

UDC 630*3:330.16(497.6 Bjelašnica)

*Ajla MEHMEDOVIĆ, Amila SELMANAGIĆ BAJROVIĆ, Bruno MARIĆ,
Dženan BEĆIROVIĆ, Senka MUTABDŽIJA BEĆIROVIĆ,
Tamara BAJKUŠA, Mersudin AVDIBEGOVIĆ¹*

FOREST AS AN ELEMENT OF RURAL DEVELOPMENT IN BJELAŠNICA MOUNTAIN

SUMMARY

On the global level, exploitation of natural resources provides the livelihoods for a large amount of the world's population. Access to forest as "natural capital" provides a crucial contribution to the livelihood for about 1.6 billion people. In many countries around the world, people living in rural areas have lower incomes and are generally less prosperous than their urban counterparts. Due to these facts governments often attempt to promote rural development through the sustainable usage of natural resources such as forest. This article deals with people-forest relations, existing practices of usage of forest by local people in Bjelašnica Mountain, description of socio-economic characteristics of local rural population and explanation of how forest contributes to their livelihoods. Sustainable livelihoods approach was used as analytical framework for the purpose of this paper, as increasingly important in researches about regional development, poverty alleviation, rural development and rural resource management. Today, the situation in Bjelašnica Mountain is extremely complex. Affected by post-war trauma this area is characterized by: low rate of returnees in villages, increasing trends of de-ruralisation and migration, small number of inhabitants in villages, high proportion of elderly people which all together calls into question sustainability of these villages. This paper estimates the contribution of forests as an element of local people livelihoods and possibilities of using forest as a livelihood diversification strategy for rural development.

Keywords: rural development, forest, livelihood, strategy, sustainability

INTRODUCTION

According to the State of the World's forests (FAO, 2014), number of people that use forest products and services to meet their needs for food, energy and shelter is globally in the billions. In addition, large (but currently unknown)

¹ Ajla MEHMEDOVIĆ, (corresponding author: ajla.mehmedovic@enova.ba), Amila SELMANAGIĆ BAJROVIĆ, Bruno MARIĆ, Dženan BEĆIROVIĆ, Senka MUTABDŽIJA BEĆIROVIĆ, Mersudin AVDIBEGOVIĆ, Faculty of Forestry, University of Sarajevo, Bosnia and Herzegovina, Tamara BAJKUŠA, Agricultural cooperative „Sarajevsko polje“, Sarajevo, BOSNIA AND HERZEGOVINA

Paper presented at the 5th International Scientific Agricultural Symposium "AGROSYM 2014".

Notes: The authors declare that they have no conflicts of interest. Authorship Form signed online.

numbers may benefit indirectly from the environmental services provided by forests. There are 1.6 billion people that make living out of forest resources. A lot of people make living by doing jobs or having a small enterprise in forestry and tourism. Access to this “natural capital” provides a crucial contribution, a buffer against poverty and an opportunity for self-employment. 70% of the 1.2 billion people that are living on less than 1 US\$ perday live in rural areas with a high dependence on natural resources (LWAG, 2002). In many countries around the world, people living in rural areas have lower incomes and are generally less prosperous than their urban counterparts. Therefore, governments often attempt to promote rural development through the development of natural resources such as forest (Whiteman, 2001). Rural development in the developing countries’ contexts is a greater challenge because of generally weaker government institutions and private-sector capacity, lower levels of government finances, poor infrastructure and greater social, cultural and language diversity in rural areas (Whiteman, 2001). Therefore, promoting rural development through forestry development in developing countries is probably a greater challenge than in the developed countries.

In addition to a number of difficulties the countries with economy in transition are faced with, Bosnia and Herzegovina (BiH) is distinctive for its specific inner administrative structure and still visible scars of the war. The war caused deep and widespread poverty and slow economic growth. About half of the rural population depends directly on livestock and crop production, wood processing, collection of medicinal and aromatic plants and non-timber forest products, fishery and bee-keeping for employment and food security (IFAD, 2008). In the slow recovery of the national economy, the significant role is played by forestry and wood-processing industry.

Bjelašnica is Olympic mountain, situated about 30km away from the capital of BiH, Sarajevo. The geographical position, geological composition, climate, relief, altitude, as well as poor communication and isolation, have led to the complete dependency of its villagers upon the natural resources of the mountain of Bjelašnica. Through history, specific traditional environmental knowledge or local knowledge has been created. Today, the situation in Bjelašnica Mountain is extremely complex. Affected by post-war trauma this area is characterized by low rate of returnees in villages, increasing trends of de-ruralisation and migration, small number of inhabitants in villages, high proportion of elderly people, which all together calls into question sustainability of these villages.

The goal of this paper is to estimate the contribution of forests as an element of local people livelihoods and possibilities of using forest as a livelihood diversification strategy for rural development in Bjelašnica Mountain.

MATERIAL AND METHODS

This paper is based on data collected within exploratory study which was undertaken in mountain of Bjelašnica in 2012. This was the first analysis of the

relations between inhabitants of the Bjelašnica Mountain and its forests by discovering their relations and attitudes toward forests as well as their activities and forest use practices. Furthermore, demographic and socio-economic variables (grouped in various forms of capitals) were linked to specific manifestations of relations and interests of local populations with forests. Two local communities of the Mountain Bjelašnica, which belongs to Federation of BiH, Canton Sarajevo and Municipality Trnovo, were included in sample: local community Šabići and the local community Dejčići. In total, these two communities have 26 villages. Total population in two local communities is 1190 inhabitants. The conceptual framework that was used for the purpose of this paper (Sustainable Livelihood Framework- SLF) is increasingly important in researches about regional development, poverty alleviation, rural development and rural resource management (Ashley & Carney, 1999). It highlights the importance for assessing core and context of livelihood systems or households as their parts. Total estimated number of households in villages was 351. With confidence level of 95% and confidence interval of 10, calculated sample size was 76 households. Percentage of households per village was calculated out of the total population size. Questionnaire-based household survey method was used to get information about research problem with respect to criteria of reliability, validity and representativeness.

While developing questionnaire, sensitivity of certain issues and age structure of the local people was taken into account, and questionnaire was prepared for pilot testing. After post-pilot testing, the structure of questionnaire was finalized and the survey was undertaken.

The household interviews were carried out between 10th and 30th of June in 2012. The study has been done with 76 households' representatives. During field work coincidence of random selection of households was secured by using the Random Number Generator Program in combination of street addresses of households (total number of households in village was entered into the program and random numbers were drawn).

Umbrella framework of research or SLF was operationalized in a way to distinguish and identify certain variables linked with different forms of capital to provide household's livelihood assets or household's portfolios (Bennett, 2010). Five type of SLF's capitals were linked with different variables in the study, each with five identified variables as follows: Human capital (gender, age, level of education, employment, number of household members); Natural capital (Forest ownership, forest property size, form of forest utilization, farming, animal husbandry); Physical capital (building facilities, infrastructure, transport facilities, house appliance, chainsaw); Financial capital (level of monthly income, salary, pension, earnings from sale, bank loan); Social capital (relation with neighbours, involvement in organizations, people who receive welfare, way of getting information, migration).

In this paper were used: descriptive statistics, T-test, ANOVA and nonparametric method of rank correlation with Spearman's rank coefficient.

Correlation with Spearman's rank coefficient was used in order to determine whether the possession of certain capital influences attitudes, behaviours of respondents, etc.

RESULTS AND DISCUSSION

Rural households in mountain of Bjelašnica are engaged in agriculture and animal husbandry for their livelihoods or generating profits. The high number of households (89%) cultivates their farms, and 54.8% are involved in animal husbandry.

Regarding family structure, descriptive statistics have shown that minimum number of household members was 1 and maximum was 8 household members. Average number of household members was 2.82. According to the preliminary results of the 2013 Census of Population, Households and Dwellings in BiH, the average household in BiH consists of 3,26 members; in the Federation of BiH 3,29 members.

More than half, 56.5 % of respondents possess private forest. Minimum size of the forest property is 0.1 ha and maximum is 6 ha. According to the results, average forest property size in this part of Bjelašnica Mountain is 1.13 ha. Average forest property size in entire BiH is 0.5 ha (EFI, 2011).

In this paper, households fixed income refers to any type of constant monthly earnings such are salaries, pension benefits, social support for citizens etc. Total monthly income refers to amount of households fixed income plus income from agriculture, animal husbandry and forest related income.

Regarding the economic situation of households, average fixed monthly income per household was 620.66 KM² (317.34 €). Minimum fixed monthly income of households was 60 KM (30.68 €) and maximum was 2,100 KM (1,073.71 €). Yet 19.7 % (N=15) of households did not have any fixed monthly income. 20 households (26.3%) have income from forests in range from minimum 50 KM (25.56 €) per year to maximum of 2,000 KM (1,022.58 €) per year.

In most of the cases, revenues from forests are unimportant for household's budget since small numbers of respondents are selling forest products. Yet this benefit is calculated at the market value of firewood (approximately 60 KM/m³ or 30.68 €/m³) and based on respondents' answers on the question of how much they cut annually. Average forest related income was 794.5 KM per year.

Minimum income from agriculture per year was 300 KM (153.39 €) and maximum 5,000 KM (2,556.45 €). Average income from agriculture per year was 1,222.22 KM (624.91 €). Minimum income from animal husbandry per year was 200 KM (102.26 €) and maximum 12,720 KM (6,503.61 €). Average income from animal husbandry per year was 4,674.81 KM (2,390.18 €).

²Bosnian currency – Bosnian Convertible Mark.

Total monthly income of households included fixed monthly income and revenues from forests, agriculture and animal husbandry. Minimum total monthly income of households was 60.00 KM (30.68 €/) and maximum was 2,516.00 KM (1,286.41 €). The average total monthly income of households was 733.56 KM (375.06 €).

According to the CCI (2012), household is considered poor if its monthly income is less than 60% of the average monthly income per household in B&H, which is less than 500 KM (256,4 €). According to this, 45.2% of the household in the sample can be considered as poor.

Opposite to the fact that 19.7 % (N=15) of households had no fixed monthly income, in case of total monthly income - 9.21% (N=7) of households didn't have any income. 10 % of households totally depend on agriculture, animal husbandry or forest for deriving profit. Results of T test show that there is a statistically significant difference between average fixed monthly household income and average total monthly income of households ($t=4.481$, $p=0.000$). This result indicates that engagement in any of analysed livelihood strategies increases the possibility of profit and influences households' livelihoods.

Still, larger number of households is involved in activities related to agriculture and animal husbandry than the number of households who earn profits from it. Main reasons for this is a low selling price of their products, undeveloped local market and the distance from the market in cities. These facts are causing demotivation and impossibility for these people to sell their products and derive sufficient income.

The figure 1 shows the comparative percentage distribution of annual profit from forestry, agriculture and animal husbandry among households that deal with this kind of activities and make profit from it (excluding households who did not).

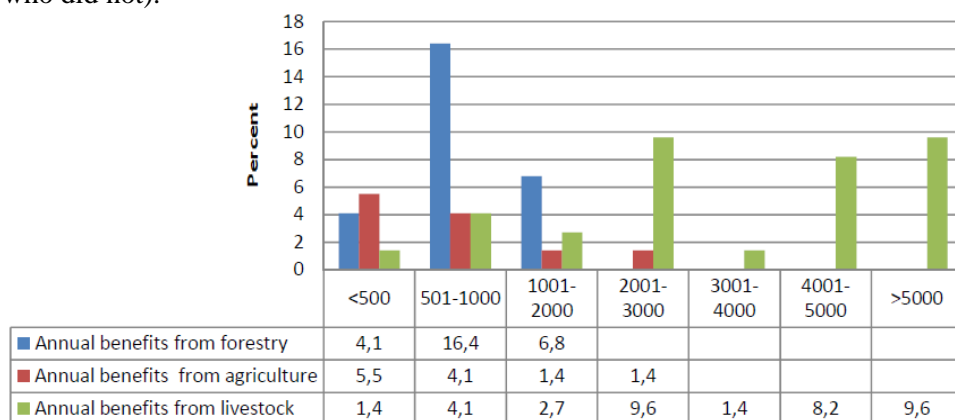


Figure 1. Comparative percentage distribution of households by different types of benefits

Results of ANOVA shows that there is a statistically significant difference in total monthly income of those households involved in animal husbandry and those who did not ($F=3.324$, $p=0.025$), while there is no statistically significant

differences among total monthly income of those households who derived profit from forestry ($F=0.760$, $p= 0.655$) or agriculture ($F=1.621$, $p= 0.367$) with those who did not.

Among households that have benefits from forests, the largest percentage (16.4%) of households derived 501- 1,000 KM (256.9- 512.8 €) annually, 4.1% of households derived less than 500 KM (255.65 €) whereas 6.8 % of households derive from 1,001- 2,000 KM (513.3- 1025.6 €). None of the households earn more than 2,000 KM per year.

Spearman's rank coefficient of correlation reveals that visiting frequency to the forests correlate with certain independent variables (certain indicators of capital). Statistically most significant variables that affect the respondent's frequency of forests visits are: Gender (category "1" in Table 1), Level of Education (category "2"), Forest property size (category "3"), Possession of chainsaws (category "4"), Level of monthly income (category "5"), Salary (category "6"), Bank loans (category "7"), Involvement in organizations (category "8") and Information about NP (category "9").

Table 1. Statistically significant correlations of variable "forests visits frequency" with other variables

		Frequency forest visiting	1	2	3	4	5	6	7	8	9
Frequency forest visiting	Correlation Coefficient	1.000	.538**	-.521**	-.387*	.316**	-.441**	.341**	.421**	.309**	.561**
	Sig. (2-tailed)		.000	.000	.010	.006	.000	.003	.000	.008	.000
	N	76	76	76	43	76	61	76	76	76	76

Forest visiting frequency significantly depends on the total monthly household income ($r= - .439^{**}$; $df = 76$; $p = 0.01$). Results show that respondents who households achieve higher total monthly income tend to more frequent forests visits than respondents from poorer households. Thus 77.8% of respondents from households that did not generate revenue higher than 300KM (153.8 €) never go to the forest, while this percentage is only 5.2% in households with incomes not higher than 1000KM (512.8 €).

In most of the cases, respondents are visiting forests for fulfilment of the economic needs (42.5% of respondents). One fifth (21.9%) of respondents go into forests for sport and recreation, 11% said the reason is rest and entertainment, while only 9.6% goes into forest for health reasons.

Activities that respondents do in the forest are diverse, but largest percentage of them (39.7%) are engaged in collecting of non-wood forest products, 38.4% are in the forest due to the firewood cutting while 4.1% of the respondents are either hunting or fishing. Out of the total 63% of respondents who go into the forest, every second respondent go to forest for firewood (38.4

%), 30.1 % harvested mushrooms, 24.7% medicinal herbs and 23.3% forest fruits. Only 1.4% of the respondents use forests to harvest plant forest material and non-plant forest material. These results show that villagers in Bjelašnica still did not completely lose the Traditional Environmental Knowledge, and the skills to recognize certain types of mushrooms, medicinal herbs and forest fruits.

49.3 % of respondents harvested and used these forest products for personal use, 6.8% used them for themselves or for sale, while only one respondent harvested them only for sale. 5.5% of respondents selling these products to the purchasing stations while 2.7% are selling only sporadically. All respondents who sell forest products have a negative attitude toward purchasing stations, and expressed dissatisfaction with the low prices for products. Profit that they achieve is never higher than 50KM (25.6 €) in a year/season.

Very interesting finding is that people who collect more non-timber forest products are the ones who have higher monthly income ($r = -.325^{**}$; $df = 76$; $p = 0.01$).

CONCLUSIONS

Household livelihoods and the strategies that people use to create them are the core of development. People may be involved in different social and economic activities as individuals, but at the level of the household impacts of those activities are seen most clearly, and the well-being of the household is generally a key objective of development, at least in rural areas.

Situation in mountain of Bjelašnica is quite complex, especially economic situation of households. Average total monthly income of the households in which are included revenues from forests, agriculture and animal husbandry is 770.1 KM (394.9 €). Almost half, 45.2% of the household in the sample can be considered as poor.

Income/benefit from forest appears to be smallest among other two strategies (agriculture production and animal husbandry). Although 63% of respondents go to forest, results show that the most frequent forest visits have respondents from households with larger income and better economic situation.

Mountain Bjelašnica is forested area. People from villages in mountain of Bjelašnica can expand opportunities for income generation and sustainable livelihood enhancement by forest use and selling products from it. One of the most significant variables in frequent forest visits of respondents is level of education. People with higher level of education are visiting forests more frequently. Therefore, appropriate educational programs for local people are a good way for enhancing opportunities to increase income from forests. These programs can refer to non-wood forest products, handicrafts made of wood and income from ecotourism. Also, it is necessary to assist local people by providing them assistance in marketing of their products as well as securing a market place to sell these products at more favourable redemption prices. In this way, diversification of rural activities could be achieved, which can lead to different livelihoods strategies and ensure quality of life in rural areas.

REFERENCES

- Ashley, C., Carney, D. (1999): Sustainable livelihoods: Lessons from early experience. Nottingham. Nottingham
- Bennett, N. (2010): Sustainable livelihoods from theory to conservation practice: An extended annotated bibliography for prospective application of livelihoods thinking in protected area community research. Protected Area and Poverty Reduction Alliance Working Paper Department for International Development. London
- CCI, Center for Civic Initiative (2012): Report on quality of life for 2011. Sarajevo
- FAO, Food and agriculture organization of the United Nations (2014): State of the World's Forests -Enhancing the socioeconomic benefits from forests. Rome
- IFAD, International Fund for Agricultural Development (2008) B&H Rural livelihoods development project, Volume 1: Main Report, also available at: <http://www.ifad.org/pub/>, Accessed at 07/07/2014
- LWAG, Livestock and Wildlife Advisory Group (2002): Wildlife and Poverty Study.
- EFI, European Forest Institute (2011) Private Forest Owners in the Western Balkan. EFI. Finland
- Whiteman, A. (2001): Promoting rural development through forestry policy: Some experiences from developing countries, also available at: <ftp://ftp.fao.org/docrep/fao/008/af302e/af302e00.pdf>, Accessed at 08/07/2014