VALUE CHAIN ANALYSIS FOR SOLID WOOD FURNITURE

CREDO KRAJINA

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VALUE CHAIN ANALYSIS
FOR SOLID WOOD FURNITURE

thinkworkshop

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Contents

1. Introduction

CREDO Krajina is a project funded by Sweden and implemented by the Enterprise Development Agency Eda from Banja Luka in cooperation with the Association for Development NERDA from Tuzla.

The project aims to improve competitiveness of small and medium enterprises in the Krajina area, in order to create and sustain jobs, reduce poverty and improve economic status of the area. The project shall support creation of more than 200 new jobs and keeping of 1000 jobs in companies / sectors covered by project interventions. Also, the project should facilitate vertical and horizontal coordination of policies directed towards small and medium enterprises in the project area.

Duration of the Project is 30 months and it consists of multiple phases and components. Priority economic sectors with significant potential for creating new jobs were selected through initial analysis and, then, representatives of companies from these sectors, through sector boards will define priority needs for advisory support and training. In addition, part of the advisory and financial support will be directed towards cities and municipalities that intend to significantly improve local business environment and to establish permanent and effective dialogue with the private sector.

We extend our gratitude to sector experts, members of Sector Boards, participants in workshops, survey, and interviews conducted within the project for their help in implementation of research. We would like to thank especially to Mr. Shawn Cunningham and Mr. Frank Waeltring from Mesopartner for methodological guidance and advisory support in preparation of value chain analysis.

2. Research Approach

The research consisted of a combination of quantitative and qualitative research. The process started with development of a target population of firms. A baseline study was conducted to collect data on the sectors that could be used to both, inform priorities but also for monitoring and evaluation purposes. This was followed by a qualitative assessment of the targeted sectors.

A team of experts visited firms and their supporting organizations to collect information on the competitive pressures on firms.

Conclusions are based on both, qualitative and quantitative research and on primary and secondary data / information collected through:

- Survey conducted during summer 2013,
- Interviews with companies conducted in January 2014 (questionnaire based on 5 forces and focusing primarily on solid wood furniture value chain),
- Workshops held with wood processing experts (November 2013),
- Workshop held with participation of wood processing Sector board (February 2014),
- Secondary data from Baseline study and from relevant reports, strategies and other documents (list of sources/references is enclosed).

The following companies were included:

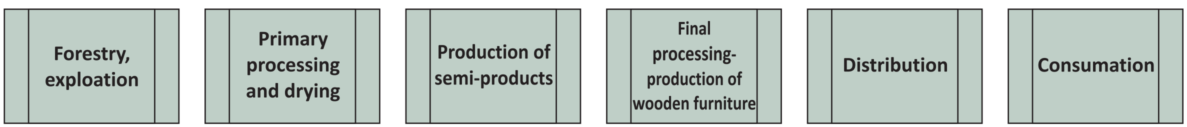
Companies included in the survey
Company and location
Urban Namjestaj-Scontoprom d.o.o Prijedor
Javor Masiv doo Prijedor
Masterwood d.o.o Prijedor
Gavranović d.o.o. Prijedor
Robustox d.o.o Prijedor
Brzi d.o.o. Bihać
Nova DI Vrbas d.o.o., Banja Luka

Company and location
Drvoprodex d.o.o. Banja Luka
Jerić kompani d.o.o. Banja Luka
NOVA DIPO Podgradci d.o.o. Gradiška
Drvna industrija Bor d.o.o. Gradiška
Drvna industrija Vukelić d.o.o. Laktaši
MC MILAN d.o.o. Banja Luka
PRIMA ISG d.o.o. Gradiška
Naš dom MB Gradiška
Reflex d.o.o. Gradiška
K-ASA d.o.o. Sanski Most
Pogy d.o.o. Bihac
Tehnik drvo Kapić Cazin
Companies included in interviews (remark: some companies included in survey were also interviewed)
Company
Drvorez Banja Luka
EDRA Bosanski Petrovac
NOVA DIPO d.o.o. Gornji Podgradci
Nova DI Vrbas d.o.o., Banja Luka
Smrca Bosanska Krupa
Masterwood d.o.o. Prijedor
Ardor Banja Luka
GMP Banja Luka
Drvna industrija Bor d.o.o. Gradiška
Javor d.o.o. Prijedor
Drvo-klaster Banja Luka

3. Overview of the Wood Processing Chain

Focus of value chain is furniture made of solid wood. In addition, comprehensive, broader picture in wood processing industry is presented. Geographically, CREDO Krajina project area, i.e. northwest BiH was covered.

Generic value chain map for wood processing - solid wood furniture



Production of solid wood furniture is influenced by several factors. First of all, forestry is under control of public enterprises[1], which provide raw material to most processors. Privately owned forests are alternative source of raw material only for processors that need smaller quantities of raw materials. Also, privately owned forests don't have FSC certificate, which limits sales of such raw materials to processors, since FSC is required for export. and buyers often buy only FSC certified products made of wood.

1 The following terms will be used in this document:
- public forestry enterprise - a public enterprise dealing with forestry, forest protection and managing exploitation (such as Javno preduzeće šumarstva Šume Republike Srpske in Republika Srpska and Šumsko privredno društvo "Unsko - sanske šume" in Una-Sana Canton),
- lumber camp - an organizational unit within above defined public forestry enterprise, i.e. Forest Management Units (šumsko gazdinstvo) in Republika Srpska and Forestry units (šumarija) in Una-Sana Canton, also dealing with forestry, forest protection and managing exploitation,
- sawmill - facility for primary processing of wood, most often privately owned, but dealing only with processing, not with forestry.

Descriptions and definitions of terms were prepared in consultations with sector expert and using information from the following sources: Šume Republike Srpske. (20 April 2010). *Organisation*. Retrieved from http://www.sumers.org/portal/index.php?option=com_content&task=view&id=674&phpMyAdmin=e991023d84be1aa4db4ec4a503fdeaa7 on 26 September 2014, and Unsko - sanske šume. (n.d.). *General characteristics*. Taken over on 26 September 2014 from http://ussume.ba/index.php?sta=ok.

In regard to ownership, processors are private companies.

Also, organization of companies and their activities is such that some of them cover more than one link in the chain, i.e. some of them have sawmill, drying capacities, production of semi-finalized and final products, wholesale and/or retail sale.

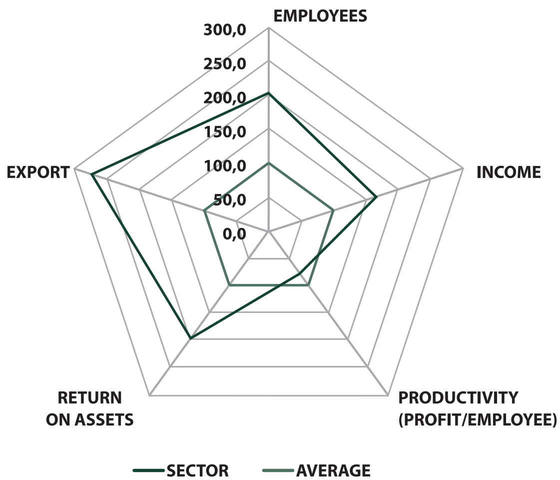
Surprising discoveries during the research

- Very low level of information on final consumers,
- Lack of education programs on both, secondary school and faculty level,
- Difficulties in power supplies in number of municipalities,
- No producer of press wood/chipboard in BiH (not relevant for values chain but relevant for wood processing industry),
- Lack of support from meso institutions (research and development).

Analysis of collected information from statistical sources and data bases

Wood processing sector has capacities throughout the project area.

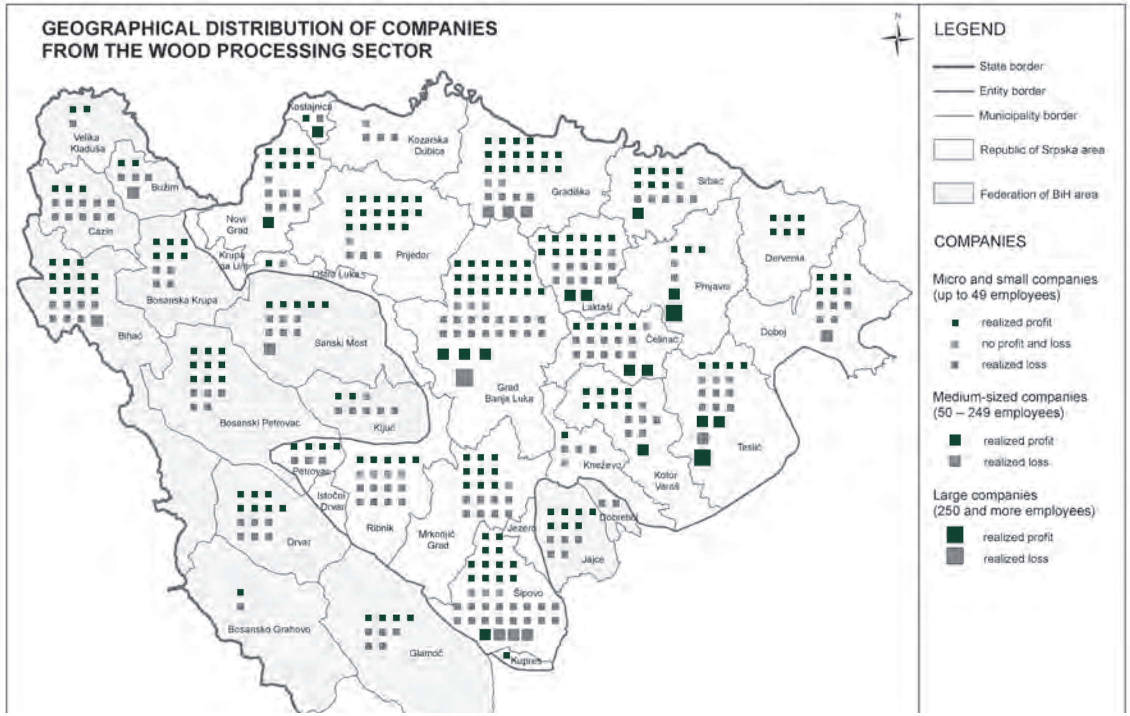
Wood processing sector employs 5,881 employees in 432 companies. This sector is 4th by its number of employees (after trade, traffic, and construction), and at the same time it is the largest sector of processing industry in this regard, since metal and mechanical engineering sector employs 5,104 persons and production of food and beverages has 4,701 employees. However, in regard to the share in total income of economy, wood processing sector is on the seventh place, after trade, food and drinks industry, construction, metal, production of energy, water and gas, and traffic. Focusing on the sectors of processing industry, it can be noticed that according to this criterion production of food and beverages with KM 666 millions and metal and mechanical engineering industries with KM 600 million are bigger than wood processing which comes after them with KM 418 millions (this is the total income realized in this sector in 2011 in all 34 municipalities). Out of that, KM 218 million was exported, and wood processing sector is second largest in this regard, since metal industry exported 372 million. However, in terms of profit, wood processing sector with KM 4 million loss at the level of the whole sector is on nineteenth out of twenty sectors presented with profit rate of -0,9%. Also, in terms of productivity - profit per employee, wood processing sector is also on nineteenth place with KM thousands -0,7. But when out of 432 companies in wood processing sector only 11 of them are taken out, instead of KM 700 losses by employee, profit by employee is KM 2,880, which indicates that in the wood processing sector only a small number of companies is facing significant losses. Without these 11 companies instead of 0.9% loss, the profit ratio becomes 3.9%. Also, without these 11 companies (also on basis of data for 421 companies), productivity and earnings ratio in the sector of wood processing is around 1 : 3.2, i.e. the average employee in this sector earns his employer the amount 3.2 times higher than his salary. (Source: Baseline study).



Wood processing sector's deviation from the average value defined as index number 100, shown in the previous chart, are as follows:

- Employment index 206.3, meaning the employment in the sector is 2.06 times higher than the average,
- Income index 167.8, meaning the total income of the sector is 1.68 times higher than the average,
- Productivity index 76.8, meaning the sector's productivity is 76.8% of the average value,
- Return on assets index 194.6, meaning the return on assets is 1.95 times higher than the average value,
- Export index 275.9, meaning the total export of the sector is 2.76 times higher than the average value.

(Source (including graph): Baseline study).



Wood processing is the only sector present in all of the selected municipalities. The majority of the primary processing is located in the areas rich in forests, like Sipovo, Mrkonjic Grad, Ribnik, etc. However, detailed analysis of the data shows that the production of furniture and other final wood products is located mostly in four municipalities: Banjaluka, Laktasi, Prijedor and Gradiska.
(Source (including graph): Baseline study).

Key points: Above data show that wood processing sector is an important sector which can be concluded by number of employees, share in total income of economy, allocation of enterprises throughout the project area, and exports results. However, the sector is also characterized by low productivity, which indicates need to look closer in the status of technology and organization in enterprises.

Scale of export of wood processing sector focuses attention of characteristics of export. Since focus of the analysis is primarily on solid wood furniture, this production and its results will be in focus.

List of supplying markets for the product imported by Bosnia and Herzegovina in 2012[2]

Product: 940330 Office furniture, wooden, nes[3]

Sources: ITC calculations based on UN COMTRADE statistics.

Exporters	Trade Indicators				
	Imported value 2012 (USD thousand)	Share in Bosnia and Herzegovina's imports (%)	Imported quantity 2012 (tons)	Imported growth in value between 2008-2012 (%, p.a.)	Imported growth in quantity between 2008-2012 (%, p.a.)
Italy	541	32.2	155	-27	-24
Serbia	226	13.5	116	-16	-7
Turkey	157	9.3	59	-17	-14
Macedonia, FYR	157	9.3	46	0	-8
China	110	6.5	69	-23	-27
Poland	105	6.3	57	-15	-12
Germany	85	5.1	69	23	-8
Croatia	79	4.7	21	-46	-41
Slovenia	60	3.6	11	-27	-29
Spain	35	2.1	10	17	19
Denmark	32	1.9	25	111	107
Czech Republic	24	1.4	6	-10	0
France	16	1	2	-21	-14
Austria	15	0.9	18	-64	-42
United States of America	10	0.6	2	-36	-26
Sweden	9	0.5	8	-36	-25
Syrian Arab Republic	5	0.3	0	38	
Viet Nam	4	0.2	1		
Switzerland	3	0.2	6	-30	-30
Netherlands	2	0.1	3	-40	-24
United Kingdom	2	0.1	1		
Slovakia	1	0.1	0	-17	

2 Note: In every table top 25 positions are listed. In cases when there are less than 25 items in the table, all items are provided. Data include entire BiH, not only project area.

3 Not elsewhere specified. (As per Trade Map. Trade Map User Guide, page 22. (August 2014). Retrieved from http://legacy.intracen.org/marketanalysis/Docs/Trademap/TradeMap-Userguide-EN.pdf on 26 September 2014.

List of importing markets for the product exported by Bosnia and Herzegovina in 2012

Product: 940330 Office furniture, wooden, nes

Sources: ITC calculations based on UN COMTRADE statistics.

Importers	Trade Indicators				
	Exported value 2012 (USD thousand)	Share in Bosnia and Herzegovina's exports (%)	Exported quantity 2012 (tons)	Exported growth in value between 2008-2012 (%, p.a.)	Exported growth in quantity between 2008-2012 (%, p.a.)
Germany	567	56.2	158	181	149
Croatia	116	11.5	31	-11	-15
Switzerland	77	7.6	23	48	70
Serbia	76	7.5	35	-2	2
Sweden	58	5.7	14		-60
Slovenia	26	2.6	7	-51	-52
Austria	15	1.5	3	11	7
Netherlands	15	1.5	3	102	
Montenegro	14	1.4	3	-40	-48
Greece	8	0.8	0		
Denmark	7	0.7	0		
Norway	7	0.7	2	-20	-20
Spain	7	0.7	0		
Israel	6	0.6	0		
Djibouti	4	0.4	4		
Italy	2	0.2	0		
Niger	2	0.2	2		
Australia	1	0.1	0		
Hungary	1	0.1	1		-7
Sudan	1	0.1	2		
Macedonia, FYR	1	0.1	0	-13	
United States of America	1	0.1	0		

List of supplying markets for the product imported by Bosnia and Herzegovina in 2012

Product: 940340 Kitchen furniture, wooden, nes

Sources: ITC calculations based on UN COMTRADE statistics.

Exporters	Trade Indicators				
	Imported value 2012 (USD thousand)	Share in Bosnia and Herzegovina's imports (%)	Imported quantity 2012 (tons)	Imported growth in value between 2008-2012 (%, p.a.)	Imported growth in quantity between 2008-2012 (%, p.a.)
Poland	1466	34.5	1321	-12	-13
Serbia	875	20.6	612	-2	-8
Italy	571	13.4	98	-15	-13
Slovenia	483	11.4	119	-13	-11
Croatia	321	7.6	120	-22	-14
Austria	148	3.5	41	-8	-7
Turkey	105	2.5	10	139	
China	99	2.3	64	133	267
Germany	74	1.7	207	-4	-9
Spain	35	0.8	18		
Macedonia, The Former Yugoslav Republic of	16	0.4	9	8	11
United States of America	14	0.3	5	-19	3
Malaysia	13	0.3	4	-5	2
Switzerland	10	0.2	20	-11	-19
Montenegro	4	0.1	1	-8	0
Netherlands	3	0.1	1	5	-34
Norway	3	0.1	0	25	
Hungary	2	0	1	20	0
Sweden	2	0	5	40	-20
Australia	1	0	0	0	
France	1	0	5		
Portugal	1	0	0		
Slovakia	1	0	0		

List of importing markets for the product exported by Bosnia and Herzegovina in 2012

Product: 940340 Kitchen furniture, wooden, nes

Sources: ITC calculations based on UN COMTRADE statistics.

Importers	Trade Indicators				
	Exported value 2012 (USD thousand)	Share in Bosnia and Herzegovina's exports (%)	Exported quantity 2012 (tons)	Exported growth in value between 2008-2012 (%, p.a.)	Exported growth in quantity between 2008-2012 (%, p.a.)
Switzerland	1197	25.3	341	49	84
Norway	921	19.4	162	3	-1
Croatia	859	18.1	512	-6	-1
France	791	16.7	767	13	14
Germany	303	6.4	95	17	10
Austria	208	4.4	54	31	27
Montenegro	136	2.9	75	-15	-10
Serbia	76	1.6	28	-48	-51
Sweden	76	1.6	26	-11	-19
Slovenia	65	1.4	21	-23	-27
United Kingdom	29	0.6	9	-23	-23
Netherlands	20	0.4	7	55	-3
Turkey	11	0.2	6		
Hungary	10	0.2	3	46	39
Luxembourg	10	0.2	2	54	
Spain	6	0.1	1		
Macedonia, FYR	6	0.1	3	-38	-12
Belgium	3	0.1	0	-30	
Taipei, Chinese	3	0.1	0		
Ireland	2	0	1	-52	-51
Mongolia	2	0	3		
Romania	2	0	0		
Australia	1	0	0		
Canada	1	0	1	-75	-60
Slovakia	1	0	1	-51	-24

List of supplying markets for the product imported by Bosnia and Herzegovina in 2012

Product: 940350 Bedroom furniture, wooden, nes

Sources: ITC calculations based on UN COMTRADE statistics.

Exporters	Trade Indicators				
	Imported value 2012 (USD thousand)	Share in Bosnia and Herzegovina's imports (%)	Imported quantity 2012 (tons)	Imported growth in value between 2008-2012 (%, p.a.)	Imported growth in quantity between 2008-2012 (%, p.a.)
Serbia	2207	30.4	1618	-15	-13
Germany	920	12.7	718	14	5
Poland	806	11.1	618	-19	-19
Croatia	688	9.5	209	-13	-15
Italy	575	7.9	123	-12	-22
Turkey	570	7.8	223	12	16
Slovenia	526	7.2	209	-25	-26
Macedonia, FYR	257	3.5	189	26	30
Denmark	195	2.7	146	227	114
China	116	1.6	52	-18	-24
Albania	104	1.4	61	202	
France	98	1.3	53	171	139
United States of America	66	0.9	24	31	7
Malaysia	22	0.3	9	79	11
Romania	18	0.2	6	-48	-48
Switzerland	14	0.2	36	-43	-29
Estonia	13	0.2	4		
Spain	12	0.2	5	43	50
Austria	9	0.1	18	-2	18
Brazil	8	0.1	3		
Australia	7	0.1	5	5	-5
Canada	6	0.1	5	-8	20
United Kingdom	6	0.1	1		
Slovakia	5	0.1	2	70	32
Indonesia	4	0.1	0	7	

List of importing markets for the product exported by Bosnia and Herzegovina in 2012

Product: 940350 Bedroom furniture, wooden, nes

Sources: ITC calculations based on UN COMTRADE statistics.

Importers	Trade Indicators				
	Exported value 2012 (USD thousand)	Share in Bosnia and Herzegovina's exports (%)	Exported quantity 2012 (tons)	Exported growth in value between 2008-2012 (%, p.a.)	Exported growth in quantity between 2008-2012 (%, p.a.)
Germany	9051	38.2	3989	69	63
Netherlands	5490	23.2	2035	117	171
Croatia	2059	8.7	1046	3	8
Denmark	885	3.7	555		467
Serbia	773	3.3	384	1	4
Austria	761	3.2	355	45	47
France	725	3.1	406	-7	-9
Slovenia	636	2.7	271	12	11
Slovakia	479	2	176	66	69
Spain	433	1.8	290		
Italy	398	1.7	233	-19	-11
Belgium	332	1.4	191		72
Montenegro	325	1.4	144	-10	-9
Sweden	313	1.3	80	67	46
Czech Republic	308	1.3	220		236
Switzerland	234	1	47	221	177
United States of America	144	0.6	120		
Poland	136	0.6	104		79
Norway	85	0.4	22	21	0
China	55	0.2	35		
United Kingdom	37	0.2	28	-25	-18
Russian Federation	17	0.1	11		
Macedonia, FYR	14	0.1	7	-47	-40
Hungary	13	0.1	5	-16	-15
Korea, Republic of	6	0	0		

List of supplying markets for the product imported by Bosnia and Herzegovina in 2012

Product: 940360 Furniture, wooden, nes

Sources: ITC calculations based on UN COMTRADE statistics.

Exporters	Trade Indicators				
	Imported value 2012 (USD thousand)	Share in Bosnia and Herzegovina's imports (%)	Imported quantity 2012 (tons)	Imported growth in value between 2008-2012 (%, p.a.)	Imported growth in quantity between 2008-2012 (%, p.a.)
Serbia	8014	29.5	4927	-5	-6
Poland	5247	19.3	4120	-8	-5
China	2488	9.2	1292	-8	-9
Italy	2149	7.9	435	-12	-8
Germany	1924	7.1	1105	0	-8
Slovenia	1719	6.3	350	-19	-24
Croatia	1547	5.7	541	-21	-15
Turkey	1528	5.6	506	2	4
United States of America	606	2.2	75	40	10
Spain	525	1.9	57	45	31
France	155	0.6	107	51	80
Austria	130	0.5	75	-38	-6
Denmark	124	0.5	80	34	63
Switzerland	108	0.4	185	-15	-16
Lithuania	106	0.4	10		
Macedonia, FYR	99	0.4	79	-18	-23
Hungary	97	0.4	19	40	29
Malaysia	83	0.3	58	-40	-37
Romania	70	0.3	13	-15	-29
Viet Nam	63	0.2	19	102	114
India	55	0.2	17	8	2
Netherlands	49	0.2	18	-9	-31
Portugal	44	0.2	11		2
United Kingdom	42	0.2	7	5	14
Slovakia	38	0.1	13	24	18

List of importing markets for the product exported by Bosnia and Herzegovina in 2012

Product: 940360 Furniture, wooden, nes

Sources: ITC calculations based on UN COMTRADE statistics.

Importers	Trade Indicators				
	Exported value 2012 (USD thousand)	Share in Bosnia and Herzegovina's exports (%)	Exported quantity 2012 (tons)	Exported growth in value between 2008-2012 (%, p.a.)	Exported growth in quantity between 2008-2012 (%, p.a.)
Germany	29380	39.1	8719	28	29
Croatia	10721	14.3	5142	-9	-6
France	6263	8.3	2839	1	-3
Czech Republic	4828	6.4	2527	100	164
Italy	3875	5.2	2128	21	15
Austria	3489	4.6	1476	45	53
Netherlands	2603	3.5	496	17	26
Belgium	1634	2.2	1015	177	168
Switzerland	1598	2.1	361	-2	-15
United States of America	1453	1.9	632	47	40
Romania	1213	1.6	540	31	36
Serbia	1069	1.4	455	-37	-35
Sweden	1066	1.4	420	27	20
Spain	1042	1.4	792		
Slovenia	908	1.2	289	-23	-29
Montenegro	905	1.2	341	-27	-22
Denmark	672	0.9	225	25	28
United Kingdom	612	0.8	276	35	49
China	439	0.6	243		
Macedonia, FYR	300	0.4	147	-18	3
Poland	198	0.3	130		41
Slovakia	107	0.1	75	8	37
Australia	89	0.1	80	6	28
Canada	89	0.1	50	1	37
Hungary	76	0.1	30	-31	-26

Value Product	Exported value 2012 (USD thousand)	Imported value 2012 (USD thousand)
Office furniture, wooden, nes	1012	1678
Kitchen furniture, wooden, nes	4739	4248
Bedroom furniture, wooden, nes	23709	7252
Furniture, wooden, nes	74629	27010
TOTAL	104089	40188

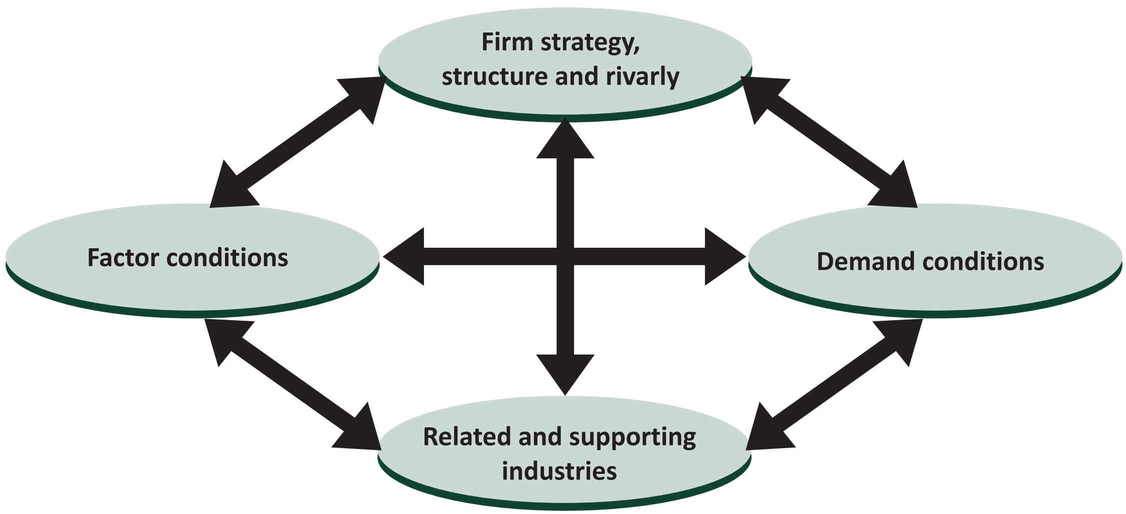
Product	Value per ton, exported products by BiH (USD thousand)	Value per ton, imported products by BiH (USD thousand)
Office furniture, wooden, nes	3,51	2,45
Kitchen furniture, wooden, nes	2,24	1,59
Bedroom furniture, wooden, nes	2,20	1,67
Furniture, wooden, nes	2,54	1,91

Key points:

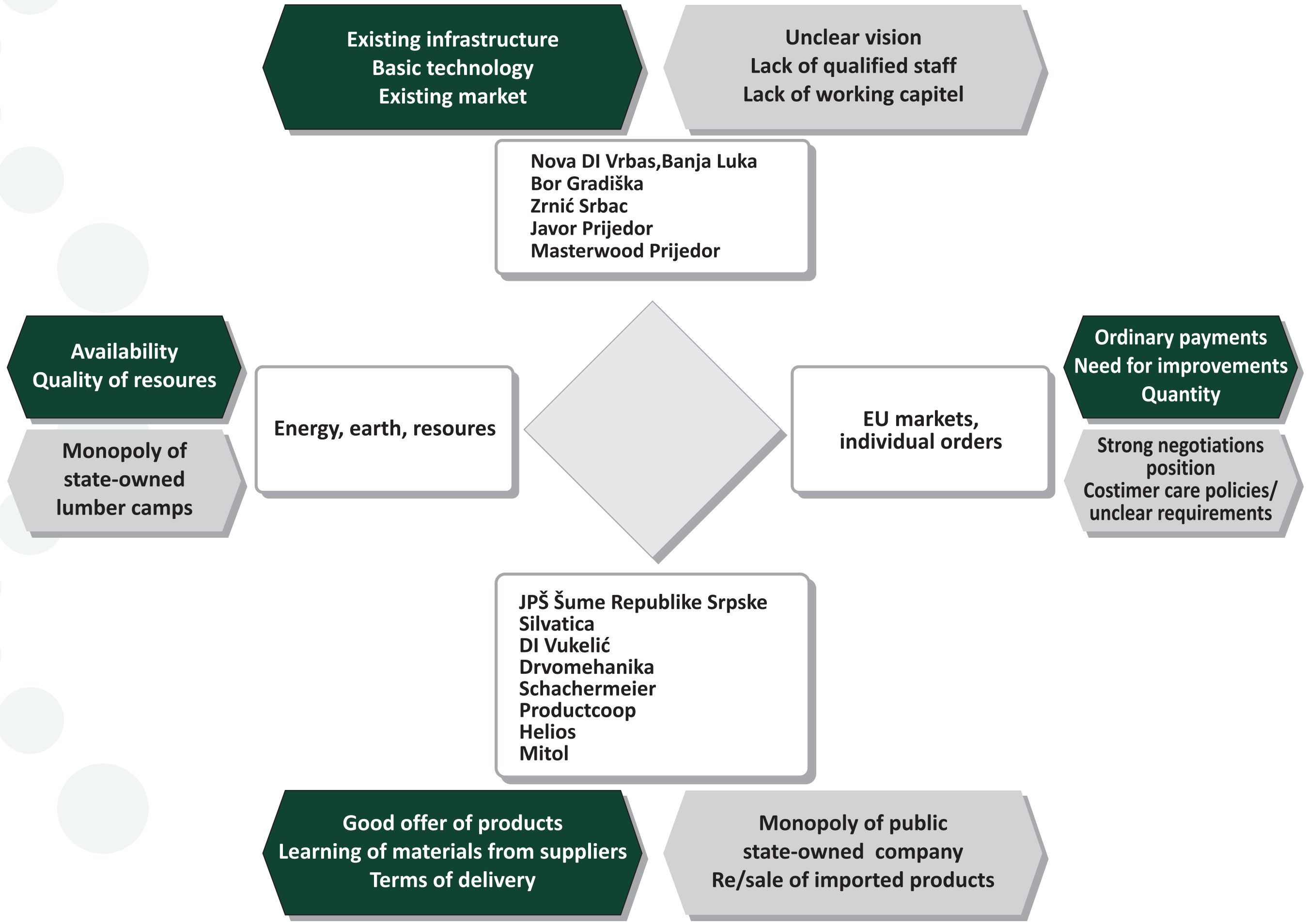
- Total import in 2012 is 40.188.000 USD and total export is 104.089.000 USD. Coverage of import by export is 259%.
- Wood processing sector is facing strong competition in BiH market where products are being imported from the EU countries with developed industry, such as Germany and Italy, as well as from neighboring countries such as Serbia and Macedonia and products from China.
- It can be concluded that BiH producers are exporting high quality products, since they export to demanding the EU markets.
- Products exported from BiH have higher value per ton than products imported in BiH.
- Imported growth interms of both, value and quantity, is negative for most of countries exporting to BiH for the period 2008-2012, although some countries have positive results in exporting specific products to BiH, such as Denmark in office and bedroom furniture, Turkey and China for kitchen furniture, Albania and France in bedroom furniture. This indicates that BiH producers are increasing their competitiveness in domestic market and that BiH is importing products that are primarily competitive in terms of price, since value per ton of imported products is lower than value per ton of exported products. Questions to be further researched: Advantages and disadvantages of domestic producers in comparison to competitors.

4. Industry Competitiveness (Porters Diamond)

Michael Porter's "diamond" of competitiveness attempts to isolate the factors that influence the competitiveness of industries and nations (1998: 72). The diamond is frequently used in country and industry-specific competitiveness assessments and benchmarks.



Source: Porter (1998:72)



Note: The above diamond is prepared at the workshop conducted by Eda with support from Mesopartner (November 2013). Inputs came from experts and practitioners that participated in the workshop. Most of statements are confirmed through interviews.

Key points:
Experts identified lack of qualified staff, monopoly of state-owned companies in providing raw materials as shortcomings.

Another diamond is prepared through work with Sector board:

Firm strategy, structure and rivalry

The domestic manufacturers recognize only external firms, i.e. companies abroad, as leaders (e.g. Tarkett Backa Palanka, Serbia) and think that these companies have favorable conditions in regard to business environment (interest rates, subsidies and funds)Local companies invest more and more in finalization of products and this trend is visible.Subsidies are allocated on basis of criteria that support more primary processing than final products, since criteria are often based on quantities of exported goods, regardless of type of product (i.e. whether it is final or semi-product).Better cooperation with and support from relevant institutions is needed to utilize opportunities offered by international agreements, such as the one with Turkey.

Factor conditions

In regard to inputs, labor and energy are relatively cheap. However, electric energy becomes expensive due to frequent power cuts which affects calculation of price for spent energy (it is calculated at higher consumption level). Power cuts also cause problems in production (especially with new machinery). Raw materials are relatively expensive (taking into account quantity of available wood in BiH), which is affected by practically existing monopoly of state owned supplier (forestry and lumber camp) that is practically the only supplier of raw material that can provide needed quantities and certificates. Private suppliers are facing difficulties in providing needed quantities and certificates, which is affected by high price of obtaining certificate (CE mark, FSC) partially due to fact that there is no certifying body in BiH. PEFC certificate may be solution for private suppliers.Skilled labor is not available. There are no departments on level of secondary school and on level of university for wood processing (there is only department for forestry at university in Banja Luka). Also, education system is not adjusted to needs of wood processing industry and companies have taken over role in education and training, so that they prepare/prequalify staff to meet requirements of production. Companies are relatively successful in this, which is proven by export of products, meaning that products meet EU standards. However, it would be better for companies to have available skilled labor, since it would shorten training period after employing a worker and increase efficiency, thus decreasing costs (workers are paid salaries while their skills after employment are not developed enough to reach average efficiency). In addition, interest of youth for enrolment/employment in wood processing is low. Also, there is an evident lack of skilled carpenters, wood processing engineers and designers.

Cooperation is needed among producers (e.g. in drying of wood, as well as through clusters (associations) as basis for joint activities such as procurement of raw materials, improvement of business environment and sales. Topdom is good example http://www.topdom-bih.com/en/grupacija/o-nama/) and with other relevant stakeholders (education, regulations, subsidies, research and development, etc.)

Demand conditions

In regard to sophisticated demand, producers find that there are many information on their buyers (remark – wholesales, retails and other companies buying from producers are considered as buyers mentioned). There are requirements from buyers, but it is possible to negotiate to some extent. Also, small and flexible capacities enable prompt reaction to new and changing requirements. In regard to market, it is needed to promote products from BiH which is famous for quality of the raw material (e.g. beech wood) and wood processing industry to some extent, trying to create a brand, at the end. Production based on sawdust is becoming more popular, where producers use sawdust for their own energy/heating, and than for briquette and pellet production.Currently existing market opportunity is one for producing chairs (ideas for cooperation of producers initiated) emerged due to difficulties that Italian producers (Udine) are facing with.Production of press wood is evaluated by producers as very demanding in regard to technology, and especially in regard to organization of the entire system (raw materials supply etc.).In comparison to competitors from foreign countries, producers find that they have the same quality of products with lower prices, but there are no brands so that products are often sold under brand that is owner by foreign companies. Bad image of BiH as country of origin is also bad for producers from BiH.

Related and supporting industries

Transport is mostly based on trucks, rarely even on containers which are used only for shipment for oversees countries. Railway is not offering services good enough to be used. Also, licenses/certificates required for transporters are expensive, which leads to lack of good offer of transport services and high prices in comparison to other countries. Maintenance of older machinery is based on improvisations of local companies, where spare parts are often locally produced. New machinery requires maintenance services from foreign countries (e.g. Germany) where service is good, but very expensive. Construction and tourism may be seen as supporting industries, since their activities include products from wood processing, but they are facing different challenges, too. In regard to business environment, there are different parafiscal charges that are a difficulty for business.Research and development (products, processes, etc.) are not available in needed quality and quantity.

Remark: Content of the above diamond prepared with Sector board is provided in further text structured under diamond headings, because quantity of text is such that it is easier to read this way.

Firm strategy, structure and rivalry

- Domestic manufacturers recognize only external firms, i.e. companies abroad, as leaders (e.g. Tarkett Backa Palanka, Serbia) and think that these companies have favorable conditions in regard to business environment (interest rates, subsidies and funds).
- Local companies invest more and more in finalization of products and this trend is visible.
- Subsidies allocated on basis of criteria based on quantities of exported goods, regardless of type of product (i.e. whether it is final or semi-product) support more primary processing than production of final products,
- Better cooperation with and support from relevant institutions is needed to utilize opportunities offered by international agreements, such as the one with Turkey.

Factor conditions

- In regard to inputs, labor and energy are relatively cheap. However, electric energy becomes expensive due to frequent power cuts, which affects the calculation of price for spent energy (it is calculated at higher consumption level so-called “peak load”). Power cuts also cause problems in production (especially with new machinery).
- Raw materials are relatively expensive (taking into account quantity of available wood in BiH), which is affected by practically existing monopoly of the state-owned supplier (forestry enterprises) that is practically the only supplier of raw material that can provide needed quantities and certificates. Private suppliers are facing difficulties in providing needed quantities and certificates, which is affected by high price of obtaining certificate (CE mark, FSC) partially due to fact that there is no certifying body in BiH. PEFC certificate may be solution for private suppliers.
- Regarding skilled labor, there are no departments on level of secondary school and on level of university for wood processing (there is only department for forestry at university in Banja Luka). Also, education system is not adjusted to needs of wood processing industry and companies have taken over role in education and training, so that they prepare/prequalify staff to meet requirements of production. Companies are relatively successful in this, which is proven by export of products, meaning that products meet the EU standards. However, it would be better for companies to have available skilled labor, since it would shorten training period after employing a worker and increase efficiency, thus decreasing costs (workers are paid salaries while their skills after employment are not developed enough to reach average efficiency). In addition, interest of youth for enrolment/employment in wood processing is low. Also, there is an evident lack of skilled carpenters, wood processing engineers and designers.

Demand conditions

- In regard to sophisticated demand, producers find that there are many information on their buyers (remark – wholesales, retails and other companies buying from producers are considered as buyers mentioned).
- There are requirements from buyers, but it is possible to negotiate to some extent. Also, small and flexible capacities enable prompt reaction to new and changing requirements.
- In regard to market, it is needed to promote products from BiH which is famous for quality of the raw material (e.g. beech wood) and wood processing industry to some extent, trying to create a brand, at the end.
- Production based on sawdust is becoming more and more popular, where producers use sawdust for their own energy/heating, and then for briquette and pellet production.
- Currently existing market opportunity is one for producing chairs (ideas for cooperation of producers initiated) emerged due to difficulties that Italian producers (Udine) are facing with.
- Production of press wood / chipboard is evaluated by producers as very demanding in regard to technology, and especially in regard to organization of the entire system (raw materials supply, etc.).
- In comparison to competitors from foreign countries, producers find that they have the same quality of products with lower prices, but there are no brands so that products are often sold under brand that is owned by foreign companies. Bad image of BiH as country of origin is also bad for producers from BiH.

Related and supporting industries

- Transport is mostly based on trucks, rarely even on containers which are used only for shipment for oversees countries. Railway is not offering services good enough to be used. Also, licenses/certificates required for transporters are expensive, which leads to lack of good offer of transport services and high prices in comparison to other countries.
- Maintenance of older machinery is based on improvisations of local companies, where spare parts are often locally produced. New machinery requires maintenance services from foreign countries (e.g. Germany) where service is good, but very expensive.
- Construction and tourism may be seen as supporting industries, since their activities include products from wood processing, but they are facing different challenges, too.
- In regard to business environment, there are different parafiscal charges that are a difficulty for business.
- Research and development (products, processes, etc.) are not available in needed quality and quantity.

Additional point: Cooperation is needed among producers (e.g. in drying of wood as well as through clusters (associations) as basis for joint activities such as procurement of raw materials, improvement of business environment and sales, and Topdom is good example http://www.topdom-bih.com/en/grupacija/o-nama/) as well as with other relevant stakeholders (education, regulations, subsidies, research and development, etc.)

Key points:

- Companies see need for improvements in:
    - Criteria for subsidies (by their opinion, should be more in favor of final products),
    - Support from institutions in order to utilize international trade agreements,
    - Supply of electric energy,
    - Supply of raw materials,
    - Education on secondary school and university level,
    - Significant shortcomings in promotion and branding of BiH products,
    - Business environment is lagging behind in comparison to neighboring countries,
    - Services such as transport, maintenance, R&D,
    - Cooperation between producers and relevant stakeholders.

4.1 Structure and Strategy of the Leading Firms

Remark: Findings are based on conducted interviews and survey.

There are companies that produce quality products that are exported to the EU. Their capacities include preparation of material (drying, and similar). Their production is different in scale, also different is number of employees.

Local companies see only foreign producers, i.e. companies based in other countries as leading firms.

Since they export most of their products, most often local producers do not see each other as competitors. Some of producers even say that they do not have local competitors. However, some furniture producers see unregistered small producers and second hand furniture traders as competitors. Retailers do see other retailers in local market as competitors.

As strengths of competitors, companies in some cases see proximity of raw material suppliers and more complete production (companies that do not have sawmills in their facilities see that as an advantage of companies that do have their own sawmills), while retailers see wide variety of offered products as their strength.

As weaknesses of competitors, producers see small capacities, low level of investment in infrastructure and finalization, inability to react fast, while retailers see quality of service as weakness of their competitors.

As their advantages in comparison to competitors, companies see their own production with adequate technology, needed flexibility and focus on specific products, fast delivery and variety of options for buyers (e.g. in regard to upholstery materials) and possibilities of tailoring products to buyer requests, good prices, nice retail facilities, delivery with installation, while retailers also emphasizes relations with buyers and dealing with complaints as advantages.

As their weaknesses in comparison to competitors, companies mention lack of qualified staff, location in regard to position of raw materials suppliers, while retailers also see the fact that competitors have their own production as their own weakness.

In regard to cooperation with competitors, companies state that there was no need for cooperation, but also that it is not in company's interest not to have any competitors regardless of the fact that they see them as competitors especially in sale. Also, some companies mentioned that they were considering co-operation based on external / outsourced production of parts of products or performs some tasks such as upholstering chairs. Some companies say that they have contacts with other companies but that they do not cooperate. However, some companies stated that they have cooperation with competitors in procurement, sale, laboratory examination.

Companies also state that they do not have information on their competitors, assuming that their competitors are producers selling on the same market, especially in foreign markets, but emphasizing that they do not have information on their competitors.

From research it became apparent that firms did not have many opportunities to form networks, collaborate or share information. In one of workshops a business person mentioned large demand for chairs, while another responded that they have excess capacity and an interest to produce more.

In regard to cooperation with companies from the same sector (e.g. borrowing equipment, product development, joint procurement, marketing), most companies included in the survey stated that they do cooperate in areas such as joint procurement, marketing, drying and preparation (even lending) of material, lacquering, consultations in developing products, sales with retails providing feedback information from customers and where producers combine their offers (e.g. producer of chairs with producers of kitchen furniture and closets), transport of raw materials, some companies cooperate with IKEA for which they produce, joint exhibitions at fairs, some of them sell to each other (e.g. company A sells press wood/ chipboard to company B and buys metal parts from company B), there are also joint projects in providing services (e.g. several companies cooperated in interior arrangement for hotels in Croatia), and there is also joint use of CNC and other machinery.

There are cooperation initiatives between companies from the same municipality, but also cooperation between companies from different municipalities. Effects are reflected in lower prices of raw materials and materials.

Cooperation is also facilitated by clusters, especially in regard to fairs and to joint services for clients.
Companies say that the cooperation should be further developed, but that mentality is often not in favour of cooperation.

Key points:

- Companies mostly do not see other local producers as competitors,
- There are cooperation initiatives, but also significant space for improvement in this regard,
- Information on competitors is often very limited, especially in regard to competitors on foreign markets,
- Companies see technology, infrastructure, proximity of raw materials, capacity for production, clear focus on specific products, qualified staff as strengths (situation varies from company to company in regard to currently existing strengths), but also emphasize importance of flexibility and ability for quick reaction.

Keeping good relations with existing companies, further improvement of quality of products, increase of production scale if possible are priorities.

In regard to **the biggest challenges in business** companies included in survey listed the following:

- As segments of business that are not efficient companies mentioned procurement (in some cases it depends on only one supplier because very few suppliers have FSC standards which are necessary), lack of working capital causes issues in production and sales, increasing costs and slow and complicated procedures for obtaining funds (credits) as well as stronger and stronger competition, lack of qualified workers on both university and secondary school level, lack of adequate space, difficulties in raw material supply (especially during winter when raw materials in some cases are imported from Croatia or stocks are made during the summer) and interruptions in power supply, difficulties with collections of payments, lack of information on clients, shortcomings in advertising, organization of business operations, and access to foreign markets.
- Endeavors for improvements were focused on shortening deadlines for payment to 30 - 90 days which on the other hand in some cases led to loss of clients, investments in new technology, training of workers, using Facebook in communications/promotion, participation in fairs and engaging sales agents,
- In regard to having a business plan, companies mostly have written plans, while difficulties in preparation of plans were emphasized by companies that produce customized products,
- Companies are mostly regularly collecting information on relevant legislation from official gazettes and with some support from Chamber of Commerce, very often it is done in accounting department, where companies emphasize that they are often not adequately consulted in designing/defining of laws saying that Chamber of Commerce should be used more for initiatives towards institutions,

- In regard to introduced quality standards, companies mention FSC, ISO 9001:2008, CE mark for some products (e.g. parquet), while almost half of surveyed companies stated that they have not introduced standards where reasons were that it was not requested by buyers and high price of introduction, while some companies also have specific standards required by their clients (e.g. IWAY and QWAY required by IKEA as well as GS, and DIPT),
- In regard to information system most companies have some form of information system, mostly focused to accounting, but some companies also have integrated software for production, stock and sales management, while all companies use internet on daily basis.

Key points:

- Companies are mostly focusing on improvement of production, keeping relations with existing partners with some strengthening of negotiation position,
- Companies are informed on legal regulations and requirements in regard to standards,
- Companies are aware of shortcomings in marketing (MIS, promotion, et.),
- Companies are aware of shortcomings in managing business operations (procurement, finance),
- Once again, identified shortcomings in regard to business environment are confirmed (lack of qualified staff, electric power supply, raw materials supply).

4.2 Factor Conditions

Companies do not complain much about infrastructure, where they build infrastructure themselves. Some of companies operate under rather poor infrastructure conditions and do not express will to change it. They prefer operating in rural areas since they find it more peaceful (no complaints on noise, dust).

In regard to availability of skilled workers, companies included in survey are to some extent satisfied with availability of workers, but also emphasise difficulties, such as lack of qualified workers for some tasks, lack of engineers, weak support from employment office which does not provide information on available unemployed qualified workers, students do not have enough practical skills after graduating from secondary school, there are no adequate departments/education programs on level of secondary school, there is low level of interest of students for wood processing related education on university level, and it is difficult to find workers with good knowledge of relevant software (e.g. AUTOCAD). Companies overcome these issues by training workers internally, in the company.

Several respondents commented that they were concerned about a lack of suitable qualified engineers interested in a career in the wood processing sector. Many of the leading entrepreneurs involved in project's sector board are nearing retirement age and they do not see people that they can hand their enterprises to. The general perception is that a career in manufacturing is not as attractive as other professions, thus the industry is not able to attract professionals.

Suppliers

Producers buy solid wood from forestry enterprises in BiH and it is similar with semi-finalized products made of solid wood (forestry enterprises). Primary source of raw material are state-owned forestry enterprises, which makes the first link in the chain specific, since government defines prices and terms. Private producers are not an alternative for big processing capacities since they cannot deliver needed quantities. Sometimes producers have difficulties with suppliers in terms of quantity, quality and continuity of deliveries, especially during winter, so that it is needed to have two month supplies of raw materials. Also, sometimes deliveries from suppliers are late. Another issue mentioned by processing companies is problem of, in some cases, inconsistent criteria for classifying wood, since criteria applied in some cases are not in compliance with the EU criteria. Another very important issue mentioned by processors is that suppliers of raw material and semi-finalized products who sell to local companies do not have access to subsidies for export which makes raw materials more expensive for local producers. Besides contracted deliveries with state-owned forestry enterprises, other procurement are often not defined by contract (some producers think that suppliers such as sawmills are hesitant to sign contracts with defined quantities since they themselves depend on lumber camps and with such contract they may take over an obligation that they cannot fulfill). Except of state-owned companies, terms may be negotiated with other suppliers, and negotiation power of buyer depends on item being procured, quantity (to some extent this is confirmed by producers since big producers find that they have stronger negotiation position than their suppliers and say that they do receive technical support from suppliers), supplies and payment terms. Level of satisfaction with supplies from sawmills seems to be higher than level of satisfaction in regard to supplies from lumber camps.

Machinery and equipment are often procured from abroad (e.g. from Germany, Italy, Slovenia), sometimes are bought through sales agents, and supply and maintenance are good. It is possible to negotiate terms and price. An interesting example is that one supplier of equipment has decreased price on condition that buyer (producer in BiH) acts as sort of sales agent in BiH demonstrating possibilities of equipment to potential buyers. In regard to technical support, suppliers of machinery often install equipment and provide initial training for workers and afterwards provide maintenance services as defined in the contract and terms of warranty.

Also, inputs like lacquer, glue, metal connecting parts - hinges and similar, upholstery materials are mostly imported. Suppliers of lacquer and glue often provide technical support.

Companies that have retail sale also buy products from other producers for further sale. Products are bought from Poland, Germany, Turkey (mostly upholstery furniture), Serbia, Croatia, and BiH (upholstery and solid wood furniture). These companies are to some extent supported by their suppliers in sales activities (e.g. with providing printed advertising materials).

In regard to the plan to strengthen their position towards suppliers, companies emphasize the importance of negotiation on every procurement.

In regard to procurement of raw materials and procurement of equipment situation in surveyed companies is as follows:

- Procurement in some companies is planned on basis of monthly production plan or orders received, where some companies have several alternative suppliers for specific inputs, while in regard to criteria that are the most important in selection of suppliers include quality, price, delivery time, FSC standard, ability to deliver continuously throughout the year, ability to deliver needed quantity, reliability, distance which affects transport costs, flexibility;
- Raw materials are mostly procured in BiH, while other materials are also procured from suppliers from foreign countries;
- Quality of purchased products is most often controlled on delivery;
- Procurement is often triggered by received order, in case that there are not enough materials in stock; reliable suppliers with whom the company has already cooperated are preferred; some companies keep higher stock to ensure continuous production;
- Problems with suppliers are being solved by filing complaints directly to supplier, requesting to improve delivery, while in some cases if complaint is not taken into consideration, alternative supplier is selected; most companies say that they have been cooperating with relatively small number of reliable suppliers for long time and that problems are not often.

Having in mind importance of availability of raw materials for local producers, in tables below there are data on export and import of lumber, with special focus on beech wood, since it is particularly important for local processors.

List of importing markets for the product exported by Bosnia and Herzegovina in 2012

Product: 440799 Lumber, non-coniferous nes

Sources: ITC calculations based on UN COMTRADE statistics.

Importers	Trade Indicators				
	Exported value 2012 (USD thousand)	Share in Bosnia and Herzegovina's exports (%)	Exported quantity 2012 (tons)	Exported growth in value between 2008-2012 (%, p.a.)	Exported growth in quantity between 2008-2012 (%, p.a.)
Italy	610	21.2	1165	-9	-6
Croatia	533	18.5	968	-4	-6
Slovenia	461	16	1015	-9	-4
Switzerland	389	13.5	244	7	8
Austria	235	8.2	695	-8	6
Area Nes[4]	194	6.8	395		
Germany	125	4.3	117	3	-5
Denmark	64	2.2	37	-6	1
Serbia	58	2	78	-29	-35
Hungary	55	1.9	88	59	3
Netherlands	42	1.5	63	-6	-16
Macedonia, The Former Yugoslav Republic of	40	1.4	25	31	4
Poland	28	1	43		-10
Belgium	24	0.8	45		
Sweden	16	0.6	24	-4	-4
United Arab Emirates	1	0	1		

4 The partner "Areas NES (not elsewhere specified)" is used (a) for low value trade and (b) if the partner designation was unknown to the reporting country or if an error was made in the partner assignment. The reporting country does not send ITC the details of the trading partner in these specific cases. Sometimes reporters do this to protect company information. So, one could say that "Area nes" is a group of partner countries, but the components of the group vary by reporter, by trade flow, by year and by commodity. (TradeMap. Glossary. Retrieved on 26 September 2014 from http://www.trademap.org/stGlossary.aspx)

List of importing markets for the product exported by Bosnia and Herzegovina in 2012

Product: 440710 Lumber, coniferous (softwood) 6 mm and thicker

Sources: ITC calculations based on UN COMTRADE statistics.

Importers	Trade Indicators				
	Exported value 2012 (USD thousand)	Share in Bosnia and Herzegovina's exports (%)	Exported quantity 2012 (tons)	Exported growth in value between 2008-2012 (%, p.a.)	Exported growth in quantity between 2008-2012 (%, p.a.)
Serbia	25554	37.3	97427	-19	-14
Croatia	14836	21.6	50371	-2	3
Italy	5633	8.2	16574	53	42
Austria	4727	6.9	15362	474	627
Slovenia	4688	6.8	14963	153	195
Albania	4357	6.4	20612	5	11
Macedonia, FYR	4318	6.3	22806	11	19
Sweden	1534	2.2	5377	717	620
Area Nes	813	1.2	2637		
Switzerland	641	0.9	2431	364	494
Germany	410	0.6	490	3	21
United Arab Emirates	268	0.4	935		
France	164	0.2	643	177	191
Israel	128	0.2	264		172
Montenegro	122	0.2	438	-45	-43
China	68	0.1	169		
Jordan	67	0.1	142		
Egypt	58	0.1	244		
Turkey	42	0.1	108		
Finland	36	0.1	141		
Libya	31	0	6		
Luxembourg	26	0	25		
Sudan	23	0	67		
Netherlands	15	0	51	11	72
Greece	14	0	47	37	3

List of importing markets for the product exported by Bosnia and Herzegovina in 2012 [5]

Product: 440792 Lumber, Beech

Sources: ITC calculations based on UN COMTRADE statistics.

Importers	Trade Indicators				
	Exported value 2012 (USD thousand)	Share in Bosnia and Herzegovina's exports (%)	Exported quantity 2012 (tons)	Exported growth in value between 2008-2012 (%, p.a.)	Exported growth in quantity between 2008-2012 (%, p.a.)
Germany	20353	36.4	18755	11	12
Croatia	7749	13.9	34584	-19	-17
Italy	6613	11.8	19884	-9	-3
Egypt	4507	8.1	19530	-12	-11
Area Nes	4190	7.5	7572		
Slovenia	2918	5.2	5933	-18	-17
Austria	1757	3.1	4259	-27	-20
China	1729	3.1	2958	161	163
Sweden	892	1.6	1063	12	20
Serbia	842	1.5	2574	-10	-11
USA	778	1.4	1284	-8	42
Spain	517	0.9	1062	-13	-6
Saudi Arabia	425	0.8	591	106	114
Belgium	353	0.6	441	-12	-12
Romania	330	0.6	375	143	1
France	329	0.6	236		
United Arab Emirates	309	0.6	468	-3	2
Poland	198	0.4	325	-4	3
Israel	180	0.3	380	95	104
Denmark	139	0.2	99	-2	-8
United Kingdom	134	0.2	217		
Cyprus	128	0.2	189	-38	-7
Latvia	111	0.2	78		
Viet Nam	85	0.2	116		
Czech Republic	59	0.1	63		-7

Source: www.trademap.org

5 In each of tables which originally contained more than 25 items, the 25 highest ranking items are listed. Tables with less than 25 items contain all items. Data include entire BiH, not only project area.

Key points:

- Procurement procedures are relatively organized, with companies procuring wood-based raw materials mostly in BiH facing problems with quantity, quality and continuity of deliveries, especially during winter, as well as with inconsistent criteria for classifying wood (criteria applied are sometimes not in compliance with the EU criteria), while other materials (metal parts, colors and lacquer, press wood/chipboard) are almost exclusively being imported (sometimes through importers in BiH),
- Companies emphasize shortcomings in availability of qualified labor,
- Banking system is available, some subsidies too,
- Imported growth in terms of both, value and quantity, is negative for most of countries importing non-coniferous lumber from BiH, it is mostly positive for most of countries importing coniferous (softwood) 6 mm and thicker lumber from BiH, and in regard to beech lumber it is negative for most of countries but it is positive for the biggest importer Germany with growth in value of 11 and growth in quantity of 12 %, p.a. (covered period is between 2008-2012), indicating decrease of export of lumber from BiH.

Companies state that they do not receive significant support from meso-institutions (elaborated in more detail under Meso level - Supporting institutions). Support is primarily focused on subsidies for export/investments provided by relevant ministries and information by Foreign Trade Chamber.

In regard to managing human resources, situation in companies included in survey is as follows:

- Organizational structure is developed in bigger companies, while small companies are quite centralized,
- Most positions are filled by adequate staff but companies still emphasize need for qualified staff, e.g. engineers for wood processing, and shortcomings in practical skills of students after graduation, while companies in some cases have conducted prequalification of employed staff (e.g. forestry engineer to wood processing engineer),
- Regarding number of employees within the last three years, companies have mostly either increased or kept the same number of employees, although some of companies had significant turbulences and decreases in number of employees,
- Tasks, responsibilities and decision making powers are mostly clearly defined and allocated,
- Communication with management and between employees is intensive, conducted in verbal and written form on daily basis, and communication in bigger companies mostly follows organizational hierarchy, being defined by procedures, while smaller companies also use less formal forms of communication, such as discussions during coffee breaks or brief meetings,

- Performance of employees is measured primarily in production through work orders, production quotas, monthly performance analyses, number of reject products,
- Rewards/motivation systems are established in most of companies and include payment for overtime hours, payments for exceeded quotas, days off, some companies provide support in buying houses/apartments, some companies calculate salaries so that one part is fixed and one depends on performance,
- While approximately one quarter companies has not organized training within the last three years, training in most of companies is focused on training prescribed by law and related to security at work, with some training for operating machinery or training required by quality standards and new market requirements in producing new products,
- In most companies workers have clear job description,
- Internal training is organized in most companies especially for new workers, and it leads to higher level of flexibility since one worker can replace another (e.g. during annual leave).

In some cases persons who were working abroad founded their companies on basis of earned knowledge and experience.

Key points:

- According to information provided by companies, there is an increasing need for workers,
- There is lack of qualified workers,
- Training is focused on mandatory topics related to security at work, and to operating new machinery.

4.3 Related and Supporting Industries

Supporting industries are present through sale of inputs needed for production, such as lacquer and metal parts for connecting furniture parts. Machinery is imported and suppliers often provide technical support in usage of delivered machines.

In regard to use of business development services (e.g. training for employees, advisory services) companies included in the survey say that they organised training on topics which are obligatory by law such as protection at work and protection from fire and environmental protection, training of workers for operating machinery (services to some companies were provided by Faculty of Mechanical Engineering which were evaluated as useful and in some cases by supplier of new machinery). Companies used consultants provided through donor-funded programs, participated in seminars, and used services focused on improvement of production process. In some cases companies organise internal training by using their capacities. Also, in some cases local self-government unit supported training in companies. Several companies stated that they have not used business development services and that they do not need it.

In regard to transport of raw materials and products situation in surveyed companies is as follows:

- Approximately 50% of companies have their own vehicles that are being used for transport of raw materials and products, while in cases of bigger shipments external transport service provider is engaged; companies that do not have their own transport use transport systems of their suppliers or buyers, rarely engaging transport service provider;
- Most companies are satisfied with their storage which is often in closed space and with possibility to keep different raw materials and products separately, only a few companies say that their storage is not good in terms of quality and/or quantity of facilities;
- Stock of raw material is kept to ensure continuous production, which is affected by difficulties in procurement of raw materials during winter, as well as by influence of defined dynamics and quantities of delivery.

In regard to the extent to which technology that companies have enables production of competitive products, situation in surveyed companies is as follows:

- Most companies are satisfied with their technology saying that machines are between 5 and 10 years old, while several companies find that they do have some machinery that is obsolete;
- Companies are mostly satisfied with productivity,
- most companies have approximately 60% of production capacities in use, producing mostly for their own brands, but several companies use 25 to 33% of their capacities, saying that 25% is the lowest level of production that is still feasible;
- Bottlenecks appear in some companies due to one or several obsolete machines, while in some companies say that bottlenecks appear because of heterogeneous production; in some companies drying capacities are bottlenecks, while some mention storage, lacquering facility or supply of raw materials, lack of transport means and staff as bottlenecks;
- Maintenance is mostly performed by internal capacities, except of calibration and maintenance of measuring equipment which is performed by faculties or specialized service providers; sometimes suppliers of equipment also provide maintenance services;
- Control of production is in almost all companies internal,
- In development of new products/services some companies engage external architects and designers, but most companies develop products using their internal resources, on basis of information from the market, while companies that work in cooperation with IKEA only do the production and IKEA does product development and other operations.

Key points:

- Local offer of training and consulting is limited,
- Level of utilization of production capacities in most cases is low,
- Transport services are such that producers rather use transport of their buyers/suppliers,
- Supply of raw materials is such that processors keep stocks to ensure continuous production,
- Use of external service providers in regard to product development, design, market research, promotional activities, and similar is very limited,
- Educational programs are not sufficiently harmonized with needs of economy.

4.4 Demand Conditions

Buyers from the EU are demanding, usually more than local ones (where buyers are whole sales and retail sales in the EU). Local market is small, therefore producers are trying to find markets abroad. Currently, firms are not using all the capacities they have.

In regard to the calculation of costs, price of the product and profit situation in surveyed companies is as follows: financial analyses are in most companies performed monthly or daily, and in some cases every three or six months, there are companies that perform analysis only when crisis occurs; price is defined mostly on basis of costs with fewer companies saying that they define their price on basis of market situation.

In regard to marketing and PR, significant number of companies included in the survey say that they do not have marketing plan, but also mention some marketing and PR activities that they undertake, such as some humanitarian actions (donating products to Red Cross), as well as web pages, flyers, etc. and situation in surveyed companies is as follows:

- Information on customers' satisfaction are collected in some companies by questionnaires, personal contacts, communication immediately after installation, and Facebook, while some exporting companies emphasize that they do not have information on satisfaction on consumers but only information they receive from wholesales and some data provided by partners such as IKEA; it can also be noticed that some companies do not collect these information at all;
- Most companies stated that they have policies for dealing with complaints and that it is done in the shortest possible time; complaints are, in some companies, solved in direct communication with customer which in some cases mean traveling to Italy or Germany, repair or replacement of products within warranty period, while prevention of complaints is focused on quality control in production and precise allocation of responsibilities as well as on keeping records on complaints and undertaking actions to avoid it in future;
- Some companies see black market (unregistered producers) as the biggest competitors, while some companies identify similar local companies as competitors but also say that they do not monitor their activities (some of them say that they focus on buyers only and rely on long lasting cooperation with buyers); some of bigger producers think that they do not have competitors in BiH saying that their competitors are Chinese companies; some companies do monitor competitors' activities also identifying precisely their competitors locally and in neighboring countries (Serbia and Croatia); some companies say that they get information on competitors (e.g. on their prices) from their buyers; several companies say that they do not have competitors;

- Promotion of products/services is in some cases done through local media (TV and radio), participation in fairs in BiH and neighboring countries (Serbia, Croatia, while fairs in the EU are often seen as costly events where costs are not easily justified by results), printed materials, web pages and Facebook, word of mouth - recommendations by customers; some companies say that they do not promote their products because customers come to them even without this; for some companies promotion is managed by partners;
- Communication with public/media is in most companies not planned, there are no PR officers but director represents company in public; also, most companies neither organize press conferences nor issue press releases;
- Regarding target customers, some companies say that they focus on individual buyers (persons); producers of semi-finalized products see industrial buyers (companies) as their target; while some of exporting companies see wholesales abroad as their buyers with upper class customers as consumers; retails are also seen as buyers by some producers as well as construction companies for products such as wooden floors; also, hotels and apartments and furniture producers are identified as buyers; some companies also mention markets of the EU, Russia, Asian markets as target; some companies focus on higher priced products and some on cheaper dividing their customers in groups by level of incomes;
- Product are seen as better than competitors' ones because of functionality, design, quality (e.g. some companies see their products as superior in quality in comparison to some of imported products); also worldwide well-known beech wood from BiH which is mostly used as raw material is seen as an advantage; flexibility and capability to react fast on changes and to meet deadlines for delivery is also important as well as possibility to deliver small quantities with high level of quality and with required certificates while prices are lower (some companies say that their prices are 10 to 20% lower than those of the EU competitors); There are companies that say that their prices which are higher than competitor' ones are justified by very high quality of products;
- Companies do not have plan of communications for crisis situations, explaining that their products are not hazard for human health, that they have standards and security measures minimizing risks, emphasizing also that wood is ecologically acceptable raw material, so that they do not believe that crisis situation will occur,
- Companies emphasize an important role of sales force in collecting information from customers, some companies propose solutions on basis of customer's request, while some companies produce sample product and present it to potential customer, experiences of other producers especially from developed countries are also used.

Companies usually do not have information on their competitors, they rely on information from their buyers. They also rely on long term cooperation with their buyers, and quality of product which justifies price.

Buyers do require changes, and companies do try to improve their products and production process to meet requirements. All customers are seen as demanding, but foreign markets are often seen as more demanding.

Buyers

Some of the companies state that their customers are mostly abroad, saying that the goal is export, since local market is poorly regulated, while buyers abroad provide continuity in regard to orders and take over risks related to sale.

In regard to local buyers, some companies see wholesales as good partner since it is hard to be good at all activities. Several companies stated that they sell their products through wholesale and retails, as well as to other companies (mostly semi-final products).

Companies say that all customers are demanding, pointing out foreign buyers, buyers such as hotels and restaurants, and buyers of high quality solid wood furniture. In regard to buyers' requirements, companies list high quality, on time delivery in accordance with order (specifications), as well as installation, finishing and packaging. Companies mostly feel confident that they can fulfill requirements of demanding buyers.

Companies state that sale is contracted, especially for export, while majority say that sales are not defined by the contract but on an ad hoc basis (single order), and negotiation on terms for each specific case. It was emphasized that it is difficult to get a contract with defined quantities for delivery, since buyers are reluctant to take over risk for sale.

In regard to possibility to influence terms of cooperation with buyers, companies find that buyers are in better position and that it is very difficult to negotiate with buyers due to strong competition, but that it is still possible to negotiate. Despite the fact that relations with buyers are often not regulated by contract, companies state that cooperation is already a routine and that they have very good relations with buyers, once they negotiate and agree on terms of cooperation. Although some companies cooperate with only one buyer, some other think this is not good.

Companies believe that constant negotiations may lead to better terms of cooperation, while some find that improvement of their offer may strengthen their position. Also, improved communication and presentation of sample products may improve position of producer, as well as participation in fairs which is on the other hand very costly and hard to fund.

In regard to high quality products, there is demand for them (e.g. for chairs and tables made by bonding of different kinds of wood) despite higher price, since some buyers like them. Also, since the value of products in this market/niche is primarily determined by aesthetics (craftsmanship), even small firms can participate.

Key points:

- Part of products is sold locally, but most of products are exported,
- Information on final customers in cases of exporting companies is limited to what is provided by whole sale or retail that is buying from BiH producer, while information on final customers are generally very limited, on the other hand there is awareness on importance of customers' satisfaction reflected by dealing with complaints and some activities in collecting information on customers' satisfaction,
- Although some companies can precisely identify their competitors, information on competitors is generally very limited, especially for foreign markets,
- Marketing activities are not planned, but rather ad hoc, although companies do undertake some of them,
- Some companies focus on industrial buyers, and some on final consumers where it is often case that they do not have information on them since they export through whole sales and retails abroad,
- As their advantages, companies primarily identify characteristics of product and to some extent flexibility,
- High quality products can be produced and can be sold despite higher price.

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5. Firm Level - Competitive Pressures within the Value Chain

In regard to introduction of new product/service within the last three years and changes in existing products/services situation in surveyed companies is as follows:

- Some companies say that they have introduced new products and that this led to changes in organization of business operations and in machinery/technology (in some cases this leads to increased productivity), while some companies have not introduced any new products or other changes in the last three years;
- Motives for changes are requests of customers, savings, improvement of quality of products, certification, better utilization of raw materials, completing production, increase of incomes, changes in technology, competition, own ideas, penetrating new markets;
- The biggest challenge in process of introducing changes was lack of money, technology which is hard to adjust, lack of adequate staff, finding adequate machinery, lack of information;
- Changes were most often introduced without external help, but some companies did engage external advisors (in some cases advisory was provided by supplier of equipment, in some cases advisory for optimization of production process and selection of machinery was provided by Faculty of Mechanical Engineering in Banja Luka);
- Companies are mostly satisfied with results;
- Most companies plan improvements within the next two years, often focusing on improvement of equipment.

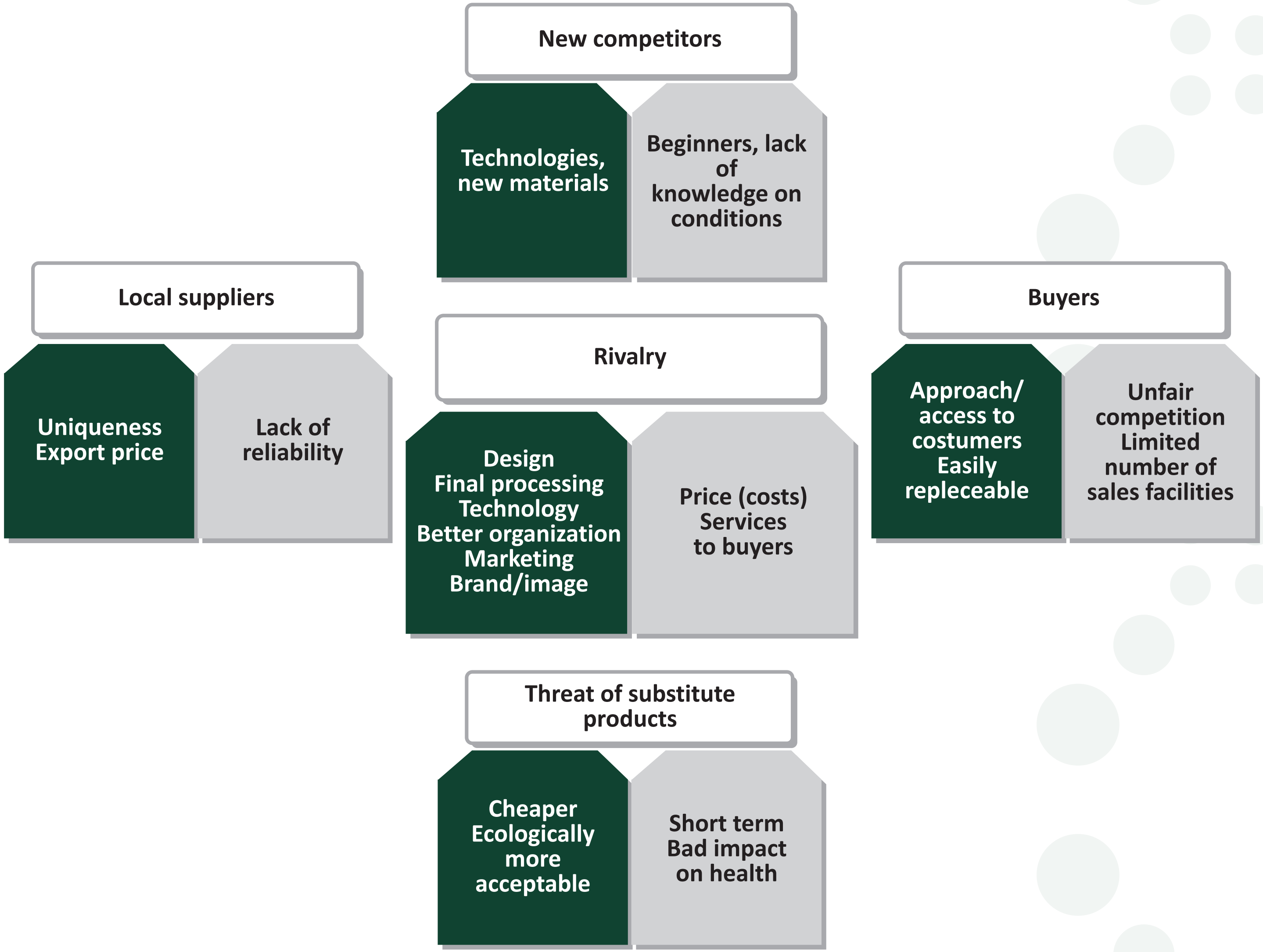
In regard to potential for improvements, companies mention that it is important to use existing demand and increase production for known buyer, increase level of finalization and producing furniture for foreign market (e.g. the EU and Russian market) and take further steps in regard to export, increase and further develop production, initiate production of energy from biomass, continuously develop new products since one production program does not last longer than 3 years.

In regard to priorities for improvement of business operations, companies mention increase of production volume based on sales to current and to new buyers and improvement of technology by introducing CNC machines, production in accordance with standards, export, improvement of quality and modernization with minimal increase of number of employees, improvement of offer of products and increase of quality of services with customers in focus and control of costs, use of existing capacities and keeping quality of products, new line for increase of production and keeping current buyers since new buyers are demanding to obtain due to checks, requirements, etc., expansion to the EU and Russian market, increase of production for known buyer, and improvement of equipment where in some companies the first priority is installation on new lacquering facility.

In regard to plans for development, companies say that they have ideas/concepts (in some cases with no written plans), that it is difficult to plan in turbulent times, saying that an obstacle in implementation is lack of funds and bad terms for credits so that financial support in increasing capacities for covering costs of procurement of new machines would be very useful. They also mention better control of quality of raw material and suggest reaching agreements on avoiding double taxation with countries that are foreign markets (it is already reached with some countries).

In regard to planning significant investments in the next year situation in surveyed companies is as follows:

- Companies plan investment in different areas, e.g. installation of energy producing equipment, machinery for chopping waste wood, numerical drilling machines and finishing, introduction of (robotized) lacquering capacities, installation of upholstery machinery, machinery for briquette, ventilation and drying capacities, CNC machines, building or procurement of premises;
- Companies will primarily invest in locations/municipalities where they already do business;
- Most companies plan new employment as result of the investment,
- In regard to support needed for success of the investment financial support is number one, but also technical/advisory support and training of workers, as well as support in finding new markets/customers, visits to fairs and good practice examples.



The scheme was drafted during the 5 forces workshop.

Rivalry - Interviews with companies show that they do not see a high threat of competition, and since they export, some of them say that they do not have local competitors, while they do not have information on their competitors abroad.

New competitors - Similarly, interviews with companies show that they do not see a high threat of competition (since they export, some of them say that they do not have local competitors), except in sales, where retails see possible threat in foreign retail chains that may come to BiH.

In regard to threat of new entrants, some companies say that they have not collected information that would indicate such developments. Some companies think that new competitors may come either from the Eastern Europe or from more developed areas, but that locally it is not likely to happen, except of unfair competition. Some companies believe that there is no threat locally, because of high quality of their products and big production capacities. Also, companies find that competitors were entering market in the past, but that now entry barriers are increasing since there are already positioned companies and needed investments are high, while they do not find wood processing such an attractive area for business to attract new entrants. Some companies see competitors in small, often not registered, producers, but they do not believe this is big threat due to underdeveloped capacities, small quantities and bad organization of such small producers who cannot develop in long term on basis only of offering low prices.

Local suppliers - raw materials are available locally (wood), but difficulties are present due to system depending on state-owned companies that control wood production.

Threat of substitute products - in furniture made of wood, producers do not see a threat of substitutes.

In regard to substitute products, some companies believe that it may be cheaper copies of their products, products made of cheaper synthetic materials, while some do not have information, and some believe that due to specific nature of their product it is less likely that they will be replaced. Some companies see customized installation cupboards that are produced on demand and tailored to specific space as possible replacement for some of their products. Producers of semi-finalized products say that high level of technology in developed countries brings products based on new technologies (e.g. USB - Universal Structural Boards, OSB- Oriented Strand Boards, etc.).

In regard to technical and demand changes affecting business operations, companies see that changes may be initiated by new design, as well as by changes in regard to materials (lacquer) and finishing and technology used, and by decision of buyer. Regarding capacities to react, companies emphasize importance of flexibility, completeness of offer including transport, skilled staff and good organization.

Also, it was mentioned by some companies that architects promote press wood/chipboard and similar materials rather than solid wood products.

Buyers - producers see whole and retail sales in the EU as their buyers. Cooperation with them is mostly good, although they are demanding in regard to quality and delivery conditions.

Producers do not emphasize much problem of insufficient working capital, although they do mention it in some cases, as well as that irregular payments from their buyers could cause difficulties.

Key points:

- Companies will focus on improvement/development of products and export activities;
- Improvements will focus on increase of volume of production, improvement of technology;
- Some companies introduce new products and changes in business operations, mostly without external support;
- Companies intend to invest mostly in improvement of technology (machinery, infrastructure) and plan new-employment, while in terms of support financial support is seen as the most useful, but also technical/advisory support;
- Changes may be caused by design, materials, technology, but companies do not emphasize possible changes in demand as reason for change in business operations;
- It is needed to improve supply of local wood processing companies with wood as raw material, primarily enterprises that produce final products.

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6. Meso Level - Supporting Institutions

Within project region several clusters exist, so in regard to membership in business associations, companies included in the survey are, in some cases, members of cluster (Banja Luka, Prijedor, Gradiska) which is mostly seen as useful (e.g. organised trips to developed countries), but that there is also space for improvement, e.g. in regard to joint procurement. Cluster also provide possibility of flexible production in short series as an advantage of local producers. Cluster also promote and advocate for introduction of department for wood processing in secondary schools.

Most of companies are members of Chamber of Commerce which has achievements in establishing connections in areas of forestry and wood processing and also provides information on potential new markets/buyers, and in some cases Chamber of Commerce provides designers and other support which is also supported through donor-funded projects, while some are members of local associations and Association for forestry and wood processing RS. Some companies are of the opinion that membership in Chambers of Commerce is not useful and that they should offer more, especially when compared to Chambers of Commerce in developed countries and their services, and also believe that Chamber of Commerce should have more frequent contacts with companies.

Institutions mostly mentioned by companies are ministries that provide subsidies (supporting export and investments), Chamber of Commerce (where companies mentioned support in providing information (official gazette is distributed) and in introduction of standards such as FSC, ISO, CE mark), Foreign Trade Chamber (which supported some companies in participation in fairs), and municipalities. Company involved only in sales says that they do not receive any support from institutions. Also, some of producers say that they have not received any support by institutions.

Some companies also applied for foreign donor funds and some state that they have received support from donor-funded projects.

Companies also say that, according to the information they have, other (including neighboring) countries' meso-level institutions are providing better support than in BiH. Organizations of buyers and suppliers are identified by some of companies as entities affecting their operations.

Institutions mentioned by companies are ministries that provide subsidies, Chamber of Commerce that was often assessed as bad supporters, Foreign Trade Chamber that provides some useful information for exporters and support in regard to fairs, municipalities that were also not recognized as providers of good support (companies see that they should do more).

Subsidies and information on export really matter to industry.

Also, support of Employment office RS who provided subsidies for new jobs, Chamber of Commerce supported introduction of ISO standards and FSC.

Other support/aspects important for business, comments and suggestions by companies include: stronger support from institutions is needed, decreasing fees and taxes, supporting employment, providing credit guarantees.

Key points:

- Meso-level institutions provide support (information, introduction of standards, visits to fairs, etc.), but general impression is that they should be more active,
- Subsidies are seen as the most useful support.

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7. Macro Level – Framework Conditions

Generally, situation is characterized by relatively complex regulations that include different levels - municipality, /canton/, entity, BiH.

Neighboring countries are ahead in regard to the EU integration.

There is a perception that importers are in favorable position in comparison to producers.

Procedures are generally seen as complicated and that supply of raw material should be better defined. In some cases, there is a lack of communication with local self-governance unit.

Subsidies from entity level are seen as welcome, but criteria for awarding may be a subject for improvement where it would be good to define criteria similarly to Croatia where export of raw materials is subsidized only when needs of domestic producers are fulfilled. Also, it is noticed that criteria for subsidies based on exported quantity is supporting export of raw materials more than export of final products. In addition, procedures for applying for subsidies are rather complex and it would be good if funds for subsidies were bigger.

Some companies were not able to think of any policy and/or regulation supporting their competitiveness, while some state that they do not collect such information. The EU regulations that are mandatory for exporters are requiring improvements. It was mentioned that possibility of local/in-house custom procedure for exporting products is very good for exporters.

In regard to policies negatively affecting business operations, export/related policies are considered as obsolete and companies mentioned taxes and salary taxes, law on labor is seen as obsolete, increase of financial fees over the last five years, fiscal and para-fiscal taxes, fee for fiscal cash registers, public notaries whose services are expensive and often obligatory even in cases when it may not be necessary, sick leave regulations, tax on real estate is especially burden for producers with big production facilities, costs of procedures before court and unfair competition is present, policy in supplying raw material is bad leading to inability to procure sufficient quantities of raw materials such as beech wood. Also, licensing of transporters (vehicles, drivers) for export is costly and lasting and not even required in the EU. Besides, procedures for construction permits are not good, including procedure for change of purpose/use of a facility.

Out of above mentioned local regulations, sometimes with lasting and expensive procedures (e.g. export procedures related to customs), some are under jurisdiction of entity.

Training in protection from fire are mandatory on yearly basis, which is seen as not needed by companies, since there are no new information and therefore this period should be extended.

The EU standards for exporters are seen as demanding, but useful, once introduced.

Key points:

- Satisfaction with hard infrastructure is on higher level than satisfaction with soft infrastructure,
- Standards are mostly seen as useful, while companies see many needs for improvements in regard to regulations (labor related laws, prices of public services, control mechanisms such as inspections, custom and taxes - procedures and fees/rates, etc.),
- Communication should be better to ensure higher level of mutual understanding and to contribute to prioritization of projects and cooperation in defining and implementing solutions,
- Special attention should be paid to supporting export-oriented enterprises.

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8. Meta Level

Generally, low level of trust can be noticed, as well as lack of information on capacities of different stakeholders, which in some cases creates unrealistic expectations (e.g. that local level of government can do more for businesses than it really can). This makes issue with lack of trust worse.

Key points:

- Low levels of trust between various producers affects their cooperation as well as functioning of joint initiatives such as clusters,
- Producers see support from the public sector mainly as direct financial support in the form of grants and subsidies,
- Domestic manufacturers do not trust or respect each other as leaders - foreign customers and competitors are assumed to be leaders,
- Further improvement of cooperation between different levels of authorities is needed in creating business friendly environment.

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9. Key Gaps Identified

From research process it appears that BiH wood processors are able to meet the quality requirements of international buyers. This is evident in the number of processors that are exporting finished and semi-finished products to destinations such as Germany.

However, processors remarked that they were at a disadvantage comparative to similar processors in Serbia and Croatia and that support to producers/processors in BiH is not on level of support in countries where competitors come from.

There is a gap between the producers and the foreign buyers, especially lack of information on final consumers in foreign markets, despite quantities exported.

There is gap between labor produced by education system and needs of the industry.

Although technology is not critical and is permanently being improved, there is a gap between current level of technology and latest technology used.

10. Summary of Main Findings

Gaps in solid wood furniture value chain

Forestry, exploation	Primary processing and drying	Production of semi-products	Final processing-production of wooden furniture	Distribution	Consumation
Monopoly of state/owned companies	Difficulties in procurement of raw materials (quantity and continuity, inconsistent criteria for classification) and electricity/power supply	Lack of qualified staff resulting from education process in education institutions Lack of meso-level support Low productivity of sector	Machinery and materials (metal parts, colours and lacquer) are almost exclusively being imported Low level of utilization of production capacities in most companies	Sale is mostly done in foreign markets through whole sales and retail sales.	Lack of information on final customers, especially for foreign markets Significant shortcomings in promotion and branding of BiH products Information on competitors is generally very limited, especially for foreign markets

Common issues (relevant not only for solid wood furniture but for entire wood processing industry):

- business environments is lagging behind in comparison to neighboring countries (e.g. availability and criteria for subsidies, support from institutions in utilization of international trade agreements),
- services such as transport, maintenance, R&D, training & consulting are not good enough in terms of availability and characteristics,
- expected changes may be caused by design, materials, technology, but producers do not emphasize possible changes in demand as reason for change in business operations, which indicates focus on product and lack of market intelligence,
- meso-level institutions provide support (subsidies are seen as the most useful support, but also information, introduction of standards, visits to fairs, etc.), but general impression is that they should be more active and cooperation between producers and relevant stakeholders should be improved.

11. Main Recommendations

Recommendations are mostly relevant for entire wood processing sector, not only for production of solid wood furniture, and may be organized in two groups:

- Recommendations where intervention can be planned and implemented,
- Recommendations where intervention requires further, more detailed in-depth research.

11.1 Improvement of Business Operations at a Firm Level

The main instrument would be financial support to introduce improvements in the business operations, as well as advisory and support in capacity building.

Product development is performed mostly by capacities of companies only, with no external support and without information on needs/desires of customers, so market information should be improved as well as availability and quality of support services (market research, product development and design, promotion activities). This should be done very carefully, since producers are reluctant to undertake any action that might harm their relations with current buyers (which are mostly whole sales and retails abroad). Prior to intervention, risks of such intervention should be assessed, in order to avoid situation where producers lose cooperation with their current buyers, while taking over roles for which they currently do not have capacities (marketing and sales in foreign markets).

Interventions that do not have such high risks include improvements in regard to organization of production, technology, maintenance, and services such as transport. In order to properly design intervention, it may be needed to look closer in the status of technology and organization in enterprises and precisely establish advantages and disadvantages of domestic producers in comparison to competitors.

11.2 Industry Wide Interventions

These are interventions that go beyond internal improvement in firms and that to some degree require collaboration between different industry actors including firms and public support organizations. Opportunities to collaborate were identified around certification, skills development, procurement and joint initiatives towards buyers and towards authorities.

Research identified the following issues as being good opportunities for a collaborative approach:

- Procurement,
- Product development and laboratory examination,
- Outsourcing production of parts of products or phase in material processing (cutting, drying, lacquering, etc.), borrowing equipment (use of CNC and other machinery), and similar,
- Sales, especially in foreign markets (caution needed, as described above),
- Joint exhibitions at fairs,
- Joint projects in providing services (e.g. several companies cooperating in interior arrangement for hotels).

Although many of above listed opportunities for cooperation look like they can be undertaken by companies without external facilitation, they are currently isolated cases and external promotion of such initiatives should contribute to improvements industry wide.

11.3 Interventions Aimed at Meso Organisations

During the research it was found that the Meso level organizations are far removed from the direct needs of industry. At the same time industry primarily recognized support in form of direct subsidies and grants. Also, interactions between firms and public support organizations are weak.

The research identified several issues that should be addressed by public support organizations in the meso level:

- Support in regard to R&D (research shows that only big companies do have department for this and even in such cases they are focused on finding new technology/machinery and improvement of some of production processes, with partial focus on development of new products which is done in conditions of very limited market information; also, this need should be met with support from meso level institutions, being close enough to companies and taking into account that companies such as those in project area are less likely to solve this issue themselves, either through improvement of internal capacities or through outsourcing of such services, where situation is also difficult due to limited local availability of needed services).
- There is also need for continuous improvement of soft and hard business infrastructure,
- Difficulties in power supplies in number of municipalities are identified by producers and this issue needs to be addressed with cooperation of all stakeholders that may contribute.

Research detected that there is no local producer of chipboard (it is not relevant for the observed VC, but it is potentially good initiative). Since opinions are divided, some experts find that it is feasible and some that it is very difficult to realize, while there is a need for this product, it would be good to conduct a feasibility study in regard to press-wood/chipboard production.

11.4 Policy Recommendations

The research revealed that other countries in the region had a more favorable environment for wood processing.

Reducing red tape around exports and imports of equipment and improvements in regard to regulations (labor related laws, prices of public services, control mechanisms such as inspections, custom and taxes - procedures and fees/rates, etc.) are also to be dealt with on policy level.

Communication should be improved to ensure higher level of mutual understanding and to contribute to prioritization of projects and cooperation in defining and implementing solutions. Low levels of trust between various producers affects their cooperation as well as functioning of joint initiatives such as clusters, which in some cases prevents producers from using market opportunities. Interventions may include strengthening capacities and roles of bodies such as sector boards as kind of permanent focus group providing inputs (initiatives and feedback on solutions in phase of consideration and in phase of implementation) for policy solutions, thus involving strongly private sector in general communication aimed at achievement of improvements in wood processing industry as a whole.

A very important issue identified in the research is that there is a lack of qualified staff in wood processing. Since companies produce final products and export to demanding the EU market, it is obvious that quality of labor is good. However, labor force is not so much result of education system, as a result of training provided in factories. This may be used as a starting point for introduction of practical training and practice-oriented education programs on level of secondary school and on level of university, taking into account potentials and needs of wood processing industries, as well as relevant information such as latest technologies, products, market related activities, etc. Interest and experiences of industry should be used in the process.

12. Sources of Data and Information

Analysis of the imported products and possibilities for their production in Republika Srpska. (2010). Banja Luka: Enterprise Development Agency Eda.

Data collected by survey conducted during summer 2013.

Data collected by interviews with companies conducted in January 2014 (questionnaire based on 5 forces and focusing primarily on solid wood furniture value chain).

Data collected during workshops held with wood processing experts (November 2013).

Data collected during workshop held with participation of wood processing Sector board (February 2014).

Data available at www.trademap.org .

Porter, M. E. (1998). The Competitive Advanage of Nations - With a New Introduction. New York: The Free Press.

Pucar, Stevo (Editor). (2013). *Baseline analysis of economic sectors – project CREDO Krajina*. Banja Luka: Enterprise Development Agency Eda.

13. Annex

Wood processing industry - general overview, with focus on solid wood furniture value chain