EXPLORING AND ANALYSING CHALLENGES AND BARRIERS OF EFFECTIVE FOOD SUPPLY CHAIN MANAGEMENT IN WESTERN BALKAN COUNTRIES: A DELPHI STUDY

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1. INTRODUCTION

Since the beginning of the transition from a central planned economy to an open market economy in the Western Balkan region, trade liberalization and adjustment toward EU integration have been regarded as the main changing forces which have significantly influenced the structure of the agriculture and food (agro-food) sector in the region. This change is seen in terms of input-output, production and product standards, competition, investment and the organization of the overall supply chains (Bojnec and Ferto, 2009; Dries et al. 2009). These and other changes have lead to many challenges for food supply chain (FSC) in the region when trying to meet the new market requirements and exploit the opportunities that this shift has generated.

In Western Balkan Countries (WBC) during resent years there have been increasing research initiatives in the agro-food sector from government institutions, projects from external partners and from research institutions. In the food industry, the focus is mainly on comparative studies and on individual sectors such as dairy products, vegetables and meat products (e.g. Kapaj et al. 2005; Cela et al. 2009; Krstevska et al. 2009; Kovacic and Bozicn, 2009). However there are almost no studies which take a broader regional perspective in identifying challenges that FSC face in the region.

The objective of this study is to identify the characteristics, opportunities, as well as challenges and possible solutions facing the food supply chain management (FSCM) in WBC. We develop the analyses into a regional context as the effectiveness of economic activities, sectors or units is based on their ability to exploit domestic, regional and international market opportunities. This especially with the increasing trade exchange among those countries over the last 20 years.

This research presents the findings from a Delphi study where experts from 4 WBCs (Albania, Croatia, Macedonia and Montenegro) were asked to contribute their opinions. The method involves a structured group of communication which makes it possible to explore, identify, analyse and rank strategic topics.

The paper is structured as follows. After the introductory part a brief overview of the agriculture sector for each of the countries considered in the study is presented, after which the concept of FSCM is described. This is followed by some considerations for the development of FSC and its benefits. Next, the methodology and data collection processes are elaborated. The final section concludes with a discussion and summary of the main findings.

2. A BRIEF OVERVIEW OF THE AGRICULTURE IMPACT ON WBC

In the WBC agriculture contributes significantly to the Gross Domestic Product (GDP) and employment. According to the World Bank (for the year 2008) agriculture represents between 6% and 11% of the total GDP in Croatia, Montenegro and Macedonia. The significant role of agriculture in the national economies is also shown in its importance in employment: agriculture represents between 9% and 18% of total employment in those three countries. The situation in Albania is more particular as agriculture is one of the most significant sectors of the national economy: it represents around 21% of the total GDP and 50% of the total employment. In comparison with the EU 27 countries, the WBCs are much more dependent on agriculture as a source of income generating and employment. *Figure 1* below shows the contribution of agriculture to total GDP and employment.

Figure 1: Agriculture share in the total GDP and employment
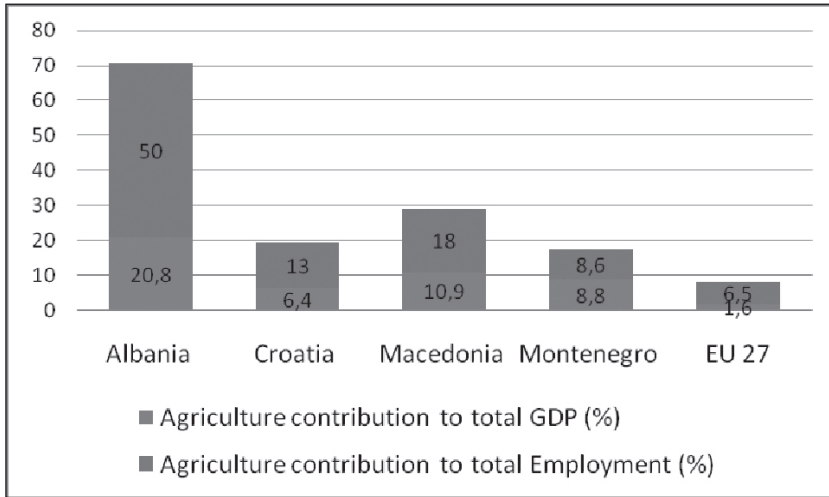
Source: Own calculation based on World Bank Data, 2010.

Agricultural production in WBC is dominated mainly by traditional agricultural products: specific categories of dairy products (especially cheese), meat products (sausage and ham in particular), fruit and vegetables, drinks (especially wine), etc.

In Albania, the agro-food industry is a sector composed both of small private companies that emerged from the privatization of the former agro-processing state enterprises and the new investments by private initiatives (MAFCP 'Ministry of Agriculture, Food and Consumer Protection', 2007). There is a total number of 2053 food and beverage enterprises registered in the MAFCP. From those agro-processing industries, the bread and confectionary sector is leading with 966 enterprises or 47% of the total number, followed by the dairy processing industry with 362 enterprises or 18% of total and the flour industry with 272 enterprises or 13% of the total (MAFCP, 2007). The other enterprises comprise meat products, fruit, vegetables, olive oil, herbs, spices etc.

The sector is mainly dominated by small and medium size enterprises which face difficulties in competing with the big international companies operating in Albania and even greater difficulties when considering exports in the EU markets due to the need for higher investment capabilities and the compliance with the food safety standards.

The agro-food industry is a potential export sector; in recent years there have been increases in investment initiatives but still the sector is unable to fulfil its domestic demand in a number of products e.g. poultry 75%, wheat (or flour) 60%, fruit 8% and vegetables 5% (MAFCP, 2007).

In Croatia, for the year 2008, the number of enterprises involved in the manufacture of food products and beverages, also including tobacco and hotel-restaurant activity, amounted to around 3,940 entities (Statistic yearbook/Croatia. 2009). The processing industry covers 82,5% of the total industry.

The meat production sector is the most important livestock branch, with 339 registered entities producing beef and 426 entities producing pork (MAFRD 'Ministry of Agricultures, Fisheries and Rural Development'. 2009). The sector is dominated by a high number of small family holdings that produce mainly for family consumption e.g. 90% of the pork production is represented by about 200.000 small producers (CBS 'Central Bureau of Statistics': Agricultural Census, 2003). In this situation it is difficult to establish long term contracts between producers, processors, distributors and consumers leading generally as they do to weak supply chains (MAFRD, 2009).

Croatia has very favourable conditions for the production of vegetables and fruits. There are 300 entities operating in the field of vegetable production and processing but still unable to supply the domestic demand due to unfavourable production structures and lack of organized markets (MAFRD, 2009). Other sectors that contribute to the agro-food industry are fish production and processing, tea production and processing, drinks production etc.

In Macedonia the agriculture sector is identified as strategic with high potential. There are around 1,600 enterprises involved in the production of food and beverages in the country (FRYOM 'Former Yugoslav Republic of Macedonia', 2007). The majority of those enterprises (96%) are small. The production of vegetables, and particularly early vegetables, is one of the most significant sub-sectors in the country (FRYOM, 2007). Other main sub-sectors of the food processing industry include the production of bread, and other bakery products, pasta and confectionary, the production of fruit and fruit juice, mineral water, wine and other beverages. The processing companies play a very important role in purchasing the raw materials provided by primary producers; however, they are faced with problems of very diversified producers and affected by weak organized supply chains and unreliable quality of primary products. The fruit and processing industry are the main export oriented industries with around

75% of the overall production (FRYOM, 2007). Macedonia has the potential to supply its own demand and export agro-food products but still the country is a net importer of agricultural and food products e.g. meat, cereals etc.

In Montenegro the agro-food industry is not so complex. There are not many subjects in the sub-sectors, except in the production sector which is characterised by a large number of agricultural producers, mainly small-scale. According to the Statistical yearbook/Montenegro (2009), around 2,948 business units operating in the catering sector (including restaurants, hotels and bars were identified in the year 2008. The processing sector has great potential, but currently there are only a few companies operating in the area of meat production, dairy products, fruit, vegetable processing and beverages (especially wine which is commercially significant for export) (MAFWM 'Ministry of Agriculture, Forestry and Water Management', 2006). The meat production sector in the last years has witnessed some positive trends in production volume and product assortments. There is a real opportunity for meat export (especially lamb) to foreign markets, but still many challenges have to be overcome e.g. sanitary technology, safety standards, maintenance of cold chains etc.

As is shown from this brief overview of the agriculture situation in the 4 WBCs considered in this study it can be concluded that the agro-food industry is generally dominated mostly by small and medium size enterprises, the structure of which is considered unfavourable for benefiting from economies of scale and being competitive in the marketplace. The cost advantages and comparative advantages that the region has are not exploited to its potential due to the mismatches with the new production approaches, marketing strategies and the functioning of the supply chains as a whole (Investment Horizons, 2006; MAFWM, 2006; BAFN, 2008; Western Balkan Agriculture and European Integration, 2004). In this situation it is difficult to organise effective FSC and to ensure food safety standards. Under those conditions collaborative behaviour between producers and strong incentives from governments are vital to stimulate growth and specialization.

3. THE CONCEPT OF FOOD – SUPPLY CHAIN MANAGEMENT

Since the term supply chain management (SCM) first appeared in the literature by Oliver and Webber (1982), research in the field has grown considerably and many academics, practitioners and organizations have given their own definition of SCM. According to Handfield and Nichols' (1999) definition, "supply chain encompasses
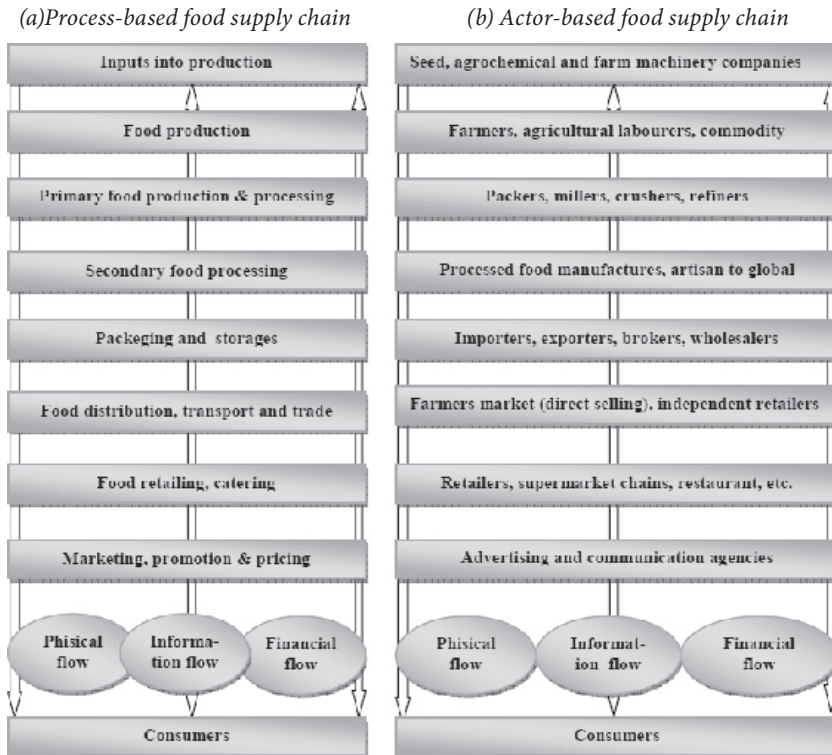
all activities associated with the flow and transformation of goods from raw material stage (extraction) through to the end user, as well as the associated information flows. Materials and information flows both up and down the supply chain".

Mentzer et al. (2001) define supply chain as "a set of three or more entities (organizations or individuals) directly involved in the upstream and downstream flows of products, services, finances, and/or information from a source to a customer". Giving consideration to the broad range of definitions available for SCM many researchers have attempted to categorize, structure or find a consensus for a common definition (e.g. Cooper et al. 1997, Mentzer et al. 2001, Gibson et al. 2005, Stock and Boyer. 2009). However, despite these attempts there is currently no consistent definition of what exactly a supply chain is or what it should be. One of the reasons for this is due to multidisciplinary origin and the evolution of the supply chain concept (Croom and Romano 2000).

Gibson et al. (2005), identifies two main streams under which the definitions of SCM falls: one is the narrow view of SCM that includes management and control of materials and information in logistic processes from acquisition of raw materials to delivery to the end users. The broader view of SCM is the integration of business processes from the end users and suppliers who provide added value to customers.

Regarding the concept of FSCM, it is still considered a relatively new research domain that is not clearly defined. Basically seen in two main directions, either based on a close cooperation between entities involved in the supply chains or looked at in a broader context of a network-business relationship (Fritz and Schiefer, 2008). Folkers and Koehorst (1998) give a comprehensive definition of FSC, defining it as "a set of interdependent companies that work closely together to manage the flow of goods and services along the value added chains of agricultural and food products, in order to realize superior customer value at the lowest possible cost". Managing an FSC brings many challenges as it constitutes different stages and variations on a sector basis. Hawkes (2009), uses two main categories in describing FSC: *Processes* and *Actors* that take the food from farm to fork. The stages involved are described in the following chart (*Figure 2*) which presents a process-actor base view from the first stages of ensuring the inputs for production to the consumers' table.

Figure 2: A basic food supply chain (adopted from Hawkes, 2009)

(a)Process-based food supply chain   (b) Actor-based food supply chain

Process-based food supply chain	Actor-based food supply chain
Inputs into production	Seed, agrochemical and farm machinery companies
Food production	Farmers, agricultural labourers, commodity
Primary food production & processing	Packers, millers, crushers, refiners
Secondary food processing	Processed food manufactures, artisan to global
Packaging and storages	Importers, exporters, brokers, wholesalers
Food distribution, transport and trade	Farmers market (direct selling), independent retailers
Food retailing, catering	Retailers, supermarket chains, restaurant, etc.
Marketing, promotion & pricing	Advertising and communication agencies
Phisical flow / Informa-tion flow / Financial flow	Phisical flow / Informat-ion flow / Financial flow
Consumers	Consumers

Again depending on the type of food and on the way that the supply chain is organised, the next stage might be packaging and storage if not directly distributed and traded. The retailer stage might include the local markets, small stores, supermarkets, and restaurants. Before the products reach the final consumers there are also the marketing related activities like pricing, promotion and advertising. It is important to note that the physical flows go downstream (from suppliers in the direction of the end consumers) and information and financial flows in both directions, upstream and downstream of the supply chain. The other part of the chart shows that FSC are also characterized by the actors responsible for different steps.

Despite the fact that FSC here is presented as a linear model, in reality the various components of FSC are highly interconnected. The entire chain is affected by cross-cutting inputs (e.g. capital, natural and human resources); when one part of the supply is changed or has a disruption, then the whole chain will be affected. This is

common for most supply chains, despite differences that arise from variations in the food product, scales of production, level of detail etc, (Hawkes. 2009). Therefore, an effective participation in the supply chain requires minimal disruption in physical, information and financial flows.

4. DEVELOPING FOOD – SUPPLY CHAIN IN WBC AND ITS BENEFITS

The development of a supply chain begins with the willingness of the actors to engage in a partnership. It is important that the actors involved are in possession of the appropriate knowledge and expertise on the chain and about the chain activities (Roekel et al. 2002). Knowledge about the chain is concerned with the functioning of the chain as a whole, finding the appropriate partners that complement each other and ensuring a functional long term business relationship. Knowledge within chains is concerned with the execution of specific functions, like marketing strategies, logistics activities, information flows etc.

An important starting point for the development of a supply chain is mapping, which identifies parts, players and participants involved in the supply chain, including those beyond the first level tiers. Process mapping is very useful to describe a wide range of activities by using simple flow charts or more complicated value stream maps.

For the whole chain it is crucial that partners are actively involved and flexible enough to respond as fast as possible to the market changes. This fast response to market changes requires the development of a common strategy, strong partnership, chain integration, communication and flow of activities and business processes.

A strategic and competitive position on the market would need that supply chain partners base their activities on a co-decided strategy for the whole supply chain with a focus on understanding consumers and business environment. Trust and commitment are also important elements in order to achieve successful development of partnerships and integration between supply chain partners as the relationship is based on interdependence, open communication and mutual benefits.

In order to act effectively and respond quickly to consumer requirements and market challenges, entities engage in supply chain relationships. The development of an effective FSC not only generates benefits for the companies involved but also has broader benefits: social, economical and in terms of the development of the region as a whole.

The benefits of involvement in a supply chain are often related to the reduction of the total cost which might be due to different initiatives, for example the reduction of costs as result of fewer inspections or even no inspections at all if a close connection and trust exist between partners. Add to that lower inventory costs as a result of shortened lead times, more precise planning and elimination of backorders and sold out situations. Furthermore, the benefits can be in terms of larger investment capabilities with shared risks among partners, better performance on ensuring food quality and safety standards (Handfield and Nichols 1999; Roekel et al. 2002).

With the increasing nature of competition in the agro-food sector in the last decades there is a need that entities involved in those activities consider a much broader approach toward market orientation, with a focus mainly on consumer preferences, flexible activities, upgrading to new production, processing and distribution systems. An effective response to this increasing competition would be involvement in supply chain relationships. Conversely, involvement in a supply chain relationship would require careful pre-examination of the production and services costs by all actors, adaptation of the services and production systems with the overall supply chain strategy.

5. RESEARCH METHODOLOGY

The method used for collecting empirical data here is a "Delphi study." This is a research method developed by the RAND corporation in the 1950s in an attempt to develop a technique to obtain a reliable consensus from a group of experts (Dalkey and Helmer 1963). The method is extensively used in SCM research and related fields to identify, rank and prioritize issues, as well as (e.g.) to make future predictions (Lummus et al. 2005; Seuring and Müller 2008; Akkermans et al. 2002).The basic principle of the research method is based on a revision process of the contributions given by experts.

According to Linestone and Turoff (2002) the term is defined as follows: "Delphi may be characterized as a method for structuring a group communication process so that the process is effective in allowing a group of individuals, as a whole, to deal with a complex problem. To accomplish this "structured communication" the following is provided: some feedback of individual contributions of information and knowledge; some assessment of the group judgement or view; some opportunity for individuals to revise views; and some degree of anonymity for the individual responses". The above

mentioned elements in the definition are seen as the strength of the Delphi method. The approach helps to overcome the weaknesses of relying on a single expert's opinions or in a round table discussion which can be biased and dominated by opinion leaders.

There is also a high degree of anonymity (participants are known only by the coordinator) and there is no need to travel. MacCarthy and Atthirawong (2003) consider the Delphi study as a systematic process that attempts to obtain group consensus resulting in much more open and in-depth research, since each member of the group contributes new aspects of the problems which will be researched in the next phase. This characteristic of "first more open and then in-depth research" gives the Delphi method a considerable advantage. If the research would start with an in-depth questionnaire from the beginning the results would be more biased.

Denzin & Lincoln (1994), Story et al. 2001, Linstone & Turoff (2002), have identified the most important advantages and drawbacks of the method but that discussion would extend beyond the objectives of this article. With the growing use of the Delphi method, there is also a growing impact of the methodology on both corporate planning and government policy-making. Because the results are generated from judgments it is important that the methodology is used properly and the outcomes are interpreted carefully.
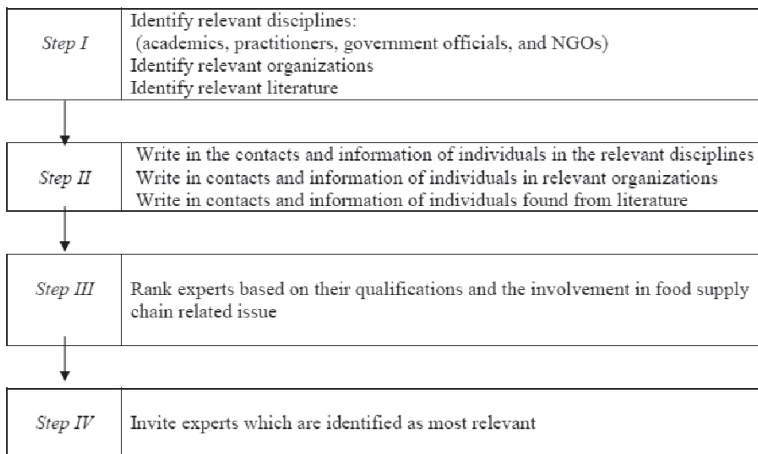
5.1 Expert selection

According to Martino (1993), choosing the panel members "*is the most important task of the moderator*' and the selection of the panel is to some extend a subject of controversy. A Delphi study does not depend on any statistical sampling but is rather a group decision mechanism requiring qualified experts who are specialist in the related issues. Delbecq et al. (1975) provide detailed guidelines on how to select the relevant experts for a group technique study, making it clear that this applies for the Delphi study too. Also, Okoli and Pawlowski (2004) present a detailed description (an example) of the process of how experts should be selected. In this paper we try to follow those guidelines. A four step procedure is used for the expert selection process as shown in *Figure 3*.

The *first step* started with the identification of the relevant disciplines by considered experts generated from four main groups: academics, practitioners, government officials, and nongovernmental organizations (NGOs). The reason for this composition is based on the valuable knowledge, involvement and importance

that those actors have on FSCM. Also, the aim of the research is to get a comprehensive and broader perspective of the topic.

Researchers were selected based on the publications in the field, browsing university websites and journal databases. Experts from non-governmental organizations were identified through websites by selecting those who work as consultants or those who are involved in supply chain related issues. Practitioners were identified by looking at participation at exhibitions and lists of businesses provided by governmental institutions. Governmental officials were identified by browsing the websites of ministries of agriculture and economy for each of the respective countries considered in this study.

Figure 3: The procedure used for the expert selection process

Step I	Identify relevant disciplines: (academics, practitioners, government officials, and NGOs) Identify relevant organizations Identify relevant literature
Step II	Write in the contacts and information of individuals in the relevant disciplines Write in contacts and information of individuals in relevant organizations Write in contacts and information of individuals found from literature
Step III	Rank experts based on their qualifications and the involvement in food supply chain related issue
Step IV	Invite experts which are identified as most relevant

The *second step* was to collect and write down contacts and biographical information of individuals identified from the related disciplines. The aim in this step was to obtain as much information as possible in order to determine what qualification they possess to make them experts. For example, the type of data recorded includes the number of papers published, participation and presentations in conferences, the length of years involved in supply chain related issues, years of experience in academia, government or NGO position etc.

The *third step* aimed at ranking the potential experts according to their qualification by comparing them with each other base on the criteria mentioned above.

The *fourth step* was the invitation of the selected experts, which was sent directly without a pre-announcement. From the four disciplines mentioned, a total number of 70 experts was chosen. A higher number was deliberately chosen, as a lower response rate was expected. The selection process aimed for an equal ratio between experts chosen from each of the countries considered in the study.

6. DATA COLLECTION AND RESPONSE RATE

The data collection was conducted between February and May 2010. An e-mail with an invitation text and an attachment (doc.) with four questions was sent in the first round. The second round followed with an invitation text with a survey link on it which was connected directly to a structured online survey that was generated from the answers of first round. After one week from each invitation a follow-up e-mail was sent as reminder for the submission deadline.

There were 13 full answers from experts selected in the first round of the survey and 14 full answers in the second round, resulting respectively in an average response rate of about 19%. Almost 7 of the answers were derived from researchers, 4 answers from governments and NGOs and 3 answers form practitioners. The almost equal distribution of participants among countries, the stable participation (experts who rise the issues also evaluate them in the subsequent round) and a detailed description of the research process contributes to the validity of the research.

7. CONTENT AND FINDINGS OF THE TWO POLLS OF THE DELPHI STUDY

As mentioned before, in this study we developed two rounds of questionnaires. According to Linestone and Turoff (2002), the Delphi study is supposed to continue until no more insights are gained from participants. It was decided not to conduct further rounds after round two due to the reasonable consensus that was reached among participants and due to low arguments (disagreements) on a few specific topics. These specific topics are those that have a high standard deviation, meaning that for these topics, less consensus was reached. Those items can be seen in Table 1. Another reason is that if further rounds would have been conducted a lower response rate was to be expected which could have negatively biased the results.

The first round of the Delphi study was based on four open questions. The questions were:

- What are the general characteristics of the FSC in WBC?
- What are the challenges that Supply Chain partners face?
- What kind of opportunities do you see currently in FSC?
- Which major topics do you see in the next five to ten years?

Experts were asked to respond to these questions based on their personal opinions and not to consider the institution or organization that they represent.

7.1 Data analysis and findings from the first and second round

After receiving the results of the first round from the above mentioned questions, a content analyses was carried out to generate the findings from the first round. Content analysis is broadly defined as "any technique for making inferences by objectively and systematically identifying specified characteristics of messages" (Holsti. 1969). Kimberly (2002), considers content analysis as summarizing and analyzing messages quantitatively by relying on objectivity, inter-subjectivity, reliability, validity, and replication. Reliability of content analysis was ensured by considering a reliable classification procedure in the sense of being consistent. Validity was ensured by asking experts to provide feedback regarding text interpretation. In total, 39 items were identified in this first round; those items are listed in Table 1 *(first column).* The aggregated items presented have been emphasised by most of the experts and it seems that the countries in the study have many commonalities in terms of characteristics, challenges that are facing currently, opportunities and the future expected development in a short-midterm run.

After the main items were identified from the first round a second round was developed using those items in a structured Likert scale questionnaire to measure three main elements in a five level scale: *agreement scale, performance scale and importance scale* for each of the likert items. The evaluation of the items is shown in *Table 1 (column 2 and 3)* measured by mean and standard deviation.

Table 1. Identified items and their evaluation by mean and standard deviation

FSCM-WBC	Mean	SD
Evaluation of the five level scale, strongly disagree-strongly agree(1-5)		
Large number of small and diversified producers-farmers	4.308	0.751
Small and medium processing companies	3.692	0.855
Expensive food for the end consumers	3.538	0.877

Low price for producers-farmers	3.923	0.954
Lack of appropriate facilities(i.e. stores, renovation technology, processing capability, packaging, logistics, delivery speed)	3.846	0.987
Difficulty to ensure safety & product quality	3.769	0.439
Lack of functional agro-market (sell-buy land, unclear ownership)	3.923	0.862
Low investments in research & development	4.385	0.870
No consistent flow of goods & information exchange between actors in FSCs	3.769	0.927
Regulatory barriers (difficult implementation, continuous in change etc.)	3.308	0.855
High competition from importing products	4.308	1.032
Outside events (e.g. economic crises)	3.615	0.768
Evaluation of the five level scale on performance, poor-excellent(1-5)		
Price competitiveness of food items compare to imported products	2.462	1.127
Implementation of food quality & safety standards in the food sector	2.231	0.832
Traceability of food products through production to final distribution	1.923	0.954
Collaboration of producers with other stakeholders	2.308	0.751
Collaboration of processors with other stakeholders	2.923	0.645
Collaboration of retailers with other stakeholders	2.692	0.947
Collaboration of consumer associations with other stakeholders	2.538	0.877
Collaboration of supporting institutions with other stakeholders	2.385	0.870
Evaluation of the five level scale on importance, not important at all- very important(1-5)		
Integration to marketing plans, strategies(e.g. direct selling)	3.615	1.121
Specialization in less range of products	3.615	0.870
Forecast matching demand-supply	4.308	0.947
Management commitment to improve operations and efficiency	4.715	0.768
Development of new customers and enter new markets	4.385	0.961
Subsidises (addition) for producers and manufactures of food products	3.538	1.050
Rigorous implementation of government policies on agriculture and food products	4.000	1.000
Support of affordable credit (low interest rate)	4.538	0.660
Support management system implementation in food industry (e.g. establish certification bodies)	4.692	0.630
Extend extension services	4.077	0.641
Food safety policies (i.e. condition under which food is handled, processed, sold etc,)	4.692	0.630
Change in consumer purchasing power & attitude	4.077	0.641
Development of new marketing channels & product strategies	4.462	0.776
Efficiency and effective production capacity	4.769	0.599
Production technologies	4.462	0.660
Higher competition with EU products (agreements with EU)	4.231	1.092
Increase of foreign investments in WBC	4.154	0.899
Better infrastructure & transportation connection (e.g. corridor 8 & 10)	4.692	0.630
Joint ventures between local & foreign companies, and retailer concentration	4.154	0.689

8. EVALUATION OF DIFFERENT ITEMS

From the results shown in Table 1, it is clear that in general most of the items identified have a high score, meaning that they are of high relevance for FSCM in WBC. The topics identified as most significant are analysed through the following constructs.

8.1 The structural characteristics of FSCM

The western Balkan region is characterised by a large number of small and diversified producers-farmers (mean 4.3). This situation can be explained with a self-sufficiency production approach that aims to fulfil internal basic food needs and less focused on a markets. Another reason that might explain small and diversified producers can be related to risk issues. For example, risk aversion strategy is a common attitude of producers who behave conservatively and avoid risks by increasing product variation within the same production area. This diversified production is favoured also by a high degree of land fragmentation. Another characteristic identified as important for FSC in WBC is the low reward price for producers-farmers (mean 3.9). This is considered to be due to high costs of production and low efficiency and high competition from imported products which are mainly dominating the markets. On the other hand the price for consumers is considered to be relatively expensive due to the many stages and intermediaries involved before the product reaches the end consumer. In regard to collaboration, from the results it can be seen that producers are less collaborative compared with the other actors, e.g. compared with processors and retailers. This might be due to the belief of producers that an attempt to increase collaboration might increase the total operation costs as far as there is a high degree of land fragmentation, constrained functioning of agro-markets and low production specialization.

8.2 Private initiatives and commitment for improvements

Management commitment to improve operations and efficiency is considered to be on top of the list regarding the importance of driving business operators toward success (mean 4.7). Studies show that the WBCs are not exploiting their full potential and existing market opportunities. Improvement in the agro-food sector has to be seen in synergy with new approaches of agricultural production, food processing, marketing strategies, logistics and FSCM as a whole (Bojnec and Ferto 2008). Efficient and effective production capacity improvements (mean 4.7) lie in the heart of the transformation and reconstruction of the agro-food sector. A better forecast matching

of demand and supply (mean 4.3) is needed as mismatching and coordination cause many disruptions in the food supply chain. The development of new customers and entering new markets (mean 4.3) and investment in technology e.g. processing capabilities, packaging and logistics (mean 3.8) are considered important as well.

8.3 The role of governments in developing agri-food chains

In this part the most important issues through which governments can contribute toward a more competitive FSC in the region are identified. Firstly, support for the implementation of the management information systems in the food industry appears to be very significant (mean 4.7), a concrete action could be the establishment of certification bodies or information system centres which can help to ensure food quality, support operations and planning processes. Secondly, support of affordable credit rates (mean 4.5), which is seen as very necessary because as mentioned earlier the region is dominated by small and medium size businesses which have limited investment capabilities and can hardly fulfil the high requirements criteria for getting loans. Despite there being some initiatives from government to cover part of the interest rate or to subsidise certain sectors, results show that there is still a need to stimulate the development of the agro-food sector in this perspective.

Extended extension services are also seen as important (mean 4.0). Examples of key issues here are: training and support on how to apply for funding, training on food safety issues, as well training on new production methods (e.g. organic production). Furthermore, the development of a body of knowledge through supported research institutions or programs would facilitate market activities of supply chain partners by increasing the availability of research and information.

In addition to the above mentioned factors another critical element is the implementation of government policies on agriculture and food products (mean 4.0), as in many cases the challenge is seen more on the implementation side of the policy rather than in having the regulations.

8.4 Important expected developments in a short-midterm run

Food safety policies when evaluated on the importance that will have in a short-midterm run (5-10 years) are shown as being very significant (mean 4.7). This is due to the increasing legal requirements on safety standards and an increase in consumer expectations and awareness. Also in the short-midterm run there is an expected

change in consumer purchasing power and attitude (mean 4.0) which needs response from business operators and institutions regarding the quality and safety standards. Ensuring food safety and product quality is currently seen as challenging (mean 3.8) due to the slow development of food quality management systems and the below-average performance in the traceability systems to control products from production to the final stage of distribution.

Another significant development that is required in the medium-term is the improvement of infrastructure and convenient transportation connections in the region. The current situation brings many challenges for the logistic activities of SCM by affecting the quality of products, the time of delivery and the overall costs. The development of the internal infrastructure within each country is considered important as well, sas is the development of regional connection through "Corridor 8 and 10" (mean 4.7) which is expected to facilitate and improve the performance of supply chain logistics.

Other important elements expected to be important are the development of new marketing channels & product strategies (mean 4.5). This is due to the higher than expected competition from EU products (mean 4.2) because of the general agreements with EU countries and the advancement of the EU integration processes. As competition pressure increases from inside and outside forces an increased level of joint ventures between local and foreign companies and increase in retail concentration are expected (mean 4.2). The retail sector is developing and is characterised by the dominant role of supermarkets which are becoming the most prominent commercial channels.

Investment in research and development is considered as a big challenge that the region is lacking behind (BAFN, 2008). However, new initiatives are flourishing and there is enough optimism as the region is considered by many current and prospective investors to offer huge opportunities as Europe's next high growth business location (Investment Horizons. 2006). This optimism is based on the government commitment in the respective WBC to support overcoming the above mentioned barriers and gaining advantage of low labour costs, local availability of raw materials and an attractive investment climate through competitive fiscal regimes.

9. CONCLUSIONS

The increasing competition of food markets in the last decades in WBCs has brought many challenges and opportunities for FSC partners. It has urged supply chain

actors to consider a much broader market-oriented approach with a focus mainly on consumer preferences, flexible activities, upgrading to new production, processing and distribution systems, while at the same time minimizing total costs across the whole supply chain. The overall incentives for improvements in FSC have to be seen as being in line with consumer expectations, new approaches of agricultural production, food processing and marketing strategies. The challenges identified for the private sector are related to a growing pressure to improve operations and efficiency, quality and safety standards of products, information sharing and investment in new technologies.

The contribution of institutions (government) toward a more effective FSC is seen through support on management system implementation, support in financial matters like subsidises and affordable credit interest rates, rigorous implementation of governmental policies on agriculture and food products and increasing investments in research and development. The development of internal infrastructure within each country is considered crucial as well, as is the development of regional communications for improving the performance of logistic activities through the whole supply chain.

At the same time that the issues discussed in this paper present challenges and threats to producers, processors and other industry stakeholders in FSC due to the increasing pressures in competition and the need to catch up with new market requirements, they also present great opportunities if considered in the right perspective.

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