead researchers and other stakeholders to focus on production with poor consideration for market

Increased vertical integration and cartel / monopoly position of the main agro-industrial groups(s)

8. Food Consumer Science Knowledge System in Slovenia

8.1. SOCIO-ECONOMIC ACTORS

The most important fact when analysing FCS is the fact that Slovenia is a full member of the EU, which means that its agricultural policy fully complies with the CAP and that the national agricultural policy is in such sense restricted. This fact as already mentioned, generates the greatest difference from other WBC.

The present situation in Slovene **agriculture** is mainly attributed to two external factors. The first one is the natural predisposition for agriculture. Over 60 % of the territory of Slovenia amounting to approx. 20,000 square km is covered by forests. About one third of the surface is suitable for agriculture, 75 % of which lies in areas less favourable for farming, which means that here productivity is lower and production costs are higher. 60 % of the surface favourable for farming is permanently overgrown with grassland. The total area of agricultural land in Slovenia amounts to approx. 500,000 ha and comprises over 70,000 agricultural holdings (in 2007), which means that the average farm size is about 6.5 ha. The annual value of agricultural production reaches EUR 1,000 million, and the gross value added is slightly below 50 % of the value of agricultural production.

Meadows and pastures cover about 300,000 ha, fields and gardens 175,000 ha, and permanent crops about 30,000 ha. Half of the fields are intended for the production of cereals, particularly grain maize and wheat, and one quarter for the production of green forage for animal feed. The above data indicate that Slovenia's prime agricultural production is livestock breeding. Slovenia rears up to 500,000 bovine animals (almost 200,000 of which are cows), slightly over 500,000 pigs, and about 150,000 sheep and goats. On an annual basis, it produces about 40,000 tons of beef, 70,000 tons of pig meat, about 60,000 tons of poultry meat, 600,000 tons of milk, and 20,000 tons of eggs. Livestock breeding contributes over 50 % to the total value of agricultural production (milk 16 %, beef 15 %, pig meat 9 %, poultry meat 7 %, and eggs 2 %). As far as plant production is concerned, approx. 100,000 ha is covered by cereals, mainly wheat (30,000 ha) and grain maize (40,000 ha). Total cereal production amounts to more than 500,000 tons (130,000 tons wheat, 300,000 tons maize) although only 50,000 tons of wheat and 45,000 tons of grain maize are not intended to feed the animals. Cereals account for about 10 % of the total agricultural production; followed by potato produced on slightly less than 6,000 ha (such surface has decreased by a half in the last decade). Potato production reaches 130,000 tons, thus accounting for about 2 % of the total agricultural production. 20 % of the total agricultural production is contributed by products from permanent crops: 7 % by fruit, 12 % by grape and wine, 1 % by hops, while the total surface of permanent crops does not exceed 10 % of the entire agricultural land. Vegetables contribute 4 % to the total production and use 2 % of agricultural land.

Slovenian agriculture contributes less than 2 % to the gross domestic product, although it employs about 10 % of the total active population. The gap between these two numbers clearly shows that **the productivity of Slovenian agriculture** is very low compared to other sectors of industry in the country or compared to agriculture productivity in the EU-27. The gross value added per man-work unit in agriculture in Slovenia reaches about 40 % of the EU-27 average. The low productivity results from the large share of areas with unfavourable conditions for agriculture as well as from the unfavourable size structure of farms, the fragmentation of holdings, and the low level of specialisation. Structural changes were fast in the Nineties but have slowed down over recent years, although they are directed towards increasing the number of large farms and reducing the share of small farms. Thus, the share of farms with over 10 ha has increased to 15 %. These farms cultivate 50 % of the total agricultural land.

Agricultural holdings employ almost 180,000 people, mostly part-time. In terms of full-time equivalent, their number drops to less than 90,000. The number of full-time employees who are either farmers or members of their families are about 15,000. In terms of full-time equivalent, farms also employ about 6,000 people who are neither owners nor members of their families, 1,500 of which are employed full-time. This means that farms in Slovenia are predominantly family-run businesses. There are only a small number of farm enterprises.

A specific problem faced by Slovenian agriculture is the age structure of farmers on family farms, and this fact does not differentiate Slovenia from other WBC. The share of those younger than 45 is only 18.8 %, a slightly higher share of farmers is observed in the 45-55 years age group (24.3 %), whereas most farmers are above 55 years old (56.9 %). Slovenia is fully aware of this problem which is also the reason for the slower transfer of knowledge to farms. Therefore, a number of measures have been taken in the last few years to encourage ageing farmers to retire and transfer their farms to their descendants, and to encourage the young to decide to take over. It is also a fact that on farms larger than 10 ha the ratio between the age groups is more favourable as 60 % of the farmers are younger than 55.

Agricultural cooperatives and organisations of cooperative members played a great development role, as the representative organisation of agricultural and forestry cooperatives. It promoted greater social security for farmers, provided for their social and pension insurance, and actively participated in the creation of the then Slovenian agricultural policy. Following the changes in the political system in 1991, the process of denationalisation began. Cooperatives Act was adopted to regulate the status and activities of cooperatives and define their role in the food processing industry. Cooperatives received shares amounting to up to 45 % of the capital in 45 food processing companies, thus becoming co-owners of processing companies. Currently, the main activity of most cooperatives is trade – i.e. providing their members and other rural population with everyday goods in their own retail network. Some cooperatives also engage in the processing of agricultural products and some acting as wholesalers of the products which members of cooperatives are producing (mainly milk). The power of cooperatives and the Cooperative Association is generally estimated as weak.

Chamber of Agriculture and Forestry is a non-governmental professional organisation established pursuant to the Chamber of Agriculture and Forestry Act. Its main tasks are to represent the interests of agriculture, to provide advice to individuals and legal entities engaged in agricultural activity, and to promote cost-effective and environment-friendly agriculture. It is the representative partner of the Government, carries out public authority, and delivers comments and proposals to public documents dealing with agriculture. Membership is mandatory. The Chamber operates through 13 regional offices and 60 local units. In addition to representing the farmers, the Chamber also carries out educational, organisational, advisory, control, promotion and technical tasks.

Some people believe that the Chamber does not adequately meet the farmer's expectations regarding the protection and promotion of the interests of farmers and agriculture. Slightly better is their assessment regarding the work of the Chamber in terms of farmer's training, yet recently the main part of its work has been devoted to the assistance to farmers in filling in forms and requests for various subsidies and direct payments.

There are associations of organic agricultural producers in Slovenia. They are gathered in two main organisations, namely the Union of Organic Farmers Association – a union of eight regional associations of Slovenian organic farmers including over 1,100 farms engaged in organic farming – and the Ajda Vrzdenc Society. The latter aims at the popularisation of biodynamic farming and gardening, fruit growing, livestock breeding, bee keeping, and other activities related to nature. It gathers about 400 members, mainly smaller producers and allotment gardeners.

Processors

The total value of sales of products and services statistically classified as production of food and beverages in Slovenia amounts to slightly more than EUR 2,000 million and has increased

in nominal terms by one third since 2000. In the same period, however, gross added value in real terms decreased despite the growing productivity. Currently, productivity per employee is slightly above EUR 100,000 and gross value added is somewhat above EUR 25,000 per employee. The food processing industry in Slovenia contributes less than 2 % to the total GDP, and the share of persons employed in such industry is slightly above 2 %. This means that the food processing industry is the third largest employer in the processing industry. The latter employs a total of 250,000 persons, almost 20,000 of which work in the food processing industry. From a European perspective, food processing companies in Slovenia are relatively small and there are only a few companies with over 250 employees (less than 3 %). Their total number is somewhere around 1000 and has slightly increased over the last few years, mainly on the account of micro enterprises i.e. those with less than 10 employees. These account for over 70 % of all food processing companies. Nevertheless, large companies employ almost 50 % of all persons employed in food processing and generate about 70 % of value added in this sector. The structure of agricultural production in Slovenia is clearly reflected in the food processing industry. Almost 40 % of the sales value is recorded by meat and milk and meat and dairy products. Another important branch is the production of beverages, while the most outstanding under »other products« is the group of bread and fresh pastry products.

Over the last fifteen years, food-processing companies have been facing serious problems, initially as a consequence of the loss of markets in the territory of former Yugoslavia and, later on, as a result of Slovenia's accession to the European Union. The main destinations for Slovenia's food exports are the countries of former Yugoslavia and the European Union, together accounting for more than 80 % of the total exports for most export products. The major export commodities are beverages, dairy products, and meat. During the preparations for EU accession, rigorous EU standards had to be applied to the food industry. For such reason, most Slovenian food enterprises were modernised and now present the following advantages: fulfilment of demanding European standards, high quality certificates, traceability control system, and introduction of systems ensuring food safety. These companies are mostly Slovenian owned.

Processors' associations

Chamber of Agricultural and Food Enterprises is the association representing the interests of agri-food companies. It operates under the Chamber of Commerce and Industry of Slovenia, the largest voluntary association of Slovenian companies representing their interests in the relations with the state and the trade unions when providing the conditions for work and operation and the conditions for economic development. It is a voluntary, independent, and non-profit organisation of companies and sole proprietors engaged in the production and processing of agricultural and food products.

Commercial associations

Some companies in the two most important food processing branches in Slovenia (the dairy-processing industry and the meat-processing industry) created their own respective commercial associations of interest. Their task is to represent these companies in their relations with the relevant segments of the public as well as to coordinate certain activities, particularly generic promotion of products. The commercial association for Milk gathers seven dairies, while the commercial association for Meat gathers over 20 meat processing companies.

Wholesalers

Owing to the concentration of retail channels and the concentration of food industry, the traditional and typical role of wholesalers in Slovenia has recently diminished. It is mainly associated with the selling of materials (milk, fruit, potato, etc.) to processors where some producers' associations act as wholesalers selling materials to producers and/or retailers. Each large producer sells products directly to retail chains which then sell products to the final customers. According to the

Retail

In terms of concentration in the retail trade sector, Slovenia ranks among the European countries with a high value of this indicator. Several data confirm the consolidation of the

retail trade sector in Slovenia and a marked increase in concentration. This has had numerous effects on the productivity and profitability of the industry as well as on the quality and level of trade services, which are comparable with the most developed economies. However, the situation in retail trade industry (oligopoly / oligopoly market situation) undoubtedly changed the relations with suppliers and consumers. The 2007 turnover (VAT incl.) of retail outlets selling »mostly« food (SORS lists two categories of retail outlets selling food and beverages: »specialised« food outlets and »non-specialised« outlets with the majority of food items) was around EUR 4,000 million. It may be estimated that in 2005 there were around 12,000 retail outlets in Slovenia, and around one third of them were either selling only food or selling food on a non-exclusive basis.

Over the last years, the number of outlets has been decreasing, while the average space of food retail outlet has been getting larger. Large specialised and general FMCG shops have become part of shopping malls. There were 47 »general« FMCG shops selling mostly food items, with the average space of 1,888 square metres.

8.2. PUBLIC DECISION SYSTEM

Ministry of Agriculture, Forestry and Food

One of the most important tasks of the Ministry and its bodies is to ensure safety and quality of food and feed, where the Ministry continues its work of preparing and implementing the EU legislation, particularly new EU regulations on food and feed labelling. In the field of food safety, the Ministry continues to allocate financial resources for ensuring improved safety and quality of food and feedstuffs. The Ministry also protects consumers. Financing will be distributed between food and feed. The Ministry continues to expand laboratory capacity relevant for its duties.

With a view to maintaining a high level of foodstuff safety, the Ministry operates a system of traceability of livestock from the animals' birth to slaughter which is equivalent to EU standards. The Ministry carries out activities such as informing consumers, educating them, and raising consumer awareness.

In the light of consumers' confidence in the food on Slovene market shelves, the Ministry devotes special attention to ensuring food safety and food quality. This includes the cultivation procedures on farms as well as the processing in agro-industry. Since the production of safe food begins already on arable land and in stables, special emphasis is given to veterinary inspections and to the production of quality and food safety.

Veterinary Administration of Slovenia

These tasks of veterinary administration is implemented by the Internal Veterinary Inspection Service divided into 10 Regional Units, and by the Border Veterinary Inspection Service divided into 6 Border Inspection Posts (BIPs).

Inspectorate for Agriculture, Forestry and Food

The Inspectorate was established to supervise the implementation of laws and other regulations and acts within the operational sphere of the Ministry of Agriculture, Forestry and Food. The Inspectorate supervises most of the issues related to food (like quality and labelling of agricultural products and food, the quality of mineral fertilisers, plant protection products, seeds, plant health, animal feed, livestock breeding, fruit growing, viticulture, winemaking and hop growing, the import of plants and plant protection products, forestry, and many other related issues).

The Inspectorate is divided into seven Inspection Services: Agriculture, Phytosanitary, Forestry, Hunting and Fishing, Feedstuffs, Quality Control of Agricultural Products, Food Inspection, and Winemaking Inspection Service.

Phytosanitary Administration of Slovenia

The Phytosanitary Administration was established as the central authority in the phytosanitary field, responsible for coordination and exchange of information with the relevant services and official bodies, and for reporting to the EU.

The Phytosanitary Administration performs administrative, professional and development tasks in the fields of protection of plants, plant products and of regulated articles from harmful organisms; protection and registration of varieties of plants (property rights); production, processing and marketing of agricultural seed and propagating material; conservation of agricultural plant genetic resources; registration, marketing and use of plant protection products; technical requirements for the equipment for the application of plant protection products; quality of mineral fertilisers; professional training of the liable persons; information dissemination to the public. Furthermore, it supervises and implements measures defined in the relevant regulations. The Phytosanitary Administration also manages a number of registers, records, and lists, keeps data records and provides for the development of Slovenia's phytosanitary information system.

Ministry of Health

The issues regarding food consumer science dealt with by the Ministry include:

- monitoring of the nation's state of health and the preparation and implementation of health improvement programmes;
- food safety and the nutritional quality and hygiene of food and drinking water with a view of preventing chemical, biological and radiological pollution and conducting a general policy on nutrition;
- Health and ecological issues relating to the environment, where a direct impact on human beings is involved.

Health Inspectorate

The Health Inspectorate is an enforcement body within the Ministry which monitors the implementation of laws and other regulations governing also the fields of wholesomeness and safety of food, drinking water, mineral waters, food contact articles and materials. In the field of food safety, the Health Inspectorate operates also as the national contact point within the EU Rapid Alert System for Food and Feed (RASFF), which enables rapid communication and performance of measures to be taken by competent authorities in this field.

Ministry of the Economy

The Ministry's vision is centred on support for the further strengthening of the international competitiveness of Slovenian companies and on the aggressive adjustment of the structure of Slovenia's economy into a structure most adapted to the demands of the global economy.

There are also bodies operating within the Ministry, performing tasks in the areas of: market inspection, consumer protection, protection of competition.

The Market Inspectorate of Slovenia is the body operating within the area of market inspection. It is responsible for overseeing the implementation of Slovenian legislation in areas of consumer protection, product safety, trade, catering, crafts, services, pricing, tourism, competition protection, and copyrights.

Consumer protection is an interdisciplinary and complex area. Therefore, activities in such area involve various ministries, numerous disciplines and institutions, and different operators. Consequently, it is of essential importance that all consumer protection bodies, including those in governmental and non-governmental organisations, be in line with the national programmes and directed towards reaching synergies within the following general objectives:

- a high level of consumer protection that is a common denominator of all objectives pursued by consumer protection policy,
- health and safety of consumers.

The Directorate for Entrepreneurship and Competitiveness implements programmes and measures aimed at promoting entrepreneurial development, and increasing the competitiveness of enterprises and the country.

Ministry of Higher Education, Science and Technology

Science and technology fall under the responsibility of a single ministry, namely the Ministry of Higher Education, Science and Technology, while education at lower levels (including secondary schools) falls under the responsibility of the Ministry of Education.

The Directorate for Science and Higher Education performs tasks in the field of professional higher and university education, and research. For the implementation of these tasks the Directorate is divided into the Department for Science and the Department for Higher Education.

The Department for Higher Education performs tasks concerning the planning, directing, and financing of higher education activities, residential facilities for students, and higher education libraries. It defines the policies and objectives of higher education; analyses the attainment of specific goals; draws up the National Higher Education Programme and monitors and evaluates its effects; prepares legislative and other proposals; approves the calls for enrolment and the distribution of study programmes; determines, implements and analyses integral financing of higher education institutions; analyses socio-economic issues for students; and performs expert tasks related to integration into the European Union Higher Education Area. It also participates in creating an information system for higher education; analyses and monitors financing; examines and settles at second instance appeals concerning Ad future and students' residential facilities.

The Department for Science defines the expert bases for the adoption of political documents in the field of research policy. It drafts laws and implementing regulations on research activities. It establishes and enhances the system of comprehensive analyses and monitoring of the situation and development in research, develops new tools for attaining research policy goals, and plans the required financial resources for research.

The Directorate for Technology performs tasks in the field of technological development and innovation by introducing modern concepts that promote technological development and innovation in the Slovenian industry. In its work, it follows four basic orientations: horizontal incentives for R&D projects of small and medium-sized enterprises (SMEs); technology programmes in selected technological fields; R&D infrastructure and human resources development; participation of the economy in the international R&D area.

8.3. INFORMATION AND KNOWLEDGE

Lower education

The Slovenian schools for agriculture, food technology and forestry educate and train students from lower vocational to secondary technical levels for the basic professions in such areas (the programmes of *lower vocational training*; the programmes of *secondary vocational education*; *secondary professional education* programmes; *vocational and technical education* programmes). These schools are mainly attended by students originating from farms interested in food production and processing who wish to receive sufficient qualification for a successful takeover of the farm, There are currently ten such schools in Slovenia.

Higher education

Higher education programmes in the above fields are provided by the Biotechnical Faculty and the Veterinary Faculty of the University of Ljubljana, as well as by the Faculty of Agriculture and Life Sciences of the University of Maribor. The University of Ljubljana offers graduate and postgraduate (up to PhD) study programmes of agronomy, livestock breeding, food technology and nutrition, biotechnology and microbiology, and veterinary science. Similar programmes are offered by the University of Maribor. In addition to the university studies, higher education programmes are also available.

Research

Most research was in fact directed into food and much less into consumer issues. Research is mainly carried out in individual departments of the above Faculties and Universities, as teaching and research in Slovenia is covered by the same ministry. Public finance intended for research are distributed via the Slovenian Research Agency under the Ministry of Higher Education, Science and Technology. In addition to the activities carried out by the above

institutions, research on food is also undertaken by the Agricultural Institute and the Institute for Hop Research and Brewing, while certain aspects of consumer-mind/culture are covered by the Scientific-Research Institute of the Slovenian Academy of Science and Arts.

Slovenia has several private research organisations dealing with food or consumer-life carrying out research and studies of the various aspects of consumer behaviour for the needs of their clients. The largest among these are: Valicon (turnover EUR 2.6 million), GfK (turnover EUR 2.3 million), ACNielsen (turnover EUR 1.6 million), Aragon (turnover EUR 1.4 million), Mediana (turnover EUR 1.4 million). These institutions carry out both quality and quantitative research, as well as panel, continuous and »ad hoc« research. Most of them have their own call centres and also conduct internet research. They are members of ESOMAR.

Laboratories

The institution authorised for the accreditation of laboratories in Slovenia is the public institute Slovenian Accreditation (SA). The latter is the national accreditation service and operates in accordance with the law. SA was established by the state based on a decision of the Government.

SA cooperates with other institutions dealing with technical quality infrastructure in Slovenia with the aim of ensuring a balanced development of such areas and coordination of state interests. SA cooperates in particular with ministries and other state bodies, national institutions for metrology, standardisation, testing and other activities to determine compliance and their associations, with professional associations from its scope of work, and institutes of higher education.

SA also participates in accreditation activities at the international level and concludes agreements with similar organisations abroad. SA is a member of European and international accreditation associations and represents the interests of Slovenia therein. SA accredited three institutions for the certification of processes of integrated production of grape, fruit, vegetables and arable crops and for organic farming and processing of agricultural products and foodstuffs, and one institution for the certification of special agricultural products and foodstuffs. Moreover, it accredited over 20 laboratories for testing of agricultural products and foodstuffs.

8.4. END USER- CONSUMER

Most money in a Slovenian household is spent for meat, followed by bread and cereals spend (according to SORS, 2007). A comparison of the average annual quantity of purchased food and beverages per household member shows that some small changes have occurred during the period of 4 years, from year 2001 to year 2005 (source: SORS 2007), but not so relevant to change the structure of household expenditure on food. There is an increase in the purchasing of vegetables, milk products, biscuits, and fruit. The decrease of purchased food per household member during the period of 4 years has been noticed in the following categories: coffee, meat, eggs, flour, oil, rice, sugar, honey, and bread.

Consumers' associations

Different sources testify to the existence of some local societies listed under »consumer protection«, although their importance in such respect is insignificant since these are local societies with limited influence. The major organisation operating in the area of consumer protection is the Slovenian Consumers' Association, a society founded in 1990 to represent and protect the interests of its members and all consumers. The mission of the Consumer's Association as the national consumers' organisation is to represent consumers' interests in dealing with any important issue affecting the position of consumers in the wider society. The Consumer's Association participates in the formulation of laws and regulations concerning consumer protection, promotes consumer's interests in relation with the providers of goods

and services, particularly with large systems such as banks, insurance companies, health care providers, public utilities providers, etc.

8.5. SWOT Slovenia specific

Strengths

Part of EU, benefiting of structural funds and EU networks
High cohesion due to small size of the country
Concentration of activities in Ljubljana facilitate communication and network
Higher GDP/ inhabitant than the other former Yugoslavia countries
For many, ability to communicate with former Yugoslavia countries

Weaknesses

Small country, small State budget, limited human resources, reduce scope for research (smaller return on investment)

Opportunities

Possibility for experts, researchers to mentor their colleagues from WBC in the EU accession process
Consumer/citizen awareness might allow to prevent wild liberalisation and to make decisions taking into account researcher and other stakeholders contribution

Threats

Young tend to abandon Serbian/Croatian language

9. Swot Analysis for Western Balkans Countries

9.1. STRENGTHS

Progressively, higher standards of production and transparency of production needs to be put in place (almost fully achieved in Slovenia and ongoing in other WBC).

Data availability and reliability

In some countries (e.g. Serbia, Croatia), reliable data exist on market-oriented producers thanks to agricultural producers registries of Ministry of Agriculture.

In some countries (e.g. Serbia) Agriculture Marketing Information Systems have been developed by Ministries of Agriculture and are publicly available

The breakdown of former Yugoslavia makes historical statistics analysis difficult or impossible.

Research and education system

Public Research and Development System is wide spread and developed throughout the country.

R&D Institutes human resources are highly valued.

Educational system is internationally harmonized (according to Bologna).

Information dissemination

There is up-to date knowledge available as well as free extension service for farmers for instance.

In all WBC, there is well-developed network of agriculture schools where education is free.

Programmes for agricultural producers are adequately presented in total broadcast, as well as in other specialized publishing media.

Some institutions and organisations are active in creating links between R&D, universities and SMEs. (Chamber of Commerce, State Agencies and agencies for SMEs)

Stakeholders' organisation

Consumer associations are developed on regional basis (with big differences from country to country)

Good agro climate conditions with climatic and geographic diversity favorable for food production, on the crossroads of major European corridors with good access to different markets

Significant agro-economy contribution to the GDP, increasing level of productivity, increasing of food and agro export

9.2. WEAKNESSES

Information dissemination

Consumers are not informed on number of key issues related to food: food safety risks, organic production, geographic indication, etc.

Absence of effective producer associations represents a bottleneck for applied research, dissemination of information and extension.

Business Development Services are underdeveloped.

Food sector stakeholders lack of knowledge about mass media

Systematic market-based linkages between science and the economy do not exist.

In all WBC countries, small-scale agricultural producers, particularly in marginal areas, unfavourable age and education structure of the farmers, who are hostile to innovation or do not have the capacity to adopt new technologies and marketing strategies, with limited investment capacities. Hence the linkages between these producers and R&D, advisory and business services are de facto very weak.

Research and education system

Policy

Different Ministries set national priorities for research related to food consumer science. As a result, research efforts in this area are not coordinated and are many times scattered between different research institutions, overlapping and even duplicated.

Governmental bodies do not cooperate between each other in a specific supporting programme; therefore there is a lack of multidisciplinary approach and applied research (vs. fundamental research)

As a new field, food consumer science or related field, is often not put high on research priorities

Investments in science in percentage of GDP are lower than international standards or EU guidelines for positive effects on the economic development.

Extension services are inefficient

Limited R&D from private sector

Researchers' capacity and skills

Still the majority of competencies and knowledge focuses mostly on (food) production and technology, and less on consumption.

Researchers' competences and background are not always adapted to small-scale primary production and processing structures, quality products strategies, etc., but rather focused on larger operations and agro-industry.

9.3. OPPORTUNITIES

Market and consumer behaviour changes

Integration to first the regional market (CEFTA) and to the European market will expose WBC producers to the competitors and oblige them to improve their performance. This shall be a great incentive for producers and processors to better know consumer behaviour and expectations, and therefore invest more in R&D or rely on Business Services.

In some countries (e.g. Slovenia) the increased interest of urban population for rural "values" or the importance of farming activity impacts on landscape, environment and, tourism might trigger new FCS related research but also extension and services:

- Image of food in relation to the production area
- Linkages between food and tourism industries
- Different types of production modes, their impact on the environment and the perception of consumers,
- etc.

Foreign strategic partners entered in the capital of many important processing industry and retail sector during the privatisation process, bringing innovative strategies and new way doing business.

Policies and legal framework changes

EU harmonization implying reforms of the legal framework with EU, the adoption of international standards, assessment to the European market require great efforts in R&D, dissemination and extension to food industry stakeholders.

In principle, domestic agricultural policy is oriented to structural changes promotion, which will lead to modern agricultural businesses.

Producers are dominantly oriented to domestic food market and presumably therefore interested in consumers preferences and behaviour

Stakeholders' organization

Growing importance of new business associations (new cooperatives, clusters, horizontal and vertical integrations...) that will facilitate eventually the adoption of new strategies. This shall create an additional demand for FCS input.

Global issues and significance of the food sector in the WBC

The transition character of the WBC economies offers an opportunity to FCS researchers to strengthen their position, as a number of phenomena such as fast primary production restructuring, agro-industry, concentration supermarketisation, EU integration, changes in consumer purchase power, etc will take place. All these significant changes will require from the stakeholders to understand quickly what happens on the domestic markets.

The importance of the food-industry in the region should play a role in inciting public and private research and other activities related to FCS. The food-industry:

- employs a great deal of the active working population in all WBC
- significantly contributes to the GDP in many WBC
- represents a large share of exports in Serbia and FYR Macedonia
- the sector further develops, increasing productivity level and export volumes.

For the time being, quality of certain domestic products is often perceived to be of higher quality as imported food. Again this can play in favour of a strong position of the food industry in the Balkans and as a consequence the interest by public and private sector to invest in FCS.

9.4. THREATS

Traditional way of production, no application of modern technologies, difficulties to meet the emerging needs of the market, resistance to the innovations, and lack of high-quality products. This is mostly caused with the lack of dynamics, knowledge and mobility of the rural working population, with limited investments funds

Researchers and support services might face obstacle in investigating or promoting certain concepts due to the natural tendency of farmers to be resistant to innovation and production focused rather than market or services oriented

Policies

Lack of competence of policy-makers results in misconceived policies; hamper reforms and sector performances that could trigger research and efforts for product diversification or quality.

Alliances between politicians and tycoons, corruption (in some countries dominant Serbia and Croatia) might limit progresses in the primary production, processing food-industry and retail as profit is based on monopolies, cartels rather than innovation and consumer full satisfaction.

In many WBC, the absence of national accreditation results in a monopoly by foreign certification bodies for the certification of organic production, Globalgap, Geographical Indications. As a result, the certification fees of these foreign entities being high, products are mostly certified for export markets. This situation results in a limited interest shown by producers for product differentiation and a limited scope for research by academics.

Economic environment

Global economic crisis could impact on budget for research and dissemination efforts from the private and public sectors

The economic crisis could affect the expected diversification. In particular the growing offer of quality products could be limited due to the downsized purchasing power consumers who

would demand cheap food with lower quality. As a result, FCS might not be so vivid as expected with the perspective of the transition and EU integration implications.
Low efficiency of small- and medium-scale domestic processing industry that limit their capacity to invest in R&D and develop long-term strategies (product strategies, brand, etc.)

10. Conclusions regarding the Food Consumer Science Knowledge System in the Western Balkan Countries

As mentioned previously, and clearly explained in the analysis of the systems in each country, all WBC (except Slovenia) belongs to impotent state model. The transition of the society in general is transferred to FCS.

In order to maintain and increase market participation, WBC socio-economic actors (farmers, processors, producers and retailers) must comply with increasingly demanding global requirements. Nevertheless, these requirements and evolving market conditions may force many small entities (farmers, processors and producers) to close the business, unless they find the means to invest in modern technologies. This happened in the past in almost all countries. The changing nature of domestic markets has the potential to marginalize many farmers, producers and processors, by increasing penetration of international and big domestic supermarkets, the introduction of standards and business practices and consumers' increased demand for quality and safe foods.

Public decision system in WBS countries is weak. This fact defines the impotent state model the most. A major problem in the current situation is the absence of national programmes, focussing the activities on a limited number of well-articulated priorities. Even more, it seems that the governmental bodies don't cooperate between each other during the realization of a specific supporting programme.

Information and knowledge is not developed enough. Most of the WBC needs to increase investments in science to at least 1% of its GDP, which according to the guidelines of the EU is the minimum GDP share that enables positive effects on the economic development. These funds should be invested in both fundamental, applied and development research. On the contrary, in WBC the food production and consumption is studied from the innovation, cost efficiency and economic growth points of views, without investigating and defining social, cultural and economic perspectives in the analysis of food consumption. The food consumption research is still interpreted from the point of view of consumer impact on profit related aspects of production, rather than highlighting social, environmental, economic linkages and causes. The lack of multidisciplinary approach and the unclear funding mechanisms for research projects are often mentioned as the causes of the poor state in the area of food science in WBC. On the other side, private business companies are not dedicated to the R&D self-financing. This project could be of the crucial importance for consumer studies methodology and network capacity building in WBC.

However, the pre-condition for FCS development is to first establish systematic and market-based links between sciences, state, socioeconomic stakeholders and the consumer (elements of the FCS systems) which doesn't exist yet. Only by improving the interrelationship between elements of the FCS systems, the state of the science can be improved.

Countries of Western Balkan (with the exception of Slovenia) are in the process of transition. Therefore, it is not surprising that Food Consumer Science can be described by impotent state model. As mentioned before, this model is characterized by several essential facts: weak institutions, unstable governments, unstable political systems, absence or vague laws and procedures which can be interpreted in different ways, absence of clear sanctions for disrespect of legal procedures. The mentioned characteristics of society also define the Food Consumer Science.

In order to understand better the current situation in Western Balkan countries, it is necessary to shed some light to historical facts in these countries during the last century. Namely, all the Western Balkan countries belonged to the same state (the so-called ex-Yu countries), so their similarities are undeniable. After World War II, nationalization of the country defined the future

development of agriculture and other protagonists of current Food Consumer Science. Historical reasons after the Second World War led to fragmentation of the country in all countries of the Western Balkans. Private farmers were not able to have a large area of land. Changes in political system in 1991 led to changes in policy towards agricultural producers.

However, the transition period lasts to this day. Most of the Western Balkans countries (except Slovenia, as well as in many examples so far) failed to develop the system and go out of the transition process. Maybe we could say that only in some segments the transition to the liberal model of economy can be discerned (strength of selling chains and producers, as well as certain beginning of concentration of primary production). New global financial and political turmoil also does not favour the countries of Western Balkans. Many of these countries are anyway in difficult and dependent financial and political position, and, in the absence of sources of funding they will be forced to decrease the budget for research, education, and further development, which will certainly have a negative effect on the development of FCS.

Let's describe briefly the elements of various systems, their relationships and provide detailed explanation of the impotent state model in the Western Balkan countries.

Socio-economic actors of the system are fully and almost only focused on production and profit. Farmers, privatised agrokombinats, industry, retailers are focused on production. They observe the consumer in terms of profit. Research is very limited, and if conducted it is organized by the producers, processors or retailers, again with an aim to maximize the profit, with no correlation among them. Different associations of the elements of this system (farmers, producers, consumer associations) and their power are rather weak. The cooperation between socioeconomic actors and information and knowledge actors is not very extensive or does not exist at all.

Public decision system gives the national priorities for research related to food consumer science. They are set by different Ministries, which number depends on the countries. Generally, most of the projects are with high and mostly fragmented value, conducted in different institutions with no integrative knowledge or inputs. Most research projects in WBC are inadequately coordinated between different entities. Research efforts are not coordinated and many times scattered between different research institutions, overlapping and even duplicated.

Information and knowledge is not orientated toward the benefit of consumer or society in general. Information and knowledge actors are developed to some extent but hardly in any coordination. In most of the WBC there are some educational institutions where separate parts of knowledge in the field of food consumer science can be gained (mostly in higher, less in lower education). The majority of knowledge is focused of production and less on consumer related issues. The educational program in WBC which gives a complex and integrated knowledge about food consumer science does not exist. NGO and business development sector are mostly related to political segment and does not have sufficient influence on society in general. Therefore their power on research and development of FCS is weak. Associations of farmers, producers or consumers are weak and sometimes not visible at all. In some countries there are a lot of them with no real power, in some countries they do not exist at all.

In most of WBC, relation between **consumer** as an end user and other elements in FCS is mostly one-way relation, as the state administration, the research segment and socioeconomic elements of FCS are not paying much attention to the needs of the end user. This fact will have to change with the development of FCS, as all of the WBC will be (in a close or not so close future) a part of EU and demands and opinion of the end consumer will have to be taken into account. Consumer on the other hand, as an end user, should be better educated in terms of regulations, food safety and transparency of production of agricultural products, prices and quality, as well as health issues. They should be better organized to fight for their rights in all WBC. Food production is not totally disconnected from the consumer, but consumers should be much more taken into account and supported by all other actors in FCS. That important relationship among the elements of the system is dependent on all elements and systems. Meaning that development of the FCS will depend

not only of the improvements of each element but also on the awareness of the importance of their growing interrelationship.

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