

Entrepreneurship Development of Non-Timber Forest Products in the Republic of Croatia

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Abstract – The forestry branch, with small- and medium-scale enterprises (SMEs) plays an important role in rural development, recreation and forest-based tourism activities. According to FAO, non-timber forest products consist of goods of biological origin other than wood derived from forests, other wooded land and trees outside forests. Of particular importance for rural population are mushrooms, medicinal and aromatic plants, berries and herbs. They provide an additional forest value and potential for the development of new forest products and services. The aim of research was to analyze the added value chain for NTFP, cooperation between pickers and processors, and determination of key drivers and obstacles for the development of the NTFP market in Croatia. Research included 27 SMEs as Non Timber Forest Products processors. The amounts collected per one enterprise were on average 16.5 tons/year of mushrooms, 153.5 tons/year of aromatic and medicinal plants, and 2.2 tons/year of berries and other fruits. The legal framework is not conducive to the business environment due to high prices of the licence to collect (annually) issued by the Ministry of Nature Protection and market fees. The main obstacles for the development of the national market include unfair competition, lack of education (NTFP collecting and processing) and an undeveloped national market.

non-timber forest products, small – medium enterprises, rural development

1 INTRODUCTION AND PROBLEM MATTER

For the purpose of this research, non-timber forest products are defined as natural products (excluding animal or wood-based products) collected from more or less managed forest resources and, in some cases, with a proportion harvested from cultivated sources (FAO 1995).

More than two billion people around the world depend on non-timber forest products (NTFPs) for food, shelter, medicine, fuel, and cash income. Despite their importance for sustaining rural livelihoods, alleviating rural poverty, biodiversity conservation, and facilitating rural economic growth, NTFPs have not received the sustained and systematic support given to conventional agriculture and forestry. Instead, they remain largely neglected by national and local government development strategies and donor priorities, and are often overlooked by the formal private sector. Where markets for NTFPs do exist, informal trade

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has in many cases led to over-harvesting and to opaque trading structures and inefficient markets. According to the latest Forest Resource Assessment (2010), 720 kg of honey, 5 000 kg of mushrooms boletus sp., 5 000 000 kg of fodder (hay) and 10 000 kg of raw material for medicine and aromatic products were collected annually in Croatia. Data for the NWFP category “fodder” are estimated because there is no reliable data on the quantity and value of removals. This category also includes grass and wild herbs that grow in small forest clearings. Data for NWFP categories “food” (mushrooms, honey) and “raw material for medicine and aromatic products” are also estimated because there is no reliable data on the quantity and value of removals.

Forests in Croatia are characterized by extremely high species richness. The wealth in terms of biodiversity is mirrored in the abundance of Non-Timber Forest Products (NTFPs) collected from the forests by local populations. Among the NTFPs, mushrooms, medicinal and aromatic plants, berries and herbs stand out as of particular importance - both in terms of subsistence value and potential for generating cash income at a village level. Little is known about the functioning of local NTFP markets. For this reason, research into local and regional markets, marketing patterns, problems and opportunities is both timely and important. Primary products such as NTFPs are linked to final consumers through so-called value chains. A value chain describes a full range of activities required to bring a product or service from conception, through the intermediary phases of production (transformation and producer services inputs), delivery to final consumers and final disposal after use (Kaplinsky, 2000). A value chain links the steps a product takes from the farmer to the consumer. It includes research and development, input suppliers and finance. The farmer combines these resources with land, labour and capital to produce commodities.

Forest management is still traditionally oriented and focused on timber. The main income sources are derived from fuel and technical wood. Even so, forestry and the wood industry branch contributes to the national GDP with 1.4% (Annon 2012).

Local, regional, national, and international trade of NTFPs can significantly contribute to community and household economies in this region. As a result, marketable NTFPs can provide an important means for economic growth and sustainable forest management in local communities. However, there is not enough information about NTFP collection, utilization, and entrepreneurship in the country despite their great potential and positive effects on communities and households. An increasing pressure was placed on forestry when countries started to search for economic benefits from their natural resources. Timber productivity as the most important income has been studied extensively, but NTFPs have not been studied despite their evidently high value and diversity. The overall goal of research was to analyze the organization and cooperation within the value chain of NTFPs and their commercialization in the Croatia. In order to achieve this, the paper has the following objectives:

- Determine the quantities of NTFPs
- Determine the importance of key individuals in driving entrepreneurship in the market for NTFPs;
- Determine the extent of the organization and cooperation among the actors within the NTFPs value chain.

Entrepreneurship has typically been defined as an action, process, or activity. This involves a number of aspects such as social acceptance of entrepreneurial behaviour and individuals who are willing to take the risk of creating new firms and capital activity to share risks and benefits involved. Hence, entrepreneurship capital reflects a number of different legal, institutional, and social factors and forces. Taken together, these factors and forces constitute the entrepreneurship capital of an economy, which creates a capacity for entrepreneurial activity (Storey 2003). Thus, entrepreneurship capital manifests itself in the

creation of new firms. David Audretsch and Roy Thurik (2004) state that entrepreneurial capital can contribute to growth and development by injecting diversity and serving as a conduit for knowledge spillovers, leading to increased competition.

The role of enterprises and entrepreneurship in economic development is likely to increase in the future because of the limited possibilities to expand public sector activities in most European countries. Especially in the forest sector, small- and medium-scale enterprises (SMEs) play a central role in the employment of people in local processing, recreation and forest-based tourism activities. SMEs have an advantage of being able to use local knowledge and locally available material and resources in their production. Furthermore, business opportunities in local forestry-wood-processing-chains, if innovative and competitive also in exogenous markets can bring the highest added value to rural areas and closer to the origin where trees are growing. Essential for the success of local forest-based enterprises e.g. wood and non-wood processing industries is to find suitable market niches, build new innovations and have good business management competency. Non-timber forest products (NTFPs), which include all biological products other than timber, are a traditional source of household income in rural areas. They provide an important means for economic growth and sustainable forest management in local communities.

2 MATERIAL AND METHODS

2.1 Object of research

Non-wood forest products and services comprise different forest fruits, mushrooms, handicrafts from wooden and non wooden material, and especially social services such as recreation, tourism, hunting, etc. (Sabadi et al. 2005, Vuletić et al. 2009). The maximum NTFP quantities that can be collected over a year are determined by the State Institute for Nature Protection. The Ministry of Environment and Nature Protection in Croatia issues a licence for the collection of wild plants and their parts for the purpose of processing, trade and other transactions. In forests managed by the company "Hrvatske Šume" Ltd, NTFPs can only be collected with a licence issued by a forestry office. A collection fee is also charged. This refers to collecting mushrooms, chestnuts, asparagus, truffles and other forest products. Recreational collectors of above-ground mushrooms are obliged to pay 50, 100 or 200 kuna to the nearest forest office, depending on whether they use a daily, weekly or monthly licence, whereas licences for other products are calculated according to quantity. The fee for chestnuts picked in state forests is 5 kuna per kilogram, while a bunch of asparagus or black bryony is 10 kuna. These products are picked free of charge in hilly-mountainous areas.

Estimated values (for the FRA 2010) are the medium market values: honey 15 HRK/kg, mushrooms 40 HRK/kg, hay 0.75 HRK/kg, raw material for medicine and aromatic products 1 HRK/kg, other edible animal products 50 HRK/kg. Values for Christmas trees, forest seeds, trophies and wild meat are calculated on the basis of actual market values.

More intensive use of non-wood forest products and services could be an opportunity for the development of small and medium entrepreneurships which can foster economical development in rural areas.

Tannin used in industry is produced from oak, spruce, willow and alder bark, and from oak wood and especially chestnut wood. Resin harvested from pines, larches, firs and spruces is a very interesting industrial material, and so is tannin contained in the cones. In Croatia, resin was harvested from black pine, Scots pine and Aleppo pine. Plants that contain medicinal substances are used in the pharmaceutical industry and plants that contain essential oils (needles, cones) are used in the cosmetic industry. Certain plants are used for pesticide production. In Croatian forestry, linden is the source of bast fibre. Wicker willows, cork oak (cork) and reed are also widely utilized. Walnut, hazelnut, chestnut, raspberry, blackberry,

cornelian cherry, rosehip fruit, and others are used for human food. Mushrooms are particularly important as food. In rural homesteads fruits of forest trees (acorns, beech nuts, etc.), as well as browse and leaf litter, serve as food for livestock. In addition to industrial processing, medicinal plants are also used in popular medicine. Forest honey is an important substance serving as food and medicine.

The company "Hrvatske Šume" Ltd, issued a Regulation on Secondary Forest Products and a Regulation on Truffle Collection, which stipulate their use in accordance with the Forest Law (2005), the Nature Protection Act (2013) and the "Hrvatske Šume" Statute. According to the Forest Planning Regulation, the use of secondary forest products includes grazing, browsing, feeding on acorn, collecting mushrooms and medicinal plants, picking seeds and fruits, collecting frogs and snails, using sand, gravel and stone, and utilizing humus and clay. Apart from the Forest Law (2005) and Nature Protection Act (2013), this area is also regulated by the Ordinance on Cross-Border Transport and Trade in Protected Species (2009), Ordinance on the Collection of Protected Wild Growing Plants for the Purpose of Processing, Trade and Other Reasons (2008), and Ordinance on Mushroom Protection (2002).

2.2 Methodologi

Primary data were collected through a survey with two different semi-structured questionnaires, one for companies active in the field of NTFPs (buyers, processors and traders) and one for pickers (collectors) in the field. The necessary data were collected over a period of two to three months, starting from May to September 2012. The semi-structured questionnaires for companies gave important answers and information, such as: types of NTFPs a company is dealing with; the market for the products (national or international (export)); the interviewee's opinion of the stability of NTFPs markets; cooperation with local population and evaluation of the cooperation; the average prices per NTFP (buying/selling); identifying the main problems in business (process of NTFPs buying, selling, trading); capacity of the company and percentage of capacity utilization; use of marketing tools (PR, Advertising, Branding) (to determine the most successful, the importance of marketing tools); business environment and cooperation with other companies (private, state), documentation necessary for the process (buying, selling, exporting, processing etc). The collected data were processed with statistical program for data processing – SPSS.

For the purposes of this research, non-timber forest products are defined as natural products (excluding animal or wood-based products) collected from more or less managed forest resources and, in some cases, with a proportion harvested from cultivated sources.

Value chain analysis is a methodology that differs from other market chain analysis methodologies, such as the chain analysis advanced by Porter (1985, 1996).

For this purpose the basic characteristic of a value chain was market-focused collaboration: different business enterprises work together to produce and market products and services in an effective and efficient manner. Value chains allow businesses to respond to the marketplace by linking production, processing and marketing activities to market demands. Vertically aligned means that companies are connected from one end of the primary production process (e.g., farmer's field), through processing, and possibly into the final marketing stages where consumers purchase a finished product. At each stage the product value increases. This is different from other types of alliances, such as the collection of agricultural producers consolidating supply, which would be considered a horizontal alliance, because in a value chain the value added to the product is acknowledged. Normally, the term value chain is applied when vertical alliance includes three or more companies, known as links, in the supply chain.

3 RESULTS

The total number of respondents was 27: the youngest respondent was 27 years old and the oldest was 66 years old. Their mean age was 48.19 years. The majority of the respondents were female (55.6 %), and their companies were mostly situated in cities. The education level was very interesting: 44% of the respondents were academically educated. As many as 74% of the respondents were also company owners. The mean number of employees in the companies was 11.44: the minimum number was 1 employee and the maximum was 130 employee. The mean number of seasonal workers employed was 12.86. The minimum seasonally hired worker was 1 and the maximum was 150. The mean number of working hours per year in this sector was 14. 9630. The minimum number of working years was 3 and the maximum was 45 years. All but one of the researched companies have dealt with NTFPs since their establishment. The main activities of the companies involve mushrooms (24%), aromatic and medicinal herbs (39%), berries and other fruits (37%).

As a type of supply processors are equally satisfied with different supply types (own buying places (8%), use other buying places (4%), pickers come in our company (31%), own picker list and contact them (24%), village visit (33%).

The main reasons for buying NTFPs are trustworthiness and reliable norms of behaviour, as well as mobile communication and cooperation; on the other hand, the fact is that customers may wait for a month for get paid. More than 50% of the respondents use their own cars or vans for transport. The mean distance from the company to the buying points is 63.67 km, with the minimum being 1 km, and the maximum 300 km. The mean number of people/companies that the processors cooperate with is 55.11, while the minimum is 1, and maximum 800. The highest mean value of buying (7.98/kg) and selling price (12.59/kg) is for mushrooms and the lowest is for berries and other fruits (3,893/kg). The maximum value of buying (20/kg) and selling (27/kg) price is also for mushrooms (20/kg). Cash is the most frequent (more than 70%) method of payment. The average prices per NTFPs are shown in *Table 1*. As expected, mushrooms have the highest price on the market.

Table 1. Average buying and selling prices (EUR/kg)

	Mushrooms		Aromatic and medical herbs		Berries and other fruits	
	buying	selling	buying	selling	buying	selling
Mean	7.98	12.59	5.79	8.44	3.89	7.253
Minimum	2	3	1	2	0.5	2
Maximum	20	27	13	15	13.5	20.2

The majority of the processors (81.5%) did not change the price of a product in the past year. The main problems of buying include lack of buying points and high price of NTFPs. The important activities which influence selling price are packaging and their buying price. About 74% of the processors export their products.

The stability of the NTFPs market received the mean grade of 2.38. According to this mean grade, the respondents evaluate the market of NTFPs as not stable (5-very stable). Well developed distribution channels and familiarity of the product/ name (brand) rank among important marketing tools. The respondents chose branding as the most important marketing tool.

Table 2. Average NTFP margin for a company

NTFPs margin (Eur)	mushrooms	herbs	berries
Mean	4.61 (57%)*	2.65 (45%)*	3.36 (86%)*
Minimum	1	1	1.5
Maximum	7	2	6.7

*margin percentage increased

Mushrooms have the highest buying and selling price on the market. Aromatic and medical herbs coming second (Table 1). Payment in cash is the exclusive method on the market. The price for mushrooms is 57% higher, for aromatic and medical herbs 45%, berries and other fruits 86%. Although berries and other fruits have such a rapidly valued added price, their selling price is very low (7.23 Euro/kg) (Table 2).

Since marketing tools are insufficiently developed, the majority of the respondents did not answer or did not specify their answers in this part of the survey. For example, marketing tools are described as a good factor but respondents are not aware of its importance. If the respondents had financial means, they would invest in direct communication, advertising on TV and radio, branding and newspapers. More than 11% would invest in marketing in order to gain more profit. Almost half of the processors (48%) offer training courses to the pickers, and 81.5% have a web site.

The capacity of a company for mushrooms is 16 479.23 kg on average, for aromatic and medicinal plants 153 555 kg, and for berries and other fruit 2206.67 kg. The average percent of utilization is around 50 % (Table 3).

Table 3. Company's average capacity and utilization percentage

	Mushrooms		Aromatic and medicinal plants		Berries and other fruits	
	average capacity	average utilization	average capacity	average utilization	average capacity	average utilization
	(kg)	(%)	(kg)	(%)	(kg)	(%)
	16479.23	51.77	153 555	49.65	2206.67	59.40
Maximum	140 000	90	1 500 000	100	15 000	100
Minimum	30	10	45	5	30	5

3.1 Entrepreneurship environment

Inadequate legal framework and unfair competition form a bad business environment. Cooperation between the processors and other enterprises (both private and public) is at a high level (85.2%). Of these, 25% cooperate with "Hrvatske Šume" Ltd., 33.3% with the Ministry of the Environment and Nature Protection and 55.6% with the Ministry of Agriculture. As many as 52% of the respondents point out subsidies as the most important benefit of cooperation with the Ministry of Agriculture. 55.6 % of the respondents find that the amount of necessary documentation is too large, while 51.9% think that time spent on collecting the necessary documents is reasonable.

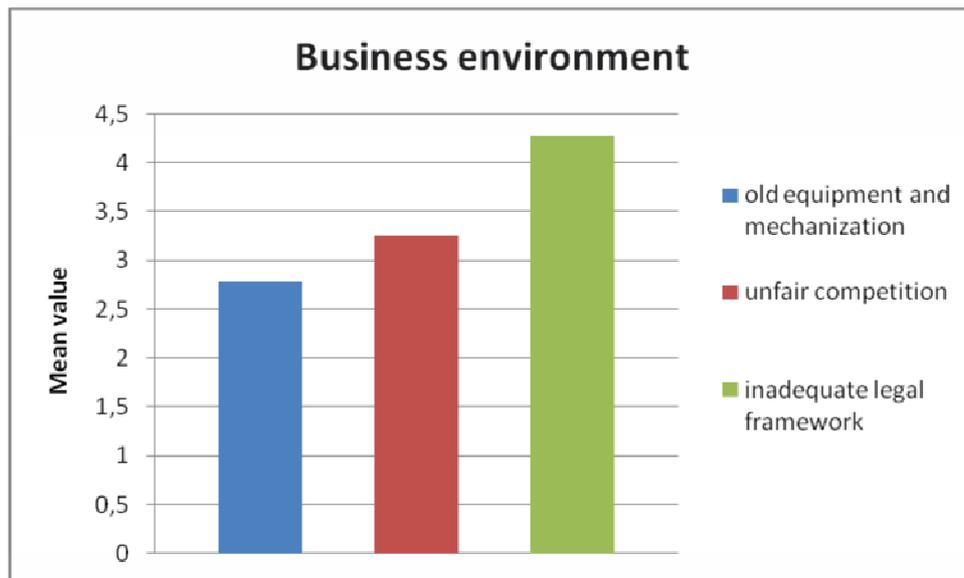


Figure 1. Business environment overview

Rising prices for the NWFP on the European market, growing demand, resource rents as qualitative natural resources with close to nature forest management are possible drivers for production of NTFP.

Some of the barriers for the local entrepreneurs are investments in technology, human resource skills, needs for improvements in organisation and marketing issues such as advertising, labelling and branding. According to the respondents, the main obstacles for development of national market are: unfair competition, lack of education (NTFP collecting and processing) and undeveloped national market.

3.2 Added value chain for mushrooms

A value chain is an alliance of enterprises collaborating vertically to achieve a more rewarding position in the market (Barnes 2004). A value chain is one of the key concepts of strategic management. Successful management with primary and support activities results in a difference between the value of products sold and the costs needed for their production.

According to Porter (1996), primary activities include: input supply, production, marketing and sale, and service delivery. Support activities include input procurement, research and development of new products and services, human resource management, administration and infrastructure. Margin shown in the value chain is a difference between the total value and total costs of performing the primary and support activities (Porter 1996).

A value added chain was analyzed on the example of secondary forest products - mushrooms.

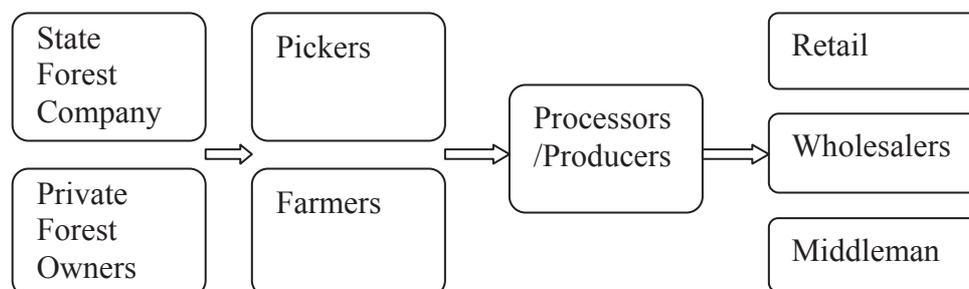


Figure 2. Added value chain scheme

The company "Hrvatske Šume" apply the Forest Law (2005) through their forest administrations and offices. The Forest Law contains special regulations concerning picking mushrooms. This Law is based on a conventional forest management method and fully complies with the European Union directives. A part of the Law closest to the European Union relates precisely to the use of forests, wooded land and products. The Regulation on Mushroom Protection, passed by the State Administration of Nature Protection, stipulates who, when and where has the right to pick mushrooms. Commercial pickers, after paying an annual or monthly membership, are issued a card by the Ministry of Nature Protection and Spatial Planning, which allows them to pick up to ten kilograms of mushrooms, whereas pickers who collect mushrooms for their personal use are limited to two kilograms.

Pickers: Picking is seasonal labour that takes place during the vegetation period (May - September). Pickers usually come from the ranks of poor, socially endangered groups. It is often the case that families have no other source of income other than the one generated from collecting and selling plants. Nevertheless, the number of people interested in collecting plants is significantly decreasing. Pickers usually perform the initial (basic) drying and cleaning, and only rarely cutting the plant material, before selling it.

Farmers (OPG): Farmers usually cultivate medicinal plants on the basis of a contract made with a known buyer. This refers particularly to organic production, where farmers must be registered and must document the entire production process (in accordance with the standards of organic production).



Figure 3. Value added chain for mushrooms

The average mushroom collecting fee in the Republic of Croatia is relatively low and amounts to 0.47 Euro/kg for all mushroom species. Collecting permit is issued for the quantity and not for mushroom species. Processors who as a rule buy mushrooms from pickers in the form of raw products pay about 8 Euro/kg on average (Figure 3). After processing, the market price of final mushroom products is 12.5 Euro/kg on average. A three-degree value added chain increases the value of the product multiply through the process of collecting and processing.

Processors/Producers: companies that perform initial processing of raw material or perform more complex processing of medicinal and aromatic plants - blends of herbal teas (loose tea or tea bags) and teas in tea bags, produce and manufacture cosmetic and pharmaceutical products and different types of food. Production is usually limited to drying, cutting and extraction of essential oils, with the exception of several large companies which also produce the already mentioned final products. In most cases, activities of producers and processors include further processing, packing, product design and development, sale, market linking (they own drying facilities and equipment).

Retailers place their products on domestic markets, while wholesalers participate in the international market. The middleman acts between pickers, farmers and buyers or between domestic and international markets.

Differences in prices at different levels of value chains for mushrooms, and medicinal and aromatic plants are significant. Pickers pay on average about 1- 2 €/kg of delivered plant material. Retailers achieve the highest price, whereas the retail price is much higher than that paid to the pickers. In 2014, for example, a kilogram of dried mushrooms is about 40 Euro/kg.

The majority of the interweaved entrepreneurs are a part of the distribution channel: Supplier (pickers) - Processor (enterprise) -Wholesalers - Retailers - Consumers.

4 CONCLUSION

The development of entrepreneurship with secondary forest products in Croatia is conditioned by the legislative environment and the problems of establishing a legal market of these products. However, the greater the barriers to the entry, the higher the level of profitability. Due to difficulties of controlling the use of natural resources over a large area, there is fear of overexploitation and destruction of some secondary forest products habitats. Entrepreneurs do not have sufficient means to invest in improving the sale and modernizing production. Insufficient investment in certification and branding results in unstable product quality. For the purpose of control and supervision of sustainable management and protection of forests as one of the most valuable natural resources, the company "Hrvatske Šume" Ltd have since 2010 been accredited under the norm HRN RN 45011:1998 to carry out expert supervision of organic production on the basis of the approved certificate.

In view of the above and with the goal of improving the quality and quantity of production of secondary forest products, several Key Successful Factors (CSF) should be defined and developed: (a) undertake better control of quality and compatibility with (international) standards; (b) improve product quality; (c) increase the supply of necessary quantities; (d) set competitive prices; (e) pack and label the products adequately; (f) ensure reliable delivery; (g) perform professional business; (h) invest in marketing; and (i) develop the image of the country of origin.

NTFP Value chains are governed when parameters requiring product, process, and logistic qualification are set which have consequences up or down the value chain encompassing bundles of activities, actors, roles, and functions.

On the other hand, efficient government policy makes it easier for the firm to construct economic rents by providing better access to human skills, and better infrastructure and more efficient financial intermediation than in competitor countries. In this case, a government may protect producers from unfair competition, not just through firm-specific policies such as import-controls, but also through factor-specific policies such as controls on illegal market.

Climate changes, e.g. drought, changes in vegetation and loss of some habitats significantly affect the decreased quantity of the collected NTFPs. Only those producers who have their own controlled cultivation may supervise production and ensure the necessary quality of their products. In these cases, however, they are faced with a problem of procuring high quality seeds and planting material. Although the importance of secondary forest products as a part of forest ecosystems and their effect on sustainable forest management have long been recognized, the obtained results indicate the need for further research into how much these products affect the economic, ecological and sociological aspects of rural development of the country and its population.

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