WP 1 Needs Analysis

Deliverable 1.1 Survey guide

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TABLE OF CONTENT

Contents

2

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LIST OF ABBREVIATIONS

AFN Alternative Food Network
BiH Bosnia and Herzegovina
CAP Common Agricultural Policy
CEFTA Central European Free Trade Agreement
COFAMI Collective Farmers Marketing Initiative
EU European Union FAO Food and Agricultural Organization
HEI Higher Education Institutes (Universities)
LLL Life-long learning
NGO Non-Governmental Organization
PA Public Authority
SME Small and medium-sized Enterprise SSFC Short Supply Food Chain

SWUAS	South Westphalia University of Applied Sciences
UA	Urban Agriculture
UAA	Utilized Agricultural Area
UDG	University Donja Gorica
UN	United Nations
UNDP	United Nations Development Program
UNIBO	University of Bologna
UNMO	University "Džemal Bijedić" of Mostar
UNSA	University of Sarajevo
UP	University of Prishtina
UXZ	University "Haxhi Zeka" of Peja
WB	Western Balkans
WP	Work package

1.) Introduction WP 1 „Needs Analysis": General description and objectives

WP 1 „Needs Analysis" aims to deliver important information to design new curricula and lifelong learning (LLL) modules based on existing and new data from both, WB and EU. Additionally, it aims to provide an appropriate infrastructure for teachers' training on urban agriculture within Bosnia and Herzegovina, Montenegro, and Kosovo. In terms of education resources WP 1 defines skills and competences required to design teaching and learning environments supporting urban agriculture entrepreneurship. Thus, WP 1 is an essential requirement for BUGI's downstream WPs. Within WP 1 data collection embraces different levels in terms of materials and methods to define knowledge, skills, and competences needed for (new) entrepreneurship in urban agriculture. The surveys address practitioners and actors in urban agriculture (farmers, start-ups, but also actors in the food value chain) (Deliverables 1.3 and 1.4), different stakeholder groups, like NGOs, HEIs, public authorities, and SMEs including farmers (Deliverable 1.2), and consumers (Deliverable 1.5). The findings of the Deliverables 1.2-1.5 are going to be synthesized in Deliverable 1.6 „City-adjusted farm strategies in Bosnia and Herzegovina, Montenegro, and Kosovo".

2.) Regional and EU action plans and strategies report

Deliverable 1.2 "Regional and EU action plans and strategies report" consists of two main pillars:

1.) Status quo reports: EU and national levels
2.) Findings based on surveys among key stakeholder groups

2.1) Status quo reports: EU and national levels

Within the three expert working groups, which have been constituted at the beginning of the BUGI project lifetime, partners from EU (Slovenia, Italy, and Germany) and the three Western Balkan states (Bosnia and Herzegovina, Kosovo, and Montenegro) investigated EU respectively national situation of the three major fields in urban agriculture:

a) Business and networking;
b) Agriculture and food processing; and
c) Urban planning, ecology, energy efficiency.

For further details on the three expert working groups please have a look at the survey guide (Deliverable 1.1). The main questions to be answered by the three expert groups within the desktop research are:

a) Business and networking:

-What are existing business strategies and what is their share in market?
-What is strategic national plan for agro-business?
-What skill and competences are required to meet strategic plan?
-What is the "success factor" for successful business strategies?
-What is the main obstacle for businesses-"failure factor"?
-What is the level of networking between different stakeholders?
-What type of networking exists/is used?
-What skills skill and competences are required to improve networking between stakeholders?

b) Agriculture and food processing:

-What skills and competences are needed/valued in agriculture and food processing at the present?
-What is strategic national plan for agriculture and food processing?
-What skill and competences are required to meet strategic plans?
-What is considered as "strategic crop" and valued food processing product?
-What types/techniques of production are used in agriculture?
-What are existing food supply chains?
-How food supply chain is organized according to the stakeholders?

c) Urban planning, ecology, energy efficiency:

-What is the share of agricultural land in urban areas?
-What is municipal plan with agricultural land?
-What is the state of urban ecology?
-What is action plan for improvement of urban ecology?
-What skill and competences are required to meet strategic plan?
-Is there an action plan including greening of public spaces or community gardens?

This desktop research based on scientific and non-scientific literature and references as well as statistical data provides the basis for further empirical surveys including the surveys among the key stakeholder groups of Higher Education Institutions (HEIs), Small- and Medium-sized Enterprises (SMEs), Non-Governmental Organizations (NGOs), and Public Authorities (PAs) (s. 2.2), but also including the farm survey (Deliverables 1.3/1.4) and consumer survey (Deliverable 1.5).

The following chapters report the EU and national desktop researches carried out by the BUGI project partners.

2.1.1) Business and networking

2.1.1.1) EU

About ten years ago the global society has turned predominantly urban – for the first time in history (United Nations, 2014; Wiskerke, 2015). Future population growth is predicted to concentrate in cities and agglomerations so that by 2050 about two thirds of until then nearly ten billion people will live urban (United Nations, 2015). Europe and Germany are among the world regions and countries with the highest shares of urban population. About three quarters of the Europeans and Germans live in cities. In contrast to the global figures, forecasts expect population losses in Europe and Germany. However, further population growth is predicted for most European and German urban areas, while most rural areas and due to economic decline also some old-industrialized agglomerations face losses. Population growth and ongoing urbanisation processes continuously demand land – especially in urban and peri-urban areas. As this land in and around cities is often comparable fertile, farmland losses are concentrated in one of the most productive areas for food production. Agriculture is an important land user in urban and peri-urban areas. The UN estimates – based on expert judgements – that globally about 800 million people were engaged in UA in the late 1990s (Smit et al., 1996; van Veenhuizen and Danso, 2007). Out of these 800 million, about 200 million were expected to act commercially providing food for the urban market. Sixty per cent of the global irrigated croplands and 35% of the global rainfed croplands are located in and around (20 km buffer) cities exceeding 50,000 inhabitants (Thebo et al., 2014).

Urban food systems were marginalized from the perspectives of cities and agriculture for a long time (Wiskerke, 2015). Nowadays rationalized and efficient globalized food systems and long value chains offer benefits for people from the global North, but cause also long food miles and increasing alienation of – especially urban – people from food and nutrition. Apart from providing benefits, the globalized food systems hold also inherent costs, which are progressively criticised. Thus, since about two decades increasing dynamism and interest in food-related issues can be detected in and around cities. The UN's Sustainable Development Goals and the New Urban Agenda explicitly name urban agriculture an important building block for sustainable and resilient cities and agglomerations (United Nations, 2016; United Nations, 2017).

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Urbanisation is an important factor influencing agriculture. Cities and agglomerations hold advantageous as well as disadvantageous framework conditions for farming – especially the large number of potential consumers for goods and services on one side and land-related constraints on the other side. These challenging urban conditions are overlaid by more general developments including global North's saturated agrarian markets with export orientations, increasing global market involvements, and low margins as well as progressively emerging concerns about today's farming practices in distinct groups of people. Farms located in close proximity to cities have to cope with both – the local and the global – framework conditions. This increasingly incentivizes farms to adjust to the urban conditions aiming to achieve profitability and business success. The diversity and complexity of urban influences result in a variety of farm activities, adjustments strategies, and business models. This variety of city-adjustments, including high-value production, product niches, Short Supply Food Chains (SSFCs), Alternative Food Networks (AFNs), and service provision, is more pronounced than in rural areas. Since a few years, business model classifications have been emerging to categorize urban farming. Van der Schans (2010) proposes the business models specialization, differentiation, and diversification, while later classifications put a stronger emphasis on urban farming's social innovation, co-production, and participation with business model nominations like 'reclaiming the commons', 'shared economy', and 'experience'.

The FAO report 'Profitability and sustainability of urban and peri-urban agriculture' highlights a 'lack of sufficient [economic] data […] [and] 'limited number of studies with sound economic analysis' (van Veenhuizen and Danso, 2007: 29). Still today, urban farming 'remains poorly quantified' (Thebo et al., 2014: 1) and Specht et al. (2016) highlight, that especially in Europe urban farming's entrepreneurial activities have been largely neglected. Yet, several empirical studies give insights into common city-adjustments strategies and business models used to take advantages of the proximity to large consumer potentials. Urbanisation is one of the most important factors influencing agriculture' (Heimlich and Barnard 1992: 50) so that 'proximity to the city is […] a key determinant of the current production and land use decisions' (Wästfelt and Zhang, 2016: 180). Farm strategies adjusted to cities have to exploit the chances – especially the huge consumer potential and innovative urban milieu – and avoid the multifaceted obstacles, which origin from cities and agglomerations.

Cities and agglomerations increasingly incentivize farms to adjust to the urban conditions aiming to achieve profitability and business success. By doing so, farms increase chances to maintain economically viable or enhance their business performance (van Veenhuizen and Danso, 2007). When farms do not adjust adequately to the multifaceted and dynamic urban influences, they increasingly tend to give up or turn into part-time or hobby farming with main revenues originating outside of agriculture (Zasada, 2011). These part-time and hobby farms

build a valuable component of urban farming. Their farm businesses and developments go beyond primary profit orientation of full-time farms due to their earnings from outside agriculture. Different from many rural settings, economies of scale via increasing quantities in land and livestock are only very rarely possible development paths for urban farms. Mainstream agricultural production prevails in rural environments but is only of minor relevance in urban spheres. When adjusting adequately to the cities, 'commercial farming in urban areas is surviving and even prospering' (Gardner, 1994: 100). Consequently, the diversity and complexity of urban influences result in a variety of adjustment strategies and farm activities. 'Distinct farm types co-exist within metro areas that have evolved from pursuing different adaptations to urban pressures' (Heimlich and Barnard, 1992: 50). This variety is more pronounced than in rather rural areas, which are often dominated by one or very few regionally clustered farm strategies (e. g. Bryant et al., 1992). Urban areas offer development opportunities in various fields. Urban farming 'has been identified as being more diversified, polarised and multifaceted than elsewhere' (Zasada, 2011: 640). Common city-adjustment strategies of farms include high-value production, product niches, short supply chains, Alternative Food Networks (AFNs), and the provision of services connected with agriculture (e. g. Heimlich and Barnard, 1992; Gardner; 1994; Mougeot, 2000; Bailey et al., 2000; Houston, 2005; Zasada et al., 2011; Aubry et al., 2012; Aubry and Kebir, 2013; Bryant et al., 2013). In line with these, adjustment strategies such as specialization, niche production, multifunctionality, food chain management, quality of food, and embeddedness of food are listed by Wästfelt and Zhang (2016) as appropriate ones in urban farming. By focusing on the consumer side, Barbieri and Mahoney (2009) and Inwood and Sharp (2012) highlight that better chances of farm business survival and development exist for those city-adjustments which apply immediate consumer orientations and relationships. Agricultural innovations often take place on farms and agricultural systems within urbanised areas and subsequently diffuse into rural farming areas (Beauchesne and Bryant, 1999; Prain and de Zeeuw, 2007; Elgåker and Wilton, 2008; Zasada, 2011; Liu, 2015).

Networking: Example of COFAMIs in Europe

Networks and governance are important pillars, at least relevant guardrails to be considered for successfulness of urban agriculture businesses. As the issue of networking covers a wide range of fields, partnerships, formal and informal connections, etc., only a brief insight into COFAMIs (Collective Farmers Marketing Initiatives) is provided here on European scale.

In particular, in the last decade, a broad variety of new types of collective marketing initiatives can be witnessed that at least partly are to be understood as active farmers' responses to the differentiation in food markets, changing societal demands with regard to rural areas and a

growing policy attention for more integrative rural and regional development strategies. Many recent COFAMIs can be understood as multi-purpose networks that combine product marketing with collective learning, and collective strategic action with other actors as consumers, food chain partners, societal organisations, policy institutions, agricultural advisory services etc.

Cooperative activities emerged first in regions where small-scale farming predominated. The main aim was to improve the difficult economic situation of these farmers. While in North-western, Southern Europe and the Alpine region the evolution of cooperatives is characterised by relative continuity, there were ruptures in development due to changes of regime in Central and Eastern Europe. There, the 'trauma of collectivisation' attaching a negative connotation to collective action is only slowly beginning to be overcome.

Overall, the historical trajectories vary much due to different policy discourses and measures and due to different contextual embedding's. The importance of traditional-type farmers' cooperatives is rather heterogeneous comparing regions, countries and even sectors. However, traditional cooperatives still play a relatively important role in those countries where their evolution has been rather continuous. At the same time, an emergence of promising new approaches to collective farmers' marketing can be observed (COFAMI, 2016)

2.1.1.2) Bosnia and Herzegovina

Existing business strategies

Economic sector of agriculture, forestry, and fishery comprises only 8.3% of total gross domestic product (GDP), but it plays a significant role in the employment of BiH citizens (MVTEO, 2016). In 2015, 147 000 or 17.9% of total population were employed in this sector. The current unemployment rate, which is 27.9% (WB, 2016), by shifting development of agricultural sector towards the production of value-added products may have a significant impact on lowering our unemployment rate. BiH agricultural foreign trade balance is negative with EU (Europe Union) and CEFTA (Central European Free Trade Agreement) countries. Export in 2015 to EU countries was 123 million of euro (30% of overall agricultural trade) while import in the same year from EU countries was 794 million of euro (55% of overall agricultural trade) (MVTEO, 2016). Export to CEFTA countries in the same year was 142 million of euro (35% of overall agricultural trade) while import in the same year was 428 million of euro (30%). The positive trade balance was recorded between EFTA (European Free Trade Association) and country within free trade agreements, but the amount of trade is significantly lower than between EU and CEFTA. Agriculture and related sectors in Bosnia and Herzegovina still represent huge potential for a development of the economy and overall country development.

Facing several problems, mostly because of the complex political situation in the country, agricultural sectors still achieve some notable results. The total agricultural output is increasing; export of agricultural products is increasing, while a significant amount of overall population is employed, partly or fully in agricultural production. Availability of arable land and labour, mostly unpolluted land, with the availability of water, represent main strengths of the agricultural sector.

Major business strategy in the BiH agricultural sector is ensuring the stability of farmer's income. More than 90% of all available funds for agricultural sectors are used as a direct farmer's support. Agricultural output is increasing, as well as agricultural export, but major problems is that import of agricultural products is increasing followed by an increase in the deficit.

Urban agriculture in Bosnia and Herzegovina took a place in recent years, there are few incentives to stimulate the development of this field of agriculture. Mostly driven by foreign investment, but official data is missing. Consumer perception toward products of urban agriculture in BiH is also a field that needs special attention in following period. It is well known that population in BiH highly appreciate value-added products (such as organic and traditional products) (Nikolić et al., 2013, Mujčinović et al., 2017). Also, same research identifies that consumers are environmentally conscious and if we take into the consideration positive effect of urban agricultural practice on the environment, it may be a good sign for a stronger development of this subsector in BiH.

Due to the complex political situation in BiH, the strategic national plan is still missing. In 2017, national strategic plan for rural development was proposed, still waiting for acceptance and implementation. The BiH adopted a mid-term development strategy for agricultural sector for 2015-2019, and the RSR adopted a strategic plan for the development of agriculture and rural areas for 2016-2020. Common ideas are the establishment of a strong basis for faster and more efficient development through establishment of modern, productive, technological advanced, environmental and socially sustainable economic sector that is ready to answer on global socio-economic and environmental changes (FMPVŠ, 2015). In order to achieve above mentioned, it is necessary to establish and improve administration, improve product recognition, using diverse natural conditions, rich cultural heritage, etc. Therefore, it is necessary to focus on: improvement of communication, cooperation, horizontal and vertical stakeholder networking, as well as the establishment of efficient business cooperation that will enable more efficient and effective exchange of information, innovative ideas, transfer of technologies and good practices. Research and scientific institutions need to be involved in a process of building more competitive, market-oriented agricultural sector that will be the basis for improvement of life

quality, especially in rural regions. Several strategic goals are set up, some of them include (FMPVŠ, 2015):

- development of agriculture and related sectors through improvement of the technical and technological level, more efficient use of available resources, and adaptability to modern market requirements;
- enabling stronger generation of farmer's income and improvement of life quality, especially in rural regions;
- sustainable resource management and adaptation to climatic change; and
- harmonization of administration and legislation towards European Union and Common agricultural policy.

Skill and competencies required to meet strategic plan

In order to achieve above mentioned strategic goals, it is necessary to (FMPVŠ, 2015): support farmer's income, technical and technological improvement of sector, transfer of knowledge, technology and information, improvement of competitiveness of agricultural and food sector – meeting the requirements of domestic and foreign market, sustainable resource management, sustainable land use, development of value chains – horizontal and vertical integration, development of rural regions, modern public management and establishment of efficient administration.

 "Success factor" for successful business strategies

The success factor for successful business strategies is the ability of the sector to mitigate negative effect on the environment, challenge and adapt to climate change effect, establish innovative and modern agricultural practices and strengthen sustainability and sustainable management of natural resources. Bosnia and Herzegovina with high biodiversity, unique environment, and endemic species should emphasize this characteristic, and put more effort on protection and prevention of any kind of degradation of aforementioned. Sustainable natural resource management gives a chance to generate additional income, produce value-added products (organic, bio, traditional, etc.), promote agritourism and improve the position of rural regions. „Clean" and more efficient production technologies, renewable energy use, ecosystem externalities are just some of the opportunities for improvement of the sector and overall development of the country. Aforementioned should result in new job opportunities, higher income generation, reducing the poverty level and increase of direct foreign investment (FMPVŠ, 2015).

<u>Main obstacle for businesses - "failure factors"</u>

The complex political situation affects overall economy of the country, while sensitive sector such as agriculture is affected even more (Bajramović et al., 2006; Bajramović et al., 2014 as cited in Volk et al., 2014; Bajramović & Nikolić, 2014). As a result, agricultural policy in BiH shows great deviations from the foreseen objectives, which are often changed without clearly defined development goals. Major problems are related to the establishment of efficient institutional and legislative frameworks and selection of strategic goals for further development of the sector. In order to achieve above mentioned it is necessary to work on a market consolidation, institutional building, harmonization of the laws and regulations, improvement of systems for data collection, increase in budget, capacity building, etc. (Vittuari, 2011). Aforementioned problems result in a huge deficit in trade, the agricultural growth rate of 18% in a period of 2006-2013, lowest average salaries in the region, the unemployment rate of 27,9%, etc. (ASBH, 2013; MVTEO, 2016; WB, 2016). Small and medium enterprises in high-competitive markets, as well as small and sensitive to the change markets (such a BiH), competitive advantage cannot be built in quantity. On contrary, quality is often neglected as a source for building competitive advantage and better position at the market. Additional problems are a low level of motivation and lack of business skills of small agricultural producers that prevent them to move away from usual quantitative business practice. On the opposite, in the world, quality is recognized as a way to have equal chance to compete in the market, where development of agricultural production, and especially subsectors that are more efficient in a production of value-added products, have stronger export potential, smaller negative effect on the environment become priority measure for developing countries (Omar et al., 2011; Amilien & Hegnes, 2013; Nikolić, et al., 2014). Small agricultural holdings, mostly mixed farms, without signs of specialization are some of the problems that major part of farmer's in BiH are dealing with. This is one of the barriers to the further development of the sector and modernization of production and business practices. Underdeveloped food industry (degree of average capacity utilization is lower than 55%), with a major part of micro companies (72.2%) also represent big obstacles for further development and better cooperation between agricultural and food industry sector (FMPVŠ, 2015). Sign of growth and change in business practices in the food industry is implementation of quality systems (e.g. ISO 9000, ISO 22 000, ISO 14 000, HACCP, HALAL, IFS, etc.), but most of the companies implement these standards as it is required by law or in order to export their products (Mujčinović, 2013; Nikolić et al., 2014;2017). Another problem in the agricultural sector is a total dependency on foreign inputs, machinery or equipment, or production materials, fertilizers, pesticides, etc. Availability of high-quality inputs that will improve the efficiency of production and technical and technological development of the sector is still missing (FMPVŠ, 2015). Negative socio-demographic trends are some of the

problems that are becoming more and more important in the BiH. This problem is especially important in the rural regions (85,1% of total area in BiH), where is big presence of aging population, negative educational and social structure, as well as a reduction in the number of population in these regions (migration as well as negative natality rate).

Level of networking between different stakeholders

Vertical and horizontal integration or better to say efficient value chain is underdeveloped in Bosnia and Herzegovina (FMPVŠ, 2015). Low level of market orientation (Mujčinović, 2013; Nikolić et al., 2014;2017) and lack of ability to deliver quality, quantity and consistency are major problems that result in low level of competitiveness of agricultural and food sector. Some of the food products have price competitive advantage while most or we can say even all food products do not have a competitive advantage from a quality point of view (Uzunović, 2010; Uzunović et al., 2015). Small and fragmented production do not encourage food industry for stronger connection and networking with agricultural producers, while in the same time, the food industry is not developed enough to take responsibility and become a major actor of the value chain and vertical integration (FMPVŠ, 2015). Lack of transparency still represents a major problem in the agricultural sector. Agricultural information system are able to ease efficient data collection „from farm to table". Transportation and logistics sector is still underdeveloped that decrease efficiency, while knowledge and information exchange is almost non-existent (FMPVŠ, 2015). Public institutions failed to establish loyalty and trust within value chain and as a consequence competitiveness of the sector (based on a quality) is difficult to achieve.

Existing and used types of networking

Value chain analysis of milk sector was done in research Nikolić et al. (2013) emphasize two ways of selling final products, formal and informal markets. Informal markets include selling products to the rural populations and green markets, while formal markets include shops, supermarkets, etc. A major part of small agricultural producers and not registered agricultural producers are consuming what they are producing while remaining production is sold on local "green" markets. Cooperatives and trading agents take a role of collectors of raw materials. Involved stakeholders are input provider (cooperatives, agricultural pharmacies), producers (small agricultural holdings, SME's, big farms), collectors (trading agents, collecting centres owned by companies), processors, distributors, wholesalers, and retailers.

Skills and competencies required to improve networking between stakeholders

Information and knowledge exchange is one of the key factors for improvement of networking between stakeholders involved in agriculture and related sectors. Transparency through the

whole value chain is a „must" things, that will lead to building the trust and loyalty and establishment of strong alliances, a partnership that will stimulate overall sector development.

2.1.1.3) Kosovo

Existing business strategies and share in market

Kosovo's economy shows one of the lowest GDP per capita and is one of the poorest countries in Europe. Poverty remains widespread in Kosovo, with about 45% of the population living below the nationally defined poverty line (World Bank Report, 2010). In 2011 GDP per capita in Kosovo amounted to 2,650, in contrast to Macedonia with €3,600, while Albania, Bosnia and Herzegovina and Serbia exceeded €4,000. Compared to the EU-27 average from the same year Kosovo's GPG is 11%. Agriculture, which used to account for 25% of GDP in the 1980s and early 1990s, reduced its share to about 14.1% of GDP acc. to ASK data from 2011.

As already described in the overall economic context, unemployment is perceived as the most pressing problem for Kosovars, followed by poor electricity and water supply and poor standards of living. This is especially true for Kosovo's rural areas. According to the ASK, the unemployment rate for the first half of 2012 was 28.5% in urban areas, reaching 40.1% for rural areas (see also section 3.1.1.3).

The lack of job perspectives, especially among the rural and young population, is putting strain on social cohesion and encourages emigration. Very often agriculture is the sole source of new jobs but many young and educated rural people prefer to work in other professional areas. Thus, young rural inhabitants tend to remain unemployed or migrate to urban centres, which offer more job opportunities. This means that active farmers in Kosovo are rather old.

In 2011 the share of agriculture in exports in Kosovo was about 8.2% of the total value. The most important products exported by Kosovo are

- General products: wooden products, minerals, clothes, material for plaster cladding
- Agricultural products: wine, forest fruits, vegetables (peppers), lamb, cheese, fruits (apples), bee products, chestnuts, flowers, herbs.

The balance of trade in agricultural products in Kosovo is highly negative: the value of exports of agricultural products of €26.2m in 2011 was dwarfed by the value of €561.4m imports of agricultural products. Exports of agricultural products generated revenues to pay for only 4.6% of the cost of importing such products. Since 2006, export values have almost doubled whereas the value of imports increased by 45% up to 2010.The most important imports in terms of value are food preparations, beverages, tobacco, meat, dairy products and sugar.

According to official statistics the total land area used for agriculture increased from 360,866 ha in 2009 to 378,768 ha in 2012. Farmers owned 94% of their agricultural land in 2012, which is almost the same share as in 2009. While only 4.2% was rented from private individuals and 0.3% from the state in 2009, it increased to 4.4% from private individuals and 1.2% from the state in 2012 so that in 2012 about 18,026 ha of land in total were rented. According to available ASK data, free land use declined to roughly 4,200 ha from 2007 to 2009, but slightly increased again by 2012 to about 4,850 ha.

Agricultural productivity and yields are low as a result of small farm sizes and lack of access to technical expertise, resulting in outdated farming practices, inadequate use of inputs, a lack of credit and inefficient farm management practices. Small farm sizes mean that farmers cannot produce enough surpluses for commercialization. A significant proportion of the production is self-consumed by the households and only a limited amount is brought to market usually without long-term contractual arrangements.

The main policy objective of Kosovo's government is accession to the European Union. The preparation for future membership is linked with the preparation to fulfil the obligations stemming from the membership by gradual alignment with and the adoption, implementation and enforcement of the EU Acquis. The draft National Strategy for European Integration "Kosovo 2020" clearly sets out the strategic approach of this alignment process, which also forms the basis for negotiating an Association and Stabilization Agreement between Kosovo and the European Union. The strategic programming documents, namely the ARDP (2007-2013) was the first attempt to set out development targets for agriculture and rural development, taking into account the strategic goals of the EU Rural Development policy 2007-2013.

The particular objectives of the ARDP for the period 2007-2013 are stated as follows:

- Increasing the competitiveness and efficiency of primary agricultural products;
- Improving the processing and marketing of primary agricultural and forestry products through the increased efficiency and competitiveness of the processing sector;
- Improving the quality and standards of hygiene on farms and in processing entities;
- Achieving sustainable rural development by investing in rural infrastructure and promoting economic development which respects environmental protection standards;
- Creation of new job opportunities through rural diversification.

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Skills and competences required to meet strategic plan

To achieve an accredited and functioning Decentralized Management System, an IPA project on Public Administration Reform has been requested for 2013 to support central government institutions in Kosovo in strengthening strategic planning and policy coordination through the development of an Integrated Planning System (IPS). The goal of the project is to advance institutional and human analytical capacities as well as to create an environment where strategic planning documents will be the main instrument for prioritization, policy and budget planning in the government.

The project will focus on supporting a set of operating principles to ensure that government policy planning and monitoring as a whole takes place in an efficient and harmonized way. It will help advance the institutional mechanisms, procedures and other necessary conditions for a better and more coherent coordination at government level and will align ministries in strategic and policy planning. The project will also help the government to develop standardized mechanisms for monitoring and evaluating foreseen strategic objectives. The actions will be built upon the interventions already implemented by other organizations

"Success factors" for successful business strategies

The agriculture and food industry faces a significant challenge to successfully restructure, introduce EU standards and increase productivity and production, which would, in turn, improve the competitive advantages of the country. The process of harmonization of national legislation with the European acquis and the gradual alignment to Community standards in the area of food safety, hygiene, the environment and animal welfare, requires significant investments in the modernization of facilities and an emphasis on improving labour force knowledge and skills

The interventions under priority 1 aim at increasing the competitiveness of agriculture and the food processing industry. They directly address the main needs of these sectors through:

- Modernization of physical assets/production factors;
- Introduction of new technologies and equipment for raising productivity and production;
- Investments for compliance with EU standards and investments in renewable energy sources;
- Structural adjustments in farming structures.

Main obstacle for businesses - "failure factors"

The study on identifying the difficulties of doing business that are present among Kosovar companies, developed by the Kosovo Chamber of Commerce with the support of GIZ has shown as the most important obstacles identified as external factors - the economic environment, the conditions administrative, regulatory and infrastructure of the country and at the same time internal factors, mainly managerial and operational issues within the firm. Presenting the study, chairman of the Chamber of Commerce, said that the study was designed to identify and articulate these obstacles in the business community of Kosovo.

"The KCC, as the main partner of this community, will present this information to the Government of Kosovo in order to jointly enable the improvement of the business climate for both foreign investors and local companies. As a result, the study includes a number of issued recommendations. These recommendations address the main external and internal obstacles, thus enabling a more favourable environment for companies throughout their activity". Moreover, the study shows data that the main external barriers for most companies, electricity price (57%), electricity supply (54%) and financial loan costs (38%), , are seen as the main external obstacles. Political instability and corruption according to the results of the study has influenced by a percentage of 36%, respectively 35% of respondents. Difficulties within the firm or the interior are less well-known. It should be noted that the priority of this study has not been the generalization of problems for all companies taking into account the degree and type of their activity. The results show that wholesale sector companies face more internal obstacles than that of the construction sector.

Also, larger companies face more internal problems than micro-companies or smaller companies that reported less difficulty. It is worth mentioning the need / lack of a business plan for all companies regardless of sector / size. On a continuous basis, the study shows that 50% of surveyed companies are warning revenue growth in 2015, accompanied by a 40% increase in investment in the same year. Regarding questions on economic dynamism, 75% of surveyed companies have resulted in an increase in customer base in 2014, which speaks about Kosovo's dynamic economy in general. In some cases, the inadequate number of customers, characterized by a percentage of 24%, represents one of the most distinctive internal difficulties.

Level of networking between different stakeholders

Supporting competitive development of the private sector: The EBRD will provide financing to Kosovo corporates and small and medium-sized enterprises (SMEs) to support investment in competitiveness gains. Improving access to finance for SMEs will remain a priority, and the Bank will continue to work with local partner banks to this end. The Bank will continue

deploying targeted frameworks, such as the Women in Business programme and the Western Balkans Sustainable Energy Financing Facility, and will also provide business advisory services.

Enhancing energy security and sustainability: The Bank will seek to apply its Green Economy Transition approach to all investments in the country. Energy efficiency and renewable energy can help mitigate power shortfalls, which are currently endemic, while enhancing environmental sustainability. The Bank will also consider supporting investments in power generation capacity where these are consistent with its Energy Sector Strategy.

Supporting connectivity and regional integration: Infrastructure development is needed to improve Kosovo's regional integration and attract foreign direct investment, as well as to harmonise with EU standards. To that end, Kosovo needs to develop road links to pan-European corridors and modernise its railway network. The EBRD will aim to provide long-term finance and advisory to help build and rehabilitate key transport links, as well as support Kosovo in bringing its transport sector into compliance with European standards.

Type of networking

- UNDP - New Entrepreneurs Networking to Build Connections and Expand Their Businesses

The mentoring the new entrepreneurs receive under the Self-Employment Programme (SEP) offers guidance on how to expand their start-ups, using various tools available. One of these is networking, long acclaimed as one of the most appreciated and most important asset of an enterprise in the world of business. The Self Employment Programme of the Ministry of Labour and Social Welfare in cooperation with UNDP and the Ministry for Foreign Affairs of Finland was pioneered in 2015 with the aim of tackling unemployment in Kosovo by supporting unemployed who have a skill and will to develop their own enterprises with a start-up grant and mentorship services. Following the successful completion of the first phase of the Programme which created 43 new start-ups in the regions of Prishtinë/Priština, Gjilan/Gnjilane, and Prizren, the Programme was extended this year to the region of Mitrovicë/Mitrovica. Currently, candidates with the best business ideas have started an intensive business development training which will prepare them to turn their initial ideas into full scale marketable business plans.

- Union of Diaspora Business Networks promises investments and jobs for Kosovo

Over 50 very successful entrepreneurs from around the world gathered to Pristina to discuss investment possibilities on 15th-18th of May by the invitation of Ministry of Diaspora and the Diaspora Engagement for Economic Development (DEED) project. The DEED project is implemented by the United Nations Development Programme and the International Organization for Migration and funded by the Government of Finland. The project aims at –

among other things – facilitating the investments of Kosovars living abroad, with the overall goal of strengthening the Kosovo's economy, creating employment and reducing poverty.

<u>Skills and competencies required to improve networking between stakeholders</u>

With stakeholder management being all about identifying and then understanding the motivation and behaviours of anyone who can affect what you're trying to achieve on a project; then developing relevant strategies to influence outcomes – it's no surprise that stakeholder management is one of the top "soft" skills a project manager can have.

For a reference point I started with a quick search of a handful of current job specifications where stakeholder management is referred to and not unexpectedly it shows up in many different shapes and sizes as can be seen in the list below (the number in brackets is where it ranked in the overall importance of the project manager's roles and responsibilities);

- Manage the expectations of stakeholders throughout the lifecycle of the project,
- Experience of dealing with multiple stakeholders,
- Be politically savvy,
- Ensure that information systems are put in place to meet the information requirements of all stakeholders,
- Coordinate effective communication among teams and stakeholders, produce stakeholder analysis.

2.1.1.4) Montenegro

UA, as a term, is not recognizable in currently existing strategic documents and literature. Usually, a term "Sustainable agriculture" in urban areas is used, which means that UA is still non-existing term in local and state action plans and strategic documents.

<u>Existing business strategies</u>

"The agricultural sector plays an important role in Montenegro's economy and is responsible for a significant share of the Gross Domestic Product (8% in 2013, including forestry and fishing)." (MARD, 2015: 3). Agricultural sector in Montenegro "employs" 98,341 citizens, which comprises 19.62% of Montenegrin population over 15 years old. According to the Employment Agency of Montenegro on 25th June, 2018, unemployment rate was 18.5%. "Unemployment rates in the North are two times greater than the national average, reflecting growing regional development disparities" (UNDP, 2018). If this statement by UNDP is taken into consideration, together with an enormous potential that Northern Montenegro offers with its pure and unpolluted nature, development of agricultural sector offers a clear perspective in reducing a big unemployment rate on north and in whole Montenegro.

"The import value of agricultural products in 2013 was 470.6 million € and represented 26.4% of total imports. Exports amounted to 62.6 million € and represented 29.2% of total exports. The main partners regarding both imports and exports, over recent years, have been CEFTA and EU countries, representing over 90 % of all total trade exchanges in the area of agricultural products." (MARD, 2015, p. 20) Trading with both EU and CEFTA countries, Montenegro imported a lot more than exported in both cases. MNE imported €992M from EU, while exporting €122M. With CEFTA, import was €627M and export €146M.

Business strategies for development of agriculture were taken into consideration by Ministry of Agriculture and Rural Development in its "Strategy for the Development of Agriculture and Rural Areas 2015-202". "Investments are needed in the primary crop production sector in order to establish new perennial plants (orchards, vineyards, olive trees) by planting seedlings, to rehabilitate existing machinery and equipment and to buy new machinery and equipment. Such investment would contribute to increasing yields of quality fruit, grapes and olives.

Competitiveness in the sector of vegetables could be strengthened by extending the length of the supply season through more production in protected areas and through the improvement of market infrastructure to enables the storage and preservation of fresh products for sale on the market; such measures would improve the quality of products and would and reduce their seasonal character.

In order to improve the general situation in the livestock sector, support should be concentrated on: increases in market-oriented production, increases in productivity, the improvement of the racial composition of the population, the improvement of the capacity of accommodation for animals, the development of technology for the production of animal feed, the improvement of standards in the processes of milking and milk processing, maximizing the use of resources and improving measures for the disposal of manure.

Investments in the milk and meat processing sectors should be focused on the acquisition of modern equipment and the improvement of production technology to reach national and EU standards, the introduction of quality management systems, the purchase of equipment to reduce harmful impact on the environment, and the advancement of both knowledge and skills." (MARD, 2015, p. 52)

<u>"Success factor" for successful business strategies</u>

Among the key success factors for implementation of national strategy is overcoming certain challenges that were noted by MARD itself:

- "Unfavourable structure of agriculture and lack of economy of scale;
- Natural constraints for agricultural production;
- Standards of food safety have not been fully implemented in production;

- Vulnerability of the environment and eco-systems;
- High quality products (organic, PDO / PGI) have not yet been sufficiently recognized and standardized;
- Underdeveloped physical and social rural infrastructures;
- Present depopulation in rural areas;
- Rural population is very dependent on agricultural income;
- Difficult approach regarding loans for investment in agriculture;
- Insufficient awareness of producers regarding the importance of associations" (MARD, 2015: 51f.)

Other than only overcoming certain challenges, MARD included following: "One of the key objectives for the development of rural areas is the increase and diversification of income and the decrease of nominal and hidden employment of household members. Action to be taken in order to achieve these goals includes: building local institutions, the development of the Rural Financial Sector, the development of a non-agricultural economy, the development of agriculture, the revitalization of the rural infrastructure, etc. The development and diversification of the rural economy can be achieved through investing in the opening of small enterprises, in craft shops and in improving accommodation facilities for the development of rural tourism and the development of entrepreneurship. The improvement of the rural infrastructure would ensure the reduction of regional disparities and would also increase the attractiveness of rural areas whilst also improving the standard of living." (MARD, 2015: 30)

"Revitalization of underdeveloped areas is one of the key factors in the process of accession of Montenegro to the European Union" (Despotović, Joksimović, & Jovanović, 2016: 393).

Main obstacle for businesses - "failure factors"

Obstacles for agriculture in general start with a migration that is happening on the north of Montenegro, as an industrially undeveloped part of country which occupies 52.9% of Montenegro. "Two trends are visible in the migration of the population between the two censuses (2003 and 2011): the first is a significant migration from the northern region and the second is a migration from rural to urban areas." (MARD, 2015: 30) "Rural areas of Montenegro remain empty, while rural areas in Europe are becoming increasingly important alternative for living and working in relation to the of cities" (Despotović, Joksimović, & Jovanović, 2016, p. 391). In 2011, only 28,7% of Montenegrin population lived in a most preserved part of Montenegro that has all potentials for an infrastructural development of agriculture, due to the pure and unpolluted land, air and nature in general. "If we observe the structure of agricultural land, it is seen that the area of the Northern region accounts to about 60% of the total agricultural land in Montenegro." (Despotović, Joksimović, & Jovanović, 2016: 397)

After migrations, aging of Montenegrin citizen is becoming a worrying trend for a development of agriculture. Agriculture has to be based on youth continuing family farming traditions and youth coming back to rural areas as well. Currently 65.69% of total workforce in agriculture is older than 45 years. Montenegrin older generations are known as traditional and conservative in certain ways, while youth are being a lot more open-minded, especially for new technologies and start-ups slowly emerging all over the world. Generational shift is a must for an easier and smoother adaption to the upcoming changes and for prosperity, in general and in this case, especially in agriculture. One of the reasons are European financial funds, such as IPARD and MIDAS for example. Youth generations are basically growing up with the idea of European cooperation and many opportunities that EU potentially offers, while it takes a lot longer time to teach and explain these opportunities to older generations that grew up in quite a different time.

Unfortunately, Montenegro can't be proud of its road infrastructure in rural areas, which is one of the indicators for underdevelopment as well as a factor that results in a more complicating life for citizens living in those areas. "The poorly developed road network in Montenegro is the result of various limiting factors which together aggravate or restrict operational connections within Montenegro. It is possible that there will be further economic decline and depopulation in remote rural areas if national policies do not provide a favourable living conditions and a better economic environment." (MARD, 2015: 31).

Interesting emerging trends in recent years

In 2016, Montenegrin Sector of Agriculture noticed a notable rise in the Vineyards production of grapes, which amounted to be 30,153.0 t, in comparison to 2014 when same production had been 18,873.5 t, staggering growth of 159% in only 2 years. Also, yield per ha [t], in the same timespan grew for 157%. In 2016 yield was 10.4 t, while 2 years later it was 6.6 t.

Except vineyards, agriculture saw rise in the production of plums, as well and shifts in apple production. In 2014, 5,743.2 t of plums had been produced, while in 2016 production was 13,127.6 t, a growth of 228.5%. Apple production in 2014, '15 and '16 saw interesting shifts. In 2014, total production had been only 4,900 t, while in 2015 it witnessed a rise to 16,614.8 t and only one year later production fell to 7,968.1t.

Noticeable rise was evidenced in the production of honey as well in the timespan 2014-2016. Total production of honey, from 2014 was 325 t, while rising to 627 t in 2016. 626t were produced in Private farms, while only 1t in Enterprises and collective farms.

One of the emerging trends to be highlighted is a first public garden „Eco community garden" in Mareza, only around 6,5 km from the centre of Podgorica. Their goal is expanding this type of

gardening, as an under-developed and non-existing; to other urban and suburban areas in Montenegro while promoting public gardening as a new trend. In November 2017, 13 people had their own lot which is completely organised by those people. One part of the garden is specified for all visitors that come here to try out their gardening skills or just sightsee around garden. First Montenegro public garden should also be mentioned and praised for many school visits, as one of the activities in promotion of public gardening.

<u>Existing and used types of networking</u>

Networking among stakeholders could be improved trough enhanced coordination, knowledge-sharing and methodology harmonization amongst stakeholders, in turn allowing them to collaboratively support, strengthen and promote urban agriculture. Better stakeholder's coordination lead to social wellbeing; increased awareness of environmental issues (new irrigation technologies to save water, use of household waste for compost); life skill development (hands-on experience); and academic understanding (awareness of environmental issues, sense of pride from accomplishments, learning about savings and loans).

"One way of linking farmers and suppliers is the use of a national distribution centre. The EBRD has provided equity financing to Voli, a leading supermarket chain, to build a new, state-of-the art distribution centre in Podgorica. The 13,000 m² distribution centre will also create links between local suppliers and wholesale and retail customers. Over time, Voli is planning to purchase more fruit, vegetables and dairy products from existing local suppliers and attract new ones. By entering into a contract with such a distribution centre, a local farmer will have a more stable income, which in turn will allow them better access to finance, and provide a wholesale customer — such as a hotel — with a reliable supply of local produce." (Moreno, 2017).

<u>Key stakeholders</u>

Participants, worth noting, are MARD, Chamber of Economy of Montenegro, Farmers' associations, NGOs. It is also worth noting that cooperation between them is still not defined by state and specific strategic documents.

2.1.2) Agriculture and food processing

2.1.2.1) EU

The world's population is growing steadily and projections indicate that it will reach 9 billion around 2050 (UN, 2010), becoming predominately urban. This growth in urban population is boosting the necessity to re-examine how urban spaces are developed and urban inhabitants are fed. On one hand, the current complexity of food systems based on economies of scale is

causing economical, societal and environmental challenges to cities and rural areas. On the other side, however, consumer awareness on food quality, security and healthiness is demanding for alternative food systems.

The European food system is mainly characterized by high external inputs (such as non-renewable resources such as fossil fuels, mineral fertilizers and synthetic pesticides), lower labour inputs and long supply chains (EEA, 2017).

The European trend of development in the agricultural sector has been towards a greater concentration of agriculture within the hands of relatively few large, often corporately owned, farms (Eurostat, 2016b). While overall agricultural production has increased, the number of farms and farmers has decreased and the average farm size is larger (Eurostat, 2016a). It is interesting that very large farms (over 100 ha) comprised 3 % of all farms but farmed half of the utilized agricultural area (UAA) in the EU-28 (Eurostat, 2016a). This over-specialization has led to monocultures with considerable environmental impacts, reduced biodiversity and growing concerns among consumers about food quality (EPSC, 2016). By this way, agricultural production is always more linked to the use of chemical fertilizers, pesticides and the preventative use of antibiotics leads systematically to negative impacts and vulnerabilities (IPES Food, 2016). However, an increasing number of farmers are adopting alternative systems such as organic farming and agro-ecological practices. The total area under organic production grew by 21 % between 2010 and 2015 to 6.2 % of total UAA (11.1 million ha) (Eurostat, 2016c).

Food supply chain in Europe

Food supply chain is composed by different actors: input industries, farmers and horticulturalists, food and drink manufacturers, wholesale and suppliers, retail and services, and, finally, consumers. Current policies and initiatives mainly target primary producers and consumers and, while these actors are the largest in numbers, they do not necessarily have the most power or influence to bring about change in the food system (EEA, 2017). In the European food system, many larger companies are vertically integrated, meaning that they operate at different steps of the value chain, and they are well connected to one another through subsidiaries. This consolidation has been accompanied by a shift in power from primary producers to actors downstream in supply chains (e.g., retails) (UNEP, 2016). Indeed, the 10 biggest retail companies in the EU have a combined market share of over 50%, so exerting a large influence over both producers and consumers. When actors such as large retailers have disproportionate buying power they can increase their profit margins by depressing prices that food producer receive for their produce (EEA, 2017). Food system actors such as suppliers, retailers and services are increasingly operating on transnational scales and actively shaping the food environment to influence food choices through measures such as advertising and

packaging. Influencing the food environment could be an important lever for change with regard to dietary composition, reducing food waste and supporting more environmentally sustainable production.

Shorter food supply chains in urban agriculture

One remedy that is increasingly being considered as a solution to unhealthy and/or inadequate food access in cities is urban agriculture (Ackerman et al., 2014). Urban agriculture can be considered a way to produce healthy food, to shorten the food supply chain and to create business.

According to a European Parliament report (2014), the main economic challenges for small urban farms are access to farming resources (such as land and capital) and access to markets, particularly in terms of gaining power in the food supply chain. Long supply chains give the competitive advantage for large wholesalers instead of smaller, local farms with small quantities of products. Many small farms also lack the entrepreneurial skills to improve their business models, or to identify new business opportunities. Having said that it should be pointed out those finding new business opportunities in a traditional food system can be difficult with the resource limitations of small producers (European Parliament, 2014).

Short circuits of production and consumption can increase profit margins, generate greater autonomy for farmers and foster customer loyalty by linking products to a local area shared by producers and consumers. In order to shorten the circuits, small urban farms are looking into alternative outlets and sales channels, such as farmers' markets, on-farm shops, food hubs and online shops.

The urban market has always been and continues to be one of the most popular ways to shorten the food system circuits. They are by far the most popular and visible component of local food systems, and the mingling of farmers and shoppers there represents one of the few daily connections between urban and rural people in our era. Any city can encourage the growth of markets by providing spaces suitable for holding markets with flexibility and low-cost. For farmers, markets are entry points for new agri-food entrepreneurs because they are relatively inexpensive to start and operate. Markets bring the consumption of fresh and unprocessed food onto citizens' plates, consumers and farmers closer to one another and engage public institutions in the promotion of local agriculture whilst contributing to sustainable development. An example, in Italy, is the association Campi Aperti that organizes a daily market (every day in a different place) within the city of Bologna for organic farmers. A similar example is the Werkhof project GMBH, in Dortmund, Germany.

Due to technological advancement, online shops are rapidly becoming a more popular form of agriculture outlets. With the rise of ICT, an increasing number of farms are starting to set up a simple form on their website, where an order can be placed without any intermediates. Furthermore, Facebook groups within cities are known to have been created to facilitate direct interaction between consumers and local farmers. An example is La Ruche Qui Dit Oui which was set up in 2010 in France to provide a web platform for farmers, producers and consumers who want to buy and sell agricultural produce. A weekly message saying what local fresh and processed products are available and an order can be placed in a reply message and paid via bank transfer. Fresh products are delivered within a day from placing the order by the farmers.

Direct marketing outlets have expanded dramatically due to increasing consumer demand for local fresh and value-added food products. On-farm shops, where producers can sell their fresh produce, value-added food items, and other arts and crafts are popular direct marketing avenues for farms that want to diversify their sales outlets.

From the period of 2007-2013 the short supply chains were supported by LEADER projects and by several measures such as: modernisation of agricultural holdings, quality of agricultural production and products and support for business creation and development. The European Network for Rural Development established a Working Group on Short Supply Chains during the 11th National Rural Networks meeting in April 2011. Regarding the Rural Development Programmes 2014-2020, the European Commission integrated short supply chains in its regulation proposal.

Business dimension in urban agriculture

When discussing business skills of farmers, three distinctive dimensions can be identified: managerial practices, entrepreneurial attitudes and new skills. Few farmers have the time or experience to analyse the strengths and weaknesses of their business. Trainings and toolkits are an essential way for educating the farmers on new possibilities. The most effective method has, however, proven to be networks amongst agri-companies, but also bringing business networks in collaboration with agri-companies. Applying the skills and know-how of the business experts allows farmers to take their company to the next level either via adapted knowledge or outsourcing the business tasks. Within the European project URBAN GREEN TRAIN (Erasmus+) a Need Analysis through 122 interviews was done. Results report that Communication (70%), creativity (64%) and capacity for teamwork (58%) are named as the most important personal capabilities or "soft skills" to develop urban agriculture business. Specific skills mostly named were plant production, market research, project management, business planning and knowledge on local and regional policies.

2.1.2.2) Bosnia and Herzegovina

<u>Techniques in agricultural production and processing</u>

Most of the agricultural production in BH is an extensive type, dominated by fragmented, small agricultural holdings, often with inadequate application of mechanization and modern technical-technological know-how. There are a very small number of intensive holdings:

- medium size farms with average farm size 3-20 ha, around 11%, and
- big farms, with average farm size more than 30 ha, around 1%.

Small number of farms has some type of certificate (e.g. Global G.A.P.). The major problem in the agricultural sector is the underdevelopment of the input sub-sectors, which are of low import origin and suspicious quality, which is directly reflected in output quality. In addition, inadequate logistic infrastructure jeopardizes competiveness and reduces the business outcome.

The food processing industry still has great problems with a low level of technical-technological equipment, generally very low capacity utilization (below 50%), but significant steps have been taken in the implementation of international standards such as ISO 9001, 14000, 22000, HACCP, HALAL, IFS, etc. Big problem of the food industry is a low level of market orientation, so product assortments are outdated and do not follow trends in modern markets (raw material, sugar content, functional, healthy food etc.). Product assortment is very classical and the capabilities to innovate are limited. Current product assortment of fruit and vegetable processing industry is very similar to one that was produced in pre-war BH, to one that was produced before 30 years.

<u>"Strategic crop" and valued food processing product</u>

Agricultural production in BH is characterized as highly diversified, dominated by small agricultural holdings, and extensive. Main characteristic of small holdings is production for household self-consumption (32.2 % potatoes, 25.8 % onions, 20.1 % beans, The Fruit and Vegetable Sector in Bosnia and Herzegovina, FAO, 2012). Under such conditions, it is very difficult to distinguish what would be a "strategic crop". According to official statistics, almost half (43%) of the total cultivated land is used for grain production. Vegetables are grown at about 22% total cultivated land. In the past decade there has been a slight decrease vegetable production. Potato is dominate vegetable culture (about 60% of the vegetables), although the areas sown with this crop fall slightly. Fruit production has flourished in the previous decade, though the orchards occupy only 6.3%, and vineyards 0.7% cultivated land, and a significant

trend of strawberry fruit was recorded. Milk production accounts for 25% of the total output value of the sector.

<u>Skills and competences needed and valued in agriculture and food processing</u>

The agricultural and food sector in BiH is faced with numerous problems. The most prominent one is a low level of productivity in on farm production and low level of capacity utilization in the food industry. Lack of skills in modern business concepts, the knowledge to attract investors or domestic and international funds, as well as the absence of farmers associations is increasing food sector sensibility. At the same time, the availability of information and knowledge distributed by the network of public and private institutions, organizations, and non-governmental sector, which are the basis for improving the efficiency and productivity of the sector, has not been established. Support for the creation of centres of excellence, ie support for the development of applicative and development research, is also missing, and should contribute to the creation and transfer of knowledge as well as to the higher level of innovation in the sector. The general low motivation and the ability of farmers to spend time and money in gaining knowledge further complicates the situation and leads to even more technical and technological gap in the sector.

<u>Strategic national plan for agriculture and food processing</u>

Due to the complexity of administrative structures and political situations in Bosnia and Herzegovina, national strategic plan for agriculture and the food industry is missing. Medium-term strategic actions have been established in the Federation of Bosnia and Herzegovina (Medium-Term Development Strategy for the Agricultural Sector for the period 2015-2018) and Republika Srpska (Strategic Development Plan for Agriculture and Rural Areas 2016-2020). Although both drafted strategies emphasize the importance of European integration, their practice is absent. The main goals of strategies are to build solid foundations for faster and more effective development of modern, productive, technologically advanced, ecological, social and economically stable agricultural sectors ready to respond to global socioeconomic challenges and the effect of climate change thus creating stable and compatible sector regionally and internationally. Rather than focusing on specific, well defined tasks, strategic plans describe wide spectrum of strategic goals:

-Support for the stability of agricultural household income.
-Technical and technological improvement.
-Technology, information and knowledge transfer.
-Increase in competitiveness of the sector.
-Adaptation to the domestic and foreign markets demands.

-Improvement of the natural resources management system.

-Rational use and sustainable land management.

-Reducing the impact of climate change.

-Chain value development - horizontal and vertical coordination.

-Development of rural areas.

-Modern public policy management and the establishment of an efficient administration.

Skills and competences required to meet strategic plans

For the purpose of BUGI project skills and competences can be divided in to:

- *Administrative skills*

Knowledge regarding mechanisms and administrative tools based on EU standards with the respect to specific local, regional and international markets needs to be promoted at all levels. Communication between all stakeholders needs to be improved. Horizontal and vertical networking mechanisms needs to be established based on principals of efficiency and transparency. Small agricultural households need to be respected, valued and integrated in to sector strategies due to their share in BiH agricultural sector.

- *Management skills*

All aspects of farm management need to be improved especially at small holdings. New, modern business concepts need to be adapted by all stakeholders. Knowledge and skills regarding new products based on modern market trends needs to develop. International certificate standards have to adapt. The use of IC tools for marketing and sale needs to be developed and promoted as well as input supply chains. Knowledge and skills needed to apply to domestic and foreign investment/development funds need to be improved. Traditional and new types of farmers associations need to be developed and networking needs to be improved. Education regarding natural resources management needs to be promoted.

- *Technical and technological skills*

Whole sector needs to modernize in order to increase yields/capacity. Centres for excellence in agriculture need to be established. Knowledge transfer tools have to be established. Information distribution channels needs to be developed and adapted to specific farmer's needs. Systematic education, especially for small and medium size farmers, regarding the use of innovative technologies, climate change effect mitigation and sustainable use of resources needs to be organized at different levels.

western balkans urban agriculture initiative

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Skills and competences required to improve networking between stakeholders

Strengthening of existing formal and informal networks with the focus on knowledge, technology and information transfer. Development of channels for identification of forthcoming problems, stimulation of research through the cooperative networks of "knowledge centres", administrations and all stakeholders especially farmers. Strengthening capacities for scientific research and institutions, implementation/integration of IC technologies, modern and innovative business concepts with the aim of strengthening professional skills of all stakeholders involved in the value chain.

Organization of food supply chains

Supply chain organization can be characterized as fragmented and un-adapted, with very high transaction costs, largely due to low levels of logistics service development and low levels of co-operation between stakeholders. The synergetic effect of information sharing and resource supply chains is lacking, co-operatives take on some role in products sale, purchase prices lobbying and agricultural inputs supply, but their role is limited to these activities.

In general, the value-added chains in the food sector consist of the following parts:

a) Agricultural inputs and services;
b) Plant production (e.g. cereal, forage, fruits and vegetable production);
c) Animal production (including breeding, fattening) and other inputs;
d) Entry logistics (storage and transport of raw materials);
e) Processing, 1st level (e.g. flour, milk, sugar, meat);
f) Processing, 2nd level (e.g. bread, pastries, yoghurt, cheese, candies, sausages);
g) Exit logistics (storage and transport of final products);
h) Wholesale trade;
i) Retail trade; and
j) Service/Client service.

In addition to the above mentioned, more technical value added chain, there is also an internal value chain within companies, based on supportive activities such as technology and process management, human resource management, as well as general business management, planning, financial management and accounting.
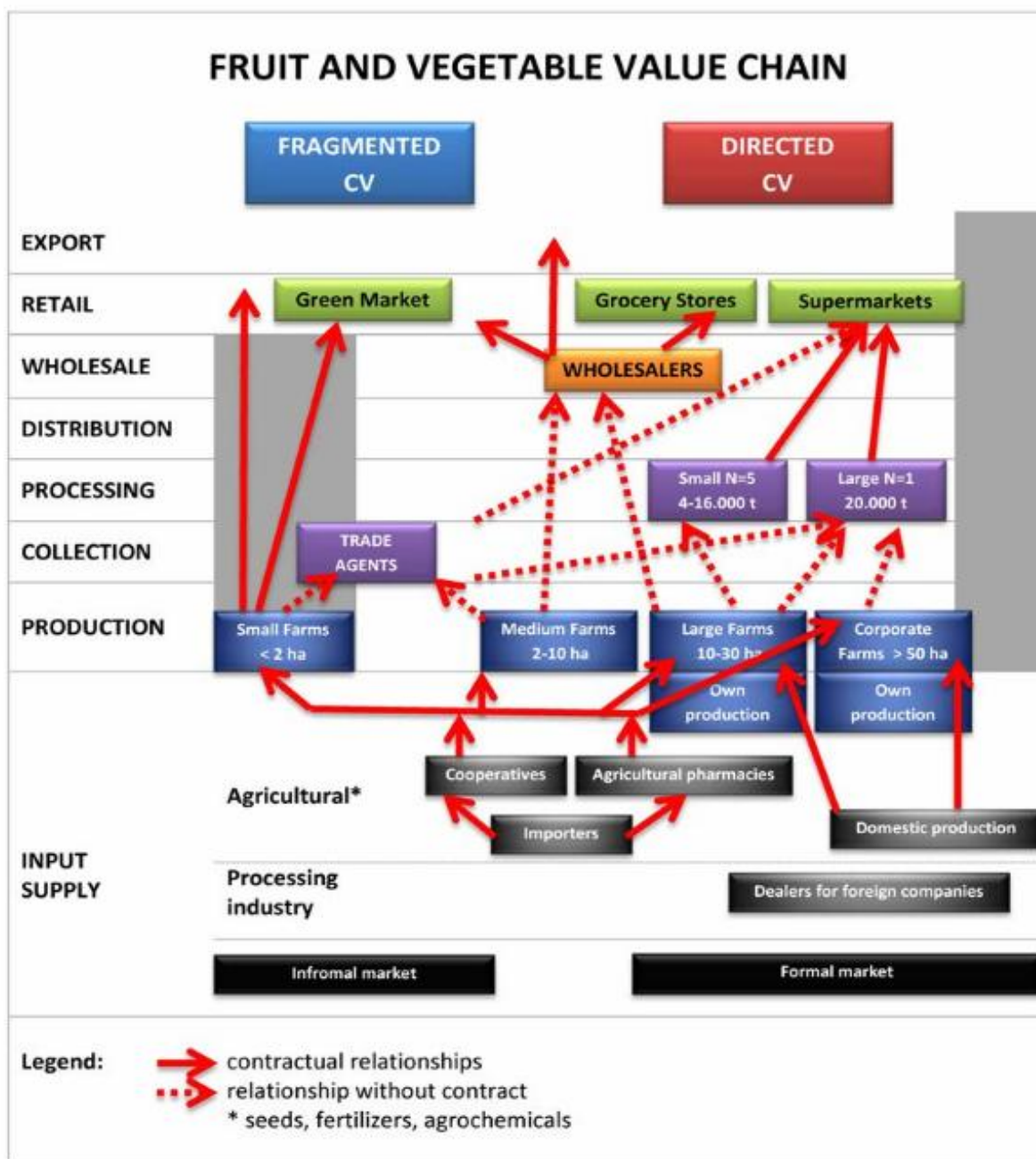
Figure 1: Value Chain of fruits and vegetable; source: Strategy of the Competitiveness Increase and Attraction of Investments into the Value Chains of Milk and Dairy Products as well as Fruits and Vegetables in the Federation of Bosnia and Herzegovina, 2014.

Small agricultural households with average farm size less than 2 ha are mostly present at short food supply chains due to:

- lack of long-term contractual connections with processors/traders;
- lack of storage facilities and organized logistics;
- low level of achieved price not enabling to invest into modern production technologies assuring sufficient quantities of higher quality products that could be commercialized and integrated in the existing value chain;
- lack of skills and knowledge, also to recognize market needs and adapt products; and
- short-term perspective prevails.

Medium size producers with average farm size 3 - 10 ha, are not present in significant number, but have developed to some extent better participation in the value chain by having contractual relationships with middlemen. However, they are mainly lacking storage capacity, equipment and human resources.

Large farm with average farm size more than 10 ha have better machinery and equipment, human resources and marketing activities. These farms are already supplying supermarkets and are exporting part of their production.

Collection of fruit and vegetable (from smaller farms) is mostly done thru trading agents, while bigger producers supply processor or wholesalers and retailers directly, too. The main problems in the collection process are:

- lacks modern storage facilities;
- lack of modern distribution centres with modern technology for handling and standardizing the offered products;
- insufficient transport due to lack of proper transport capacities and underdeveloped (road) infrastructure;
- high collection costs due to dispersed location of small farms;
- lack of legal contracts enabling growers who have received support from one processor to supply another if a better price is offered; and
- strong presence of grey economy.

Processing companies are generally not vertically integrated. In term of supply of inputs, some of them have contractual relationships with small farmers, while in terms of retail, they usually do not have their own shops and their bargaining power toward large retailers is quite low, particularly in situation of strong competition from neighbouring countries. In addition, processors are facing the following problems:

- inadequate quality and quantity of domestic inputs;
- obsolete technology;
- low level of capacity utilization;
- increasing input costs;
- high level of organic waste and increasing environmental requirements;
- limited and traditional assortment – 'primary' processing prevails; and
- very limited marketing and promotion activities (Strategy of the Competitiveness Increase and Attraction of Investments into the Value Chains of Milk and Dairy Products as well as Fruits and Vegetables in the Federation of Bosnia and Herzegovina, 2014).

<u>Food supply chains</u>

The supply chain in BiH is underdeveloped and fragmentation. According to farm typology two types of market – informal and formal – are developed:

- Informal market (on farm, green market) organized as short food supply chain. Small agricultural households with average farm size less than 2 ha, dominance of production for self-consumption, most of their products, usually surplus, sells on farm or green markets and
- Formal market (small shops and supermarkets) are dominated by medium and large farms.

Large retailers are dominating the formal market, but their share in fruits and vegetables is still relatively low. Large retailers have more important market share in the case of processes fruits and vegetables, but domestic producers are underrepresented, as imported products dominate and represent strong competition to producers from BiH.

The main point of purchase of fruits and vegetables to customers is still a small shop. Small shops are usually supplied by wholesalers, or they purchase these products every day from an green market. Also, green markets are important, particularly in urban areas, while in rural areas majority of trade takes place in an informal manner.
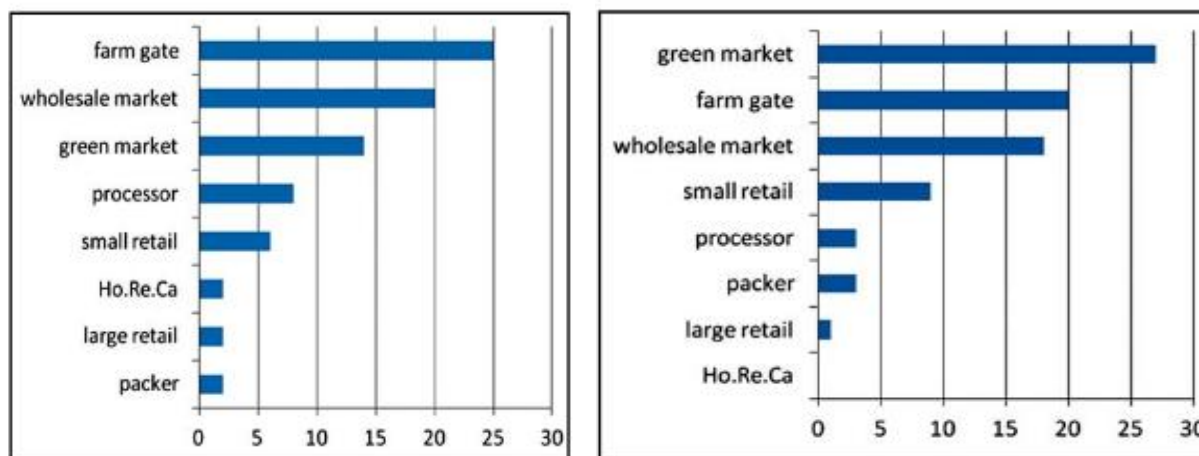
Figures 2 and 3: Point of sale for fruits (left; Figure2) and vegetables (right; Figure 3); source: The Fruit and Vegetable Sector in Bosnia and Herzegovina, FAO, 2012.

2.1.2.3) Kosovo

Skills and competences are needed and valued in agriculture and food processing

The agricultural and food sector in Kosovo is faced with numerous problems. The most prominent one is a low level of productivity in on farm production and low level of capacity utilization in the food industry.

Lack of skills in modern business concepts, the knowledge to attract investors or domestic and international funds, as well as the absence of farmers associations is increasing food sector sensibility.

At the same time, the availability of information and knowledge distributed by the network of public and private institutions, organizations, and non-governmental sector, which are the basis for improving the efficiency and productivity of the sector, has not been established. Support for the creation of centres of excellence, ie support for the development of applicative and development research, is also missing, and should contribute to the creation and transfer of knowledge as well as to the higher level of innovation in the sector.

Postharvest losses are around 50%, depending on a crop. Lack of postharvest management skills and technology such as temperature control to maintain the cold chain, value addition, and packaging have caused several damages to the business community in Kosovo.

Postharvest technologies such as controlled ripening, temperature management, and chemical treatment methods are potential tools to reduce postharvest losses, increase food and nutritional security and ensure final consumer safety.

There is a lack of space in urban areas and even when there are still unused public or private lands, the prices are very high. These land rent issues sometimes become the biggest obstacle to urban agriculture and discourage farming. There is a lack of water sources in urban areas but low cost water saving technologies such as drip irrigation can help to increase water efficiency. Soil and water pollution is also another obstacle in urban farming in urban areas.

The general low motivation and the ability of farmers to spend time and money in gaining knowledge further complicates the situation and leads to even more technical and technological gap in the sector.

Strategic national plan for agriculture and food processing

The agriculture sector in Kosovo is one of the biggest opportunities sectors for employment but is also very important for other value chain-related industries as agricultural products are used by the agro-processing industry. The growth of agricultural production and the agro-processing industry is very important given the need to reduce trade deficit. But strengthening this sector today is problematic not only because of the land privatization, but also the limited agricultural infrastructure. The main goals of strategies are to build solid foundations for faster and more effective development of modern, productive, technologically advanced, ecological, social and economically stable agricultural sectors ready to respond to global socioeconomic challenges and the effect of climate change thus creating stable and compatible sector regionally and internationally.

Increasing production capacities in agriculture and agro-processing industry today is largely limited by shortages in physical support infrastructure. The current 25% rate of irrigation of working land needs to be expanded. This is specifically related to Kosovo's potential to generate revenues from the high value fruit and vegetable sector. On the other hand, the ubiquitous development of the agricultural and agro-processing industry suffers from the limited number of storage and storage facilities in the main regions of Kosovo, as well as the units for the laboratory testing of the quality of the seeds production and sanitary standards. Rather than focusing on specific, well defined tasks, strategic plans describe wide spectrum of strategic goals:

• Expand irrigation coverage of at least 40% of the arable land by year

2021 (from the current 25%)

- Increase the number of warehousing and storage facilities in the main regions of Kosovo through Public-Private Partnerships (PPPs).
- Increase the number of laboratory testing units for the quality of seed production and improving phytosanitary standards.
- Growth and improvement of farm structures, as well as increased processing capacity of the industry food, such as meat, dairy, fruit, vegetables and grapes.
- Strengthening the Information Management System (MIS) for the Farm and Case register agricultural.
- Development of rural areas.
- Rational use and sustainable land management.
- Improvement of the natural resources management system.
- Technical and technological improvement.
- Technology, information and knowledge transfer.

 Skills and competences required to meet strategic plans

For the purpose of BUGI project skills and competences can be divided in to:

- Technical and technological skills

Whole sector needs to modernize in order to increase yields/capacity. Centers for excellence in agriculture need to be established. Knowledge transfer tools have to be established. Information distribution channels needs to be developed and adapted to specific farmer's needs. Systematic education, especially for small and medium size farmers, regarding the use of innovative technologies, climate change effect mitigation and sustainable use of resources needs to be organized at different levels.

- Management skills

All aspects of farm management need to be improved especially at small holdings. New, modern business concepts need to be adapted by all stakeholders. Knowledge and skills regarding new products based on modern market trends needs to develop. International certificate standards have to adapt. The use of IC tools for marketing and sale needs to be developed and promoted as well as input supply chains. Knowledge and skills needed to apply to domestic and foreign investment/development funds need to be improved. Traditional and new types of farmers associations need to be developed and networking needs to be improved. Education regarding natural resources management needs to be promoted.

• Administrative skills

Knowledge regarding mechanisms and administrative tools based on EU standards with the respect to specific local, regional and international markets needs to be promoted at all levels. Communication between all stakeholders needs to be improved. Horizontal and vertical networking mechanisms needs to be established based on principals of efficiency and transparency. Small agricultural households need to be respected, valued and integrated in to sector strategies due to their share in Kosovo agricultural sector.

"Strategic crop" and valued food processing products

Agricultural production in Kosovo is characterized as highly diversified, dominated by small agricultural holdings, and extensive. Main characteristic of small holdings is production for covers the dairy, meat, grain, fruit and vegetable sub-sectors, as well as bottled water, wine and malt/beer. Support is helping to improve by-products' utilisation, the introduction of higher value added products, the creation of local level collection centres, the introduction of HACCP-based food safety management systems, improved marketing and labelling of fresh and processed food products, and upgrading production lines and related facilities to meet EU requirements, including laboratory and quality control equipment modernisation. Under such conditions, it is very difficult to distinguish what would be a "strategic crop". Subsistence farming dominates the cereal sector, 28.1 percent of agricultural land is used by farms with an area between 0.5–1.0 ha. Average of agricultural land per agricultural household is 1.43 ha. Only 1-2 per cent of arable land is used by commercial farms, and one third of total arable land is used by agricultural households above 3 ha of arable land.

Techniques used in agricultural production and processing

Most of the agricultural production in Kosovo is an extensive type, dominated by fragmented, small agricultural holdings, often with inadequate application of mechanization and modern technical-technological know-how. There are a very small number of intensive holdings:

• medium size farms with average farm size 3-20 ha, around 11%, and

• big farms, with average farm size more than 30 ha, around 1%.

Small number of farms has some type of certificate (e.g. Global G.A.P.). The major problem in the agricultural sector is the underdevelopment of the input sub-sectors, which are of low import origin and suspicious quality, which is directly reflected in output quality. In addition,

inadequate logistic infrastructure jeopardizes competiveness and reduces the business outcome. In Kosovo the demand for lambs (meat) and Sheep and Goat cheese is relatively low. The estimated consumption of retail weight sheep meat is 1,725 mt and the per capita consumption is estimated at 0.78 kg/capita. Like in the beef sector food safety standards and animal disease prevention are an issue. Kosovo has good natural conditions for sheep and goat production. The food processing industry still has great problems with a low level of technical-technological equipment, generally very low capacity utilization (below 50%), but significant steps have been taken in the implementation of international standards such as ISO 9001, 14000, 22000, HACCP , HALAL, IFS, etc. Big problem of the food industry is a low level of market orientation, so product assortments are outdated and do not follow trends in modern markets (raw material, sugar content, functional, healthy food etc.). Product assortment is very classical and the capabilities to innovate are limited. Horticulture in Kosovo is considered among sectors of high priority. Even though this sector for the time being is not well developed and is mainly oriented towards import the latest development trends show that this sector is moving fast and aiming to change the current orientation; import substitution with exports. Kosovo is, for the time being, a great importer of fruits, vegetables and decorative plants starting from the planting material to final products that this sector provides. Kosovo has an increasing growth potential of export of fruits and vegetables in neighbouring countries and broader based on these specifics: cheap labour and agro-climatic conditions that favour the production of high quality fruits and vegetables.

Food supply chains and shares

The supply chain in Kosovo is underdeveloped and fragmentation. According to farm typology two types of market are developed:

- Informal market (on farm, green market) organized as short food supply chain. Small agricultural households with average farm size less than 1 ha, dominance of production for self-consumption, most of their products, usually surplus, sells on farm or green markets.

- Formal market (small shops and supermarkets) are dominated by medium and large farms.

Large retailers are dominating the formal market, but their share in fruits and vegetables is still relatively low. Large retailers have more important market share in the case of processes fruits and vegetables, but domestic producers are underrepresented, as imported products dominate and represent strong competition to producers from Kosovo.

The main point of purchase of fruits and vegetables to customers is still a small shop. Small shops are usually supplied by wholesalers, or they purchase these products every day from an green market. Also, green markets are important, particularly in urban areas, while in rural areas majority of trade takes place in an informal manner.

Organization of food supply chains

Supply chain organization can be characterized as fragmented and un-adapted, with very high transaction costs, largely due to low levels of logistics service development and low levels of co-operation between stakeholders. The synergetic effect of information sharing and resource supply chains is lacking, co-operatives take on some role in products sale, purchase prices lobbying and agricultural inputs supply, but their role is limited to these activities.

In general, the value-added chains in the food sector consist of the following parts:

- Agricultural inputs and services
- Plant production (e.g. cereal, forage, fruits and vegetable production)
- Animal production (including breeding, fattening) and other inputs
- Entry logistics (storage and transport of raw materials)
- Processing, 1st level (e.g. flour, milk, sugar, meat)
- Processing, 2nd level (e.g. bread, pastries, yoghurt, cheese, candies, sausages)
- Exit logistics (storage and transport of final products)
- Wholesale trade
- Retail trade
- Service/Client service.

Barley is a traditional crop that is planted in all regions of Kosovo, both for beer production and for animal feed. The history of barley for beer is closely linked with the brewery in Peja, since this crop was planted for the needs of this brewery. 2.500-5.000 hectares of barley was planted.

Yields were relatively high, quality was good. Unfortunately, in the recent years the brewery in Peja stopped the cooperation with farmers and covers its needs from imported barley and malt from the neighbouring countries.

In addition to the above mentioned, more technical value added chain, there is also an internal value chain within companies, based on supportive activities such as technology and process management, human resource management, as well as general business management,

planning, financial management and accounting. The property rights of land titles is still not solved in Kosovo due to the migration of land owners to urban areas of Kosovo or abroad. There is a high need to register land titles and related land titles owner. This issue would become even more important for the implementation of area based payments.

Small agricultural households with average farm size less than 1 ha are mostly present at short food supply chains due to:

- lack of long-term contractual connections with processors/traders;
- lack of storage facilities and organized logistics;
- low level of achieved price not enabling to invest into modern production technologies assuring sufficient quantities of higher quality products that could be commercialized and integrated in the existing value chain;
- lack of skills and knowledge, also to recognize market needs and adapt products;
- short-term perspective prevails.

Medium size producers with average farm size 2 - 10 ha, are not present in significant number, but have developed to some extent better participation in the value chain by having contractual relationships with middlemen. However, they are mainly lacking storage capacity, equipment and human resources.

Large farm with average farm size more than 10 ha have better machinery and equipment, human resources and marketing activities. These farms are already supplying supermarkets and are exporting part of their production.

Collection of fruit and vegetable (from smaller farms) is mostly done thru trading agents, while bigger producers supply processor or wholesalers and retailers directly, too. The main problems in the collection process are:

- lacks modern storage facilities;
- lack of modern distribution centers with modern technology for handling and standardizing the offered products;
- insufficient transport due to lack of proper transport capacities and underdeveloped (road) infrastructure;
- high collection costs due to dispersed location of small farms;
- lack of legal contracts enabling growers who have received support from one processor to supply another if a better price is offered;
- strong presence of grey economy.

Processing companies are generally not vertically integrated. In term of supply of inputs, some of them have contractual relationships with small farmers, while in terms of retail, they usually do not have their own shops and their bargaining power toward large retailers is quite low, particularly in situation of strong competition from neighbouring countries. In addition, processors are facing the following problems:

- inadequate quality and quantity of domestic inputs;
- obsolete technology;
- low level of capacity utilization;
- increasing input costs;
- high level of organic waste and increasing environmental requirements;
- limited and traditional assortment – 'primary' processing prevails;
- Agricultural strategy for cereals must be focused on land consolidation, land market and land rental market in order to help the most efficient family farms to reach commercial size;
- The work of local authorities should be improved in order to make regular plant health and fertilizer/chemical quality checks;
- The use of high quality inputs (seeds, fertilizers, pesticides, machinery) should be improved together with training and advising of farmers;
- Support for wheat seed production, processing and packaging is recommended; Regarding barley, efforts should be made together with the Management of the brewery in Peja to reach an agreement regarding the cooperation with farmers;
- System for mutual use of machinery and storage facilities should be set up:
- Investment subsidies:
- As far as possible, compound projects should be supported. Training programmes shall be always part of the projects.

<u>Skills and competences required to improve networking between stakeholders</u>

Strengthening of existing formal and informal networks with the focus on knowledge, technology and information transfer. Development of channels for identification of forthcoming problems, stimulation of research through the cooperative networks of "knowledge centres", administrations and all stakeholders especially farmers. Strengthening capacities for scientific research and institutions, implementation/integration of IC technologies, modern and innovative business concepts with the aim of strengthening professional skills of all stakeholders involved in the value chain.

Strategic national plan for agriculture and food processing

Ministry of Agriculture and Rural Development, in 2015 adopted a national strategy named "Strategy for the Development of Agriculture and Rural Areas 2015-2020". What is to be highlighted "Urban Agriculture" doesn't exist as a term in this strategy.

The main objectives of this strategy are "The long-term management of agricultural resources in a sustainable way, along with the preservation of the environment. Ensuring a stable supply of safe food that is affordable both in terms of quality and price. Improving both the standard of living of the rural population and and the standard of rural development in general, whilst preserving traditional values and strengthening the competitiveness of food producers" (MARD, 2015: 4).

"Strategic crop" and valued food processing product

In current strategic documents that are building-up Montenegrin agriculture, term "strategic crop" is unidentified.

MARD in "Strategy for the Development of Agriculture and Rural Development 2015-2020" has defined priority areas in the development of agriculture based on the geographical areas in Montenegro (North, Central and South part) and crop plants significant for the development of our agriculture. Northern part, which is mountainous region, is dominantly determined for development of Livestock production and plants adequate for the mountainous region, while Central and South parts are known as regions where agriculture is dominated by plant production.

Skills and competences required to meet strategic plans

In order to achieve and meet strategic plan, MARD identified following: "It will be necessary to provide support for farmers to meet minimum national standards. The main type of support required is education to help farmers to meet the minimum national standards in order to qualify for pre-accession funds for rural development (hereinafter referred to as IPARD). It will be necessary to work intensively on informing farmers on the requirements they are expected to meet throughout the entire accession process and also immediately after Montenegro's accession to the EU" (MARD, 2015: 5).

Except the active tuition of farmers about EU funds, skills and knowledge of farmers have to enriched by a modernization in terms of technological and technical improvements, need for a "green" thinking towards sustainable use of resources and sustainable development, in general.

Farmers have to feel a direct support from government, not only in knowledge, but partially in income as well. One of the simplest examples for this would be establishing a fixed ransom price for agricultural products and obeying to them.

<u>Food supply chains</u>

On the first sight, Montenegro with its natural wealth seems like a country that is able to produce and supply needs for food to their own citizens. In reality, situation is quite different. Montenegro imports far more fruits and vegetables from EU and Serbia, than in actually exports. "The problem is not a lack of land or hard-working farmers to grow fruit and vegetables. Montenegro is endowed with favourable natural conditions to grow quality produce, including a mild climate, uncontaminated land and plenty of water for irrigation. Vegetable growing is a traditional business in some regions, especially around the capital Podgorica. But the sector is dominated by small farmers who use traditional methods of agriculture, which means low productivity. In a modern economy, food processors and retailers need reliable flows of quality products. Currently, local farmers cannot guarantee a sufficient and/or reliable supply of produce. They also have difficulty accessing finance to grow their businesses" (Moreno, 2017).

MARD recognized this problem and is striving to develop agricultural sector by "supporting producers' organisations and providing funds for farmers and food processors to invest in more efficient machinery and production facilities" (Moreno, 2017). As a solution for this problem, Moreno, as a Head of Montenegro at the EBRD stated following: "…In order to really unlock the sector's potential, Montenegro needs to develop sustainable value chains" (Moreno, 2017).

"Voli", country's leading food retailer, with its new state-of-the-art distribution centre, is looking forward to linking local producers and suppliers with retail customers, and over time increasing amount of purchased local products.

2.1.3) Urban planning, ecology, energy efficiency

2.1.3.1) EU

<u>Urban planning</u>

Providing enough space dedicated to urban agriculture (UA) in cities around EU is becoming an increasingly important objective of urban planners. The reason for that are the recognised benefits of UA. Apart from strengthening social and institutional resilience of cities (van der Jagt, 2017) UA contributes to ecological resilience of cities and can contribute to increasing energy efficiency of urban fabrics (Colding and Barthel, 2013). From the perspective of the European Commission or in policy terms, UA appears to fall between different policy areas. In

2012 the Commission confirmed, that the support for different types of UA is available under both pillars of the Common Agricultural Policy (CAP), as long as the eligibility condition are met. Moreover, the Commission also acknowledges that UA can contribute to the sustainable development in an area, if the principles of sustainable farming are followed (McEldowney, 2017).

Ecology

UA is a unique form of agriculture that can provide fresh, local produced food for urban residents. It can also benefit biodiversity by decreasing the need to expand agriculture into natural areas and enhancing biodiversity in urban areas (Clucas et al., 2018).

The food supply from local gardens reduces demand for less sustainably produced store-purchased produce, which counters environmental degradation (Aubry and Kebir 2013). Furthermore, UA has been linked to improved biodiversity (Andersson et al. 2007; Beilin and Hunter 2011), aspects of which predict ecological resilience (Peterson et al. 1998). Moreover, it provides regulating ecosystem services, such as mitigating the urban heat island effect and flood mitigation (Haase et al. 2014; Middle et al. 2014; Okvat and Zautra 2011), which present a buffer to ecosystem disturbances (Bennett et al. 2009). Finally, involvement in UA and, associated with that, learning about local ecosystems may prompt people to develop more sustainable urban lifestyles and change their environmental values (Colding and Barthel 2013; Lawrence, 2006; Okvat and Zautra, 2011). This provides a route to further enhancing urban biodiversity and the delivery of ecosystem services (Krasny and Tidball, 2009).

Energy efficiency

Innovative forms of green urban architecture, under different forms of UA are built to produce food on a larger scale in and on buildings in urban areas. Their main aim is to combine food, architecture, production, and design. The major motivation for these new types of food production is based on opportunities resulting from the use and recycling of resources, especially those derived from synergies between buildings and agriculture. This type of urban farming tries to create entities linking food production and buildings with multiple uses of residential or industrial waste resources (e.g., organic waste, waste water or heat) to establish a small-scale resource saving system. On the global level, the development of these forms of urban food production is driven by the challenges that cities currently face (Specht et al., 2014). According to United Nations (2010) today, cities consume more than two-thirds of the world's energy and account for more than 70 % of global CO_2 emissions (UNFCCC, 2010). Therefore, cities and UA areas within can play a leading role in decarbonisation by decreasing CO_2 emissions. According to de Zeeuw (2011), UA is one of the solutions to climate change

45

adaptation as it can play a significant role in greening the city and improving the urban climate, while stimulating the productive reuse of urban organic waste and reducing the urban energy footprint.

2.1.3.2) Bosnia and Herzegovina

Agricultural land in urban areas

In Federation of Bosnia and Herzegovina (BIH) 4 most populated urban areas were analysed: Sarajevo, Tuzla, Zenica and Mostar.

Agricultural land in the canton of Sarajevo (KS) occupies 36.414,96 ha and makes up to 28.7% of the total area. The highest quality agricultural land makes up to 25.9 % of total agricultural land. This land with high potential for intensive agricultural production is located in the lowland area or the river valleys of KS is with the possibility of complete arrangement including the use of irrigation systems. The second class land makes up to 63.6 % % of total agricultural land, predominantly used as meadows and orchards. The third class land makes up to 11.5 % of total agricultural land, mostly used for pastures (Sarajevo Cantonal Spatial Plan for the period 2003 to 2023, 2006).

Agricultural land in Tuzla occupies 12,849 ha and makes about to 42.5% of the total area of the municipality. The highest quality agricultural land makes up to 6.2 % of the total area. The second class land makes up to 92.6%., and third class land makes up to 1.2 % of the total area (Spatial Plan of the Municipality of Tuzla for the period 2006-2026).

Agricultural land in Zenica occupies 13.041,76 ha, representing 23.7% of the total area of the city. The highest quality agricultural land makes up to 1.83% of the total area of the city. The second class land makes up to18.48% of the total area of the city. The third class land makes up to 3.39% of the total city area, mostly used for pastures, meadows and for extensive livestock production (Spatial Plan of the City of Zenica for the period 2016-2036).

Agricultural land in the area of Mostar occupies about 51.6% of the total area of the city (Inventory of Agricultural Land Conditions and its Use in the Region of Herzegovina, 2014).

Urban agriculture

In BiH, municipal spatial planes and land use statistics are recorded separately. Cultivable lend is recorded separately from agricultural land. According to statistics in 2015, total sown areas of cultivable land in the KS are 11,147 ha while 5.245 ha of cultivable land are not used. In the municipality of Zenica, total sown areas of cultivable land are 6,339 ha while 3,288 ha of cultivable land are not used. In municipality Tuzla total sown areas of cultivable land are 10,450

ha, while 7,996 ha cultivable land are not used. In municipality of Mostar total sown areas of cultivable land are 5.537 ha while 3.331 ha cultivable land are not used (Statistical Yearbook of the Federation of Bosnia and Herzegovina, Federal Bureau of Statistics, Sarajevo, 2016). Accordingly 47-60% of cultivable lend are used for agriculture.

In the sowing structure, the leading position with 46.6% occupies vegetables, with a significant share of fodders of 32.1%. Grains occupy 20.9% of agricultural land, while industrial plants have a slight share of 0.4%.

Municipal plans for farmland development

In BiH, change in land use especially of agricultural land to construction land is almost a daily process, whereby the most fertile land is lost. BiH does not have precise data on land with changed use since there are no integral records. Expert's estimates that annually, in the BiH, about 0.101% of agricultural land are lost due to the use change. (Environment of Federation of Bosnia and Herzegovina, Sarajevo, 2010). In Canton Sarajevo, for a period of 20 years, the spatial plan of the Sarajevo Canton (2003-2023) foresees an increase in the share of construction land from 14.6% to 20.28%, primarily on agricultural land account. Municipal plans from the point of view of changes in the use of agricultural land and in accordance with the spatial plans of the analyzed areas aim to protect and limit the use of quality agricultural land.

Farms in urban areas

There is no available data.

Land ownership

There is no available data for urban areas. In Canton Sarajevo around 63 % of all agricultural land is private owned while the rest is state owned agricultural land. In Canton Tuzla 93.17% of all agricultural land is private owned while the rest is state owned agricultural land. In Herzegovina-Neretva Canton (Mostar) around 59% of all agricultural land is private owned while the rest is state owned agricultural land (Structure of Agricultural Land Management, 2011). In Canton Zenica, 93 % of all agricultural land is private owned while the rest is state owned agricultural land (Cantonal Environmental Action Plan Zenica-Doboj Canton for 2017.-2025.). In BiH the majority of cultivable land, ie farmland, gardens, orchards, vineyards and meadows, are privet owned.

Agricultural land in BiH is described as highly fragmented, with numerous plots, different ownership structure, different method and intensity of use.

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Urban ecology

BiH is one of the most diverse regions in biodiversity in Europe. Estimated 30% of the total endemic flora of the Balkans (1,800 species) is in BiH. In Sarajevo, large number of species registered on the IUCN Red List of wild species is present. 31% of plant species is categorized as vulnerable (VU), while 6.9% are critically endangered (CR). For Tuzla and Zenica there is not enough accurate data on the state of species diversity.

At present, there is no official list of invasive plant species for BiH but a number of them are recorded. Some species, such as the ambrosia, are spreading mainly along the roads.

Air pollution, particularly during the winter period, is one the major ecological issues in Sarajevo, Tuzla, Zenica. The emission of pollutants is recorded from the industrial, residential and transport sectors. In the last few years, the trend of increased SO_2 has been observed in Sarajevo, mostly due to the increased in coal consumption in households and industry (Cantonal Environmental Protection Plan Sarajevo Canton, 2017).

In BiH 270 kg of waste is produced per capita of per year. Waste is collected indiscriminately, so municipal waste contains categories of industrial, medical and other types of waste. A total of 40% of the collected waste is disposed of at a municipal non-stationary landfill site. A total of 36% of the generated waste is not disposed of by utility companies at all. A large number of undocumented and uncontrolled dumpsites have been registered. In the BiH there are about 2,000 sites (974,221 m2) of so-called uncontrolled (wild) landfill sites. Currently in the BiH there is only one sanitary landfill in Sarajevo (Environmental Protection Strategy of the Federation of Bosnia and Herzegovina 2008-2018).

Urban ecology action plans

For biodiversity protection, a number of strategic goal are proposed:

- Categorization and inventory of habitats;
- Adoption of basic legal regulations for biological and geological diversity, in accordance with EU criteria, with respect to local ecological, economic and political specifics;
- Signing and / or ratifying international documents relevant for sustainable management and protection of biological and geological diversity;
- Develop a program and standards for the sustainable use of biological resources in order to gain economic benefit and reduce poverty in BiH;
- Geographical inventory of flora, fungi and fauna using internationally accepted methodology;

- Assessment of plant, animal and mammalian endangerment status (to do and adopt in accordance with IUCN criteria);
- Develop a national strategy and action plan for management of genetically modified organisms (GMOs), and invasive species of plants, animals and fungi;
- Develop an inventory of invasive species in accordance with international standards, with particular reference to the assessment of the degree of invasiveness, spread, threat to autochthonous varieties;
- Develop an inventory of autochthonous plant varieties (fruits, vegetables, horticulture) and animal breeds in accordance with FAO proposals;
- Development of national gene bank for autochthonous varieties; and
- Orchestrated "ex-situ" propagation of endangered varieties.

Skills and competences

In order to meet action plans, for the purpose of BUGI project, following steps are described:

- Increasing institutional and human resources in the field of air protection, in particular for active inclusion in cross-border and climate change programs,
- Development of register and database on the emission of greenhouse gases, including information on local emission trends and quantities of greenhouse gases removed from the atmosphere through local absorbers (vegetation, forests, etc);
- Research on the impact of air quality and climate change on population health, water resources, agriculture, forest ecosystems and biodiversity, energy, transport, tourism and other economic activities directly dependent on climatic conditions;
- Gradual reduction of greenhouse gases emissions by increasing energy efficiency, technological restructuring, greater use of renewable energy sources (hydro power, wind and solar energy, geothermal energy) and revitalization and improvement of forest ecosystems;
- Inclusion of air pollution problems, changes in air quality and climate change in the curricula of all levels of education for the environment, and the establishment of a special study group in the field of energy, technology, meteorology and climatology at the university level of education and promotion of public awareness programs;
- Determination of soil contamination status in function of healthy food production (institutional strengthening of soil contamination control);
- Increasing the soil fertility of the intensively used land and establishment of soil fertility control system;
- Establishment of professional and scientific institutions for the purpose of implementing a unique land management and protection policy;

- Revitalization of "technical deserts";
- Raising the level of education of the population on the importance of land for sustainable development and the future of generations to come;
- Creating a program for activating the use of uncultivated land and transforming the cultivated land on the incline terrains in lawns, orchards, forests, all in order to stop soil erosion;
- Prevention and reduction of waste generation by quantity;
- Waste treatment and recycling to ensure the return of raw material;
- Increasing energy use of waste, and reducing greenhouse gas emissions;
- Application of clean technologies;
- Abolition of use of environmentally unacceptable technologies (unsustainable ecological and economic aspects); and
- Consumers education regarding waste management.

One of the national priorities is to increase urban green areas by 20% by the end of 2020 (Strategy and Action Plan for the Protection of Biodiversity of Bosnia and Herzegovina, 2016). In addition to financial allocations, it is necessary to develop capacities at the public utilities companies need for sustainable green areas management in co-operation with relevant ministries of environmental protection, agriculture, water management and forestry.

Urban gardening action plans

BiH has rich tradition in urban gardening. During Ottoman Empire, small houses with gardens, surrounded by walls were built. These gardens were mostly used for decoration and vegetable production. During the war in BiH gardens were used for food production especially in Sarajevo. Since most of those gardens are private, there is no specific plan for their development.

In Sarajevo, guerrilla gardening is present, using public land. Small plots are cultivated mostly by old persons. No official data is available on size or percentage of utilized land. Recently urban agriculture has emerged in Sarajevo where municipality of Novi Grad Sarajevo has developed first urban farm Mojmilo. This 1,5 ha pilot urban farm is developed in cooperation with YEP (youth employment program) to enhance youth employment opportunities in Sarajevo.

Monitoring of products and soil

Soil degradation has been recorded over the past few decades in BiH. Natural and airborne acidification has been recorded negatively affecting the green cover. This phenomenon is particularly prominent in the vicinity of thermoelectric power plants and industrial centers with SO2, CO2, Nox and others pollutants (National Environmental Action Plan of Bosnia and Herzegovina, 2003).

The results of the monitoring of heavy metals accumulation indicated high concentrations of lead (Pb) and cadmium (Cd), especially next to industrial complexes and main roads in Sarajevo and Zenica. Soil in Zenica is contaminated due to long exposure to emissions of inorganic and organic pollutants from industry, as well as natural sources of some heavy metals (Local Environmental Action Plan of the municipality of Zenica, 2009, Cantonal environmental protection plan of Canton Sarajevo, 2017). Concerning concentration of heavy metals or other pollutants in fresh food, no official data is available.

Infrastructure of urban farms

There is no official information on irrigated surfaces in the BiH area, nor irrigated plant cultures. According to unofficial data, only 1,612.5 ha or 0.2% of the surface is irrigated. The value of the specific water consumption of the population on average is around 120 l/day/per capita. Organized wastewater collection and disposal systems are mainly concentrated in municipal centres. It is estimated that about 33% of households are covered by the system. Recipes are surface water. Municipal wastewater is almost completely discharged into the recipients without prior treatment. The quality of surface waters from the perspective of general health of the population in some watercourses is endangered. Existing hydro-technical facilities, whose purpose is drainage and irrigation, are still solely in public (state, cantonal) ownership. Development, maintenance and operation completely rely on the funds collected from the user in terms of the price for water services provided by these hydro-technical facilities.

The most important sources of water for irrigation are rivers and water accumulations. To a lesser extent, the groundwater is used. Rainwater collected from the rooftops and other surfaces is most often used at the locations where water system networks are not indented, mostly in the south of the country in Mostar. Due to the insufficient amount of water available, especially in the summer months, the use technology and irrigation equipment that minimizes water usage is recommended.

In most of the territory of BiH there is an electric network. The main sources of electricity are hydroelectric power plants and thermal power plants, while wind and solar energy are poorly utilized. It is estimated that about 30-35% of total energy comes from renewable hydro-power sources (Water Management Strategy of the BiH, 2010 – 2022).

2.1.3.3) Kosovo

Urban agriculture

To the best of our knowledge, there are no data, which refer specifically to the urban agriculture in Kosovo. Al revised documents do consider agriculture sector as a whole (rural and

urban areas). In general, Kosovo's agricultural areas are characterized by rich natural resources (soil, air quality, great diversification, varied landscape). The country is densely populated and the **linkages between rural and urban areas are strong**. Thus, it is considered that these links present good possibilities for agricultural production and other business opportunities in both, rural and urban areas

MAFRD (Ministry of Agriculture, Forestry and Rural Development) prepared the Agriculture and Rural Development Programme (ARDP) 2014 – 2020 that follows priorities such as: enhancing farm viability, competitiveness, restoring, preserving, enhancing ecosystems, promoting social, economic inclusion and transfer of knowledge, and innovation. The ARDP 2014-2020 addresses also three key EU Rural Development Policy axes until 2020 respectively: agriculture sector competitiveness; sustainable management of natural resources and climate actions and the balanced territorial development of rural areas.

Land consolidation in Kosovo

Kosovo is currently in the process of restructuring the agricultural sector with the aim of achieving sustainable farm development. Consolidation of land is seen as an important component of land reform in place.
Land Consolidation Strategy (2010-2020) presents a very important guidance and a basic document of policies and action plans of the Ministry of Agriculture, Forestry, Rural Development, for sustainable development of agriculture sector and proper land management. Land Consolidation Strategy aims at regulating land for more rational use and increased farm competition, legal property regulation, land use planning, environmental protection, alternative on-farm activities, farm income increase and improvement of the lives of population living in rural areas.
Large projects with irrigation and land consolidations were started in the mid-1980s and implemented in large areas of Kosovo's most fertile plains of agricultural lands (98 Cadastral Zones in were involved in the territory of 8 municipalities of Kosovo). However, towards 1990 the overall situation destabilized and these projects although implemented on the ground never formalized land ownership.
Ministry of Agriculture, Forestry and Rural Development in Kosovo is still working on the issue, jointly with the Kosovo Cadastral Agency, in order to find an appropriate solution to the problems farmers are facing, due to the old, unfinished land consolidation. None of the consolidated properties were registered in cadastral documentation, the land is being used according to consolidation maps and records, meanwhile the ownership remains with the old documentation as is evidenced before land consolidation; property exploitation is back again in the old state which means land consolidation is ruined. Property exploitation and its

documentation are partially with in accordance with the performed land consolidation and partially with the state as it existed before land consolidation.

The German Ministry of Economic Cooperation and Development (BMZ) has funded the project on "Strengthening Spatial Planning and Land Management in Kosovo, 2017-2019". The two main project partner ministries are the Ministry of Environment and Spatial Planning and the Ministry of Agriculture, Forestry and Rural Development. They are focusing on assisting the respective partner ministries on drafting the municipal zoning maps and preparing the necessary legal background for land consolidation in Kosovo

Land use

According to the data of Agricultural Holdings Survey of 2016 (Green Report, 2017), the total utilized area of agricultural land is 415.8 thousand ha, of which the majority is meadows and pastures (including joint land) 218.8 thousand ha or 52.6%, while arable land-fields (excluding vegetables) are 178.9 thousand ha or 43%. Vegetables in open field as the first crop have occupied an area of 8 thousand ha, and there has been an increase of 14.7% compared to the previous year. In addition to vegetables in the open field, there was an increase of surface area by 59 ha also in the category of vegetables in greenhouses (first crop), with an increase of 14.8%. Of all the categories of land use, the highest increase belongs to the **category of gardens**, from 587 ha in 2015 to 994 ha in 2016, an increase of 69%. The fruit trees have a surface area of 5.5 thousand ha, which compared to 2015 has increased by 16.2%. Also, nurseries which in 2015 had a surface area of 178 ha have increased by 10%. Also, the surface area of vineyards has increased by 49 ha or 1.6% compared to 2015. (Green Report 2017)

The above mentioned data on the area of agricultural land in use refers to the total area of arable land - fields, **including gardens** used by agricultural economy. Data on forest land, unused agricultural land and non-agricultural land are not included.

According to the Agricultural Census data (Agricultural Census, 2014) there are 129 884 agricultural holdings that use agricultural land in Kosovo. The agricultural holding is located there where the main part or all its agricultural production takes place. The agricultural holdings use in total 413 635 hectares of agricultural land; out of that 147 587 is common land (35.7%)

Agriculture Census 2014 results in Kosovo show that **kitchen gardens*** comprises of 1,055 hectares of total utilized agricultural land in Kosovo.

	Number of agricultural holdings	Area (ha)
Land area - Total	130 662	512 000.29
Utilized agricultural area	129 884	413 635.16
Arable land	113 231	180 381.11
Kitchen gardens	46 458	1 054.99
Permanent grassland (including common land)	79 761	224 410.83
Permanent crops	24 909	7 788.23
Orchards	19 619	4 390.24
Vineyards	6 242	3 215.26
Nurseries	698	182.73

* **A kitchen garden** *is the land area for the cultivation of agricultural products intended only for household consumption, normally separated from the rest of the agricultural land.*

Arable land in Kosovo comprises 43.6% of total utilized agricultural land. 113 231 agricultural holdings are engaged in production of arable crops. On average, the agricultural holdings with arable crop production cultivate 1.6 ha of arable land.

The region with the largest arable land area is Pristina with 27.7%. The holdings with 0-0.5 ha of arable land are most common (35.3%), while the most of arable land is cultivated by agricultural holdings, with 2-5 ha of arable land.

The average size of agricultural holding in Kosovo in respect to UAA (Utilized Agricultural Area) is much smaller than in most of the EU countries, but similar to the neighbouring countries. The average size of agricultural holding in Kosovo is 4 times smaller than the average in EU.

The largest area of arable land is under grain cereals. Grain cereals are planted on 73.2% (131 949 ha) of the area of arable land. The second most important group of crops on arable land are fodder crops with 26 554 ha (14.7%). Wheat is the most important crop in Kosovo. Wheat area occupies 90 728 ha (68.8%) of the area of grain cereals. In grain pulses dominates grain beans with 93% of the area under grain pulses. Among industrial crops, the most important crop is sunflower covering 59.6% of the total area of industrial crops. The most important fodder crop is alfalfa which is planted on 15 011 ha (56.5% of total of area with fodder crops). The most important vegetable is pepper. It is planted on 2 553 ha, which is 38.2% of the total area under vegetables (6 689 ha). About one quarter of agricultural holdings (34 827) are producing vegetables. In Kosovo the majority of agricultural holdings are engaged in fruit production, either having orchard plantations (11 677) or they produce fruit trees in an extensive way (95

064). They grow various varieties of trees in an area of 4 390 ha, where 80.2% belongs to orchard plantations and 19.8% to extensive orchards. Total area of orchard plantations is 3 520 ha and on average the agricultural holdings with orchard plantations cultivate 0.30 ha of orchards plantations. The agricultural holdings with 0.1-0.3 ha of orchard plantations are most common (37.4%) and also most of orchard plantations are so cultivated in the agricultural holdings with 0.1-0.3 ha of orchard plantations.

In 2014, the Agricultural Census in Kosovo showed that there were 6 242 agricultural holdings engaged in vine growing. In total they have cultivated 3 215 ha of vineyards. Out of that 58.6% were wine grapes and 41.4% table grapes.

The region with the largest vineyards area is Gjakova, with 73.4% of total vineyards in plantations, where 2 855 agricultural holdings are engaged in vineyard production. Most of them are in municipality of Rahovec. The second most important municipality in vine growing is Suhareka. The holdings with 0.1-0.3 ha of vineyards are most common (39.3%), while most of vineyards are cultivated by agricultural holdings with 5 and more ha of vineyards. The average size of agricultural holdings in Kosovo in respect to vineyards is not much smaller than average of the EU countries

Farm structure

There are no data which specify the number of farms in urban areas. According to Green Report of the year 2016, Kosovo had 185,705 ha of arable land (surface area in the four municipalities in the northern part of Kosovo is not included).

Based on the size of the surface of arable land, the farm structure is classified into four main categories:

I. Farms with very small size of less than 0.5 ha to less than 1ha constitute 10.9% of farms and had a surface of 20.279 ha.
II. Farms with a size of 1 to less than 5 had a share of 52.9%, which means that over half of the farms belong to this category and represent about 98,260 ha.
III. Farms with size ranging from 5 to less than 10 and 10 to less than 20 had a representation of 24.6% involving a surface area of 45,756 ha, and
IV. Farms with a size of 20 up to 30 and more participated with 11.5%, covering the area of 21,409 ha.

Irrigation

The main water source: underground water (well, pump), surface water - artificial (ponds or rainwater reservoirs), surface water - natural (stream, river, lake) irrigation system – hydro-system. Other water source - that is not listed above.

The main irrigation method: Surface (with furrows, flood), prinkling method (artificial rain), drop by drop method

The share of irrigated agricultural land is low and has decreased significantly over the past 20 years.

Agriculture Census 2014 shows that out of the total utilized agriculture area, 5.5% is irrigated (22 888 ha), down from 70,000 hectares in the 1980s. Currently, the western region of the country—Decan, Rahovec, Peja, and Shterpca—has the most irrigated land. This is the area where historically most of the fruit and vegetable production has taken place. The most important crops that were irrigated were grain and green maize (6 236 ha), followed by meadows and pastures (5 547 ha) and vegetables (3 826 ha). As the main source of water for irrigation, agricultural holdings used 38.4% surface water (stream, river, lake).

Urban ecology developments in Kosovo

There are two levels of planning in Kosovo (national and local) and the types of plans are Spatial Plan of Kosovo, Spatial Plans for Special areas, Municipal Development Plans (MDP), Urban Development Plans, and Urban Regulatory Plans.

Within the Kosovo's two-level planning system local governance level have the significant role in implementing the planning principles and requirements set by the Law on spatial planning.

In addition to the legislation such as< national spatial plan, environmental strategy and environmental action plan there are several different plans, programs and policy documents recently prepared by national authorities and other institutions to go further with the implementation of the strategic objectives and legal requirements (i.e. Governmental Strategy on Waste Management 2011 – 2020; Governmental strategy and action plan for biodiversity 2011 -2020; Spatial Plan of Kosovo 2010-2020+ etc.)

2.1.3.4) Montenegro

Land ownership

In the National Strategy, MARD published ownership of all land, not only urban unfortunately, as following: "The surface area of agricultural land in Montenegro amounts to 309,241 ha, which represents 22.4% of the entire territory. Of this surface area, 95.2% is owned by agricultural holdings, and business operators own the rest, 4.8%" (MARD, 2015: 21).

Water resources for irrigation

As the territory with the highest level of water sediment in Europe, due to an unfavourable level of water balance, almost 35% of the soil in Montenegro suffers from water shortage. Around 51,000 ha of land are suitable for irrigation, yet only 15-17% of this is actually irrigated.

Main source of water for irrigation comes from direct rain. In times of drought, Southern part of Montenegro certain agricultural lands have predisposition for easier irrigation such as plains: Zeta, Bjelopavlići; Crmnica and valley around river Bojana. On the Northern part of country droughts are rare but when they occur irrigation is easily done by the enormous amounts of fresh water available in this part.

In 2016 budget of Montenegrin government €40,000 are given to the plan for construction of irrigation system.

Monitoring of products and soil

"Soil quality in Montenegro, when monitored in terms of pollution levels, is good. This means that soil is not polluted by metals or by other pollutants. In terms of fertility, however, the situation is different. Most of the land is not very fertile and is shallow skeletal soil with a low humidity retention capacity" (MARD, 2015: 22).

Action plans for urban ecology improvements

On a local level action plans for the improvement of urban ecology are defined, which means ecology plans that are dealing with the bigger ecology problems such as unregulated landfills of hazardous materials, wastewater treatment systems, remedies in industrial zones. On the other hand, clear actions and instructions are not defined for the sustainable usage of arable land or for usage of pesticide which aren't threatening for the environment. Municipality of Podgorica has made a Biodiversity action plan that contains results of the biodiversity monitoring on the territory of capital city, as well as measures of protection for biodiversity.

In the couple of strategic documents, need for the greening of public spaces is mentioned, but concrete action plans for this area still do not exist.

2.2) Surveys among key stakeholder groups

Besides the EU and national desktop research on urban agriculture's skills and competences, primary data from representatives of key stakeholder groups provide additional information and insights into the situation and status quo of the three Western Balkan states Bosnia and Herzegovina, Kosovo, and Montenegro. The questionnaires we used had been developed, tested, in the Training Needs Analysis within the course of the Erasmus+ project URBAN GREEN TRAIN (Urban Green Education for Enterprising Agricultural Innovation). URBAN GREEN TRAIN's Training Needs Analysis is attached to this report in Appendix 1 with its key results. The four considered key stakeholder groups are Higher Education Institutes (HEIs), Small and Medium-sized Enterprises (SMEs), Non-Governmental Organizations (NGOs), and Public Authorities (PAs). In total, 136 survey replies have been received, whereof the majority of 96 origins from Kosovo and each 20 from Bosnia and Herzegovina and Montenegro (s. Figure 3). All 20 Montenegrin ones have been conducted with PAs, while in Bosnia and Herzegovina eleven PAs, six NGOs, and three SMEs could be surveyed. The replies from Kosovo origin from HEIs (35), SMEs (31), and NGOs (30) showing a homogeneous distribution. Although country-specific coverages of the key stakeholder groups are imbalanced, summing the three states the surveys reached more than 30 for each stakeholder group.
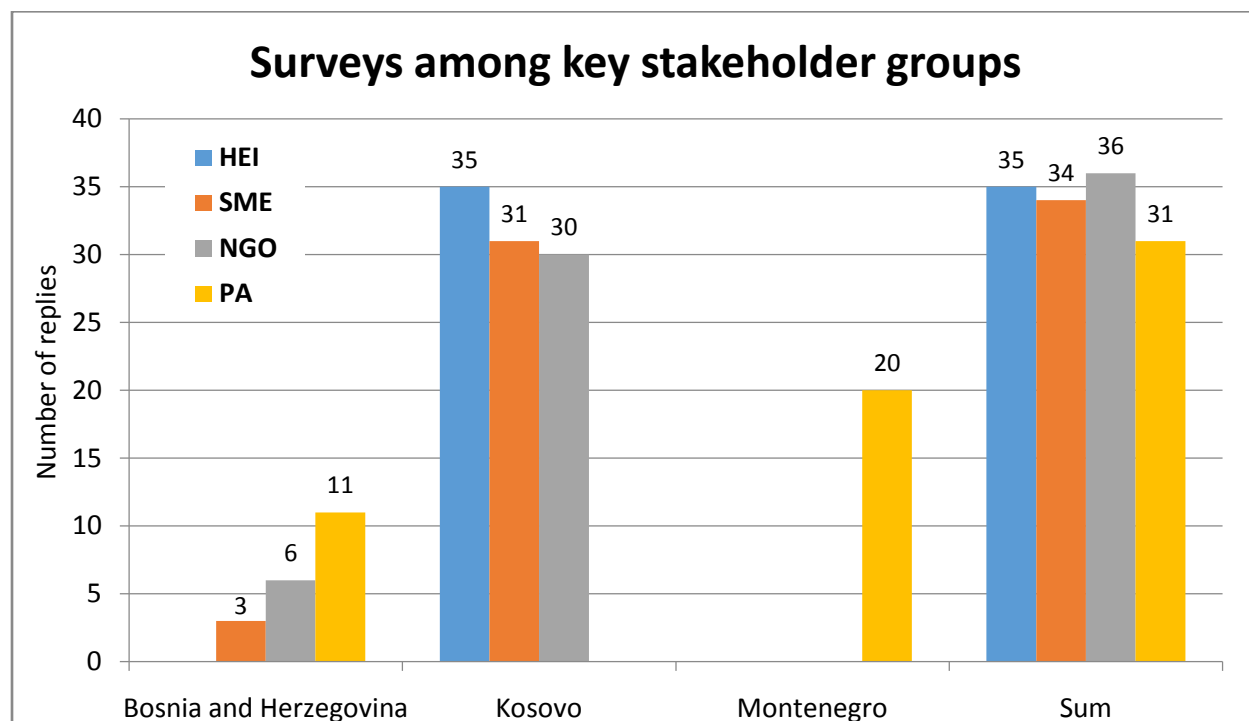

Figure 3: Number of interviews per Western Balkan state and stakeholder group

Fifteen (43%) of the in total 35 surveyed persons from Kosovan HEIs name, that some elements of Urban Agriculture are already integrated their curriculum. The topics, which are covered in existing curricula with linkages to Urban Agriculture and named to more than 50% by the 15 HEI persons, are plant production, project planning, machinery/engineering, marketing/trading, and business planning, administration, and finances. Within URBAN GREEN TRAIN's Training Needs Analysis about two thirds of the surveyed persons from HEIs in France, Germany, Italy, and The Netherlands name UA integration in existing curricula (s. Figure A2 in Appendix 1). HEIs indicate that "*our school is in the urban environment and we think we have a perspective*" and UA entrepreneurial education is "*appropriate to our interests and needs*". Yet, it is also mentioned that "*we are interested but we are missing the practice side*".

The large majority of 86% name an interest in Urban Agriculture entrepreneurial education. The differences between countries and stakeholder groups are comparable small – except a lower interest of SMEs from Kosovo (s. Figure 4). The high interest is in line with findings from the URBAN GREEN TRAIN countries France, Germany, Italy, and the Netherlands with a summarizing interest share of 80% (Italy 93%, Germany 87%; The Netherlands 67%; and France 65%) (s. Table A2 in Appendix 1).
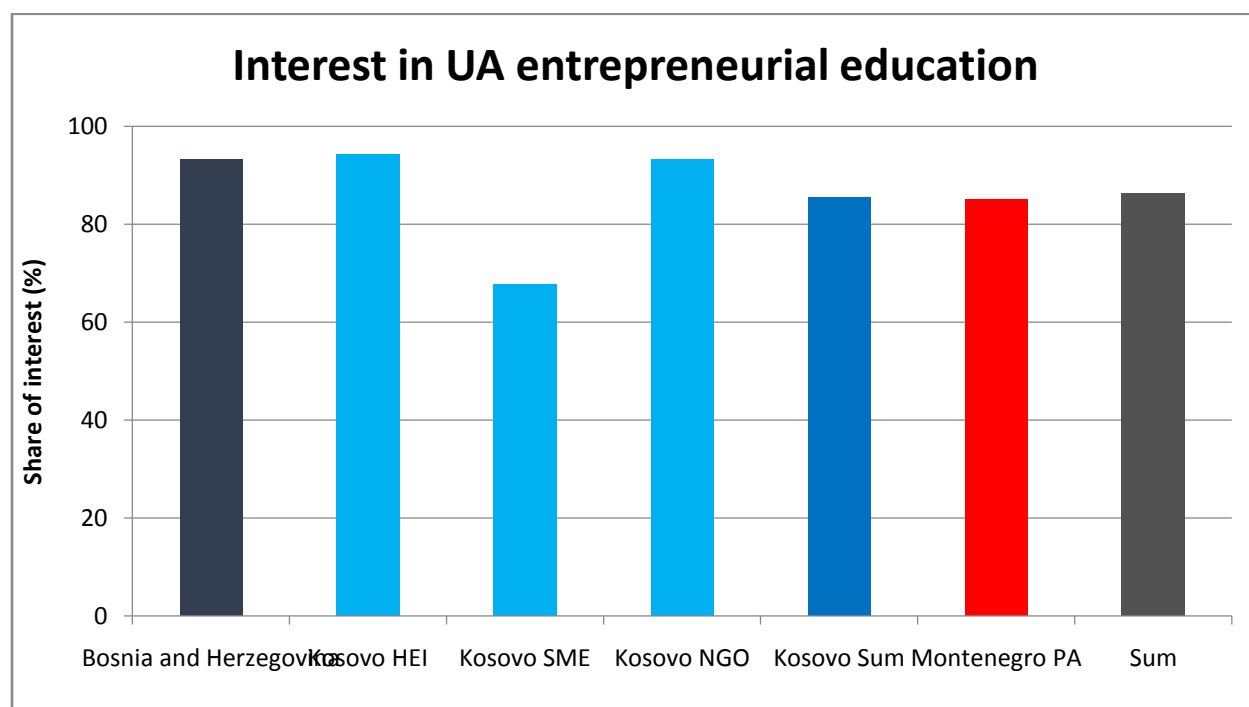

Figure 4: Share of interest in Urban Agriculture entrepreneurial education with regard to states and stakeholder groups.

The formal master and bachelor university courses are highlighted as the most suitable levels of education (s. Figure 5). Contrarily, PhD courses are named by less than 20%. Non-formal life-long learning (LLL) / out-of-school offers reach with more than 40% the third highest rank following the master and bachelor level. Technical / Vocational schools and computer-supported training offers reach also a certain level to be considered. It becomes obvious that especially the Kosovan HEIs support university master and bachelor, but also technical / vocational schools and LLL offers to more than 80%, while all the other stakeholder groups and Western Balkan countries are more reluctant. URBAN GREEN TRAIN's Training Needs Analysis shows a different picture, in which LLL and technical / vocational schools result in certainly higher shares (58%; 51%) compared to university levels (< 40%) (s. Tables A3 & A4 in Appendix 1). Some comments from Bosnia and Herzegovina regarding the level and kind of education emphasizes the formal university education, but goes also behind by including in-formal LLL, practical skills, and offers for people with special needs; e. g. "*PhD and Master for development of new products, trainings and webinars for continuous education*", "*we think that the Master is needed but that other levels of education should not be excluded*", "*we work with people with disabilities*", "*education is at the same time a rehabilitation tool for social entrepreneurship for people with disabilities*", "*possibility of scientific improvement, experimental work*", and "*practical work*". These statements from Bosnia and Herzegovina are in line with some corresponding comments from Kosovan HEIs and SMEs, e.g. "he/she must have completed bachelor studies and there should be at least some experience in the field of agriculture", "master studies are higher studies and will be appropriate", "*SMEs need to have a graduate agronomist to achieve the right success at work, market...*", "*he/she must be a graduate in agriculture that has professional knowledge as well as computer courses*", "*presence of a graduate in SME is a great advantage*", but also "*education is the key to any success as an individual or a society, so the more educated and professionally prepared it will have a more positive impact on everyone*", "*computerized training courses*" and "*knowledge of foreign languages*". Some Kosovan NGOs highlight the PhD level; "*every educational level is worth but the most appropriate seems PhD level…*", and "*PhD for reasons that provide multiple insights and the practical side is always more effective*". Public authorities from Montenegro highlight also "*high schools*" and "*LLL in universities as appropriate level*".
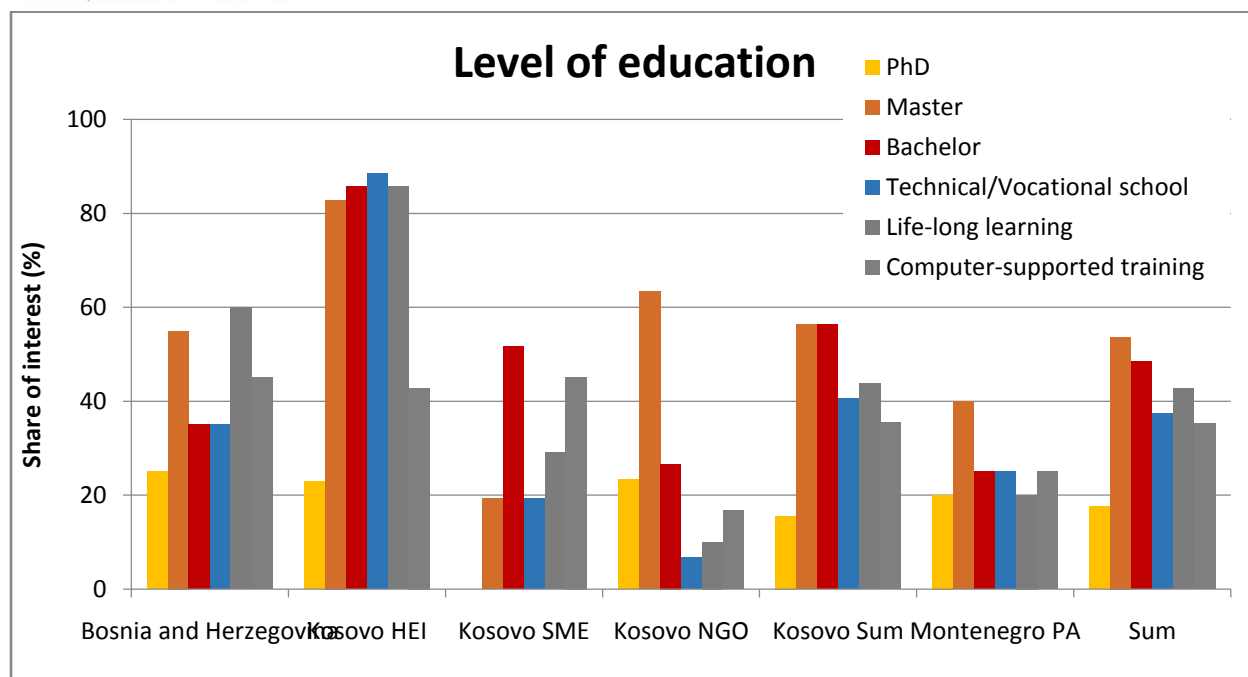
Figure 5: Which level and kind of education is from your point of view suitable for UA entrepreneurial education

About 75% name communication a required soft skill for UA entrepreneurship and an issue to be covered in UA entrepreneurial education (s. Figure 6). Communication is ranked highest followed by creativity, time management, and flexibility. Communication skills are named by all states and stakeholder groups to more than 75% - except the Montenegrin public authorities, while these 20 PAs from Montenegro highlight especially creativity. Analytical competences are named comparable little by the Western Balkan stakeholder groups. Kosovan replies add further comments emphasizing several times *"(self-)confidence"*, but also *"teamwork, reliability, seriousness"* and *"commitment"*. One respondent from Bosnia and Herzegovina names also additional skills, like *"innovation", "ability to think in different directions",* and *"desire for learning"*. Generally speaking *"all are linked together to be complete"*.

The findings from Western Balkan can be overlaid with the overall picture from the URBAN GREEN TRAIN Training Needs Analysis, which emphasized also communication (70%) and creativity (64%) as the two most important soft skills required for UA entrepreneurship (s. Figure A4 in Appendix 1).
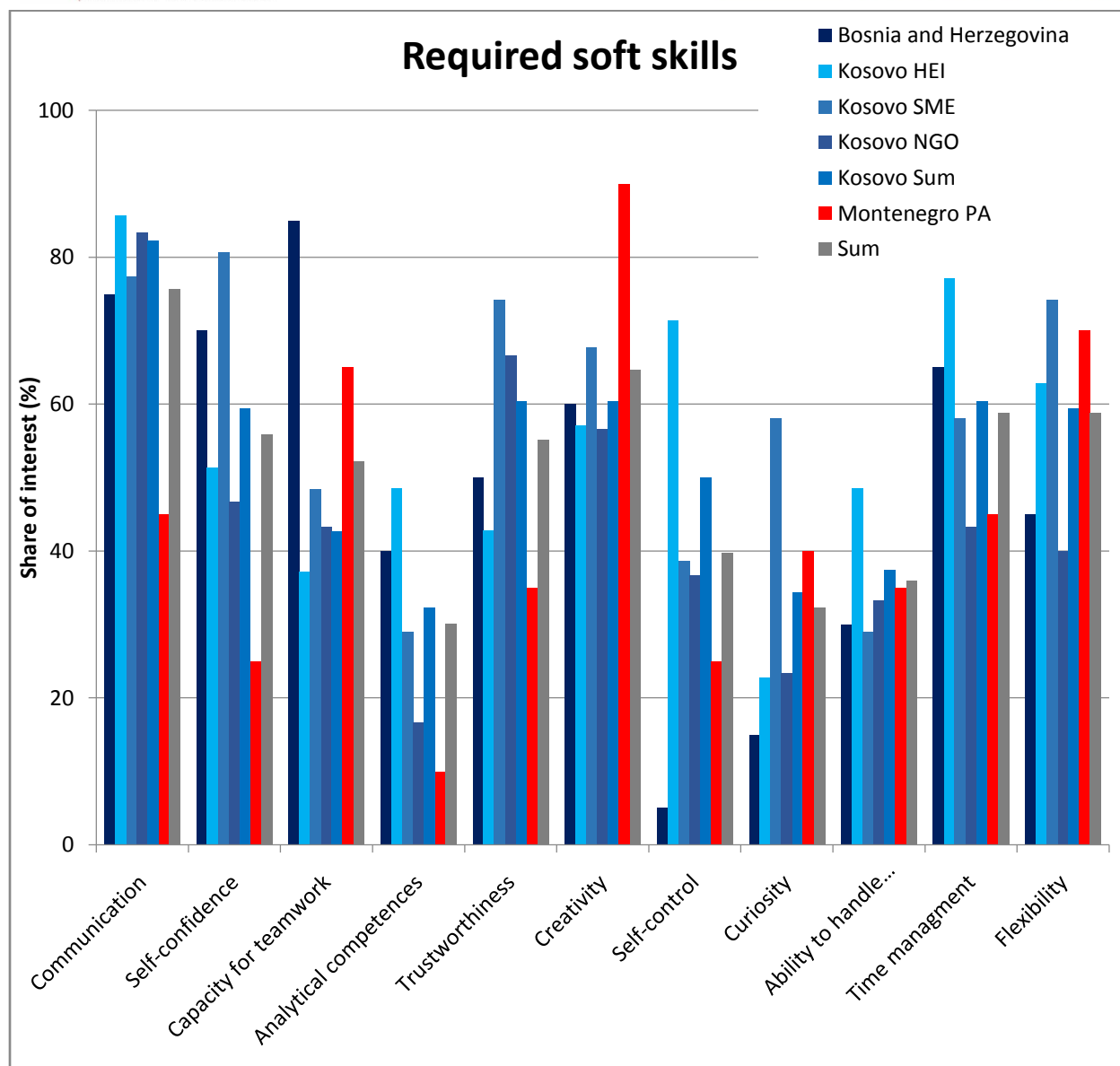
Required soft skills

Legend:
- Bosnia and Herzegovina
- Kosovo HEI
- Kosovo SME
- Kosovo NGO
- Kosovo Sum
- Montenegro PA
- Sum

Figure 6: Required soft skills for UA entrepreneurial education

All subjects –except legal framework – are named by more than 40% of the surveyed people to be of value for UA entrepreneurial education (s. Figure 7). About two thirds name plant production (68%) and project planning (65%) followed by marketing / trading (53%), urbanity (51%), communication/networking (50%), and business planning, administration and finances (50%). Bosnia and Herzegovina as well as Montenegro rank plant production highest, while Kosovo names project planning a few per cent points more often than marketing/trading and plant production. Machinery/Engineering and business planning, administration and finances

are named somewhat more often in Kosovo compared to Bosnia and Herzegovina. The comparison to the URBAN GREEN TRAIN findings shows some similarities and some differences: In France, Germany, Italy, and The Netherlands plant production is also highlighted as the most important skill, but not followed by project planning (as it is for Western Balkan) (s. Figure A5 in Appendix 1). The second highest share reaches communication/networking (68%), which reaches 50% in Western Balkan states.
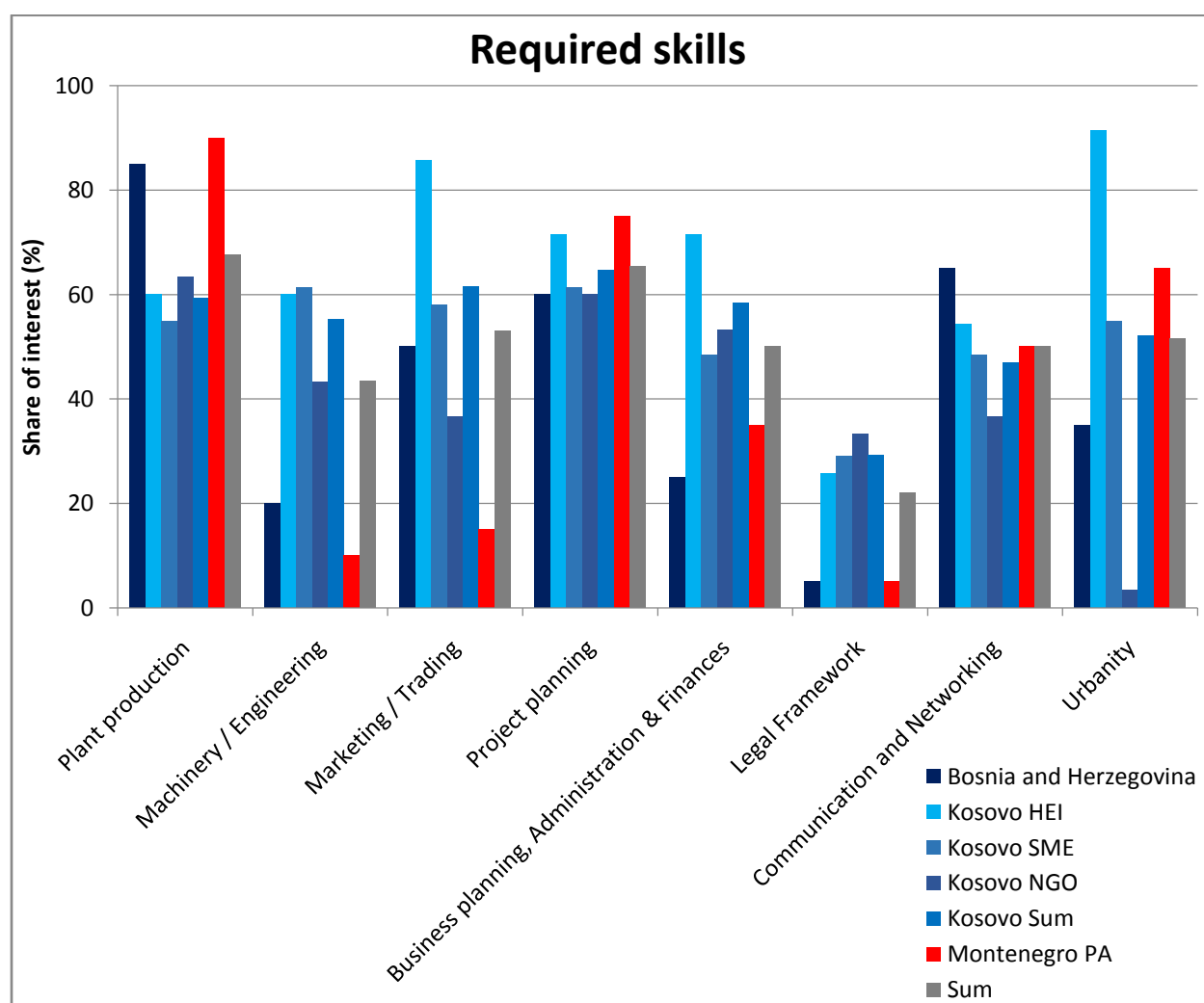

Figure 7: "Hard skills" named to be taught for UA entrepreneurial education

Further statements with regard to individual subjects name further issues of relevance for UA entrepreneurial education; sometimes these comments confirm subjects the survey asks for, but some comments introduce also new ideas and issues:

- *"knowledge of agrochemical operations"*, *"creating micro-gardens in small areas"*, *"production in greenhouses is characteristic for this area"*, *"variety of plants and animals"*, *"herbal production"*, *"beekeeping (school)"*, *"increasing the cultivation of vegetables in urban areas"*, *"plant protection with new system of herbicides"*, *"urban education should focus on horticulture, urban farming of poultry and livestock, where the potential for food production is high"*, "pesticides consequences of improper use" (Plant production),
- *"handling of agricultural mechanization"*, *"new technologies"*, *"precise farming enables each step to be made better and safer"*, *"harvesting technologies"* (Machinery/Engineering),
- *"knowledge of the market"*, *"marketing is a very important part"*, *"marketing strategies"*, *"specialized micro-enterprises"*, *"helps to promote the sustainable commercialization of commercial market gardening in urban areas"* (Market/Trading),
- *"project planning - is considered as the most important skill for the realization of urban agriculture"*, *"we believe that especially young people need to be able to write projects and apply them to different funds"* (Project planning),
- *"how a business is created and how it works"*, *"it helps in business planning, risk management, land access, land quality, water use, capital use, etc."* (Business Planning, Administration, and Finances),
- *"political and institutional support facilitates the necessary legal measures for land security for urban agriculture"* (Legal Framework),
- *"direct contact with producers and customers"* (Communication and Networking), and
- *"urban agriculture mitigation of unemployment"*, *"the physical, social, economic characteristics of the respective cities"*, *"it contributes to the reduction of urban poverty, the creation of employment and food security, to stimulate the governance with the participation of the city and the improvement of urban management"*, *"urban planning"*, *"urban sociology"*, *"landscape architecture"*, "urban spaces", and "green spaces" (Urbanity).

Furthermore, links between the topics are named "*that should we cultivate for urban marketing agriculture*" and "*the most difficult skills to learn are: project planning, business planning, administration and finances, legal frameworks, and so on.*"

More in a holistic direction another comment from Bosnia and Herzegovina highlights the interdisciplinary and versatile character of UA: "*knowing everything listed is essential for successful commercial production*", "*economic development is achieved through urban agriculture where residents gain the ability to cultivate and sell their food*", "*urban agriculture is*

indispensable and applicable", "…all are needed for […] urban agriculture", "urban education is interested in promoting partnership and collective action for the development of horticulture, training coordination and capacity building", and "everything has to be taken into account to succeed and to have a good impact on Urban Agriculture in the designated place".

The specific training needs for all enquired topics (s. Figure 7) are summarized in the following figures (Figures 8-14). They can also be compared with URBAN GREEN TRAIN findings from France, Germany, Italy, and The Netherlands (s. Figures A6-A12 in Appendix 1).
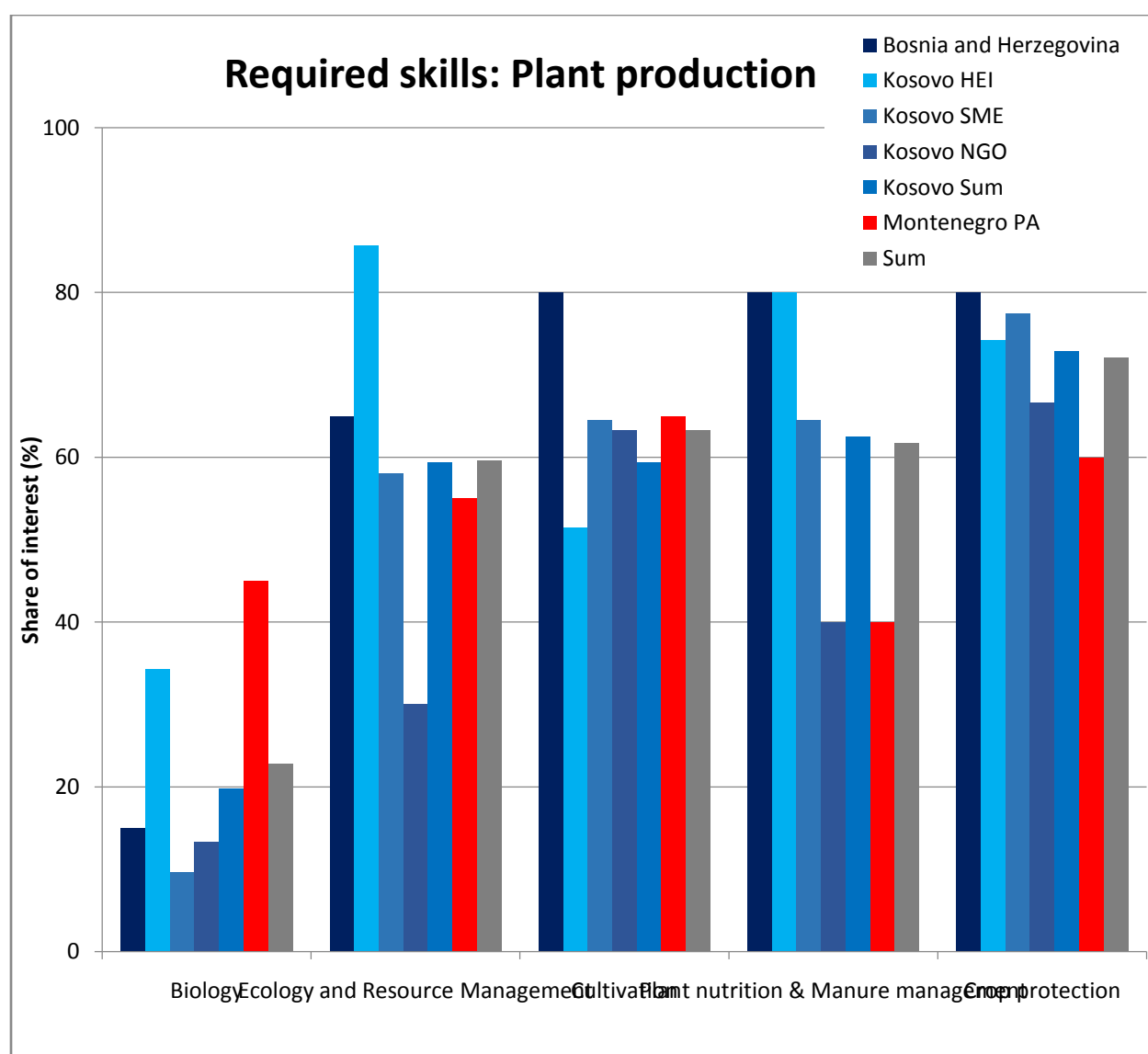
Figure 8: Plant production

Figure 9: Machinery/Engineering
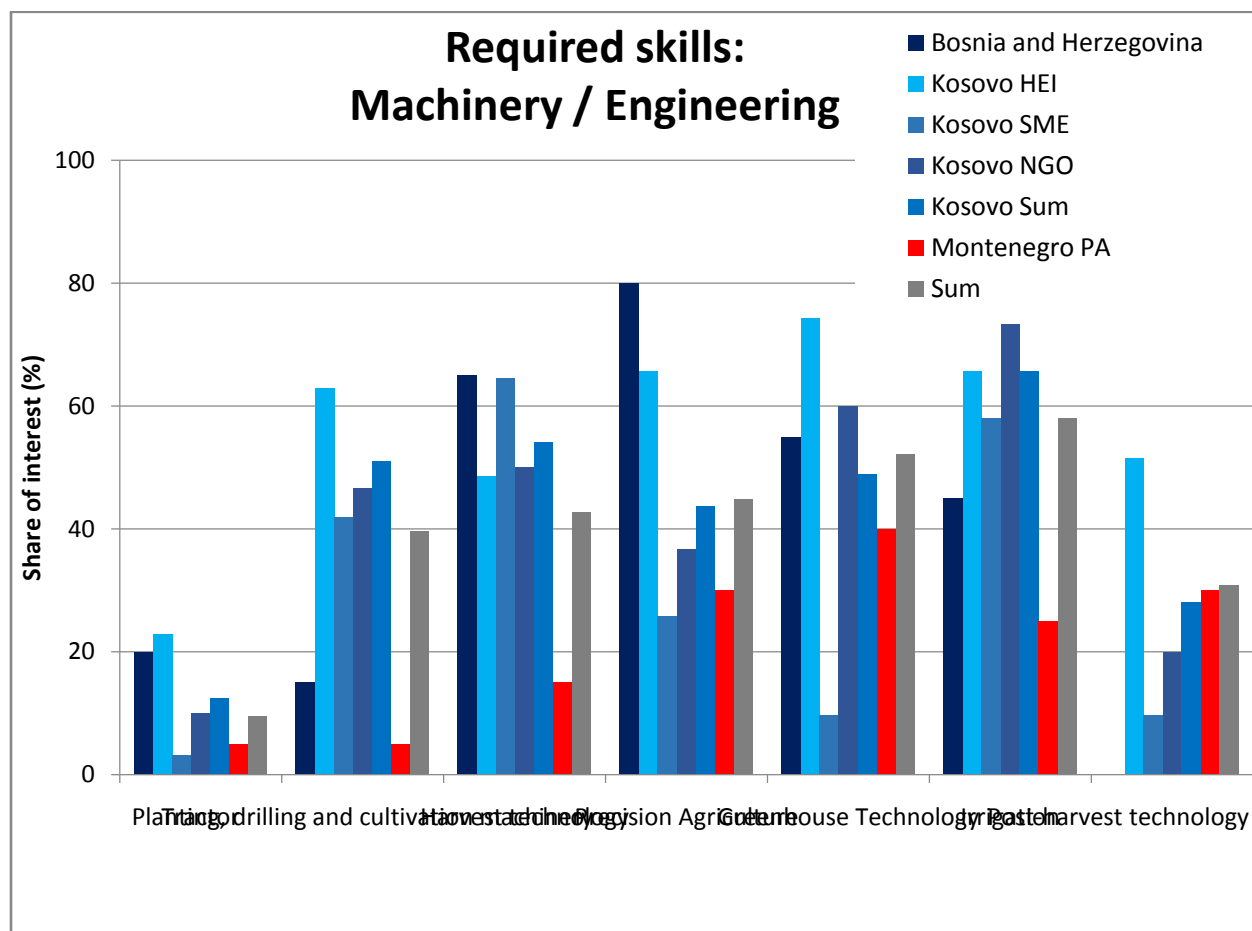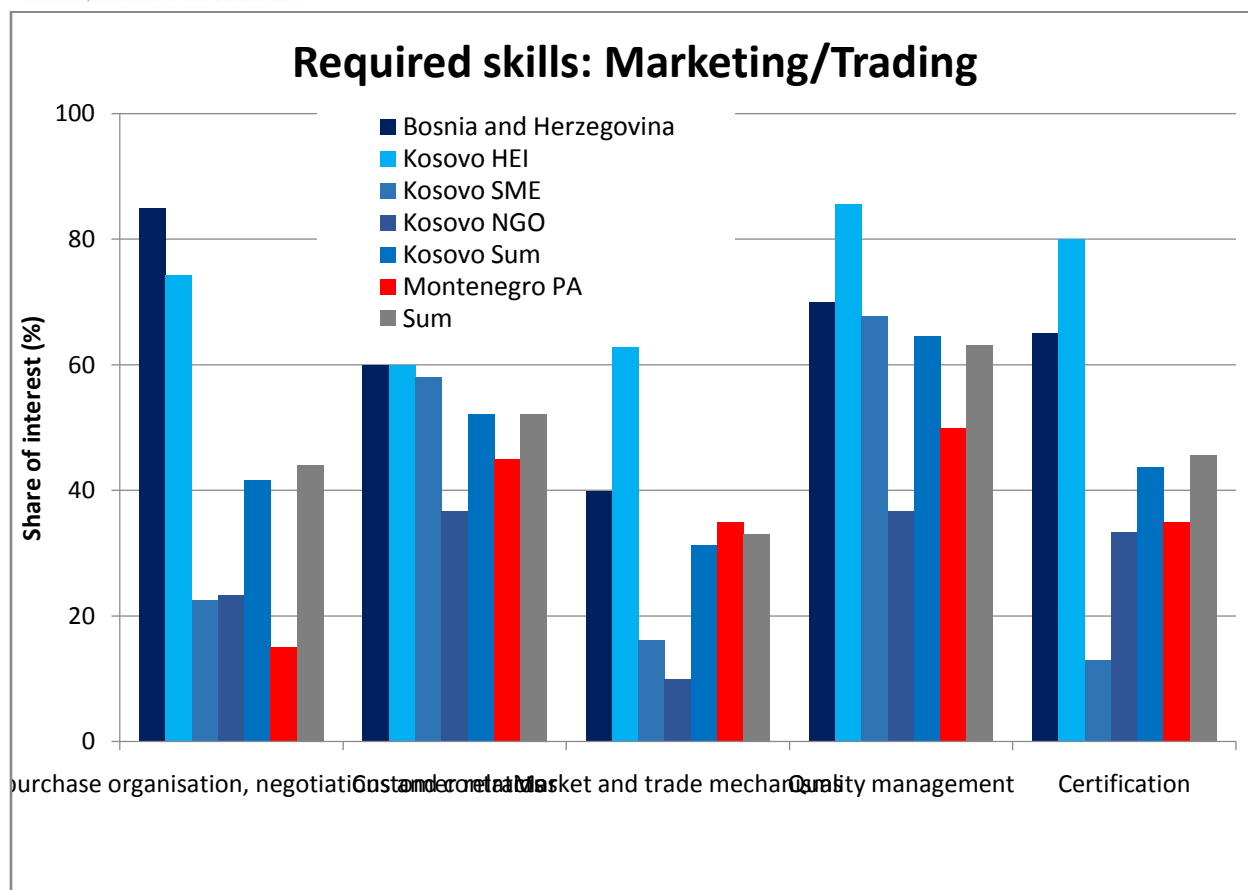
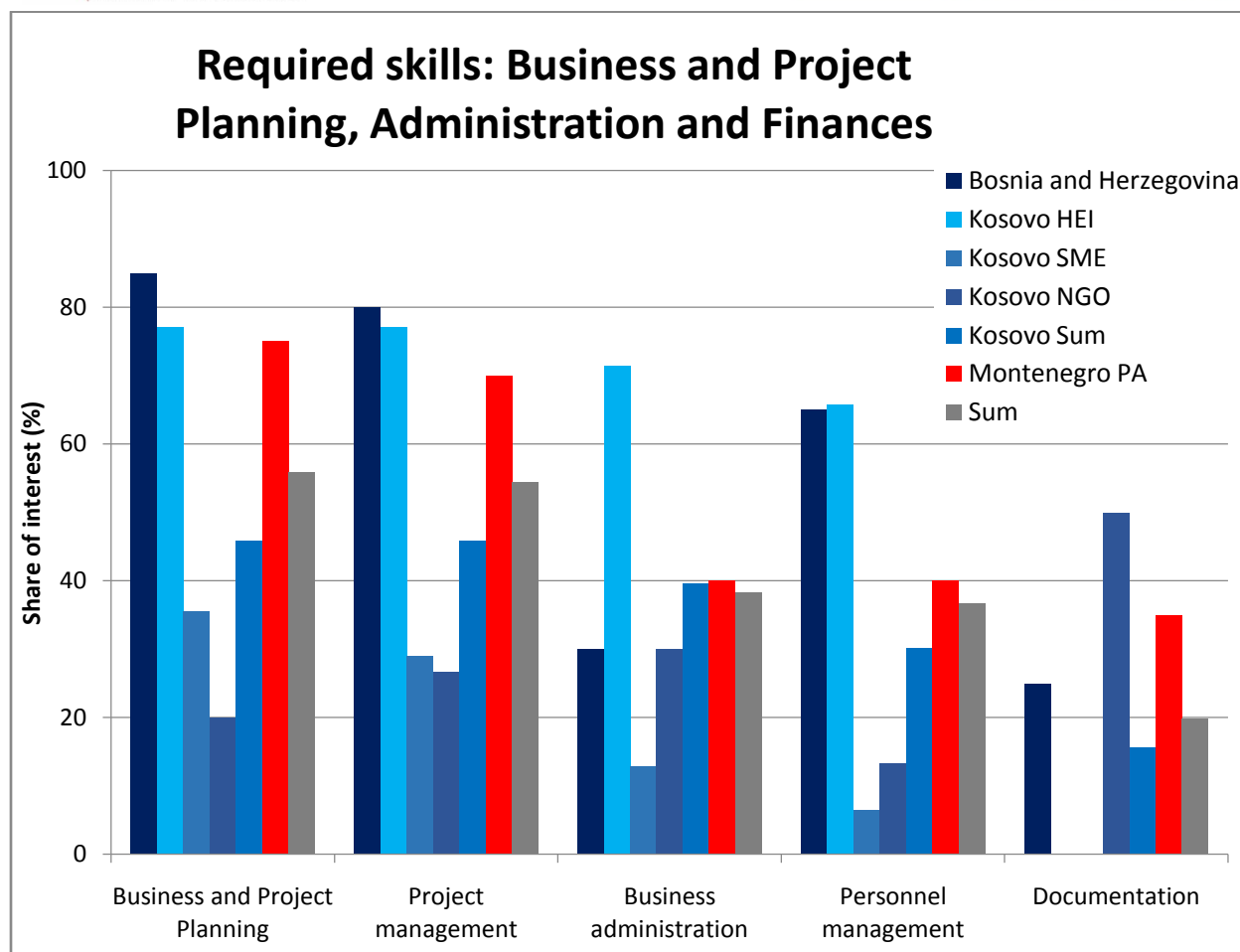**Required skills: Marketing/Trading**

Figure 10: Marketing/Trading

Figure 11: Business and project planning, administration, finances
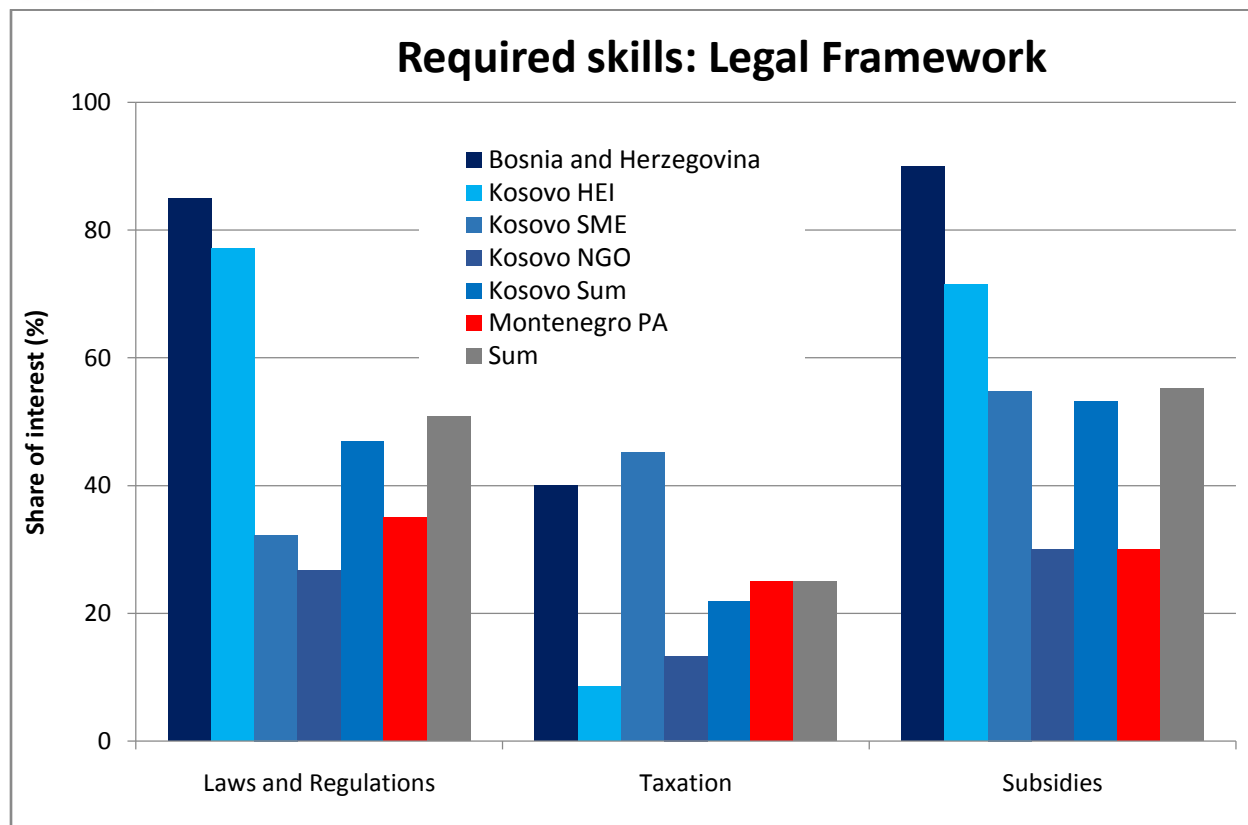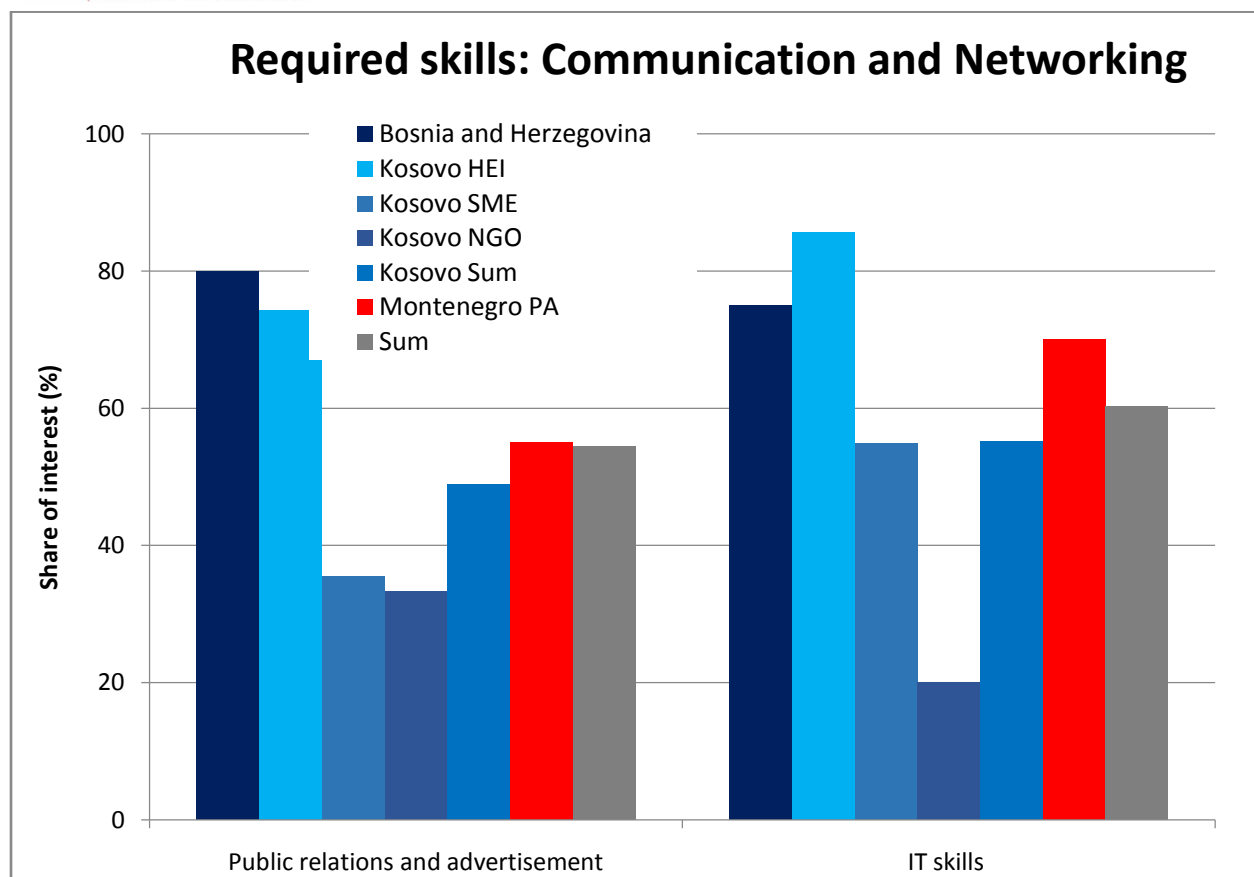
Figure 12: Legal framework
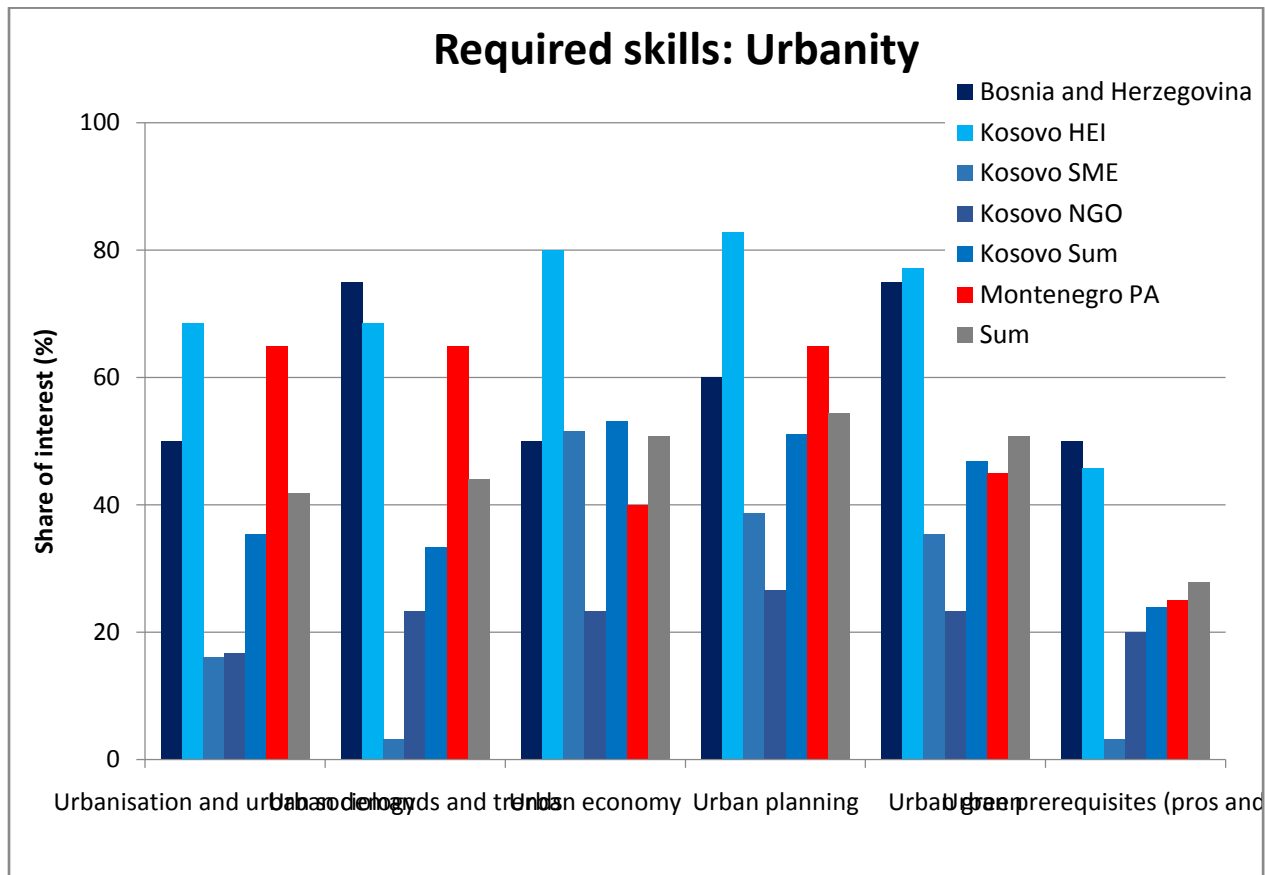
Figure 13: Communication and Networking

Figure 14: Urbanity

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74

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Appendix 1:
Training Needs Analysis (Erasmus+ URBAN GREEN TRAIN)

Methodology

Process and timeline

The procedure and further steps to realise the Training Needs Analysis were discussed during the project's first meeting in Bologna in December 2014. Afterwards, namely in January 2015, the project partner responsible for this activity IO1-A3 SWUAS (South-Westphalia University of Applied Sciences, Fachhochschule Südwestfalen) developed four draft questionnaires addressing the four target groups. February 4th, SWUAS circled around these drafts within the project consortium for recommendations and improvements, which were able to be sent until February 14th. About two weeks later on March 2nd SWUAS uploaded the final questionnaires for the four target groups in English language including the key guidelines to be followed by project partners (see questionnaire HEIs and guidelines in the appendix). After translations into national languages, the first interview period lasted until end of May 2015. The last interviews were received on June 18th. The second project meeting in Angers in July 2015 was used to present the preliminary results of the Training Needs Analysis. As the requirements were not fulfilled until Angers meeting, the project consortium agreed on a second shorter interview period to fulfil the requirements of 120 interviews in total (see Results). Additional interviews were integrated into the analysis by end of July 2015. Afterwards the Training Needs Analysis was conducted in August and September 2015 to be finalised 30th of September 2015.

Here the timeline in key points:

- December 2014:   Training Needs Analysis discussion during Bologna meeting
- Feb. 4th, 2015:   Draft questionnaires sent around by SWUAS to project partners
- Feb. 14th, 2015:   Deadline for draft feedbacks
- March 2nd, 2015:   Upload of final questionnaires and guidelines in English
- March-May 2015:   Translation and data collection (interviews)
- June 18th, 2015:   Receiving the latest data
- July 2015:   Presentation of preliminary results at Angers meeting
- July 2015:   Second round of data collection
- Aug./Sept. 2015:   Training Needs Analysis
- Sept. 30th, 2015:   Report finalized

Results

Fulfilment of minimum requirements

UGT project partners conducted in total 122 interviews between March and July 2015, which means that the minimum requirement indicated in the Project Management Framework is achieved (**Fig. A1**). The results differ somewhat between the partner countries and addressed target groups. Germany (39) and Italy (30) reach the national threshold of 30 interviews per country, while France (26) and the Netherlands (27) are slightly below this threshold. Most of the interviews were carried out with SMEs (42), while the number is lowest for public authorities (PA) (20).

Figure A1. Number of conducted interviews per country and target group
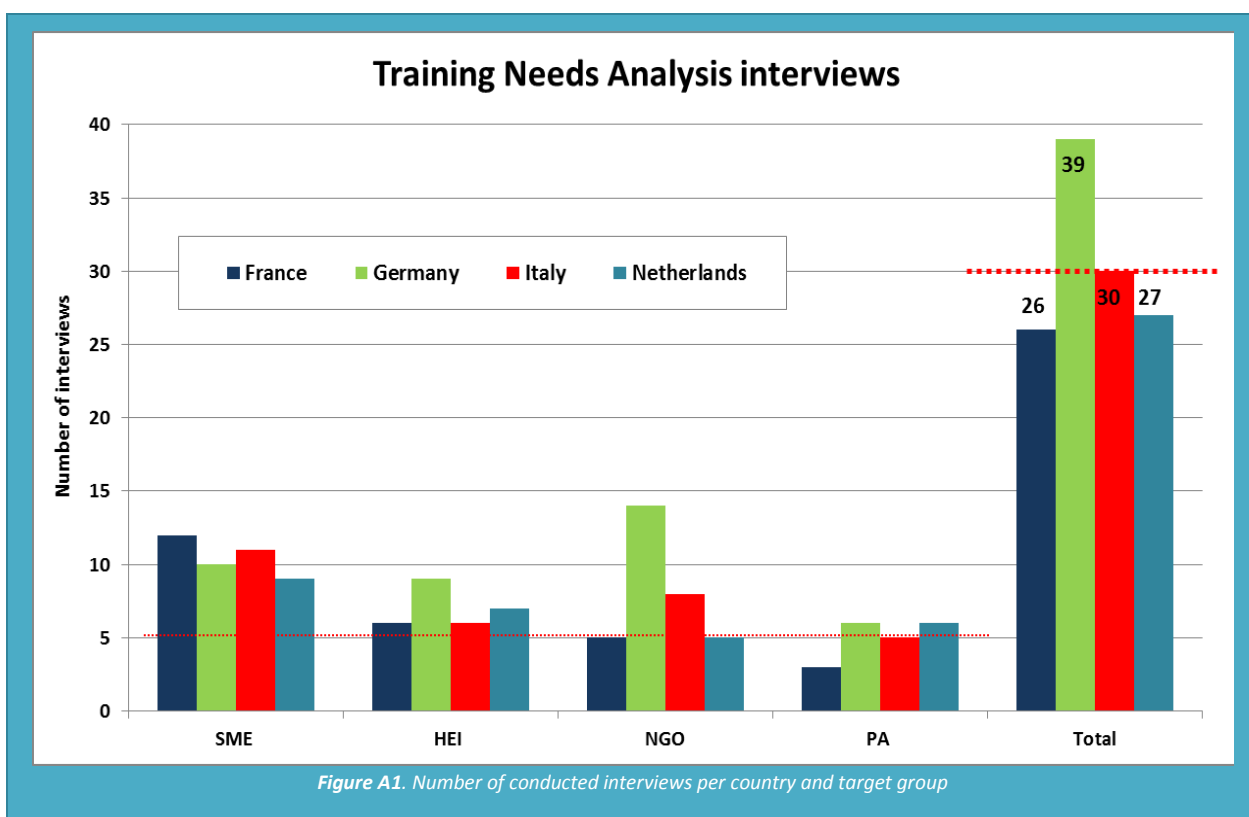
Present integration in formal curricula (HEI)

As a matter of course the question regarding the already established integration of urban agriculture into HEIs' formal curricula was only addressed to these interview partners from Higher Education Institutions. 28 HEIs are considered in this survey covering a homogeneous distribution between six and nine conducted interviews per project partner country (**Fig. A1**).

Already about two thirds of the interviewed HEIs integrate urban agriculture into their curricula to some extent (**Fig. A2**).

Figure A2. Present integration of UA in formal HEI curricula
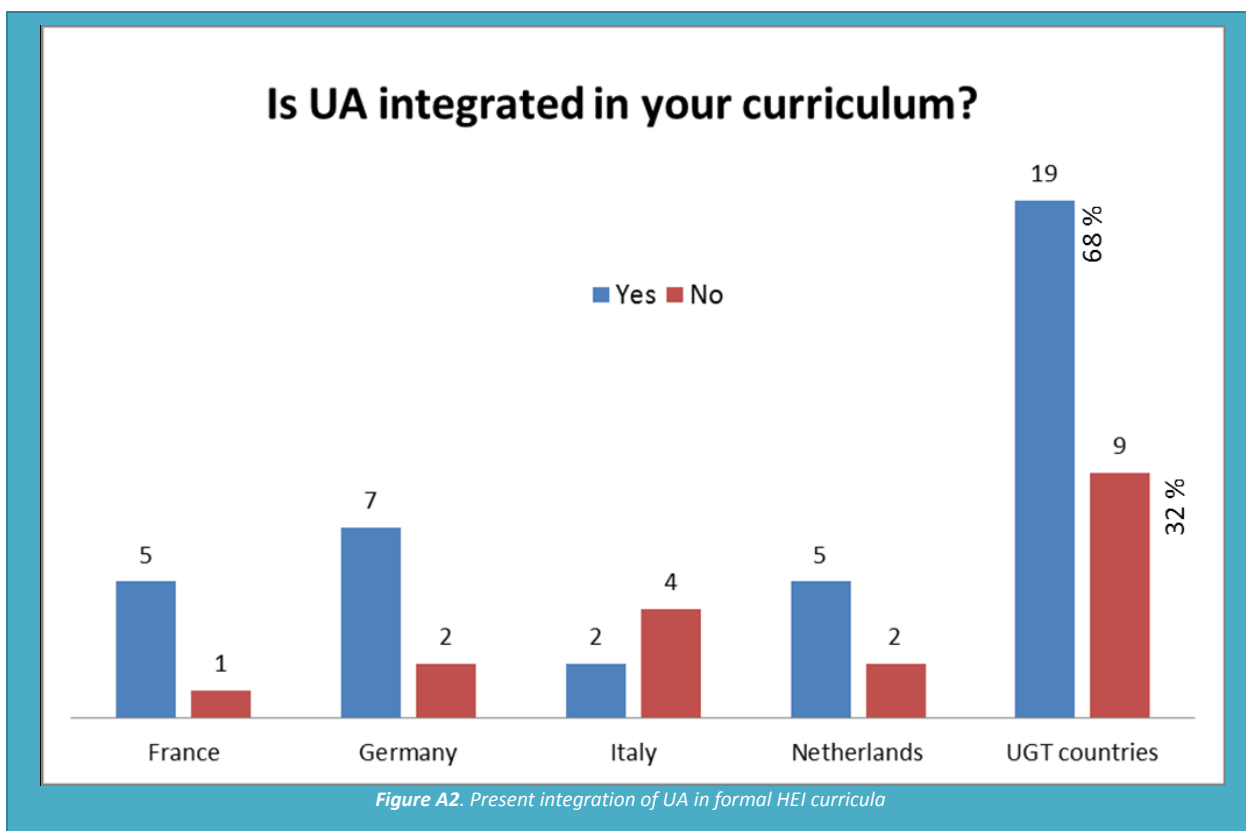
Regarding the present integration it has to be considered, that most of the interviewed departments and faculties highlight, that UA is mainly a minor subject or one element of a broader topic, while pure UA modules are comparable rare. Two example modules, in which UA lectures are integrated in other modules, are "Growing Green Cities" from the Netherlands and horticultural modules in Italy including specific sessions on UA. The conducted survey reveals one UA module – namely "Urban Agriculture" – of 13 ECTS from the Netherlands. Furthermore, different HEI representatives state, that they are willing to or think of enlarging the relevance of UA in their curricula. A Dutch HEI also added the integration of urban agriculture in (pre-)vocational schools in the Netherlands.

The second question addressing HEIs focuses more precisely on the themes offered in the UA modules and lectures (**Fig. A3, Table A1**). Most pronounced is the theme "urbanism", which is named 13 times, followed by "plant production" and "communication, networking, PR" mentioned eight times each. Rather rarely considered in UA lectures are "legal framework" (3)

and "business planning, administration & finances" (4). Especially in the Netherlands, but less pronounced also in Germany, all topics in the field of UA are covered to some extent by the interviewed HEIs.
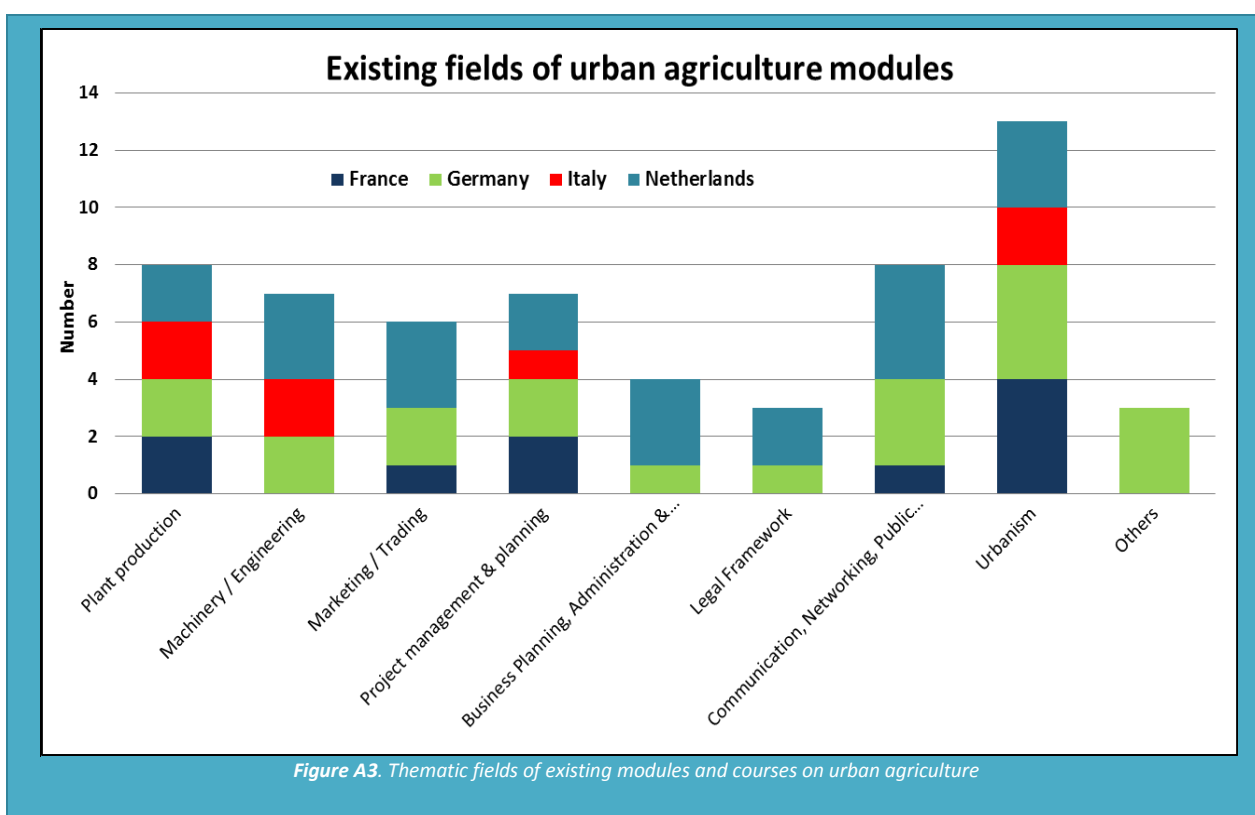

Figure A3. Thematic fields of existing modules and courses on urban agriculture

Table A1. Overview of named themes in UA modules and lectures

Country	Considered HEIs	Plant production	Machinery / Engineering	Market research / Marketing / Trading	Project management / planning	Business Planning, Administration & Finances	Legal Framework	Communication, Networking, PR	Urbanism	Others
France	5	2	0	1	2	0	0	1	4	0
Germany	7	2	2	2	2	1	1	3	4	3
Italy	2	2	2	0	1	0	0	0	2	0
Netherlands	5	2	3	3	2	3	2	4	3	0
Sum	19	8	7	6	7	4	3	8	13	3

UA themes

Interest in UA entrepreneurial education

All four target groups in all four project partner countries are predominantly interested in UA entrepreneurial education (**Table A2**). On average four of five interviewees (80 %) name to be interested with only little differences between target groups, which range between 75 and 82 %. Larger differences occur between the partner countries with France (65 %) and the Netherlands (67 %) on the lower and Italy (93 %) and Germany (87 %) on the higher side of interest.

Table A2. Interest in UA entrepreneurial education

	Target groups										
	SME		**HEI**		**NGO**		**Public Authority**		**Total**		
Country	Yes	No	Yes	No	Yes	No	Yes	No	**Yes**	**No**	**Yes [%]**
France	9	3	5	1	1	4	2	1	**17**	**9**	**65**
Germany	10	0	7	2	13	1	4	2	**34**	**5**	**87**
Italy	10	1	6	0	7	1	5	0	**28**	**2**	**93**
Netherlands	5	4	5	2	4	1	4	2	**18**	**9**	**67**
Sum	**34**	**8**	**23**	**5**	**25**	**7**	**15**	**5**	**97**	**25**	
Sum [%]	**81**	**19**	**82**	**18**	**78**	**22**	**75**	**25**	**80**	**20**	

This question on the interviewees' interest in UA entrepreneurial education raised some important comments and remarks. A SME from the Netherlands states "*UA small scale and versatile, but current education is large-scale and specialized*". Additional remarks incorporate advices to have "*short courses*" and to consider "*UA on brownfields/abandoned sites*". A few interviewees offer even active teaching services and make appropriate "*communication tools*" a prerequisite for the success of UA entrepreneurial education. Furthermore, one agricultural school from the Netherlands (vocational/technical school) is interested in the resources to be developed. A Dutch HEI underlined, that they "*are fully qualified for this topic*". An Italian SME mentions, that they "*focus on commodity markets*" and do not see urban agriculture to be an issue for them. The statement "*in planning perspective no differences between rural and urban*" is given from a German public authority. The selected comments and remarks show, that the view on UA entrepreneurial education is heterogeneous, but is mainly seen positive.

Levels and kinds of education

Most interviewees name "life-long learning" (58 %) as an appropriate kind of education in UA entrepreneurship (**Tables A3 & A4**). Still more than half of the respondents see "apprenticeship, technical/vocational school" (51 %) as the fitting level, while all other levels and kinds of education receive proportions of in total less than 50 %. Exchange visits reach the third highest proportion with 42 %, while especially the academic education levels result in comparable low

proportions between 17 % (PhD) and 37 % (university master). In general, rather non-formal and non-academic as well as "out-of-school" (life-long learning) levels and kinds of education are seen as more suitable for UA entrepreneurial education than formal academic education in universities and universities of applied sciences. The rather low proportions for academic levels have to be taken into account especially as the provision of competences needed to create new business-oriented initiatives in UA of professionals, students and academics is one of the major UGT aims.

Table A3. Level and kind of education – countries

| Country | total | Level and kind of education | | | | | | | | | |
		University Bachelor	University Master	University PhD	University of Applied Sciences Bachelor	University of Applied Sciences Master	Apprenticeship, Technical / Vocational School	"Life-long learning"	Computer Supported Training	Exchange Visits	Others
France [n]	26	10	10	4	4	1	14	10	2	9	0
[%]		38	38	15	15	4	54	38	8	35	0
Germany [n]	39	13	14	7	17	16	22	21	12	17	5
[%]		33	36	18	44	41	56	54	31	44	13
Italy [n]	30	10	15	7	7	6	12	21	5	10	1
[%]		33	50	23	23	20	40	70	17	33	3
Netherlands [n]	27	4	6	3	5	3	14	19	9	15	2
[%]		15	22	11	19	11	52	70	33	56	7
Sum [n]	122	**37**	**45**	**21**	**33**	**26**	**62**	**71**	**28**	**51**	**13**
[%]		**30**	**37**	**17**	**27**	**21**	**51**	**58**	**23**	**42**	**11**

"Life-long learning" is highlighted in all partner countries by more than 50 % of the respondents except France, where only 10 of 26 interviewees name the out-of-school education a suitable form of education. French respondents focus mainly on the formal "apprenticeship,

technical/vocational school" (54 %), while all other kinds and levels are named by less than 40 % of the respondents. German respondents prefer the technical/vocational school level for apprentices (56 %) and the non-formal "life-long learning" education (54 %). All other levels and kinds of education reach between 30 and 45 %, except the PhD level of academics (18 %). The majority of Italian and Dutch interviewees name "life-long learning" (70 %) as the suitable format for UA entrepreneurial education. Half of the Italian respondents also see the master level at universities as appropriate, while the Dutch respondents hardly name the academic level (11 – 22 %). Exchange visits (56 %) and "apprenticeships, technical/vocational schools" (52 %) are named rather often in the Netherlands.

**Table A4**. Level and kind of education – target groups

Target group	total	University Bachelor	University Master	University PhD	University of Applied Sciences Bachelor	University of Applied Sciences Master	Apprenticeship, Technical / Vocational School	"Life-long learning"	Computer Supported Training	Exchange Visits	Others
SME [n]	42	11	9	7	9	9	22	26	14	19	5
[%]		26	21	17	21	21	52	62	33	45	12
HEI [n]	28	11	17	5	5	3	10	11	4	7	1
[%]		39	61	18	18	11	36	39	14	25	4
NGO [n]	32	8	10	6	10	6	18	24	6	17	5
[%]		25	31	19	31	19	56	75	19	53	16
PA [n]	20	7	9	3	9	8	12	10	4	8	2
[%]		35	45	15	45	40	60	50	20	40	10
Sum [n]	122	37	45	21	33	26	62	71	28	51	13
[%]		30	37	17	27	21	51	58	23	42	11

NGOs (75 %), SMEs (62 %) and PAs (50 %) name "life-long learning" quite often, while only 39 % of the HEIs appoint this non-formal education as the suitable ones for UA entrepreneurship. The academic levels are primarily named by HEIs, e. g. 61 % university master, and public

authorities, while SMEs and NGOs answer differently. "Apprenticeship, technical/vocational school" is named rather often (> 50 %), but only by 36 % of the HEI interviewees. Computer-supported training ranges from 14 % (HEI) to 33 % (SME), while exchange visits reach a higher level between 25 % (HEI) and 53 % (NGO).

"Soft skills" – personal capabilities

The personal capabilities communication (70 %), creativity (64 %) and capacity for teamwork (58 %) are named most often (**Fig. A4**). German and Dutch interviewees mention communication to a proportion of more than 75 %, but only slightly more than half of the Italian respondents. Creativity is especially highlighted by the Dutch, while only half of the German interviewees name this a necessary soft skill to run an UA enterprise. Capacity for teamwork is not so much named by the Germans (ca. 40 %), but to more than 60 % by the interviewees of the other three countries. The personal capabilities named to be important to run an UA enterprise are quite homogeneous between the four target groups.

Figure A4. *Importance of soft skills necessary to run UA enterprises*
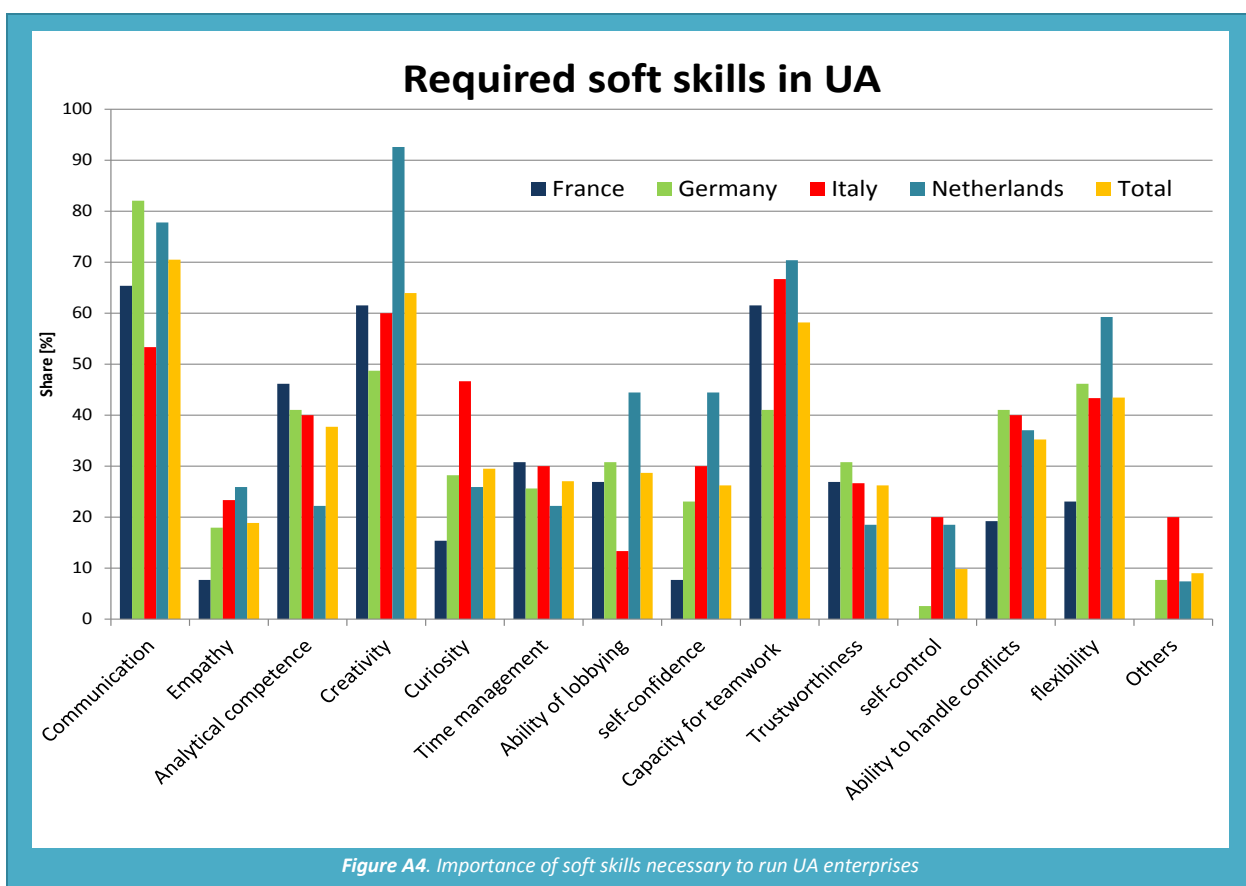
"Hard skills" – education topics

Skills in plant production (70 %) and "communication, networking, PR" (68 %) are emphasized most (**Fig. A5 & Table A5**). Plant production reaches proportions of more than 50 % for all four countries and all four target groups. More than 70 % of the French, Italian and Dutch interviewees name plant production an important topic to be taught for UA enterprises, while the German proportion reaches only 54 %. More than two thirds of the Dutch, French and German, but only 53 % of the Italian respondents mention the second most called topic "communication, networking, PR". About half of the interviewees name "project management / planning" (51 %), "market research / marketing / trading" (50 %) and urbanism (48 %) followed by "business planning / administration & finances" (42 %). Legal framework (30 %) and machinery / engineering (22 %) are the least named topics. While the French, Italian and Dutch

respondents mention the topic legal framework rarely (< 20 %), nearly 60 % of the German respondents highlight this topic.
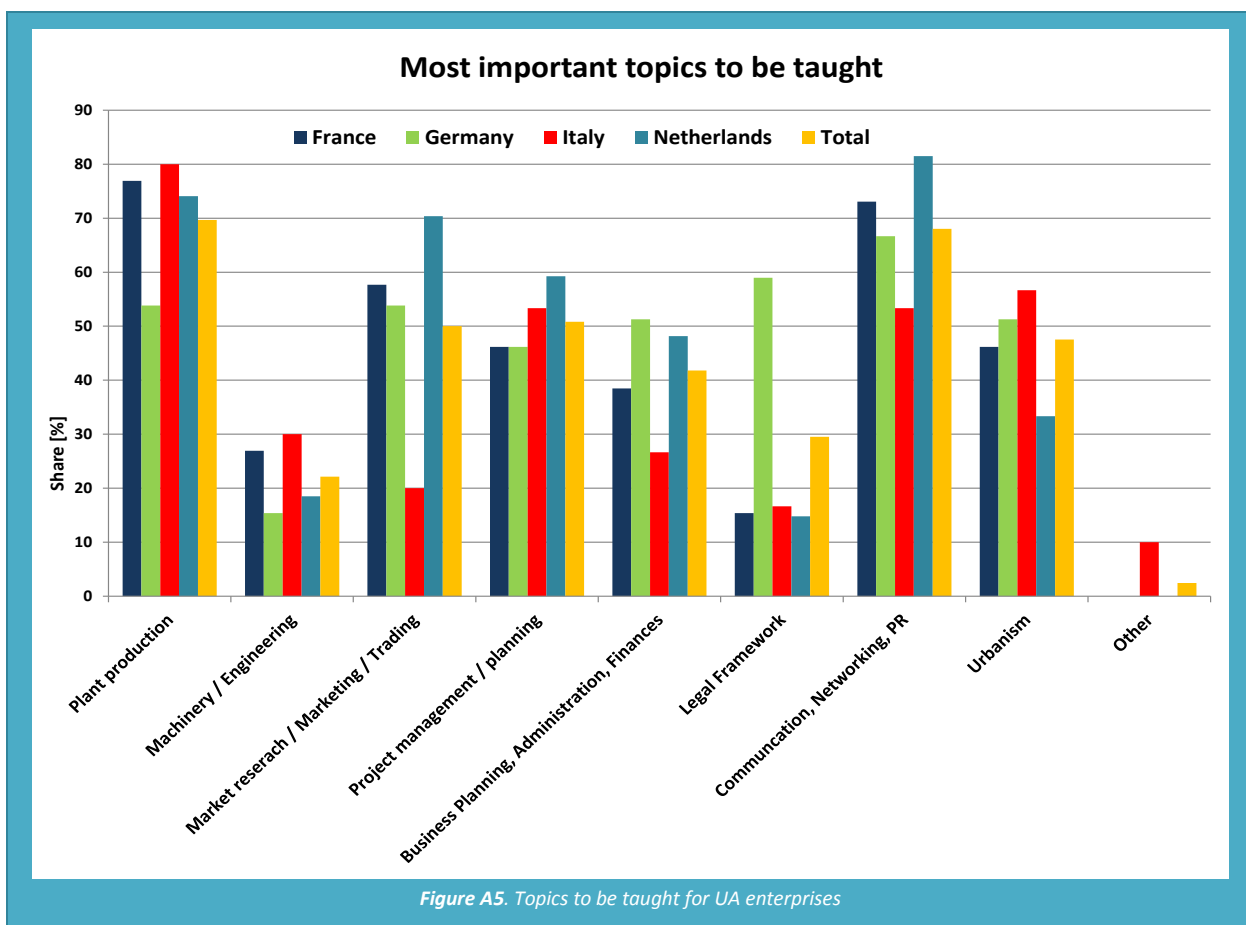
Most important topics to be taught

Figure A5. Topics to be taught for UA enterprises

**Table A5**. Topics to be taught for UA enterprises

Target group	total	Plant production	Machinery/Engineering	Market research / Marketing / Trading	Project management / planning	Business Planning, Administration & Finances	Legal Framework	Communication, Networking, PR	Urbanism	Others
								Topics		
SME [n]	42	26	9	21	18	20	9	24	18	3
[%]		62	21	50	43	48	21	57	43	7
HEI [n]	28	22	8	19	14	9	8	21	12	0
[%]		79	29	68	50	32	29	75	43	0
NGO [n]	32	25	7	14	21	14	14	22	17	0
[%]		78	22	44	66	44	44	69	53	0
PA [n]	20	12	3	7	9	8	5	16	11	0
[%]		60	15	35	45	40	25	80	55	0
Sum [n]	122	85	27	61	62	51	36	83	58	3
[%]		70	22	50	51	42	30	68	48	2

SMEs designate plant production (62 %) mostly, followed by "communication, networking, PR" (57 %) and "market research / marketing / trading" (50 %). HEIs also pronounce these three topics, but with even higher proportions between 79 and 68 %. "Project management / planning" is named by two thirds of the NGOs following again plant production (78 %) and "communication, networking, PR" (69 %). The communication and networking topic is named by 80 % of the public authorities followed by plant production (60 %) and urbanism with 55 %.

The respondents strongly emphasize the multi-, inter- and trans-disciplinarity of urban agriculture and recommend integrated education systems, although specialized knowledge and education has to be offered as well. Furthermore some interviewees point out that the education has to be adjusted to students' knowledge and demands basic pre-knowledge.

Specific training needs

The specific training needs for all enquired topics (s. **Fig. A5**) are summarized in the following figures (**Fig. A6-A12**). The order follows the topic's ranking starting with plant production (70 %) over "communication, networking, PR" (68 %) to "machinery / engineering" with 22 % rate of mentions.

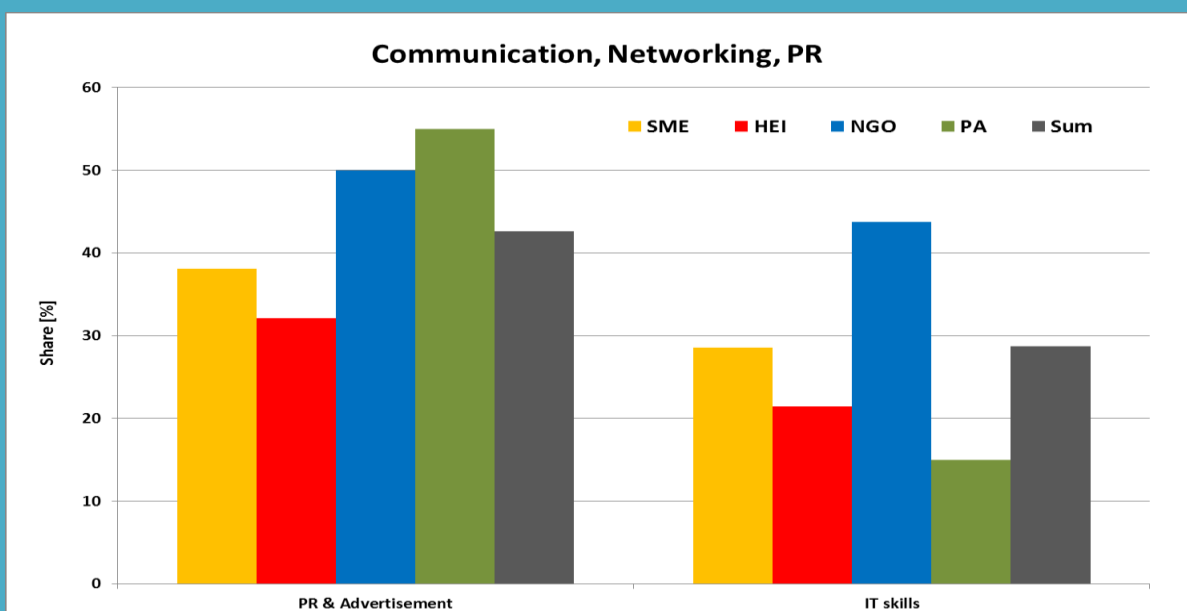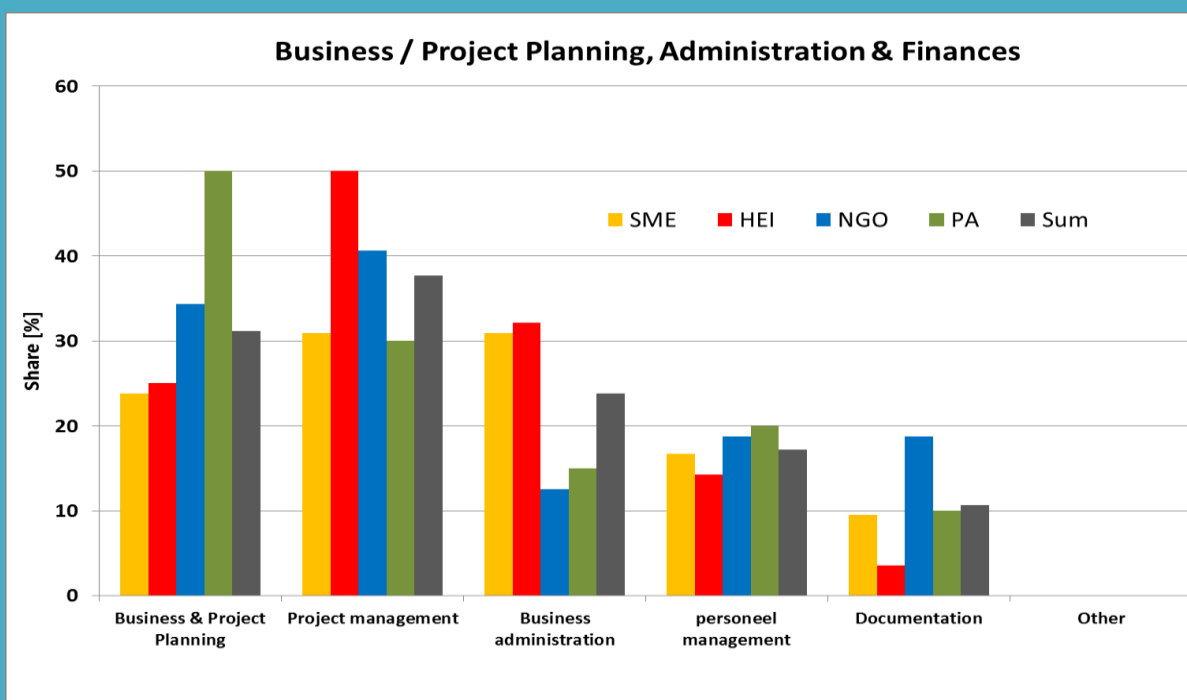*Figure A6. Specific training needs – plant production*
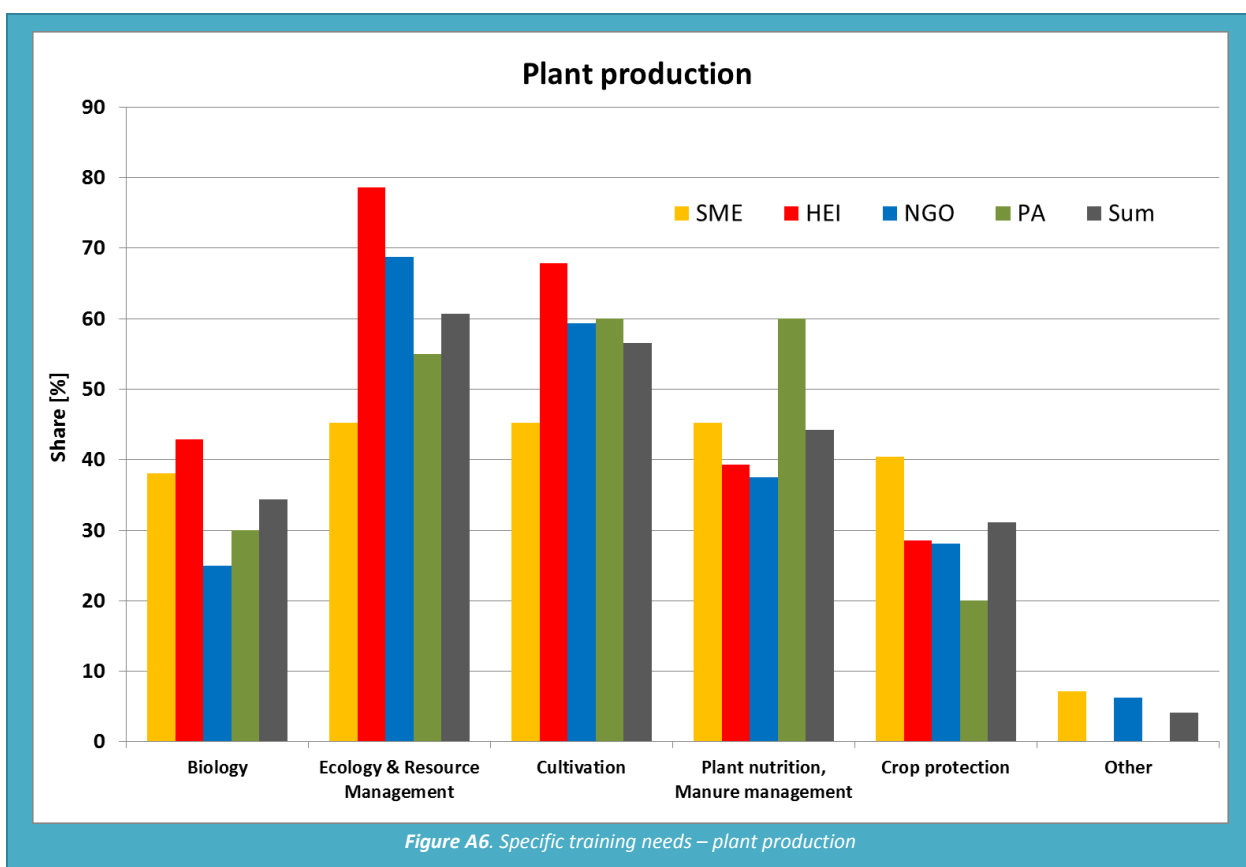
Figure A7. Specific training needs – communication, networking, PR

Figure A8. Specific training needs – business / project planning, administration & finances
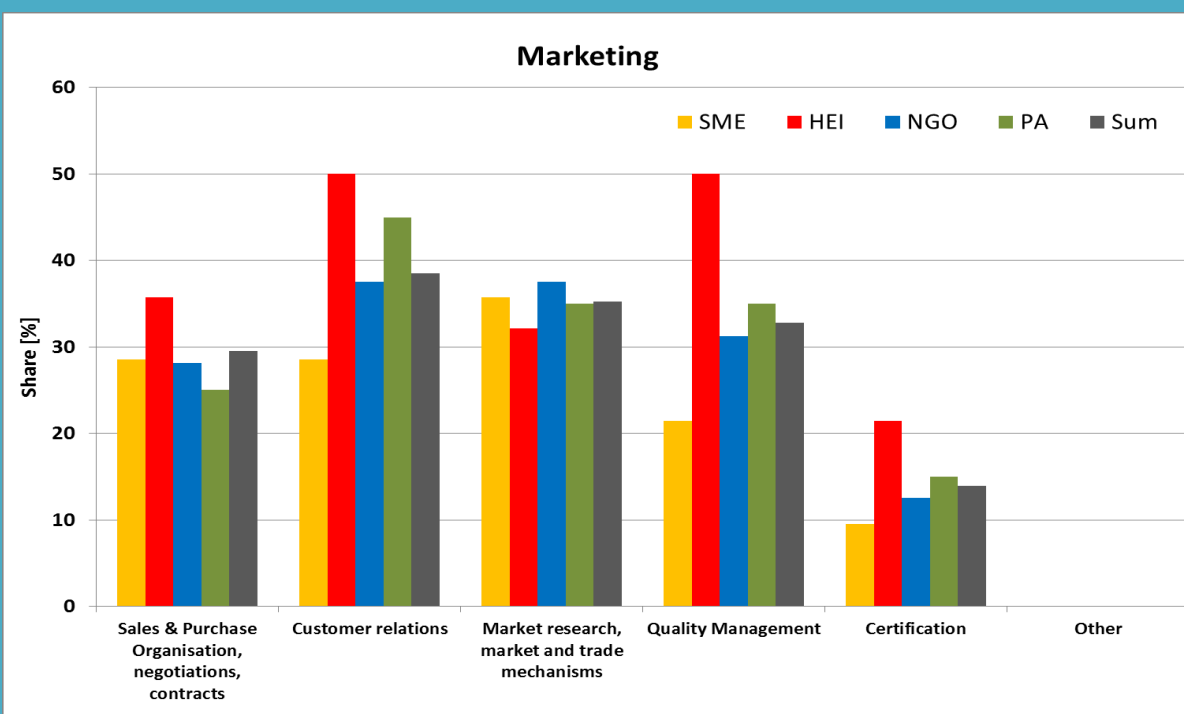
Co-funded by the
Erasmus+ Programme
of the European Union

Figure A9. *Specific training needs – market research / marketing / trading*
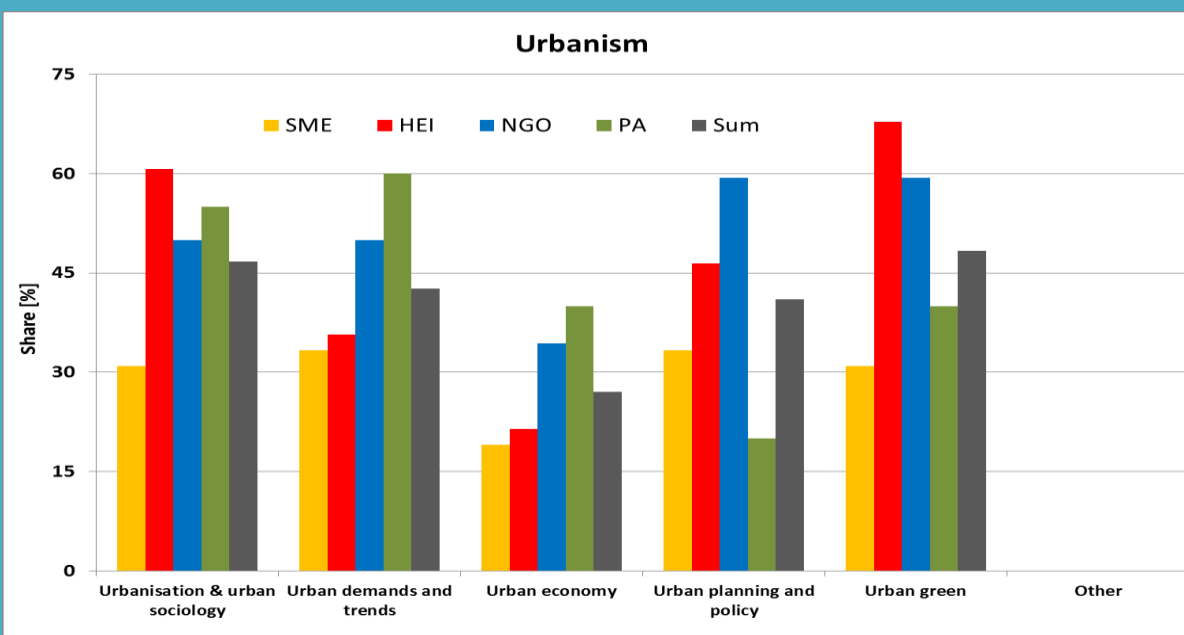
Figure A10. *Specific training needs – urbanism*

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92

Legend: SME, HEI, NGO, PA, Sum

Categories: Laws & Regulations, Taxation, Local and regional policy, CAP and Subsidies, Other

Figure A11. Specific training needs – legal framework

Machinery Engineering

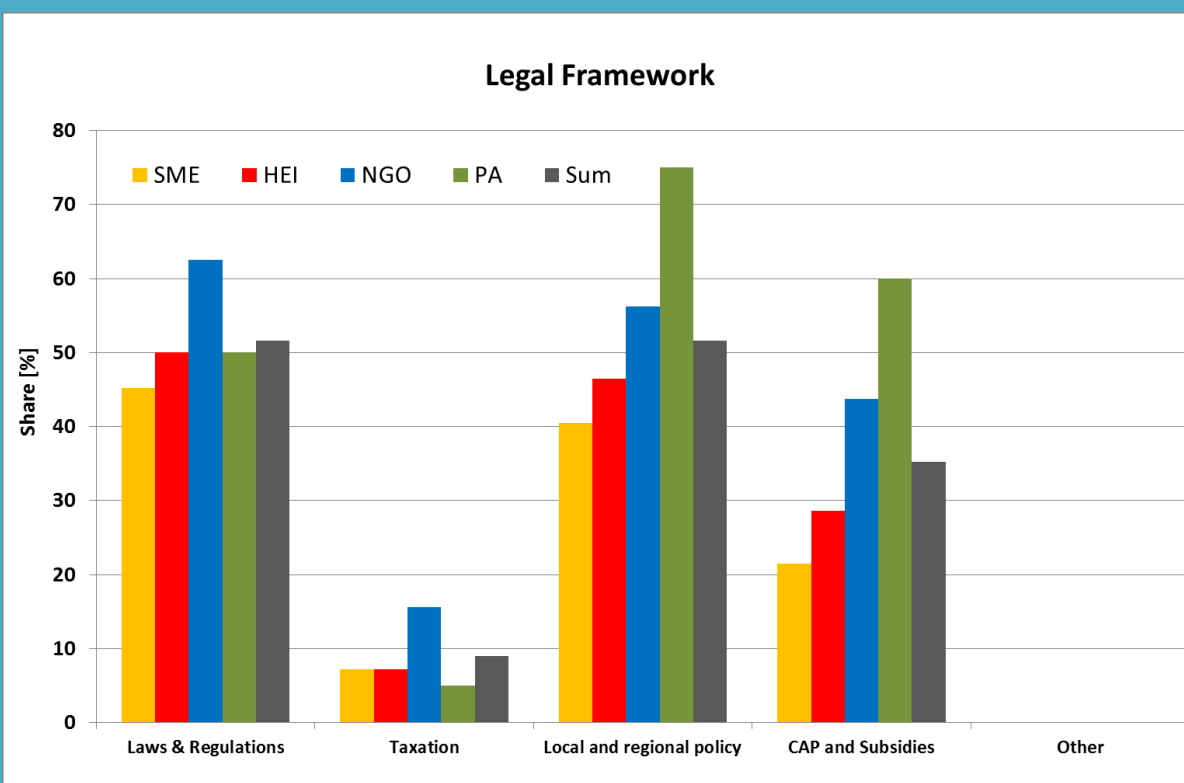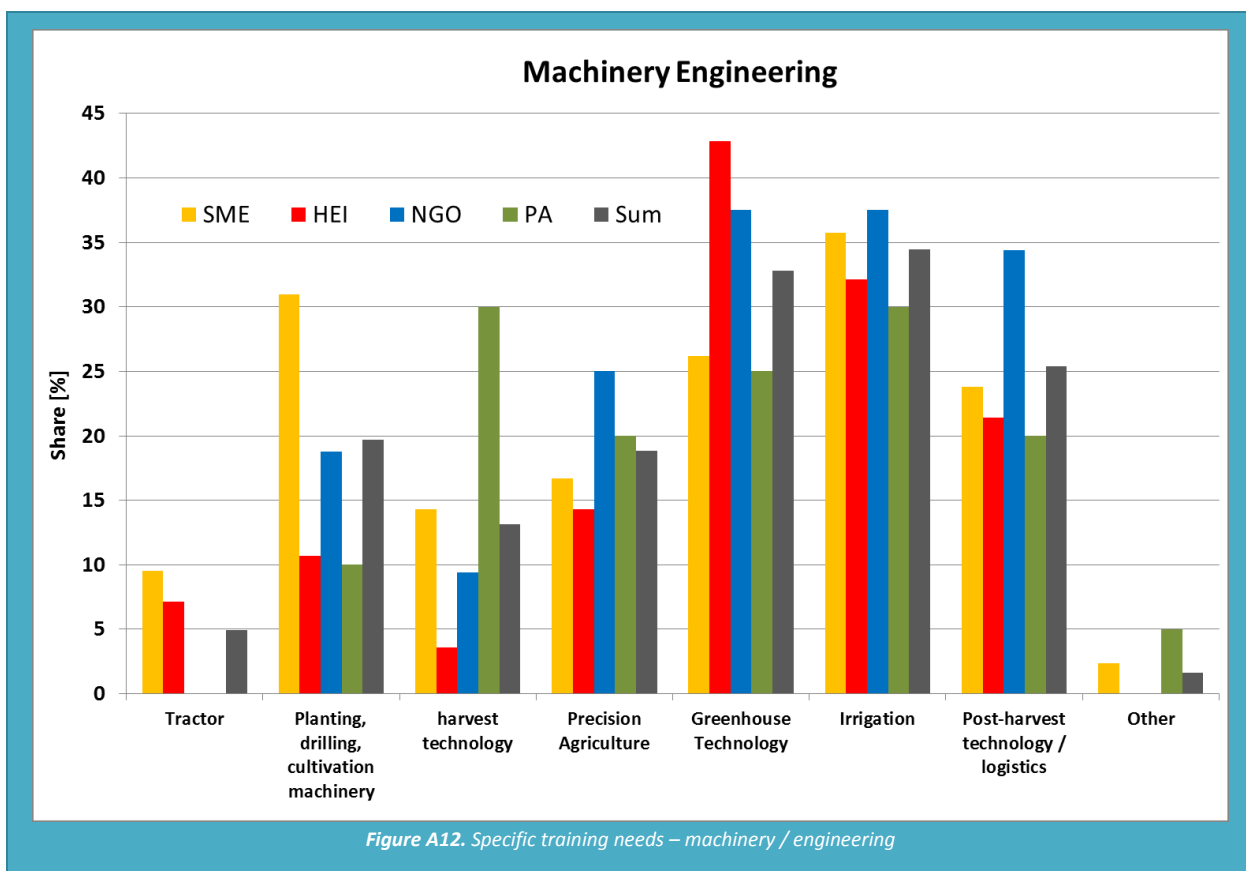*Figure A12. Specific training needs – machinery / engineering*

The specific training needs, which are named most, are:

- Ecology & Resource Management (61 %)
- Cultivation (57 %)
- Laws & Regulations (52 %)
- Local and regional policy (52 %)
- Urban green (47 %)
- Urbanization & urban society (47 %)
- Plant nutrition, manure management (44 %)
- PR & Advertisement (43 %)
- Urban demands (43 %)
- Urban planning and policy (41 %)

This list shows that the two leading training needs – "ecology and resource management" (61 %) as well as "cultivation" (57 %) belong to the mostly named education topic plant production

(70 %) (s. above). On the other hand the following specific trainings needs "laws and regulation" as well as "local and regional policy" with each 52 % mentioning rate belong to the education topic "legal framework", which is only named by 30 % of the interviewees to be an important topic (**Fig. A13** & see above).

Figure A13. Specific training needs and education topics overview