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## ACTUALITY AND PERSPECTIVES OF THE WOOD INDUSTRY DEVELOPMENT IN WESTERN BALKAN COUNTRIES

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**Abstract:** *Wood mass represents a significant potential for the countries of the Adriatic region. Considering its geographic distribution, significant differences can be noticed. Those differences are mainly manifested regarding its quality and quantity. The aim of this paper is to emphasize the importance of territorial distribution of the wood mass from the aspect of its use in the wood industry. The result of the research procedure is to point out certain parts of the Adriatic region, where the development of the wood industry can be promoted.*

**Keywords:** *wood, adriatic region, industry, forest resources*

### 1. Introduction

Forests represent an important factor in maintaining the ecological balance in nature; they restore natural resources and are also important for economic development. The Western Balkans countries include the territory of Croatia, Serbia, Bosnia and Herzegovina, Montenegro, Macedonia and Albania. In the past these areas were rich in significant wooded areas; however, the situation has changed a lot. The reasons for this are multiple, and among the most important ones are social and political events in this area, the lack of consistent and uncoordinated policy on managing these resources, etc. This situation has led to stagnation even in the wood mass production and processing. However, some progress was made in the first decades of the twenty-first century, and was associated with the

process of integration of all the Balkan countries into the European Union. The growth in production of wood products in certain countries of the Adriatic region started in 2008. One of those countries is Serbia which had a greater wood product export by 14.8% compared to the export in 2007. Apart from Serbia the countries with the same situations are Montenegro and Croatia. This represents a step forward, a progress which can be maintained and can lead to taking certain measures in the country regarding the modernization and expansion of the capacities within the emerging markets.

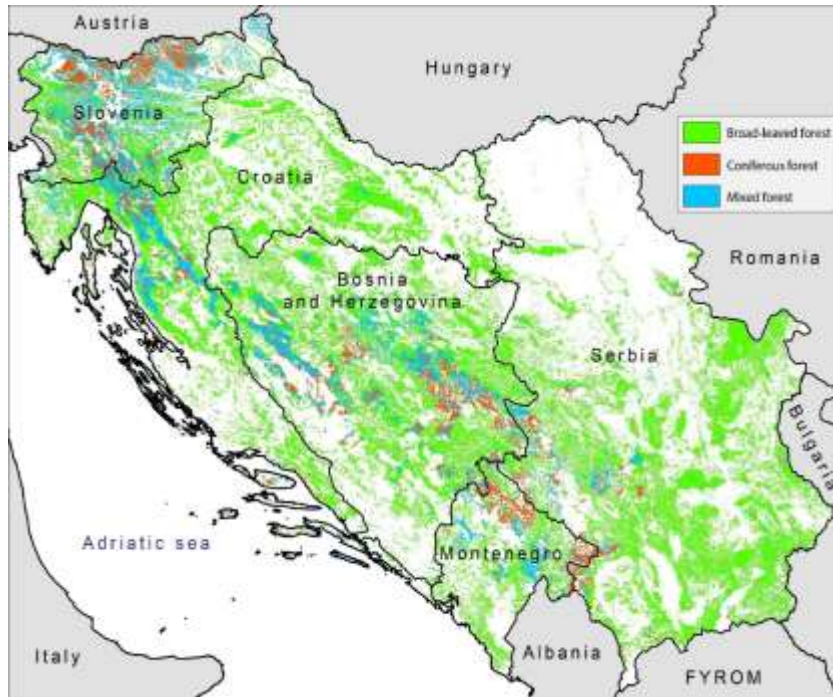
The level of forest coverage in the territory of the Adriatic region is within the European average value scope, which means that there are conditions for the development of forestry. Forest communities are diverse and with a different increase of the arboreal masses, which opens up opportunities for the development of different branches of lumber industry and wood-processing industry. Wood processing could occur as a

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significant factor in the revitalization and demographic recovery, as the most important forest complexes are located right in the passive and depopulated areas. For this

reason, it is necessary to implement adequate measures in terms of reviving the economy of this part of the Balkans.



**Figure 1.** Levels of forest cover in the territory of the Adriatic region

The main objective of this paper is to determine the resource base of the wood used for processing which could be a stimulus for the economic development of the Adriatic region, as well as to examine the current situation and to determine the possibilities for further development in wood processing.

## 2. Research Methodology

The research methodology is conditioned by the objective of the research, knowledge and experience in this field within the European Union. The research covered the territory of the Adriatic region. The selection of the study area was made without any conditional limitations in terms of size, special characteristics of the forest stands, economic

importance, the level of involvement of the employees, etc. Within the scope of the general methodological procedures, general and statistical methods are used as primary methods in this paper, and as a specific procedure a method of analysis was used. The first step in the research process involved the creation of the data base on the potential forest area in the Adriatic region. Based on the analysis and synthesis of the data collected, some general findings have been presented in the paper obtained during the research. The analysis of the data obtained from all the forest units of the Adriatic region enabled to determine quantitative and qualitative data on the overall forest potential of the aforementioned district. In addition to the analytical and synthetic methods, the authors used the comparative method, field research method

and some other methods when studying the problem of economic-geographic evaluation. In order to get a clearer insight regarding the changes and possibilities of the economic evaluation, the research was done for the period between 2000 and 2011. Using the statistical analysis of the data we have calculated the total potential of the wood mass of the Adriatic region with the aim of better evaluation of the aforementioned.

### 3. Forest Area and Forest Coverage

The forest coverage and the area under the forests are the main categories that should be investigated as a function economic development of the Adriatic region. Regionally, there are some differences. The forest coverage of the Republic of Serbia (Vlatkovic, 2001) is 29.1%, (the forest coverage of the central Serbia amounts to 37.6% whereas in Vojvodina it is only 7.1%) which represents the lowest level of forest cover in Europe. (Banković *et al*, 2009; Glavonjic, 2008; Glavonjic, 2010). The situation is slightly different in Montenegro (Stijovic, 2010). According to the statistical data the wooded area and woodland cover 547,312 ha or 39.63% (MEM). According to the level of coverage Montenegro ranks among the top countries right after the Nordic countries. It represents one of the countries with the largest forest area in the Adriatic region. In Slovenia the level of forest coverage is 55.36% (0.6/ha per

capita); Croatia 36.61% (0.47 ha per capita); Bosnia and Herzegovina 44.11% (1.38/ha per capita); Spain 30% and Austria 38% (SWF, 2011). By analysing the forest cover of the area of the Adriatic region we can conclude that the highest forest coverage is present in the territory of Slovenia with more than 50 %, and then comes Bosnia and Herzegovina with 44.11% and Montenegro with 39.63%. In other countries the coverage is nearly in level with the European average value. Table 1

An important factor in the analysis is also the level of forest coverage in relation to the total population. Taking this aspect into consideration the regional differences are even more pronounced. Comparing the relationships among the levels of forest coverage it can be concluded that the Adriatic region is in an uneasy situation. The forest coverage per capita in Serbia is 0.3ha (the ratio of population and the forest area in the central Serbia is 0.36 ha/per capita, Vojvodina 0.24 ha/per) (Vujadinović, 2003). In other neighboring countries the level of forest coverage per capita is significantly higher, in Bosnia and Herzegovina it is 1.38 ha, in Bulgaria 1.31 ha, in Croatia 1.25 ha, in Romania 1.02 ha, in Slovenia 1.01 ha (Kranjc, 2009). By using the comparative analysis of the countries in the Adriatic region in relation to the Baltic countries we can see that the level of forest coverage is much lower (forest in Finland is 5.91 ha, Norway 6.93 ha, Russia 11.11 ha per capita) (Banković *et al*, 2009).

**Table 1.** The level of forest coverage and forest areas in the territory of the Adriatic region

Country	Area (km <sup>2</sup> )	Broad-leaved forest(km <sup>2</sup> )	Coniferous forest (km <sup>2</sup> )	Mixed forest (km <sup>2</sup> )	Total forest (000 ha)	Forest coverage (%)
Serbia	88.361.00	24720.55	1131.97	1365.43	27217.96	30.80
Montenegro	13.812.00	3548.92	932.24	991.95	5473.12	39.63
Croatia	56.542.00	16920.98	1037.10	2740.78	20698.86	36.61
Bosnia and Herzegovina	51.209,20	16097.33	2447.76	4044.81	22589.90	44,11
Slovenia	20.273.00	4279.13	2470.90	4474.07	11224.10	55.36

Source: [ekospark.com/info/06\\_biodiverzitet/stanje\\_suma\\_na\\_planeti/](http://ekospark.com/info/06_biodiverzitet/stanje_suma_na_planeti/)

Regardless of the current situation with the forest resources, we need to mention that all the analyses show the decline rate of the forest areas, and this is especially notable in the last twenty years. This process is evident in the territory of the Adriatic region. The disappearance of the forest complexes is connected with the process of anthropogenization of space. Anthropogenization itself is a positive process in case it is carried out systematically and according to the principles of the sustained development. However, should the process of anthropogenic impact on the area go over the framework of the planned and directed development, numerous negative effects occur.

Therefore, the process of the forest area reduction must be approached systematically and meticulously. One of the ways is integration and international compatibility in the forest resources management. What should also be influenced is the increase of the efficient use of natural resources as well as the promotion of the exchange of knowledge and cooperation between companies within countries. The protected areas must be taken care of by promoting the capacities of governmental institutions and private organizations responsible for managing the forest resources in terms of inter-sectoral coordination and cooperation with all interested stakeholders. In that way, biological diversity would be preserved. Based on the foregoing, what should be taken into account is the preparation of a realistic national forestry program and the development and maintenance of a long-term vision in the observed sectors, but this would also ensure the harmonization of general development policies with the forestry and conservation policies. This would result in the increase of the efficiency of accomplishing the objectives prescribed in

the national strategic documents and the development plan. Furthermore, there would be an equal division of costs and benefits in managing the forests and protected areas.

#### **4. The Structure of the Forest Mass of the State Forests**

Based on different legal regulations and forestry land management plans, certain forest areas have been singled out in the territory of the Adriatic region. Forest areas represent systematic units in which measures of the forestry land management and forest conservation are conducted according to the national laws. Using the analysis, based on the data shown in the text below, we can conclude that the structure of the forest mass is a lot different.

In the Republic of Serbia, 27 forest areas have been singled out based on the Law on Forests. The system management of the state forests has been entrusted to the public company Serbia Forests. The boundaries of these forest areas do not coincide with the boundaries of the administrative districts.

The ratio between public and private forests in Serbia is approximately 47-53%. Compared to the total area under the forests, "high" forest stands, which were developed generatively, i.e. out of a seed, cover 13.82% of the area. The forests that were developed out of stumps and shoots (coppice forests) cover the largest part of the area under the state forests, up to 44.98%. Artificially established forest stands mostly consist of conifer forests and they cover 10.35% of the area. A special problem represent the forests that were developed as a result of the negative effects of the anthropogenic factors, so-called scrubs and bushes and they make 7.51% and 18.07% of the state forests respectively (Table 2)

**Table 2.** The structure of the state forests based on the silvicultural form in the territory of Serbia

National category	Area (ha)	
	2010	2015
Forest	2713	2720
Other wooded land	410	508
Other land	5623	5518
of which with tree cover	75	155
Inland water bodies	90	90
<b>TOTAL</b>	<b>8836.00</b>	<b>8836.00</b>

Source: FRA 2015, Serbia, Global Forest Resources, Assessment 2015, Country Report Serbia, Rome, 2014

Based on the Table (3) we see that the area under the forests in Croatia increased by 639 ha in the period of two years. The biggest growth was seen in high forests and coppice forests, whereas the unproductive forests and bare land decreased. Bushes, shrubbery and other forest land recorded an increase in the period between 2010 and 2012. The majority of the lumber camps in Croatia are under the state ownership (75.5%), and a smaller part

is managed by private companies (24.5%). Croatian forests are based on sustainability which is the reason why even today they have some forest communities which are the most extensive and self-sustained in Europe. It has 4,500 plant species and subspecies, 260 indigenous types of trees and more than 100 forest plant communities that are located on about 2.7 million ha of the forests and forest land.

**Table 3.** The structure of the state forests based on the silvicultural form in the territory of Croatia

National category	Area (ha)	
	2010	2012
Stocked forest land (high forests, plantations and coppices)	1.879.105	1.879.835
Forest infrastructure (roads etc.) as a part of no-flora, non-productive and barren land	41.409	41.318
Total Forest	1.920.514	1.921.153
Other wooded land (scrubland, maquies, garigues)	558.520	562.805

Source: FRA 2015, Croatia, Global Forest Resources, Assessment 2015, Country Report Croatia, Rome, 2014

The ratio between the state and private forests in Slovenia is approximately 26-74%. Based on this we can see that the private ownership of the forest communities is dominant in Slovenia. Forests communities that are in the possession of a private owner are exploited heavily for the purposes of

processing and work in the wood industry; however, a lot of work is done on the reforestation of the same area. If we look at Table 3 we can see that in the period of five years the number of forests increased and this is mostly the case with the high forests and coppice forests.

**Table 4.** The structure of the state forests based on the silvicultural form in the territory of Slovenia

National category	Area (ha)	
	2010	2015
Forest	1247	1248
Other wooded land	742	743
of which with tree cover	29	33
Inland water bodies	13	13
<b>TOTAL</b>	<b>2027.00</b>	<b>2027.00</b>

Source: FRA 2015, Slovenia, Global Forest Resources, Assessment 2015, Country Report Slovenia, Rome, 2014

The ratio between the state and public forests in Bosnia and Herzegovina is approximately 78-22%. Compared to the total area under the forests, the high forest stands which developed generatively, i.e. out of a seed, cover 23.2% of the territory. The forests that were developed out of stumps and shoots (coppice forests) cover the largest part of the area under the state forests, up to 64.8 %. Artificially established forest stands mostly

consist of conifer forests and they cover 5.5% of the area. The forests that were developed as a result of the negative effects of the anthropogenic factors, so-called scrubs and bushes and they make 6.5% of the state forests represent a special problem. By looking at the Table 4 we can see that the situation regarding the increase of the forest resources, as well as reforestation, has not changed but is stagnating.

**Table 5.** The structure of the state forests based on the silvicultural form in the territory of Bosnia and Herzegovina

National category	Area (ha)	
	2010	2015
Forest	2185	2185
Other wooded land	549	549
Other land	2366	2366
of which with tree cover	N/A	N/A
Inland water bodies	N/A	N/A
<b>TOTAL</b>	<b>5121.00</b>	<b>5121.00</b>

Source: FRA 2015, Bosnia and Herzegovina, Global Forest Resources, Assessment 2015, Country Report Bosnia and Herzegovina, Rome, 2014

Montenegro is characterized by a significant forest cover. The area of land in Montenegro is characterized by high forest coverage of 39.63 % and the forest land of 9.9%. The state forests in Montenegro represent a major part in Montenegro and it amounts to 67%, whereas the private forests amount to 33%. The forests of Montenegro are partly located on very steep slopes and rocky areas. For this reason, some areas, due to poor accessibility and inadequate roads, 11.9% of the area that is covered in forests as well as 8.4% of the woodland, cannot be used for the research. The evaluation of the volume

of the timber compared to the total forest volume in Montenegro is 22 Mio m<sup>3</sup> with the increase of 2.9 Mio m<sup>3</sup> and it is based on the assumption that inaccessible forests show relative quantities per hectare which are one-third below the level of the accessible forests. The size of wood in the accessible forests which cover 728 133 ha amounts to 116 m<sup>3</sup> Mio with the increase of 2.8 m<sup>3</sup> Mio (assessed with the relative standard error of 1.5%). These data were generally obtained through information centres which take care of the forest resources of Montenegro.



**Table 6.** The structure of the state forests based on the silvicultural form in the territory of Montenegro

National category	Area (ha)	
	2010	2015
Forest	827	827
Other wooded land	137	137
Other land	381	381
of which with tree cover	N/A	N/A
Inland water bodies	36	36
<b>TOTAL</b>	<b>1381.00</b>	<b>1381.00</b>

Source: FRA 2015, Montenegro, Global Forest Resources, Assessment 2015, Country Report, Montenegro, Rome, 2014

The main task of the profitable forestry land management in the Adriatic region is reflected in the conservation of the forests and above all from the anthropogenic factors, and then from specific edaphic and topographic factors. The conservation is implemented in order for the woods to fulfill their functions to the maximum. It is in high forests that the highest production of the dendromass is achieved, and this type of forests is most preferred. In some parts of this region, the lack of the high forests shows a very poor state of the forest structure. In Serbia, high forests make up only 27.2% of the state forests. A large share of shrubs and bushes only makes the situation worse. The largest part of the territory of Serbia belongs to the coppice forests, which is 64.7%.

The forests of the Adriatic region are mainly located around the nearby mountain ranges, however, they can also be found in the lower regions. If we look at the ratio of the presence of forests communities among the conifers then in this region Slovenia (63%) and Montenegro (41%) dominate. When we talk about the deciduous forests, they are largely found in Serbia (89.5%), then Bosnia and Herzegovina (62%) and Montenegro (59%). The state forests are classified into a number of management units managed by the forest administration. For the function of the economic development in forests it is essential to provide an optimum volume of the dendromass per hectare.

The average volume in the forests of Serbia is 161 m<sup>3</sup>/ha; 254 m<sup>3</sup>/ha out of which is covered in high forests, and 124 m<sup>3</sup>/ha is covered in coppice forests while 136 m<sup>3</sup>/ha of it is covered in artificially established stands (crops). The average volume of the area in which the 1979 inventory was done was 115 m<sup>3</sup>/ha. The average current volume growth is in total 4.0 m<sup>3</sup>/ha, in high forests it is 5.5 m<sup>3</sup>/ha, in coppice forests it is 3.1 m<sup>3</sup>/ha and in artificially established stands it is 5.2 m<sup>3</sup>/ha. At the same time the percentage of growth on a global level is pretty high and amounts to 2.5%, however, it is also high even with the basic forest categories and the values are as follows: the high forests 2.2%, coppice forests 2.5% and artificially established stands 5.2%. The growth percentage is 2.4%, which is a significant value considering globally and it shows, among other things, the stability of the stands in the Serbian forests. (Medarević *et al*, 2004)

The forests in private ownership are of poorer quality and quantitatively with the average volume of 136 m<sup>3</sup>/ha, and with the current volume growth of 3.5 m<sup>3</sup>/ha. The percentage of growth in these forests is slightly higher than in the state forests (2.6%), and the reasons are the dominant coppice origin and maintained age structure. (Serbia forest, no100)

In Montenegro the total increase of forests is estimated at 1.5 million m<sup>3</sup>. The forest administration gives away each year around

400 thousand m<sup>3</sup> through a concession competition and this amount is added to amounts of wood that the people need for fire, retail and sanitary felling, then we get the total amount of 700 thousand m<sup>3</sup> per year (SWF, 2011). A total volume of felling is much lower compared to the annual growth rate which allows for the substantial accumulation of the biomass forests. From this we can conclude that the forests in Montenegro are managed in accordance with the principles of sustainability.

Stands belonging state forests are very unbalanced. In Serbia the deciduous forests make up the majority, whereas the coniferous forests are mainly artificial. The deciduous forests in Serbia cover the area of 89.5%, while the coniferous forests cover only 10.5% and there are almost no natural conifers. The percentage of the mountain beech is the highest, around 70%. The incidence of other stands is much smaller: Turkey oak 9.5%, Sessile oak 8.5%, black locust around 2%. Among conifers, the most common are black pine with 2.6%, spruce with 1.3% and Scots pine with 0.6%. Other stands make up less than 5% in volume. There are also isolated areas under deciduous trees such as ash, maple and black walnut; however, they cover less than 0.1% of the total area. The situation is slightly different in the territory of Bosnia and Herzegovina where deciduous forests dominate, but there are also a lot of natural conifers. The most dominant type of wood used for processing is beech with 45%. Apart from this, fir forests are dominant with 18% and spruce with 14% as well as the oak with 3%. When we talk about Montenegro, the total growing stock in forests and forest lands is 72 million m<sup>3</sup>, 29.5 million m<sup>3</sup> out of which is conifers or 41%, and deciduous trees 42.5 million m<sup>3</sup> or 59%. When we talk about cultivating the forests intended for timber these forests cover 348 thousand ha or 81% of all the forests. High economic forests cover 61%, coppice forests 12%, shrubs and macchia 13%, whereas the barren forest land in Montenegro comprises 14%.

## 5. Functions of Forests and Forest Structure according to Purpose

Forests have a great importance for the community. Therefore it is very important to determine the priority functions of the forests, i.e. their basic purpose. Forests are "assets of public interest" and therefore they must be adequately used. In such a case, a special attention needs to be given to the long-term conservation of the forest ecosystems. All the functions of the forests, i.e. the effects of the forests can be divided into several categories: beneficial functions, productive functions and social functions. The beneficial functions include protective, hydrological, climatic, and hygienic and health function and other functions. Productive functions include wood production (technical and physical), wildlife (big and small game), forest seeds and other forest products (mushrooms, medical herbs and forest plants, resin...). Social functions of the forests are recreation and tourism, educational function, and scientific and research function. Taking into consideration that the paper analyzes the wood mass in the function of the economic development, special attention is paid to the productive function of the forests. The most important task, as it has already been said, was to determine the optimal function for each part of the forest, i.e. each part of the forest complex is to be classified into the category it belongs to. Apart from the priority function forests can perform some other functions as well, but only to the extent that it does not endanger their basic function. As a result the forests whose main function is industrial wood production often have protective function and recreational function.

Forests of the Adriatic region according to their basic (priority) purpose have a productive function, i.e. industrial wood production is prevailing, which is good for the development of the economy. Forests with this purpose make up more than 60% of the total area under forest. In almost all the countries precisely this function is dominant.



Also, to some extent protective functions are also present and the tourism and recreation function is present to a lesser extent.

## 6. Forestry and Wood Industry

As it has already been mentioned the basic function of the forests is technical wood production. A proper forestry land management should achieve the optimal growth of dendromass. This should be taken into consideration since the forestry as a branch of the primary economic sector is closely related to the other branches such as agriculture, transport, mining, tourism, and especially wood industry. The optimal growth of dendromass, as well as favorable conservation of the forest ecosystems need to supply a sufficient amount of wood as the basic raw material for the wood industry.

The forests in the Adriatic region do not currently represent a secure source of raw material for the potential development of the wood industry. By this we primarily mean a poor forest structure according to its silvicultural form, where there is a large percentage of shrubs and bushes, as well as coppice forests. Also, a large percentage of sparse trees and devastated forests reflect a low possibility of the forest to exploit the timber. The tree diameters are a special problem, which are, generally speaking, below the average. Technical equipment, which is not satisfactory due to the obsolescence and wear and tear of the fixed assets, as well as the accessibility of the forests, prevent the optimal operation of forestry, and there are also large and noticeable differences among the countries. However, regarding the use of the forests there are some significant regional differences. Some parts of the Adriatic region have large opportunities for the development of the wood industry. Such an example is Croatia, which recently recorded a growth rate when it comes to the wood product export, as well as Montenegro which has great potential for future development in the wood industry.

For the development of forestry and the exploitation of the wood mass a presence of one factor is very important and that is the level of the accessibility of the forests. The most favorable accessibility is in the territory of Croatia, and we can freely say that this kind of accessibility meets the current needs. With Serbian forests the accessibility is about 23 m/ha. The disadvantage is that much greater as soft forest paths dominate the forests, while the presence of the modern forest roads is minimal. Based on this we can conclude that we cannot be satisfied with the current situation of the forest roads. The most common are very soft truck roads. They do not have all the elements necessary for modern transportation, curve radius is below the prescribed norms, moats and trenches have not been built, tubular concrete drainage culverts have not been installed yet for taking the water under the roadway. (SWF, 2011).

In the past decade the wood industry was plunged into a deep crisis. In the territory of Serbia, regarding the physical volume of production, the wood industry achieved a significant increase. Wood and cork production recorded an increase by 15%, however there was a slight decrease in furniture production by 6.1%. The export of the processed wood and cork amounted to 224.2 million USD (increased by 8.2%), while import amounted to 187.3 million USD (increased by 3.3%). Furniture exports in 2014 reached 273.7 million USD (increased by 9.9% compared to the same period in 2013), while import decreased by 11.75%, and it amounted to 127.6 million USD. The wood industry in Serbia achieved a surplus of 152 million USD in the trade turnover in 2013, and by the end of 2014 the surplus amounted to 183.0 million USD. The wood industry is the leading industry in Serbia next to agriculture and textile industry and it achieves surplus in the foreign trade. The countries Serbia mostly exports products of wood processing to are Italy, Russia, Germany, Bosnia and Herzegovina and Slovenia. We used to import wood products

from Romania, Bosnia and Herzegovina, Austria, Hungary and Germany. (drvnotehnika.info)

In the wood industry in Montenegro, there are around 150 companies that are currently active, and which have a share in the overall industrial production of 1.6% that is in the GDP of Montenegro from 0.16%. The majority of companies and entrepreneurs are engaged in wood processing in wood mills. Then there are the plants for the production of the laminated furniture. The structure of the companies which are engaged in the wood processing is predominantly comprised of small enterprises. The total amount of industrial and technical timber which is processed in companies for the wood industry is on average between 200 and 250 thousand m<sup>3</sup> per year. The share of the consumption of timber products on the domestic market compared to its production is only 21.3%. This shows that the largest quantities of timber products are exported in the form of sawn timber. The results of the conducted research show that the largest quantities of raw material in Montenegro are used for the production of sawn timber and plywood. These two products are predominantly present in primary wood processing in Montenegro. It can be concluded that the products of a low level of finalisation represent the main products of the wood processing. Based on the data obtained by the Ministry of Agriculture and Rural Development of Montenegro, the annual volume growth in the forests is 2.6 million m<sup>3</sup>. The actual annual volume of the felling does not represent a problem from the aspect of sustainable forestry land management in Montenegro. Total consumption of wood and wood waste from the forests in Montenegro for Production, industrial and technical purposes in 2011 was 1,059,811 m<sup>3</sup>. However, it is evident that for industrial use conifer wood is predominantly used as well as the wood of larger dimensions, which indicates that the demand is focused on quality. It is hard to expect a greater volume of use of the quality

wood, while the offer of smaller diameter wood and wood products of lower quality can be significantly improved.

The situation in Croatian wood industry is unsatisfactory. The development of the wood sector is stagnating. Today, at the time of globalization, when there are new emerging opportunities of the technological development, an increase of productivity by finding new models, technology and organization management, Croatian wood processing industry is an extremely impoverished, technologically out dated and industry with poor software usability, which creates a gap towards us – the competitive countries. Croatian industry is based on the high forest stands (oak, beech, ash), the most advanced wood processing is connected to sawmills, production of furniture and others. In recent years there has been some intensive investment into sawmill wood processing (in the year 2003 = 722 enterprises in wood processing), thus their capacity exceeds more than threefold their available wood mass that Croatian forests as the main supplier can deliver. The reason for this is the profitable wood export to Italy, which is the third-largest furniture exporter in the world and which purchases processed products from Croatia as it lacks the material.

## 7. Conclusion

Forests represent significant natural but unreliable raw material resource of the Adriatic region. However, the conservation of the forest ecosystems and spatial distribution provide a favorable basis for their favorable use. Our analysis suggests that there are some regional differences in terms of quality and the usage of the forest resources. The greatest potential and possibilities of the use are connected to Slovenia, Montenegro and Croatia. These countries of the Adriatic region have the highest quality raw materials and quantitatively highest wood mass capacity. Those are at the same time the countries with

a long tradition of developing different branches of the wood industry. There are significantly fewer opportunities in other countries of the region from the research. In the Republic of Serbia wood mass and the growth of the wood mass meet the domestic needs. The similar situation can be found in other countries as well. The wood industry is mainly focused on meeting the domestic needs.

Regardless of the source of the raw material and a long tradition, the economic effects that the region's economy has from forest exploitation, are far less than the potential

ones. The forest resources are insufficient and inadequately used which greatly hinders the development of the wood industry as well as the accompanying activities whose development is connected to the forest.

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