

Lithuania

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Summary

In Lithuania forests occupy about 2 million hectares, it consists 31.3% of total land area. 32.2% of forests are privately owned. Annual removal is 6.5 million m^3 . The main production of the Lithuanian woodworking industry is sawn wood, furniture. Lithuanian forests are not only the source of wood products but also non- wood forest products such as berries, mushrooms, game etc. Forests are owned by 222.2 thousands private forest owners and 42 state forest enterprises. Forest industry consists 873 companies; most of there are SME's.

The main factors effecting the competitiveness of forest-wood /non-wood/services-consumer chain from the point of view of entrepreneurship in Lithuania: rich wood and non-wood products resources; low level of round wood prices; favourable geographical location; low cost of labour; the possibilities to get financial support from EU funds.

Barriers to entrepreneurship: low level of domestic market development for wood and non-wood products (especially for small-sized round wood); the small-scale private forestry; high transaction cost for entrepreneurship; low capital resources (GDP per capita is low; biggest part of consumption expenditures fall to food and housing); low level of investments and innovations; very weak integration of forest sector to rural development programmes; low knowledge of business establishment and management; weak connections between research and business.

The main problems and research questions for enterprise development in the forest sector: domestic market development strategies; urban consumers demand for forest products and services, integration of forestry into rural development; clasterisation of

wood working industry; social structure of small-scale private forest owners; conflicts resolutions of multipurpose forest utilisation.

Possible policy implications:

- The state support for private forest owners association and co-operation.
- Forest sector integration to rural development programmes.
- Creation of political and legal conditions for development of private forestry.
- Encouragement of small-sized and low quality wood use.
- Development of domestic wood market.
- Promotion establishing and development of SME's producing non-wood products and services in rural areas.
- Encouragement of SME's co-operation.

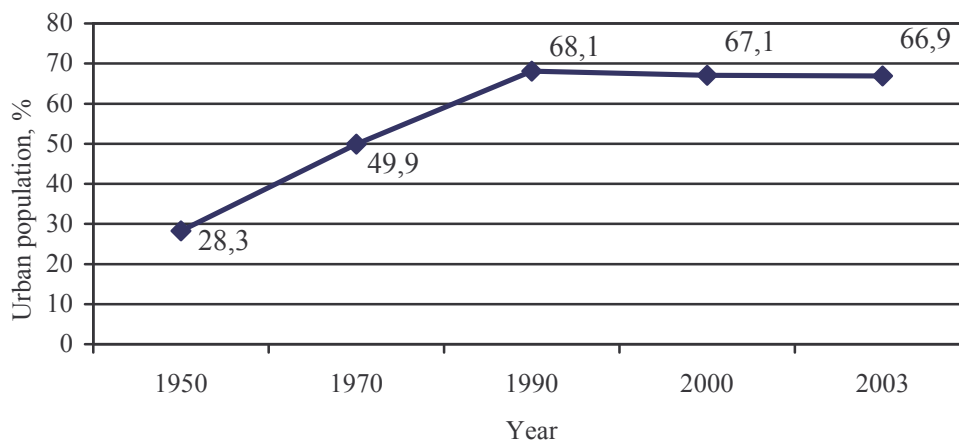
1. Consumption

1.1. State of the art and historical development

In Lithuania the role of forests vary depending on economic and social development of society. In days of old the hunting was very important activity for humans being. Forest was a shelter and source of game meat and plants. Later on wood as a resource started to be used very widely by the industry. The consuming of wood is increasing in Lithuania. Forest is a source of non-wood products. The most important non-wood products are mushrooms, wild berries, medicinal herbs and hunting products. Moreover the importance of forest services such as recreation, nature conservation, carbon sequestration, biodiversity conservation, erosion control etc. is also increased.

1.2. Forest products' and services consumption

Lithuania has a population of 3,610,500, of which 66.9% live in urban areas and 33.1% in rural areas (2003) (Figure 1). During last decade the number of population is decreased.



Source: Statistinis Yearbook of Lithuania, 2003.

Figure 1. Trends of urban population in Lithuania (1950–2003)

Small towns prevail in Lithuania (1–25 thousand inhabitants). GDP per inhabitant is 4229 euro (2002). The major part (more than 40%) of household consumption expenditure fall to food (Table 1).

Table 1. Household consumption expenditure per capita in 2002

Consumption expenditure	%
Food and non-alcoholic beverages	40.7
Alcoholic beverages and tobacco	3.7
Clothing and footwear	6.5
Housing, water, electricity, gas and other fuel	14.0
Furnishings, household equipment and routine maintenance of the house	4.9
Health care	4.8
Transport	6.9
Communication	5.2
Recreation and culture	4.3
Education	0.6
Hotels, restaurants, cafes, canteens	4.6
Miscellaneous goods and services	3.8

Source: Statistical Yearbook of Lithuania, 2003.

Supporting factor of enterprise development is the fast uptrend (4-7% annually) of GDP in Lithuania. Limiting factors are: the low population income level, the structure of expenditures (the biggest part of income is used for food and housing), which directly influence the level of investments (low investments level).

1.3. Market demand for forest related products and services by urban population

The wood products consumption is increasing in Lithuania (Table 2).

Table 2. Appeared consumption for main wood product categories, 1998-2002.

	1998	2002
Round wood (1,000 m ³)	4,176	4,967
Sawn softwood (1,000 m ³)	588	593
Sawn hardwood (1,000 m ³)	103	46
Particle board (1,000 m ³)	108	178
Plywood (1,000 m ³)	26	29
Fibreboard (1,000 m ³)	35	55
Chemical wood pulp (1,000 million t.)	3	2
Paper and paper board (1,000 million t.)	89	132
Graphic paper (1,000 million t.)	37	40
Sanitary and household paper (1,000 million t.)	11	9
Packaging materials (1,000 million t.)	41	76
Other paper and paper board (1,000 million t.)	0	7

Source: Statistical Yearbook of Lithuania, 2003.

In 1994 the annual removal was 4,161,000 cubic meters, while in 2003 – 6,460,000 cubic meters. The import of round wood is low in Lithuania: 1995 – 15,000 cubic meters, 2003 – 77,000 cubic meters. The part of round wood is exported due to the insufficient demand in domestic market. In 2003 the export of round wood was 1,363 thousand cubic meters this is 21.0% of total round wood production.

In 2003 the production of sawn wood was 2,000,000 cubic meters, which 1,009,000 cubic meters has been exported. The import of sawn wood reached 359,800 cubic meters. 79% of round wood and 50% of sawn wood have been used for domestic needs

in 2003. The annual consumption of non-wood products is depended on fruits and mushrooms yield. The major part of forest fruits and mushrooms is exported.

Over the last decades market supply of mushrooms increased because the market in Europe was developed: 1965-1971—210 tones/year, 1996-2003—2031 tones/year. Market supply of the wild berries changed slightly: 1963-1971—1297 tones/year, 1996-2003—1702 tones/year. Market supply of medicinal herbs decreased, because the import of medicinal herbs was more efficient: 1965-1971—337 tones/year, 1996-2003— 47tones/year (Ministry 2004).

The main consumption based supporting factor for enterprise development in the forest sector is increasing wood and non-wood products and services consumption. The main limiting factor is the large part export of low processed wood and non-wood products (mushrooms, fruits).

1.4. Main problems and research questions in consumption for enterprise development

The main problems are: inadequate development of small-sized and low quality wood domestic market; low concentration of sawmills; small-sized holdings of private forest owners; the lack of information about forest utilization for non-wood products production.

Research questions: distribution consumption of wood and non-wood products; services between urban and rural consumers; domestic and foreign consumers wood and non-wood products demand analysis; estimation of household consumption non-wood forest resources.

Annex A: Organisations studying forest products' consumption and main publications and information sources.

Organisations studying forest products consumption and their speciality:

- The Ministry of Environment – round wood, non-wood products.
- Association “Lietuvos mediena”(Lithuanian wood) – timber products.
- Statistics Lithuania—all forest products.

Main publications and information services on forest products consumption:

- Statistics Lithuania – various publications in Lithuanian and English, (<http://www.std.lt>)
- “Statistical Yearbook of forestry” published annually by the State forest survey service, in Lithuanian and English, (<http://www.lvmi.lt/vmt>)
- “Timber economy”– monthly newsletter, published by association “Lietuvos mediena”, in Lithuanian, (<http://www.lietuvosmediena.lt>)
- “VMT naujienos” quarterly newsletter, published by the State forest survey service, in Lithuanian, (<http://www.lvmi.lt/vmt>)
- “Lithuanian Timber Market Statement”– annual report for UNECE Timber Committee sessions, prepared by the State forest survey service, in English, (<http://www.unece.org/trade/timber>).

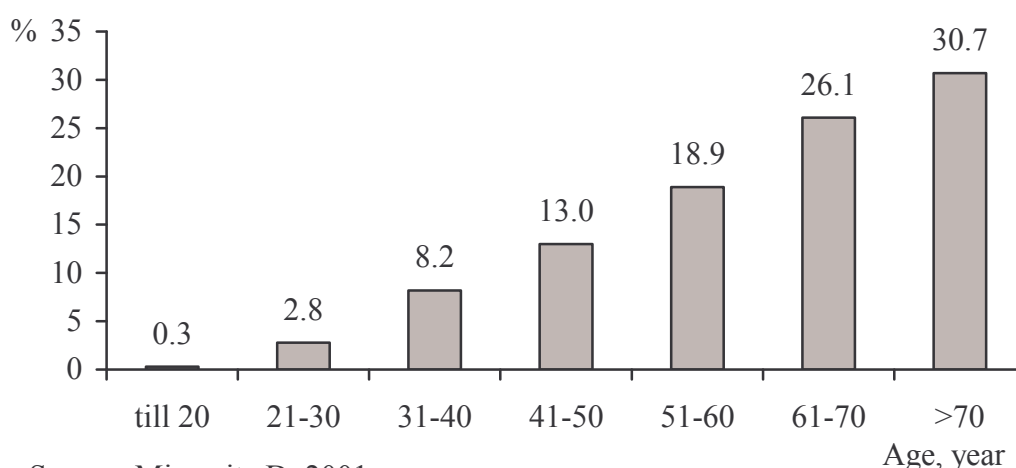
2. Small-scale forestry practises

2.1. State of the art and historical development

In Lithuania the private forest ownership dominated till Land Reform, which has been implemented in 1920. Private forest owners owned about 65% of total forest area. 600,2 thousand hectares private forests have been transferred to the state forests during 1919-1937. Since 1938 private forests constituted only 173 thousand hectares (about 16% of total forest land area). In 1940 private forests have been nationalised by Soviet Governance. Since 1950 the private forest ownership has been avoided in Lithuania. After the restoration of independence forest property rights have been restored. The structure of forest ownership has changed due to an ongoing Land Reform process. According to the Forest Act of the Lithuanian Republic, forests are divided into state and private. Share of forest sector (forestry, wood working, pulp, paper and furniture industry) in national GDP is 3.6%. The private forest sector constitutes 222.2 thousand private forest owners and 665.7 thousand hectares of private forests (01-07-2004). This is 32.2% of total forest area, a figure that is projected to increase to 40–47% in the future. The reform of forestland is implemented more than 10 years and still it is ongoing process; (Ministry 2003). The restitution process is planed to finalise in two or three years.

2.2. Small-scale forest holding

Average size of private forest holding is 4.6 hectares. Holdings with the area up to 3 ha accounted 58% of the total number of private forest holdings in Lithuania. About 55% of private forest owners live in rural areas. The majority (over 82%) of private forest owners reside in the county where their forests holdings are located. The main problems in ownership are: the private forest holdings are too small for efficient forest management, strict state regulation, the absence of a compensation system for covering the losses accrued by forest owners due to restrictions on forest use in order to promote environment protection and conservation, limited domestic wood market, especially on small-sized timber. 30.7% of forest owners are more than 70 years old (Figure 2).



Source: Mizaraite D. 2001

Figure 2. Private forest owners by age (01-01-2001)

Half of private forest owners are females (52.2%). According the survey results the occupational status of private forest owners is following: wage earners – 44.5%, retired persons – 28.0%, farmers – 11.3%, unemployed persons – 5.4%, entrepreneurs – 4.3%, other occupation – 6.5% (Lietuvos miškų 2004).

Wood volume removed by private forest owners from forest estate is small-sized. Mostly it is up to 100 cubic meters. The big part of small-sized private forest owner's holdings are not managed. However, the share of wood harvesting from small-scale forestry is 42% (Table 5).

Table 5. Wood harvesting from small-scale forestry

	Year										
	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Mill.m ³	0.07	0.17	0.70	0.77	0.90	0.79	1.02	1.41	1.76	2.40	2.70
%	1.5	40.0	11.7	14.0	17.3	16.1	20.8	26.4	32.6	38.0	42.0

Mostly forestry-related operations (felling, reforestation, thinning) are carried out by contractors or private forests owners together with families' members. Non-wood products, tourism, recreation and hunting is also important part of small-scale forestry.

2.3. Small-scale forestry practices

Forest owner's objectives have been surveyed in 2001 and 2004 (Mizaraitė 2001, Lietuvos miškų 2004). According the surveys results the most important objectives for forest ownership are: to provide themselves with timber (firewood and rounwood) for private forest owners own purposes; income generation from wood and non-wood products sales. The objectives of nature protection and non-wood products (mushrooms, wild berries) use for home consumption have also big priority.

The most important activities of private forest owners are: cuttings (2.7 million m³ in 2003), reforestation (964 hectares in 2001), mushrooms and wild berries harvesting, hunting. Share of home consumption in small-scale forestry production is about 30% (fuel wood, construction wood).

The Forest owners association of Lithuania (FOAL) is the organisation that represents and unites private forest owners. FOAL was established in 1993 and has 39 local units, which united more than 3000 active members. The main services that FOAL provides its members are information and advice on private forestry, education of private forest owners in forest management, and representation of private forest owners.

20 forest owners' co-operatives have been established during ten years. Co-operatives have very broad-scale operations such as consultancies and training of private forest owners, timber trade, preparation of forest management plans, forest cuttings, reforestation, improvement of recreational areas etc.

Estimated average income per hectare per years is about 200 Lt. Forest land taxes are not applied in Lithuania. Forest owner's income is taxed by 15%. Owner's investment in small-scale forestry is very low. More than 30% of agriculture landowners have a forestland. The most important form of timber procurement is timber sold on stump to

the harvesting companies. Prevail “spot” market, characterised by direct market transactions between the timber supplier and the timber demander.

2.4. Policy framework and production conditions

The Department of Forests at the Ministry of Environment is responsible for forest policy and legislation concerning the Lithuanian forestry sector. The forestry administration also includes the State Environmental Protection Inspectorate, the General Forest Enterprise and the State Service of Protected Areas. All these institutions, like the Department of Forests, come under the auspices of the Ministry of Environment.

The State Environmental Protection Inspectorate is the main institution responsible for monitoring the implementation of the Forests Act. This institution has eight regional departments. It administrates the licenses for forest felling by private forests owners and state forests managers and has an advisory role, guiding private forest owners on forest use, reforestation and protection. Main laws and regulations that direct influence small-scale forestry production:

Rule/regulation	Provisions
Property rights:	
Law on Land	This Law shall establish the relations of ownership, management and use of land in the Republic of Lithuania. This Law is obligatory for all land owners, managers and users.
Law on Land Reform	This Law shall regulate the order of Land Reform and procedure of land privatisation.
Law on the Restoration of the Rights of Ownership to the Existing Real Property	This Law shall regulate the procedure and conditions of the restoration as well as the recognition of continuity of the restoration of the rights of ownership to the citizens of the Republic of Lithuania to the real property.
Forest management:	
Forestry Law	The purpose of the Forest Law is to regulate reforestation, protection and usage and to form the legal preconditions for the management of all ownership type forests. The Law is obligatory for all forest owners, managers and users.
Law on Protected Areas	The Law shall regulate social relations related to system and management protected areas. The Law is obligatory for all forest owners, managers and users.
Regulations on Management and Use of Private Forests	The regulation is obligatory for all forest owners, managers and users.
Special Conditions of Land and Forest Use	The regulation is obligatory for all forest owners, managers and users.
Regulation on Forest Use and Protection in Nature Protected Areas	The regulation is obligatory for all forest owners, managers and users.
Regulation of Sanitary Forest Protection	The regulation is obligatory for forest managers, owners, users and visitors.

Rules of the Fire Prevention Service	The rules are obligatory for all forest owners, managers, users and contractors dealing with forest harvesting.
Regulations of Reforestation	The regulation is obligatory for forest managers and advisable for forest owners.
Rules of Thinning and Sanitary Felling	The rules are obligatory for state forest managers and users.
Regulations for Final Forest Felling	The regulations are obligatory for all forest owners, managers and users.
Non-wood activities on forests:	
Hunting Regulations	The regulation is obligatory for hunting area owners, users and managers.
Rules of Visitation of Forests	The regulation is obligatory for forest owners, users, managers and forest visitors.
Rules of picking-up of Mushrooms in the Forests	The regulation is obligatory for users of non-wood products.

Main policy incentives available to small-scale forestry that directly influence management behaviour: the support for forest sanitary (against insects and diseases) protection, forest fire protection as well as afforestation of abandoned agricultural land. The support from EU funds will be committed for improvement of private forests infrastructure, investments to wood processing and marketing of wood products as well as afforestation of agriculture land. Main regional policy/rural development institutions that directly influence small-scale forestry production is the Department of Forests at the Ministry of Environment (Figure 3).

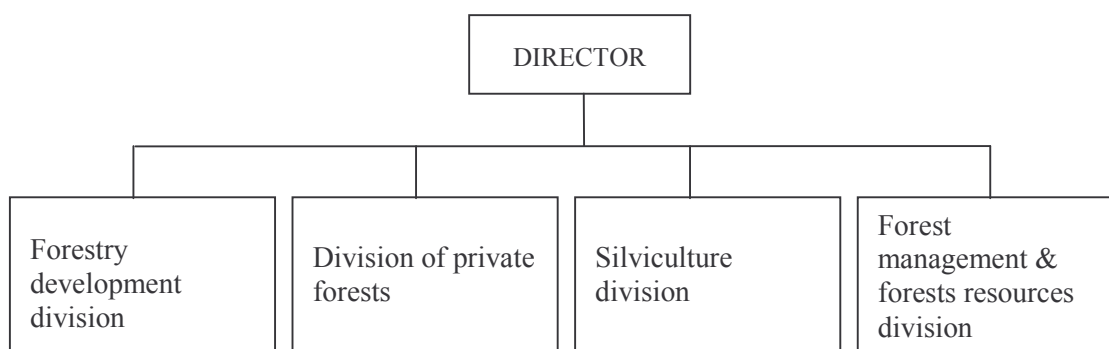


Figure 3. The organisational structure of the Department of Forests.

The most important forest research institutions are Lithuanian Forest Research Institute and Faculty of Forestry of Lithuanian University of Agriculture. Lithuanian University of Agriculture (Faculty of Forestry), Kaunas College of Forestry and Environment Engineering are institutions of higher education of forestry. Undergraduate and post-graduate studies in forestry and applied ecology are dominating in Forest Faculty.

Private Forest Extension Centre was established in 2000. The founders are Forest Owners Association of Lithuania, Chamber of Agriculture of Republic of Lithuania and Danish Forestry Extension. The overall objective of the PFEC is to promote, support and strengthen the sustainable development of the private forest sector in Lithuania by providing advisory, training and commercial services to forest owners.

The Lithuanian Agricultural Advisory Service provides advisors on farm economy, animal husbandry, plant production, buildings and machinery and countryside tourism. The Chamber of Agriculture of Republic of Lithuania provides the consultation dealing with rural development, co-operation, agriculture activity etc. According to the legislation the staff of Regional Environmental Protection Departments should constantly advise private forests owners on forest legislation.

2.5. Conclusions: Supporting and limiting factors for enterprise development in small-scale forestry and barriers to entrepreneurship

The activity of following types of companies is legal in Lithuania:

1. Personal companies. 2. Trust partnership. 3. Commandite partnership. 4. Join-stock companies. 5. State enterprises. 6. Municipal enterprises. 7. Agriculture companies. 8. Co-operatives.

Mostly forest business is developed by personal companies, join-stock companies and co-operatives. Also this activity can be carried out by farmers without registration any type of company. Farmer is natural person, who producing agriculture and forest products. The farm should be registered on a Farmers' Farms Register. Supporting factors for enterprise development in small-scale forestry:

- The number of agriculture sector workers is decreasing in Lithuania. The forestry is one of the alternative activities in rural areas, which enhancing establishments of new workplaces.
- Favourable geographical location of country for foreign forest products trade development.
- Large volume of wood resources. 2.7 million cubic meters (42% of total annual removal) have been cut in private forest during 2003.
- Increasing the demand for countryside tourism, non-wood products (mushrooms and fruits) and hunting.
- No tax for forestland.
- EU granting for forestry and rural development.
- Human resources – 222,000 private forest owners.

According data of the case study in Lithuania the most important barriers for business development of small-sized companies are frequent changes of legal acts (44% of respondents); high taxes (22% of respondents); high bureaucracy. The lack of investment capital and current asset, the difficulty of obtaining credits are also impeding the development of forestry enterprises (Dubauskas 2004).

Limiting factors and barriers for entrepreneurship in small-scale forestry:

- Small-sized private forest holdings and insufficient association and co-operation of forest owners. The two private forest owners associations have been established in Lithuania. These institutions unite only about 2% all private forest owners.
- Public agencies with a lack of interest to deal with small-scale private forestry.
- Low level of forest sector integration into national rural development programmes.

- Strict regulation of forest use in protected areas and the absence of a compensation system for covering the losses accrued by forest owners due to restrictions on forest use in order to promote environment protection and conservation.
- Restrictions for constructional activity in protected areas.
- Limited investment's power of private forest owners.
- Lack of business training and extension system for private forest owners.
- Small share of private forestry in GDP.
- Private forest owners for household needs use significant part forest resources.
- Absence of research regarding to entrepreneurship of small-scale forestry.
- The old age of private forest owners.
- Big part of forest owners reside in cities.
- Private forest owners have not hunting management rights in own forests.
- Fast development of tourism as well as countryside tourism is suspended by criminality.
- Unfavourable credit market, high interest rate of loans.
- Lack of information and advising about forestry business development, which enhance to increase the employment in rural areas and income level of rural population.
- Low level of education and enterprising competence of rural population.
- Due to the costliness miserable possibilities to get an advise of extension services about business development, partnership in business, funding and legal consultations.

Possible policy implications:

- The state support for private forest owners association and co-operation.
- Forest sector integration to rural development programmes.
- Creation of political and legal conditions for development of private forestry.

Annex B: Organisations studying small-scale forestry and main publications and information sources.

- The State Forest Survey Service presents annually the statistic data about private forestry in publication "Lithuanian Statistical Yearbook of forestry". The publication consists data about private forest area, number of private forest owners and holdings. Also these information are available on the website <http://www.lvmi.lt/vmt>.
- The activity of private forest owners is analysed by the Ministry of Environment. Results of analysis periodically are published on informational publications (Private forests in Lithuania, Ministry of Environment of the Republic of Lithuania, 2003).
- The annual reports about activity of the State Environmental Protection Inspectorate is presented on a website <http://vaai.am.lt>. This report consists a chapter "State forest control". Information about illegal fellings and other results of control in private forests, individual forest management plans, reforestation of clear cutting areas in private forests is presented in this chapter.
- The regulations and circumstances of individual forest management plans preparation is presented on a chapter "Private forests" of Lithuanian Forest Management and Inventory Institute website <http://www.lvmi.lt>.
- Information about Forest Owners Association of Lithuania (FOAL), the Private Forest Extension Center (PFEC), private forest owners co-operatives and

regulations, other legal acts dealing with private forests management, data about wood markets is presented on a website of FOAL <http://www.forest.lt>.

- On a website <http://gmu.lt> of the General Forest Enterprise the data about private forests, which are located in the territories under auspices of state forest enterprises and national parks, training, education of private forest owners, forest-related services for private forests owners.
- The informational bulletin “State Forest Survey Service News” is quarterly published by the State Forest Survey Service. The informational bulletin consists information about forest removals, timber trade in state forests as well as private forests. The bulletin is available on a website <http://www.lvmi.lt/vmt>.

3. Wood-processing industries

3.1. State of the art and historical development

During the period of the centrally planned economy (1945-1990), the wood industry was developed with additional supplies of raw material from Russia. It was built in the form of wood plants for the large-scale industry and a considerable number of small sawmills run by agriculture enterprises.

During this period, plants for the production of fibreboard and particleboard were established. Pulp, paper and paperboard showed a constant increase in production between 1950 and 1989. Most of the production was consumed in the domestic market and Lithuania was the net importer of wood products. In the 1980's Lithuania was receiving wood products (roundwood, sawnwood, pulp and paper) in the roundwood equivalent of about 2-2.5 million m³ from other Soviet Republics (mainly Russia). Additionally, every year nearly 3 million m³ of roundwood were supplied from national forests.

Introduction of the market economy initiated immediately after independence in 1990, accompanied by a privatisation process of the existing industry and restitution process of forestland. A steady decrease in production of all commodities resulted in the early stages of independence, which can be seen as a natural reaction to the closure of the traditional markets in the former Soviet Republics, but also a decrease in the raw material supply from Russia. As a consequence, an important number of production facilities were closed, more significantly a hardboard plant, one pulp mill and several large sawmills. It was only after 1994 that the wood industry decline showed a positive trend, followed by a new period of stabilisation and development. The growth rate of the primary wood industry, with the exception of pulp and paper production, was exceeding that of other industry segments in the country. A higher productivity in the industry could be recorded after 1996. Production volumes of sawn timber were kept relatively constant since mid-1990s. It was the structure of the sawn timber producers that varied considerably. Investments in new sawmills replaced part of the shortfall of timber traditionally produced by the former large sawmills. The rest of the volume is now produced by a number of small sawmills.

New markets, mainly in Western European countries but also in the North America were identified and became the main export markets. A number of newly established wood industries started successful operations. New entrepreneurs developed markets for value added products, varying from dimensional wood to laminated solid wood boards,

dowels, elements for staircases, parquet and garden furniture. After regained independence Lithuania became the net exporter of wood products - wood industries export nearly 70% of their products.

3.2. Wood processing industries

The main production of the Lithuanian woodworking industry is sawn wood, plywood, paper and their products, furniture. (Figure 4). There is the trend of increasing employment and turnover of wood processing industry. Wood products are produced by sawmills and enterprises specialising in the production of boards, carpentry products, furniture, paper, etc. as well as by enterprise where the production of such products is not the core activity. In the last years, the turnover of wood products accounted for 10 per cent of the total turnover of manufacturing industry in Lithuania. There are about 100 large specialised enterprises in the wood industry of Lithuania.

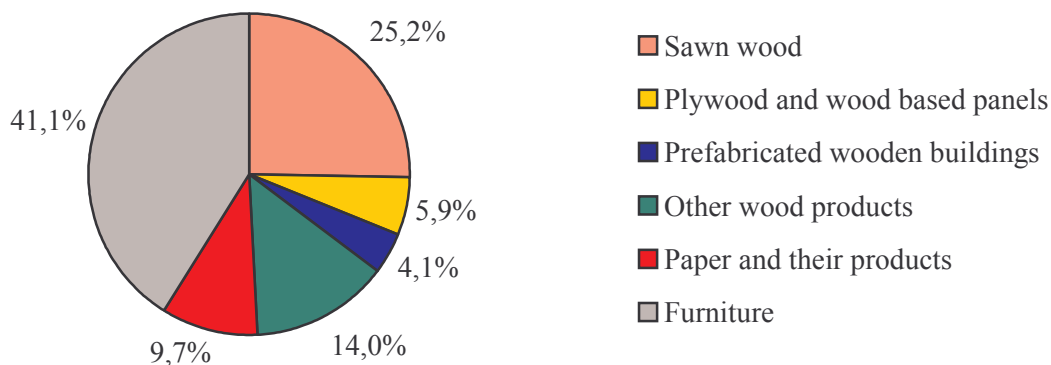


Figure 4. Wood processing structure (2002)

In addition, wood products are also produced by enterprises of other industries, such as construction companies, agricultural and forestry enterprises, etc. In total, there are registered to Statistics Department about 900 companies which are engaged in the production of one or another wood product line (Table 6).

Table 6. Structure of wood industries in Lithuania, 2002

1. Number of enterprises 2. Number of employees 3. Sales	Total,%		Size of enterprises (by number of employees)						
			Micro 0-9	Small 10-19	20-49	Medium 50-99	100-199	Large 200-499	500 -
Manufacture of wood and wood products (except furniture)	1	100	12.0	28.5	42.4	11.7	3.1	1.7	0.6
	2	100	1.4	9.9	32.7	20.5	9.3	12.7	13.5
	3	100	2.5	5.7	23.1	15.0	19.9	13.5	20.8
Sawmilling and planning of wood, impregnation of wood	1	100	11.9	31.8	43.7	8.6	2.5	1.1	0.4
	2	100	1.5	13.8	42.8	18.7	9.3	8.3	5.6
	3	100	2.2	8.2	22.4	10.9	29.4	10.3	16.6
Manufacture of veneer sheets; plywood, laminboard, particleboard, fibre and other panels and boards	1	100	4.4	17.4	34.8	13.0	13.0	8.7	8.7
	2	100	0.1	1.5	6.3	5.0	10.1	17.8	59.2
	3	100	0.1	0.7	11.0	3.6	12.5	16.2	55.9
Manufacture of builders' carpentry and joinery	1	100	16.0	26.9	38.6	13.4	3.4	1.7	-
	2	100	2.6	11.1	33.4	26.4	12.4	14.1	-
	3	100	2.7	5.1	34.0	23.2	14.6	20.4	-
Manufacture of wooden containers	1	100	12.7	14.6	50.9	16.4	3.6	1.8	-
	2	100	1.7	5.8	41.5	31.3	9.7	10.0	-
	3	100	5.1	4.7	44.6	26.0	9.5	10.1	-
Manufacture of other products of wood; manufacture of cork, straw and plaiting materials	1	100	6.1	34.7	38.8	18.4	-	2.0	-
	2	100	0.2	11.6	27.7	36.8	-	23.7	-
	3	100	0.7	7.3	19.0	56.7	-	16.3	-
Manufacture of pulp, paper and paper products	1	100	7.7	26.9	23.1	15.4	15.4	11.5	-
	2	100	0.6	5.1	8.8	13.2	27.1	45.2	-
	3	100	0.5	2.1	3.2	19.6	34.2	40.4	-

If we include several hundred of small enterprises engaged productions of various wood products, the total number of enterprises in the wood industry would reach approximately 2,000 and employment above 40,000. In addition, there are more than 8,000 individuals registered for producing various wood products.

According to Lithuanian legislation micro-enterprise is defined - less than 10 employees, small enterprise is defined – 10-49 employees, medium enterprise is defined – 50-249. Lithuanian wood industry is very fragmented – there is only 31 company employing more than 200 people. SMEs account for more than 60% employment and about half of sales in the whole forest industries sector in Lithuania. In sawmilling the role of SMS's is much higher – they account for more than 75% of employment and 65% of turnover. As Lithuania is a small country, regional distribution does not play the most significant role. Small and medium companies are spread countrywide; only in North Eastern Lithuania the number of sawmills is lower. Larger scale industries (wood based panel, furniture producers) are located mainly in or close to the biggest cities (Vilnius, Kaunas, Klaipeda), i. e. closer to infrastructure and consumers. Value added in forest industries was constantly increasing during the last years. Since 1995 to 2003 the whole forest industry's value added was growing by 15-20% annually, mainly due to rapidly developing wood processing working and furniture sub-sectors. In 2003 the gross value added by wood industry totalled at 470 million euro, i.e. 16% of total value added in manufacturing sector and 3.2% of whole country's GDP. Wood industries sub-sector accounts for 53%, furniture – 38% and paper industry –9% of gross value added in forest industry.

All industrial round wood, which is consumed within the country, is processed in wood processing industries (sawmills, wood-based panel mills). There is no woodpulp production in Lithuania, and all paper production is based on recovered fibre pulp and imported woodpulp. The value added by wood industries per 1 m³ of processed industrial round wood has doubled in real terms since 1995 reaching 70 euro/m³ in 2003. That proves the positive development of Lithuanian wood industries.

Lithuanian forest industry is export oriented, and during the last year forest industry products accounted for 10% of country's export earning. Wood processing and furniture industries export 70% and paper industry – 40% of their products.

3.3. Wood processing industries practices

Wood industry was privatised after 1990's. Lithuanian private owners account for 70% and foreign investors – 30% of capital. Lithuania comparing to other Baltic states has not attracted very intensive inflows of foreign capital into wood industries so far. Currently foreign investment totals at 45 million euro, and which main investors are Norway, Canada, U.S. and Finland.

Lithuania exports raw wood materials (round wood, chips), sawn wood, plywood, wood based panels and increasing volumes of high value-added wood products. In 2003, furniture and its components occupied 43% of the total wood export (Figure 5). Sawn wood is another major export commodity (21%). Lithuania imports large volumes of sawn wood (270,000 m³), wood-based panels, furniture, and paper products. Raw material (round wood) import remained insignificant after regained independence, since early 1990's its imports never exceeded 0.1 million m³.

In 2003 the balance of the Lithuanian foreign trade remained positive export (76.0 million euro) greatly exceeded the import (38.4 million euro). Only the trade balance in paper products is negative. The biggest part of the export production goes to Germany (19%), followed by Sweden and UK (15%) and other major export partners (5-10%) are: Russia (10%), Denmark, USA, Latvia and France. Poland (22%) and Germany (12%) were the main import partners in 2003.

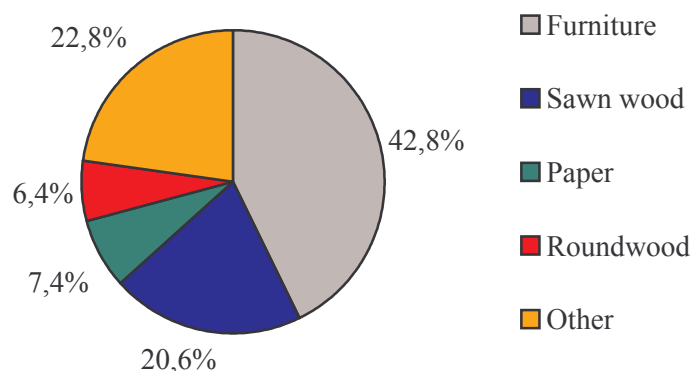


Figure 5. Export of wood production (2002)

Majority of logging is carried out by hundreds of private small contractor companies. Private contractor companies operate in both private and state forests. In 2003, they carried out 87% of harvesting and 37% of haulage work in state forests.

Most of the production manufactured in sawmills are competing in the national and international market. The majority of newly created sawmills and value added manufacturing units have been quite successful. Not all of sawmills operate at the same technical level, so that further investments are required. Managers are aware about the necessity to improve the process, but improvements are generally depending on the availability of new capital. Other companies have already made important investments and will continue doing so. The main factors influencing the competitiveness of Lithuanian wood industries are availability of relatively cheap raw material and labour.

During the last years increasing investments into new technologies are helping to maintain the growth of the sector. The sawmilling industry finds itself in an evolving stage, but needs consolidation, less fragmentation of production units, improved equipment, manufacture of higher value added products, access to other markets, better trained personnel. Total particleboard production is currently owned by the same Lithuanian holding. There are two particleboard plants, with a total production capacity of nearly 200,000 m³/year. Both particleboard factories operate with similar technology: flaker, hammermill, tumble dryers, refiners, aerodynamic continuous matt-forming. Recently both factories started production of laminated boards. The technology in general is of very good standard, even if it is not the most up-to-date one. Some value added is obtained by one of the companies, by cutting to size and adding a profile on the edge, which can be used, for example, as flooring boards for the export market.

In Lithuania only one enterprise produces plywood and three companies produce veneer-form pressed elements (bed slats, snow shovels, chair seats). There is no sliced veneer production in the country. There is no significant production of solid wood furniture, even though it is increasing. Paper industry also does not affect the wood market as paper and paperboard production is based on recovered fibre. There is the great variety of management forms in Lithuanian wood industries in each group by size. In general in bigger companies dominated stock companies, while in small enterprises family ownership (sole proprietorship) is common.

Educational background of owners varies a lot too, and there are many examples of successful companies where owners do not have wood-based education background. Lower level management staff often has wood based education background. Workers usually are trained within the company. In 2003 the sales of wood industry totalled 783 million euro and the net profit amounted to 32 million euro. Small profit margin could be explained as the outcome of continuously increasing investments in new and upgraded technologies in the industry. The number of profitable companies is in woodworking industry profitable companies account 68%, in paper industry - 61%, and in furniture industry - 71%. Capital investments in the wood and furniture industry have determined the growth of the industry's competitiveness. Investments amounting to 50 million euro were made annually since 2001. Annual capital investments in the furniture branch were 30 million euro, furniture – 14 million euro and in the paper and paper products branch 5 million euro. The flow of capital investments has speeded up the

development of new products, increased labour productivity, and improved the industry's competitiveness in international market (The Lithuanian 2002). In wood processing technology innovations are implemented most widely. Sawmills, wood-based panel mills are upgraded with advanced foreign technologies.

Among recently developed new products in Lithuania could be mentioned glue-laminates wood constructions, wood briquettes and pellets, euro pallets, wood chips. There is no special supporting system of innovations in forest sector in Lithuania. However, Lithuanian Innovation Centre helps to develop innovation in all economical branches.

Areas of their activity: technology transfer, raise awareness and innovation promotion, provision of information and technology broker services, high-tech entrepreneurship promotion. Cluster formation process is in initial stage in Lithuanian wood sector. The range of products and companies' activities create good preconditions for formation of clusters in wood industry. In spite of the fact that most of small and large companies in wood industry act independently, there already few examples of joint activities of groups of companies (Libra Group, SBA koncernas, Baltijos Baldu Grupe, Vakaru Medienos Grupe, Baltic American Concord). In several regions there are regional micro-clusters, e.g. in Kazlu Ruda – Marijampole region.

3.4. Policy framework and production conditions

Ministry of Economy is dealing with Industry related issues and it is responsible for implementation of Medium-term Industrial Development Policy and Its Implementation Strategy, which was approved by the Government of Lithuania in 2000. The Ministry of Economy is responsible for the co-ordination, monitoring and assessment of Small and Medium - Sized Business Development Strategy until the Year 2004 approved the Government of Lithuania in 2002.

Ministry of Environment is dealing with forestry related issues and it is responsible for implementation of Forestry Policy and Its Implementation Strategy, which was approved in 2002.

Association of forest industries "Lietuvos mediena" was established in 1993 as a voluntary organisation of the Lithuanian producers and traders of wood products. The Association implements and co-ordinates the tasks delegated to it by its members (currently 100) and represents their economic interests *vis-a-vis* the authorities of Lithuania and inter-industrial organisations.

Main reform policies - privatisation, liberalisation of prices and of international trade of wood products took place immediately after the regained independence in early-1990's. By mid-1990's most of wood industries were privatised. Non-existent foreign trade barriers and implementation of market prices created good preconditions for development of forest industries, even if the early transition period led to closure and bankruptcy of ineffective companies. The growth of wood industry outstrips the pace of recovery of whole Lithuanian economy.

There are no regional rural development institutions, which are specialised in wood

industry for SMEs support. But there are possibilities for wood industry companies to use various support and advice from Lithuanian Development Agency for Small and Medium Sized Enterprises and different regional institutions, organisations, funds, e.g. Chamber of Trade, Industry and Crafts, County Administrations, Business Advisory Services Centres, 32 Information Centres, Credit unions, municipal SME Development Funds, loan incentives for SMEs offered by banks, etc.

There are two main wood industry related education institutions in Lithuania: Kaunas University of Technology (KTU) and Kaunas College (KC). KTU Faculty of Design and Technologies Department of Wood Technologies has studies for bachelor and master degree in wood products design, technology and engineering. KC has developed two programs higher non-university studies in the Industrial Technologies' and Design Department - the production of furniture and wood products and the construction and production of interior articles. The College qualifies the technologists and designers for the woodworking industry. There is established a re-qualifying centre for the woodworking industry specialists under the Industrial Technologies' and Design Department. The lecturers of the Department organise courses and consult about the sawmilling technologies and sawn wood grading.

Scientific research work related to woodworking industry is carried out by Kaunas University of Technology Faculty of Design and Technologies Department of Wood Technology. Research is done in wood strength, humidity, sawnwood yield and its optimisation, etc.

3.5. Conclusions: Supporting and limiting factors for enterprise development in wood processing industries and barriers to entrepreneurship

Supporting factors:

- Access to raw materials. Lithuania's wood and furniture industry is based on local raw material resources. The lumbering branch still has potential and will be able to supply raw materials for the local industry and to maintain the export growth. Apart from the local resources of raw materials for the wood and furniture industry, Lithuania is close to the high quality and inexhaustible resources of Russia, especially it's northern part. The availability of raw materials is not a limitation for the industry but rather an advantage showing the potential for the sector's development.
- Advantageous location. Major European markets (Scandinavia, Germany, Poland etc.) are within a reasonable distance. The industry is currently exporting its products to these markets at insignificant transportation costs. Lithuania has a highly developed infrastructure of roadways and railways. The port of Klaipėda is ice-free and available year round. The inner transportation infrastructure is connected with external roads. Lithuania's geographical position, due to the reasons above, could facilitate the future development of the wood and furniture industry..
- Possibilities to use EU grants. EU grants from structural funds are going to be used for innovations and business development in Lithuania. The following wood industry activities could be supported: establishment and development of SMEs, networks and clusters; development of new technologies and innovations; establishment of business centres, etc.

- Necessity to develop new business activities in rural areas as an alternative for agricultural production. 17.8% of total working persons are employed in agricultural sector.

Limiting factors and barriers for entrepreneurship in wood processing industry:

- The lack of investments: limited self-financing, high costs of credits, complicated procedure for getting credit.
- Low profitability of wood processing industry.
- Lack of innovation supporting and promotion system for wood processing industry.
- Undeveloped domestic market for local production. 22.5% of roundwood and 70% of sawn wood have been exported in 2002.

Possible policy implications:

- Development of domestic wood market.
- Encouragement of small-sized and low quality wood use.

Annex C: Organisations studying wood processing industries and main publications and information sources.

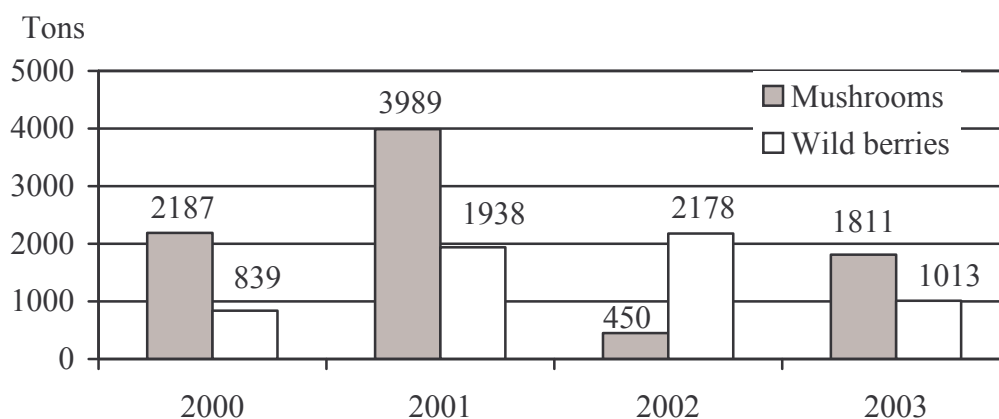
Main publications and information sources on wood processing industries:

- Statistics Department – various publications, in Lithuanian and English, (<http://www.std.lt>).
- "Statistical yearbook of Forestry", published annually, in Lithuanian and English, published by "State Forest Survey Service" (<http://www.lvmi.lt/vmt>).
- "Timber economy" – monthly newsletter, in Lithuanian, published by association "Lietuvos mediena" (<http://www.lietuvosmediena.lt>).
- "VMT naujienos" – quarterly newsletter, in Lithuanian, published by „State Forest Survey Service" (<http://www.lvmi.lt/vmt>).
- "Lithuanian Timber Market statement" – annual report for UN ECE Timber Committee sessions, in English, prepared by "State Forest Survey Service" (available at: <http://www.unece.org/trade/timber>).

4. Non-wood forest products and services

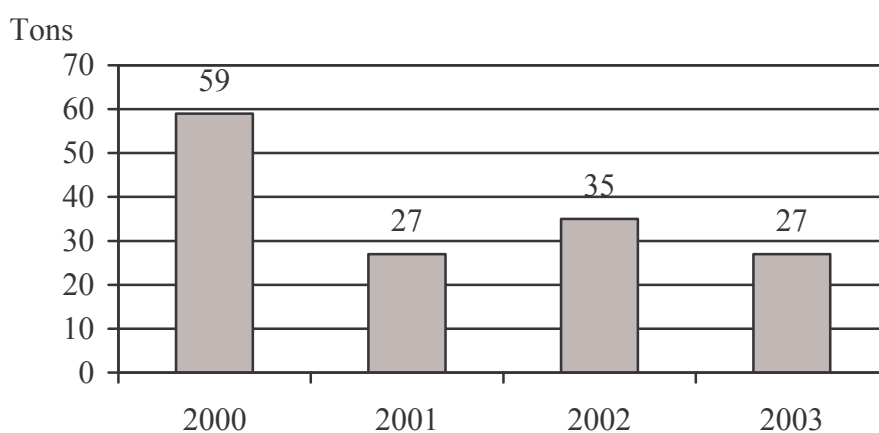
4.1. State of the art and historical development

Rural business provides non-wood products and services: gathering, processing and trading of forest fruits, mushrooms and medicinal herbs, hunting, countryside tourism. Forest services without market: recreation, carbon sequestration, biodiversity conservation, erosion control, water protection etc. Over the last decades market supply of mushrooms increased while the market supply of the wild berries changed slightly (Figure 6). Market supply of medicinal herbs decreased, because the import of medicinal herbs was more effective (Figure 7).



Source: Lithuanian Statistical Yearbook of Forestry, 2004.

Figure 6. Market supply of mushrooms and wild berries (Lithuania, 2000-2003)



Source: Lithuanian Statistical Yearbook of Forestry, 2004.

Figure 7. Market supply of medicinal herbs (Lithuania, 2000-2003)

Important income source for rural population are gathering of mushrooms, wild berries and development of countryside tourism. The part of mushrooms and wild berries are not sold, but is consumed for own needs. There is need for sociological survey about household consumption of mushrooms and wild berries in Lithuania. Importance of recreation of Lithuanian forests is increasing. According the Forest Act persons have the right to visit forests freely, except for reservation and special purpose objects (border zones, military objects or similar). Visiting persons can gather forest fruit, medicinal herbs and materials, except for the plant species, the list of which is approved by the Ministry of Environment, can collect nuts, berries and mushrooms, keep bees in state forests keeping them in hives and bee-coops. According to the survey data objectives of forest visitors are: mushrooms and wild berries gathering, walking, sunbathing, hunting, fishing (Riepšas 1997).

The wild game is under the state regulation in Lithuania. The total hunting area constitutes 4,178,362 hectares hunting season including 1,931,651 hectares of the forest area and 2,246,711 hectares of the fields, shrubs, waters. The total hunting area involves

897 hunting units, where are more than 30 thousand hunters. The number of the harvested game in 2002/2003 hunting season is indicated in the Table 7.

Table 7. Harvesting level in the last hunting seasons

Game species	Harvested in	
	2002/2003	2001/2002
Moose <i>Alces alces</i>	476	504
Red deer <i>Cervus elaphus</i>	833	1288
Fallow deer <i>Cervus dama</i>	10	23
Roe deer <i>Capreolus capreolus</i>	12,231	11,569
Wild boar <i>Sus scrofa</i>	10,843	10,300
Brown hare <i>Lepus europaeus</i>	11,606	8,346
Pine marten <i>Martes Martes</i>	831	473
Wolf <i>Canis lupus</i>	64	76
Red fox <i>Vulpes vulpes</i>	16,949	13,018
Raccoon dog <i>Nyctereutes procynoides</i>	5,215	4,525
Beaver <i>Castor fiber</i>	5,630	3,907

The main information source on non-wood forest products and services is “Lithuanian statistical yearbook of forestry”. There is following information about multiple use of forests: area of forest plants used for gathering berries and herb raw; market supply for wild berries, mushrooms and medicinal plants; export of mushrooms and wild berries; hunting area, game population; number of hunted animals.

Lithuanian Forest Management and Inventory Institute periodically provides information about areas of wild berries and medicinal plants in forests. During forest inventory in 1978-1988 the assessment of these areas was performed. The State Protected Areas Service under the Ministry of Environment provides information about recreational facilities in state parks. Lithuanian Countryside Tourism Association publishes informational booklets about possibilities to have good and purposeful rest in farmsteads.

The main organisation, which constantly makes studies and analysis on non-wood forest products, is the Nature protection department of the Ministry of Environment. The department provides information about the market supply, import and export of mushrooms, wild fruit, berries, medicinal and technical plants and data of hunting and game assessment.

Most researches dealing with non-wood forest products and services were made in years 1970-1985: productivity of non-wood resources, peculiarities of their grows, main game ecology, its significance for forestry and the regulation of its number; recreational needs, reaction of forest ecosystem to recreational intensity, management of the recreational forest. Lithuanian Forest Research Institute implements ongoing research projects related to non-wood products and services. These projects consist research topics: interaction between wild animals and forests; recreational areas in afforested abandoned agricultural land; pine stand reforestation in recreational forests; growth of forest stands in strict forest reserves; protected forest areas in Lithuania — analysis and harmonisation (COST E27); contribution of forests to mitigate greenhouse effect (COST E21).

4.2. Case studies of successful marketing strategies

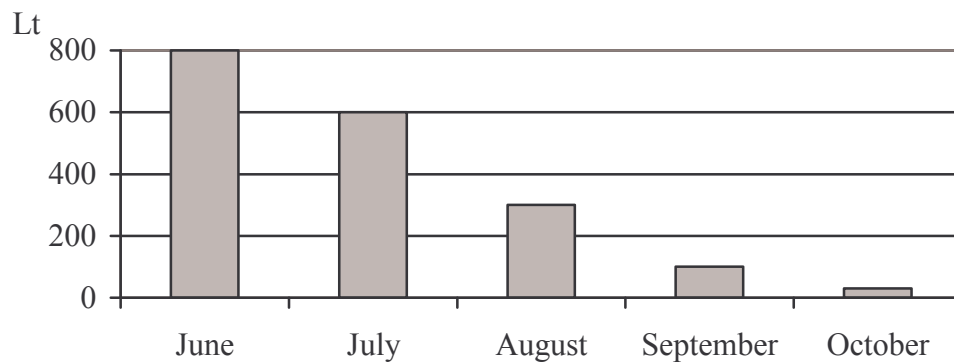
4.2.1. Mushrooms harvesting

Mushrooms gathering as a type of business consists following activities: mushrooms gathering, processing and products trade. In Lithuania about 20-30 species of mushrooms are used. The annual potential yield of mushrooms is about 21-29 thousand tons (Budriūnienė 1992). The yield of mushrooms uneven in different regions of Lithuania. Territory of Lithuania is divided into three regions by mushrooms richness: 1) southeast; 2) west; 3) central.

The mushroom's richest region is southeast, the least - central region. The data about total volume of gathered mushrooms is not available in Lithuania. During 2002 the mushrooms market supply consisted of 450 tons, 2001 - 3989 tons (Ministry 2004). According to the expert assessment, annual market supply consisted about 30% of total volume of gathered mushrooms that is about 1.5-12.9 tons. Mostly it is chanterelles (2001 – 77.3%, 2002 –93.9%) and boletus (2001 – 18.2%, 2002 – 4.0%). About 20-30 trade companies supply mushrooms in Lithuania. Mostly it is limited stock companies. All enterprises are SMEs. The average price of chanterelles is 8-15 Lt/kilogram. Mushrooms have been exported from Lithuania to 18 countries in 2002. The export reached 1.24 thousand tones. Mostly mushrooms have been exported to Germany – 758 tones; France – 528 tones; Austria – 219 tons; Sweden – 153 tones; Poland – 117 tones. The main exported species was chanterelle (68.7%). In 2002 import of mushrooms reached about 216 tons. Mostly mushrooms are imported from Russian Federation – 78.6 tones, Belarus – 54.2 tones and Latvia – 20.3 tones. Also mushrooms are imported from Germany, China, Ukraine and other countries. About 71.8% of total imported mushrooms are chanterelle (LR aplinkos ministerija 2003).

The company “Hesona”, which is located in Grūtas village, developed this business very successful. Annually this company are processed and supplied to domestic market about 50% of purchased mushrooms volume. This company also are processed vegetables. Annual turnover of this company amount about 10-20 million Lt. Moreover hundreds of rural people are employed in this region.

The Forest Act and other legal regulations such as Regulation of mushroom's collection in Lithuania regulate mushrooms collection. Income of natural person is untaxed, if it is earned from collection of mushrooms, wild berries, nuts, and medicinal herbs. Forest covers a relatively large area of low-productivity land in Lithuania. Therefore the gathering, consumption and sale of mushrooms are an important additional income source for rural population farming on this land. Country people of southeast Lithuania have significant incomes from this source (Figure 8). This region is distinguished for its wood and rich mushrooms places (Batuleviciute 2002).



Note: average wage - 982 Lt/month (2001).

Figure 8. Monthly income of rural population earned from mushroom's collection in Varėna region (June-October, 2001)

Ravage of moss is the main environmental damage done by mushrooms collectors. The Regulation of mushroom's collection defines main mushrooms gathering rules but mushroom's collectors are not always following rules. Research, education, extension services related to the non-wood products entrepreneurship development is not existed in Lithuania. Barriers to entrepreneurship: high dependence of non-wood products volume on climate conditions, seasonality, demand only for two species of mushrooms: chanterelle and edible boletus, lack of information and education, mushrooms gathering is free in all types of forests. Research needs: resources study, consumers needs study, co-operation possibilities, market analysis.

4.2.2. The countryside tourism

The countryside tourism is become important activity for rural population, which could be a source of stable additional income and a part of the regional development especially in unfavourable for agriculture activity regions. The countryside tourism activity consists: farmstead for tourists lodge; providing services for special tourists paths; camping; museology; rent of bicycles, bouts and special tools for tourists (Lietuvos 2004a).

A part of these activities is dealing with forestry and forests. Mostly farmsteads are located near waters and forest areas. In 2001 over 200 farmsteads have been registered for providing countryside tourism services, while 2004 - 350 farmsteads. About 70.0 thousand tourists used the services of farmsteads during 2002. All countryside tourism farmsteads are ranged to four groups. Four "storks" signed farmstead providing the highest level of services, one "stork" - the lowest. The requirements for farmstead signed by one "stork": a night stay on hay in a born or in a modest farmstead; guests live independently, only a few services are provided.

The requirements for farmstead signed by two "storks": guests live in a farmstead in a summer cottage; common sanitary facilities, shower for all guests; guest rooms are cleaned; catering upon the agreement. The requirements for farmstead signed by three "storks": guests live in a farmstead separately from the hosts; double or three-place rooms; sanitary facilities, showers not in every room; a kitchen, dishes and sauna for guests.

The requirements for farmstead signed by four “storks”: cosy and neat environment in the farmstead; single and double rooms with all conveniences, services, supply of various attractions, traditions of culinary heritage, organisation of festivities, seminars and conferences (Lietuvos 2004).

The farmstead activity is organised as personal enterprises. The business certificate is obligatory for providing of countryside tourism services. Mostly it is small-scale business. Average farmsteads have only 10 bedspace for tourists. Institution involved in the sector: the State Tourism Department under the Ministry of economy, Lithuanian Tourism Association; Lithuanian Countryside Tourism Association.

The main objectives of the State tourism department are: to evaluate the strategic planning of tourism activity; to offer proposals dealing with tourism policy and its implementation for Government; to implement the National programme of tourism development; to co-ordinate the state institutions activity for tourism development, information and resources usage as well as assessment.

Lithuanian Countryside Tourism Association is non-governmental organisation. The Association unites persons providing countryside tourism services. The main objective of this organisation is to unify countryside tourism services providers for solving their objectives and problems.

According to the legal acts the tax concessions are available for countryside tourism services providers if the 50% of total annual income was earned from agriculture activity. Moreover the compensation of bank interest of loan could be covered according to the regulation of the Ministry of Agriculture. Information dealing with the tourism in Lithuania is provided by the informational centres (35). Lithuanian Countryside Tourism Association provides information about farmsteads and countryside tourism services on the Internet.

In 2003 the case study “Tourism market development in Lithuania” was carried out by the Group of Business Management Technologies (Verslo 2004). The report of case study consists a chapter “Countryside tourism”. Experts concluded that countryside tourism would develop faster than other types of tourism in Lithuania. Education of tourism specialists is organised by few institutions in Lithuania (Kaunas business college; Klaipeda Accounting school; Kaunas college; Vilnius co-operation college).

Special courses for entrepreneurs and advising are organised by the Countryside tourism Association. The educational material dealing with rural enterprise management, organising and planning, guide of managers, bookkeeping and taxes etc. for countryside tourism entrepreneurs is offered on the website of Association. Moreover the education programme of countryside tourism organising is already prepared and trainings for countryside tourism entrepreneurs organised (Lietuvos 2004a). Participants of trainings have a possibility to get a special certificate. Prices of room rent in farmstead vary from 15 Lt up to 125 Lt per night. The price level depends on quality of provided services.

The owners of farmstead perform roles of entrepreneurs, owners, and managers:

- Entrepreneur – organises the countryside tourism activity, gets profit from this activity and takes the benefit to society;
- Owner – has a property right to use resources for countryside tourism activity development and income earned from this activity;
- Manager – coordinator of countryside tourism activity in own farmstead, decision maker and implementer (Lietuvos 2004a).

Mostly the verbal agreements (contracts) are made for services providing between farmstead owners and tourists. The written agreements are recommended to made, because sometimes agreed prices and services quality are not kept.

The financial investments and other resources are needed for establishment of countryside tourism business. The main elements of countryside tourism activity: farmstead preparation for countryside tourism; infrastructure creation for services providing; services providing for tourists; relations between business partners; providing information for clients; booking and documentation of activity.

The deep integration is between countryside tourism activity and usage of non-wood products and services (mushrooms and wild berries gathering, hunting etc.). Barriers to entrepreneurship: payment for business licence, bad conditions of countryside roads, strict restriction in protected areas impeding the countryside tourism development, low quality of services. Related research needs: analysis of forest significance for countryside development and integration with other forest enterprises.

4.2.3. Hunting

The total hunting area constitutes 4,178,362 hectares including 1,931,651 hectares of the forest area and 2,246,711 hectares of the fields, shrubs and waters. The total hunting area involves 897 hunting units, where are more than 30 thousand hunters – users of game resources. The number of the harvested game in 2002/2003 hunting season is indicated in the Table 7. Products of hunting:

- Venison and meat from hunted game (roe deer, red deer, moose, wild boar, brown hare, beaver, waterfowl)
- Trophy (antlers with or without skull cap, tusks, skulls, hoofs, bones)
- Furs, skins (fur game, ungulate skin, pelage)
- Game bristle, feather, fluff
- Perfumery raw
- Other small raw for household.

The Hunting Law and Hunted Rules as well as the Law of Wildlife define public relations concerned with game use and protection. Alive game animals are under the exclusive state proprietary. Hunted animals became the property and are at the disposal of the land users except a hunting trophy and variety venison that became property of the particular hunter who has hunted the certain game.

Game resources users:

- Natural persons: non-associated persons and associated members of different local hunter associations. The total number of the hunters is 29.3 thousand including 27,695 persons or 90.8% (by data 2003) hunters– members of the Lithuanian Association of Hunters and Fishers. 7,772 hunters or third of the total number of members are hunters of the higher category responsible for the game selection and culling. There are only 0.4% of hunter-women. Near 1,550 or 9.2% hunters are members of other Hunter organisations. The data on hunters are given and collected in the *Hunter Digest*, the main Hunter Data Base from Apr. 2004.
- Legal persons: hunting clubs, groups (units) and their associations (n=649 hunting clubs belonged to the Lithuanian Association of Hunters and Fishers), that in turn belong to 7 regional Environment Protection Departments. The hunter clubs and groups are public organisations following their statute, the Law of Public Organisations, and other legislative acts. 3,918 persons – members of the Association are extramural hunters. Hunting clubs keep hunted game production at their discretion; biological research institutions engaged in the game management and wildlife sciences, habitat conservation, nature-based tourism, which have been deputed to use game resources with scientific purposes by the Ministry of Environment.

Game production processors:

- Personal (families, personal enterprises);
- Joint-stock companies. The main venison processing company is Joint Stock Company “Viltlit” that has subsidiary companies in the different regions of the Lithuania.

Processing is mainly concentrated in the closed joint stock enterprises (“Viltlit” ~ 70%, “Utenos mėsa” etc. ~ 20%) and family & SMS (~10%).

Table 8. Prices for the fresh untreated game (Lt/ 1 kg, 2002/2003 season)

	I class	II class	III class
Roe deer	9 Lt (2.61 euro),	7 Lt (2.03 euro)	6 Lt (1.74 euro)
Red deer	4 Lt (1.16 euro)	3 Lt (0.87 euro)	2 Lt (0.58 euro)
Moose	4.5 Lt (1.30 euro)	3.5 Lt (1.01 euro)	
Wild boar	4 Lt (1.16 euro)	3 Lt (0.87 euro)	

2003 annual export constituted a venison as the follows: deer - 2 tons, moose – 9 tons, roe deer – 83 tons.

The General Forest Enterprise under the Ministry of Environment is the main coordinator of the professional hunting area (PHA) management and use forest enterprises are responsible for the organisation and implementation of PHA management, supervision and protection. The General Forest Enterprise also settles and revises the advisable tariffs for hunting taking into consideration external changes in hunting prices.

Local municipalities give the financial support for preventive measures while other activities as the development of hunting tourism, protection and increase of game

populations, management and supervision are supported by the income from organisation of hunting, venison sale, hunting facilities and other incomes from the main activity of forest enterprises. Special Personal Enterprises “Felis”, “Explore Baltija”, “Hubertus Baltic”, etc. organise and pursue both domestic and external hunting tourism. Countryside farmsteads (32) offer domestic hunting tourism facilities as a part of the countryside tourism.

The hunting profit is appropriate by the user status and share on the ground of valid legal acts. Hunting production (shot, captured alive or unalive animals, their parts, thrown antlers and other products of their vital activity as well as dead or injured animals that are found on the hunting area) owned by users of hunting area. Users dispose hunting production at their own discretion including personal use and selling.

In the mean time, respectively:

- Users of hunting areas pay a set annual fee for the use of game resources at stated period of the half-year on the ground of hunting area category depending on the habitat suitability to game (Categories I – VII, tariffs from maximum 1.8 Lt/ha (0.52 euro/ha) to minimum 0.1 Lt/ha (0.03 euro/ha)), Lt per hectare. In this case, the Environment Protection Fund of the local municipality gets 70% of the annual fee, and the Treasury accumulates the next 30% for the development programmes of the environment protection. The fee is decreased in the case of changes in the property relations and forbidding the hunting on the private land respectively. The most share not less than 70% of the cumulative fee is designed for the preventive measures that are necessary for forest/landowners, managers and users of hunting areas protecting forest/land against damage caused by game.
- Users of hunting areas also pay to the Regional Environment Protection Departments (REPD) for licences to hunt the certain game species, 1 Lt per one licence.
- Landowners, who have contractual agreements and permitted to hunt on their territory, are recompensed for the damage caused by game to forest and agricultural crops according to validate legal acts.
- Landowners, who have forbidden to hunt on their territory and made a veto request to the Commission of the HAU Formation of the local municipality within 1 month, are not recompensed.
- Landowners – hunters have right to form the hunting area unit on the condition that the hunting area unit is not less than 1,000 hectares. In the concrete, it is possible only in co-operation with the not few neighbours – landowners. Landowners – hunters dispose hunting area and hunting production at their own discretion. Licences are obtainable on the same way from the REPD taking into consideration that alive game are exclusive state property.
- Landowners – hunters have right to hunt on the hunting area units that cover their private lands under the agreement with all users of adjacent hunting area units.
- Manufacturers of the purchased hunting production dispose their production at their own discretion on the ground of the valid laws and regulations.
- Forest Enterprises managing the professional hunting areas, organise and implement measures of management, maintain and protect game populations and their habitats, protect forest against damage caused by game, collect and propagate experience, information and samples of the complex model forest- game management and

agriculture, development of the hunting tourism and hunting traditions. Forest Enterprises use the income of hunting organisation, sale of venison, hunting facilities as well as incomes from the main forest management activity for the development of hunting tourism and increase and improving game populations and habitats. Additionally, these users of game resources obtain the financial support for the forest protection against game from the local municipality. These hunting units are under the control and supervision of the General Forest Enterprise that is their constitutor.

Nature-based tourism including hunting tourism is rising as an important branch of the existing and developing village tourism (n= 32 countryside farmsteads). The hunting tourism is treated as the active consumptive branch that should be combined with non-consumptive passive branch such as game watching and photography and non-consumptive active one as the hiking and watching- photography tour.

Formation of the private professional hunting area initiates the development of hunting facilities, game farming and further processing and trading. The total private hunting area constitutes 11,416 hectares and has further uptrend.

Joint- stock company "Viltlit" is the main venison processing company while other large meat processing companies "Utenos mėsa", "Nematekas", "Agaras", "Krekenavos Agrofirma" contribute fractionally.

4.3. Conclusions: Supporting and limiting factors for enterprise development in non-wood forest products and services production and barriers to entrepreneurship

Supporting factors:

- Rich resources of non-wood products (mushrooms, wild berries, game meat etc.)
- Increasing the demand for non-wood products, hunting, countryside tourism.
- Activities dealing with non-wood products use are efficient and create the new workplaces in rural areas.

Limiting factors and barriers:

- High dependence of non-wood products volume on climate conditions
- Seasonality of non-wood products production
- Demand only for few species of non-wood products, e.g. mushrooms: chantarelle and edible boletus.
- Lack of information and education about non-wood products and services.
- Gathering of wild berries, fruits, mushrooms is free in all types of forests.

Main problems: intensive use of non-wood products; weak co-operation of SME's; lack of knowledge about production of non-wood products and services; limited financial resources; prevention of using rights NWFP's in private forest holdings. Research questions: NWFP's resources study; NWFP's market analysis; an analysis the role of innovation on non-wood forest products and services development; modelling of different forest products and forest function (multifunctionality); assessment of NWFP's value. Possible policy implications:

- Strengthening establishment and development SME's producing non-wood products and services in rural areas.
- Encouragement of SME's co-operation.

5. Forests and ownership

5.1. State of the art and historical development

The total forested area has been steadily increasing, from 21.8% in 1938 to 31.3% in 2003. Furthermore, timber volume has increased. The growing stock volume increased from 158 million cubic meters in 1938 to 383 million cubic meters in 2003 (Ministry 2003). In Lithuania the private forests ownership dominated till 1920. Private forest owners owned about 65% of total forests area. 600.2 thousand hectares private forests have been transferred to the State Forest during 1919-1937. Since 1938 private forest constituted only 173 thousand hectares (about 16% of total forest land area). In 1940 part of private forests have been nationalised by Soviet Governance. Since 1950 the private forest ownership has been avoided in Lithuania. After the declaration of independence forest property rights have been restored.

5.2. Forest resources

The main characteristics of Lithuanian forest resources (01-01-2003): forest area –1951 thousand hectares, growing stock –382.6 million m³, the average volume – 196 m³ per hectare, the annual increment – 6.2 m³ per hectare. Forests are divided into strict reserves (1.6%), ecosystem protection forests (8.9%), recreational forests (3.9%), protective forests (15.2%) and commercial forests (70.4%). Forest fellings in strict reserves is forbidden. The trees in ecosystem protection and recreational forests, which reached the natural maturity, can be cut by non-clear cuttings. The stands final cutting ages in protected areas are higher than in commercial forests areas. Coniferous stands prevail in Lithuania (Table 9).

Table 9. Forest stands area and volume by tree species

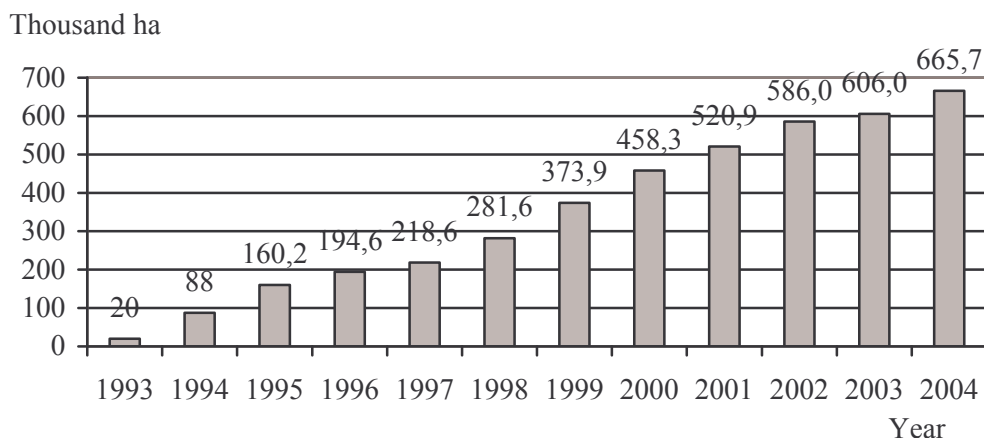
Tree species	1000 ha	Mill. m ³
Pine	711.5	163.5
Spruce	445.3	85.1
Oak	35.7	6.8
Ash	51.4	8.5
Birch	392.2	65.7
Black alder	119.5	23.0
Aspen	57.3	12.4
Grey alder	122.0	15.2
Other	16.1	2.4
Total	1951,0	382.6

Source: Lithuanian statistical yearbook of forestry, 2003.

Afforestation of agricultural land during last five years: 3,626 hectares. It is 0.1% from total agricultural land (3,487 thousand hectares). Lithuania has a rich wood and non-wood resources. It is supporting factor for enterprise development in the forest sector. Moreover large abandoned agriculture land areas could be afforested (about 200-300 thousand hectares). Limiting factor is a big amount of small-sized wood and no demand for such wood in Lithuania.

5.3. Forest ownership

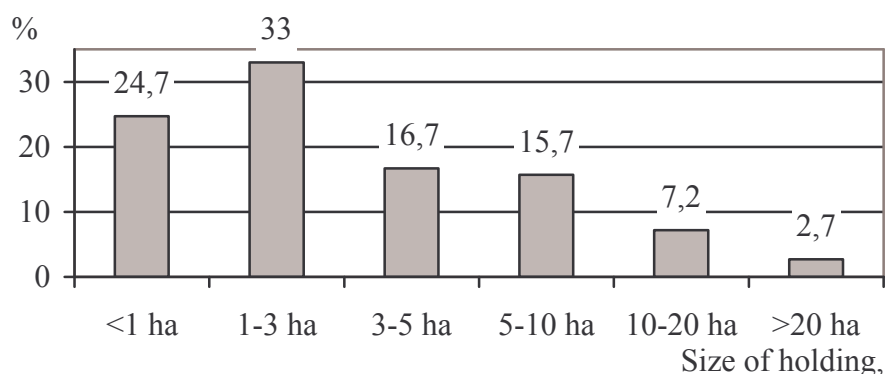
The private forests constitute 222.2 thousand private forest owners and 665.7 thousand hectares (01-07-2004) (Figure 9).



Source: Department of Forests, Ministry of Environment.

Figure 9. Forest restitution in Lithuania (1993-2004)

This is 32.7% of total forest area small-scale forest holdings (1-5 hectares) prevail (Figure 10).



Source: State Forest Survey Service

Figure 10. Number and size of private forest holdings 01-01-2003

State forests occupy 67.8% of total forests area, of which 18.0% forests reserved for restitution. State forests are managed by 42 state forest enterprises and 4 national parks. Average area of state forests enterprise is 31.2 thousand hectares. The smallest state forest enterprise by area is 8.1 thousand hectares, the biggest - 52.7 thousand hectares. According to the Forest Act of the Lithuanian Republic, forests are divided into state and private. Every man has a right to collect and sel NWFP from state and private forests.

Ownership based factors supporting enterprise development factor are that increasing the area of private forests and obtained right of forests land purchasing by companies. Limiting factor is that the big area of forests land is reserved for restitution (18.0%). The owners of these forests are still unknown.

5.4. Main problems and research questions in forest resources and ownership for enterprise development in the forest sector

Problems in forest resources: no demand for small-sized and low quality wood; necessity to afforest big areas of agricultural land. Problems in ownership: slow process of forest restitution and privatisation; about 18.9% forests are not used; restrictions of forests usage without compensations; state property of game in private forests; SFM implementation in small-scale forestry. Main research questions: the analysis of private forests owner's problems and objectives; comparative analysis of state and private forestry; harmonisation of multifunctional forestry; small-sized wood utilisation for bio fuel.

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