

## ***Hungary***

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## **Summary**

Hungary is located halfway between Nordic Countries where forests have a dominant wood production function, and Southern European countries with an emphasised protective function of forests. When role of forests in economic development is considered, Hungary is also halfway between developing countries which rely on natural resources to a large extent, and developed countries which mostly focus on the protection and conservation of their forests. As a result of this midway position, Hungarian forest policy focuses on finding a balance between economic and protective functions of forest utilisation. However, economic role of forest is often underestimated: ordinary people or even experts emphasise the importance of environmental factors against economic issues. This general opinion indicates that direction of forest policy will turn toward a more natural management in the long run, but economic factors of forestry cannot be neglected in the forthcoming years. In private forests, conflicts between personal and public interest also have to be taken into consideration.

The main factors, which affect the competitiveness of forest consumer chain, are as follows:

- fragmented ownership system;
- pressure from the state to formulate joint forest estates;
- low wood price;
- lack of investments and capital;
- lack of clear and long term subsidy system and stable state policy toward private forests.

The main problems and research questions for enterprise development in the forest sector:

- How private forest management can be evolved?
- What are the effects of EU accession on private forests?
- How can the forest administration be simplified?
- How can the ownership system be transformed to reduce area of undivided joint ownership?
- How can our knowledge be improved to provide a deeper understanding of local economy?

## 1 Consumption

### 1.1 State of the art and historical development

The total area of the country is 9,303 thousand hectares. The population is 10 million. Hungary is in the temperate zone of fringed forests. The forested land is the second largest field of cultivation in Hungary after the plough-land. Unlike the average European conditions, 84.9% of the forested land is deciduous, and 15.1% is conifer forest. 57% of the forest is of native species, 43% consists of extraneous or acclimatised species of tree (locust, pine) or cloned species (improved poplars).

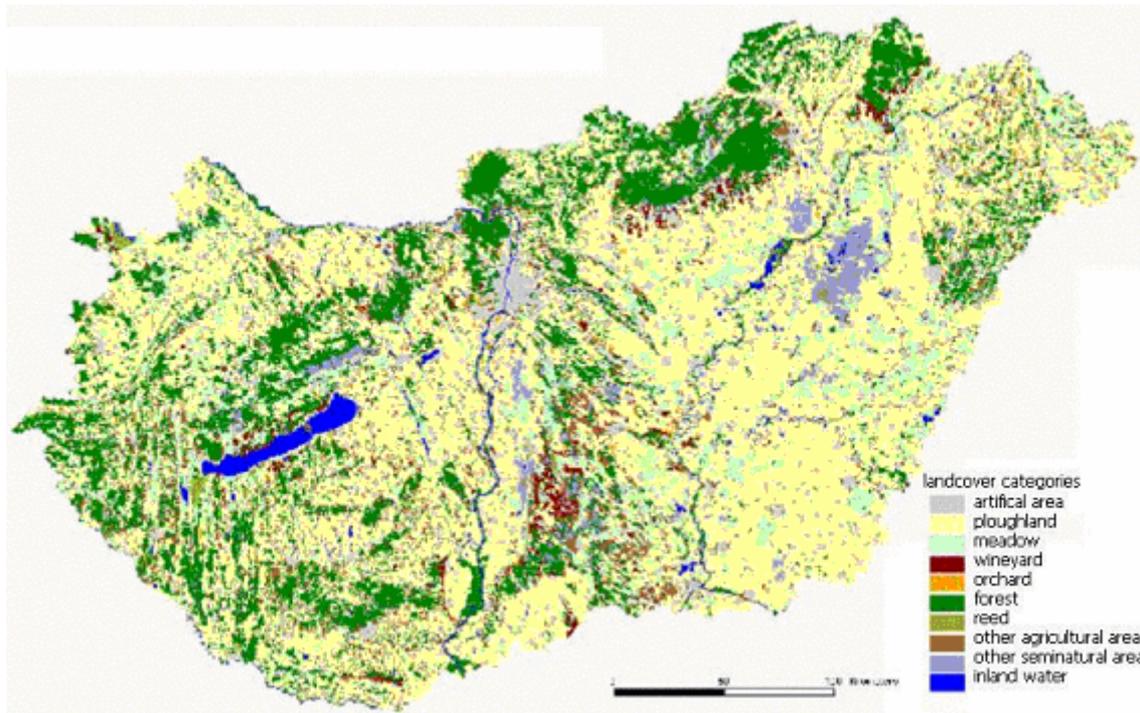


Figure 1. Land cover categories of Hungary

In 1920 on account of the Trianon pacification the territory of forests fell from 7.4 million hectares to 1.2 million hectares. This radical reduction was accompanied by the fact that dominantly low productivity areas remained within the new borders, which had provided fuel-wood for local inhabitants. The 10% proportion of forest cover was one of the lowest among the European countries.

Since 1945, the forest area has increased by approximately 600 000 hectares due to the large-scale afforestation activity. However, the per capita forest area, 0.18 ha, is still one of the lowest in the region.

## 1.2 Forest products' and services consumption

### Consumption in general

Hungary has made the transition from a centrally planned to a market economy, with a per capita income one-half that of the EU average. Hungary continues to demonstrate strong economic growth. The private sector accounts for over 80% of GDP. Foreign ownership of and investment in Hungarian firms are widespread, with cumulative foreign direct investment totalling more than 23 billion US\$ since 1989. Hungarian sovereign debt was upgraded in 2000 to the second-highest rating among all the Central European transition economies. Inflation has declined substantially, from 14% in 1998 to 4.7% in 2003; unemployment has persisted around the 5% level.

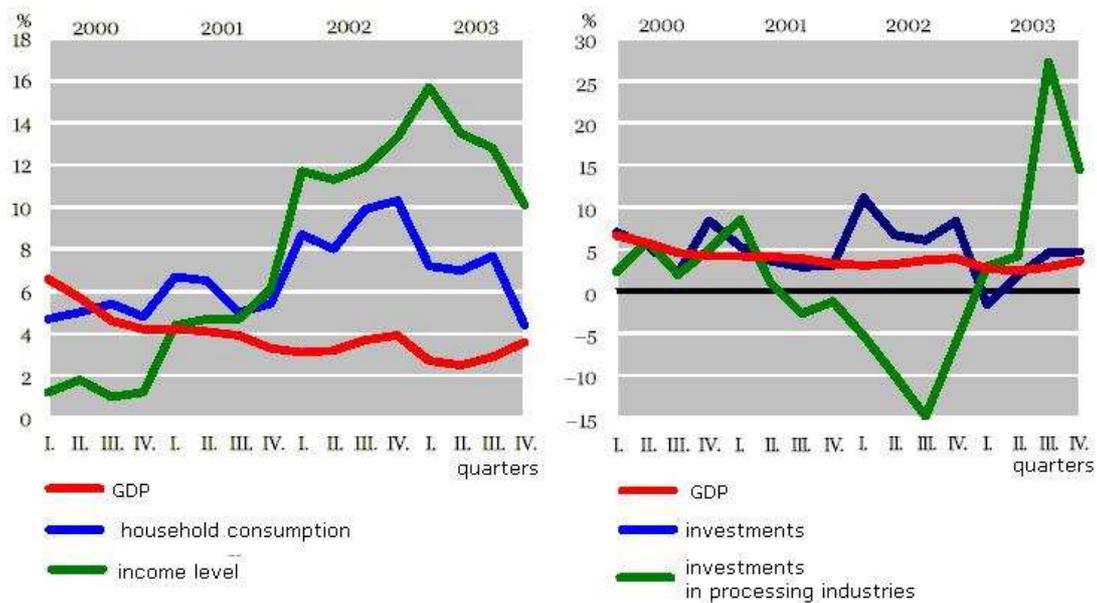


Figure 2. Medium time changes in GDP and income level in Hungary

The contribution of forestry and forest industries to Hungarian GDP is 0.3 % and 0.7 % respectively. The number of employees in the state forest enterprises is approximately 7000, and the staffing level is one of the highest among in regional terms. However, high level of employment may indicate a low level of efficiency: while in EU average level of employment is 2.4 person per 1000 hectares, in Hungary there is much higher level of 7.9 person per 1000 hectares. This can be an explanation why the average labour income in forestry and wood processing industries are below the national average. In medium term a large-scale reduction of employment must be carried out to improve the efficiency of Hungarian forest industry.

### Consumption of wood

Forest cover in Hungary today amounts to 1.823 million hectares. Site conditions may vary from semiarid desert (average precipitation 400 mm) to mountain forests. Therefore occurrence of forest is primarily determined by climatic (annual precipitation, relative air humidity, groundwater), edaphic and hydrological factors.

Table 1. Basic data on Forest Resources and Forestry in Hungary

Forest area [million ha]	1823.4
Percentage of forest cover relative to the total land area [%]	19.6
Forest cover relative to the population [ha/capita]	0.174
Land area classified as forest land [million ha]	1955.2
Growing stock [million m <sup>3</sup> gross]	330.9
Annual increment [million m <sup>3</sup> /year gross]	12.3
Total logging [including both thinning operations and regular harvesting; million m <sup>3</sup> gross]	7.0
Regular harvesting [million m <sup>3</sup> gross]	5.0
Logging area [average annual; 1000 ha]	21.0
Regeneration area (average annual; 1000 ha)	20.3
Afforestation [initial establishment of forests, average annual area; 1000 ha]	22.3
Percentage of forests subject to management plans [%]	100

2003. Ministry of Agriculture and Rural Development, Forestry Department

Total roundwood felling in Hungary will be approximately 7 million m<sup>3</sup> in the next decade. The half of this production is firewood. Sawnwood production is approximately 52% of total industrial wood production. Presently the total wood consumption is approximately 10 million m<sup>3</sup> per year. Within this total amount, share of conifers and hardwood are almost the same. However, 85 % of domestic production is hardwood. Therefore on Hungarian wood market there is a high impact of international prices and markets.

Table 2. Trade balance of wood products (million HUF)

	<b>Export</b>	<b>Import</b>	<b>Balance</b>
round wood products	17,358	13,948	3,410
sawn wood products	22,577	42,010	-19,433
panel products	24,087	31,834	-7,747
other wood products	44,413	18,504	25,909
total wood products	108,435	106,296	2,139
pulp and paper	295,460	340,537	-45,077
grand total	403,895	446,833	-42,938

Source: ÁESZ. 2003.

Table 3. Production of wood products 2003.

	<b>%</b>	<b>1000 m<sup>3</sup></b>
Veneer log	2.0	116.73
Sawn log	23.0	1342.35
Other raw material for saw-milling	6.9	402.70
Pulpwood	10.7	624.48
Bolt for panel	10.0	583.63
Other industrial timber	6.3	367.69
Total industrial wood	58.9	3437.58
Fuelwood	41.1	2398.72
Total removal	100	5836.30

### Consumption of paper

Production and consumption of paper and board are both smaller than EU average but increasing. The domestic paper consumption is approximately 74 kg/person, which is third of the EU average. Presently the total consumption of the country is 750 thousand tons which shows a remarkable growth rate (8% per year) compared to the 475 thousand tons consumption level of 1993 which was the deepest level of the last decades due the economic depression in the transition period.

Table 4. Paper consumption in Hungary (1000 tonnes)

	1995	1996	1997	1998	1999	2000
Production	321	363	410	434	456	506
Export	79	129	161	170	212	204
Import	267	288	346	390	399	448
Consumption	509	522	595	654	643	750

Table 5. Utilisation of the main paper product groups (million HUF)

	Consumption	Production	Export	Import
Cellulose	32,500	3,500	1,000	30,000
Reutilised paper	7,500	6,500	1,500	2,500
Paper	116,000	82,000	38,500	72,500
Paper based products, total	201,000	179,500	49,500	71,000

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

The importance of the improvement of wood utilisation in Hungary, can be proved by the following statements:

- The number of various sale-works made of wood is over twenty thousand.
- Wood utilisation provides a job possibility for almost hundred thousand workers.
- Average wood consumption is less than 0,6m<sup>3</sup>/person/year, which is approximately 50-60% of the EU average and a steady progress is expected in this field.
- The carbon-dioxide fixation is over 12 million tonnes per year in the Hungarian forests.
- The life-cycle analysis proves that the environmental damage of wood products is less than in case of products made of other materials (e.g. steel, plastic and aluminium).

When wood utilisation and market demand is evaluated, special interest turns toward fuelwood and bio-energy production. In Hungary, energy production is an important subject as the 72% of total energy consumption derive from import. This large level of dependency from import sources represents a serious risk level for the Hungarian economy, therefore it is a strategic question to decrease energy import. The only way to increase Hungarian energy production is to rely on natural sources to a greater extent.

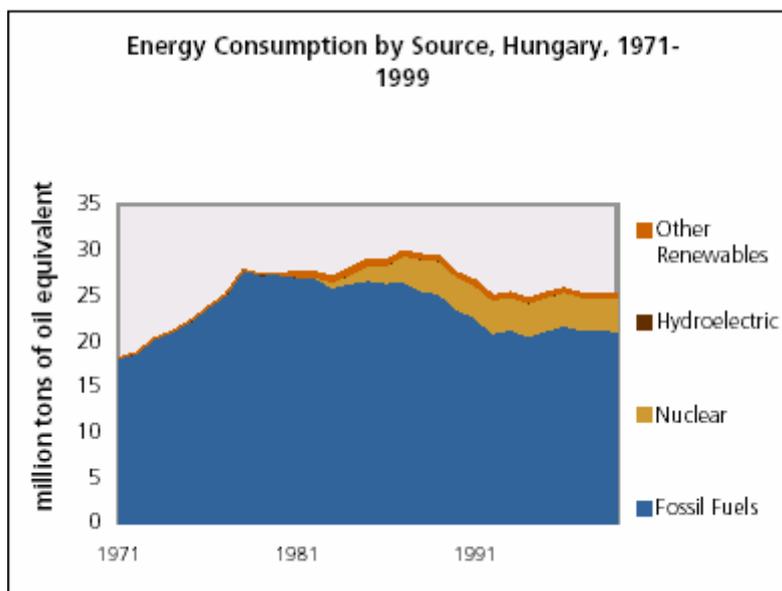


Figure 3. Energy consumption of Hungary

Table 6. Consumption of fuelwood

Year	1990	1998	1999	2000
Thousand tons	752	1085	1089	1194

Source: Hungarian Central Statistical Office, 2002

Currently altogether 3% of the total energy demand derives from renewable source. Within this percentage the most important factor is the fuelwood with 72% (2,8 % of total), which will expectedly increase in the future according to forecasts. The domestic market of fuelwood was growing steadily in the last decade. Moreover, a rapid increase of fuelwood export into Austria and Germany can be perceived in the field of ready to use fuelwood.

Table 7. Proportion of renewable energy resources in 1999 (in percentage of total)

firewood	vegetation	geothermal	water	biogas	solar energy
71.7	11.3	10.8	3.1	2.8	0.2

Source: Marosvölgyi B. 2001.

There is approximately one million ha of arable land, which can be afforested in Hungary. A considerable part of which can be energy-forest. Hungary's estimated total biomass reserves are around 350-360 million tons, and the annual biomass production is around 105-110 million tons. The gross energy content of the annual biomass production is 1185 PJ. It is larger than the country's total energy consumption, which is 1040 PJ/year. Vegetation stores about 30.4 million tons of carbon annually, which is more than twice as much as the carbon content of coal extracted from the mines.

In the long term, consumption of wood products and paper and board in the applicant countries is likely to increase to a great extent. A doubling of sawnwood consumption in the newly joined countries would lead to additional demand of around 10-11 million m<sup>3</sup> of sawnwood. Paper consumption in the eastern countries could even triple from its present level. This would result in a corresponding growth in paper consumption of over

15% in the European Union. Although the use of electronic media could check growth in paper consumption in the future, growth potential nevertheless exists for some categories, for example packaging paper and board.

People usually regard wood as a natural and environment-friendly, valuable material, but they can not accept the fact that there is no wood production without forest utilisation (e.g. forest cutting). There is a kind of contradiction between the perception of forests as a natural ecosystem and wood as a raw material. More information about sustainable forest management principals and practices would be essential to be disseminated for local people. This orientation should focus on that woodcutting is a part of the lifecycle of productive forests and does not have real harmful effects on the forest if carefully and properly done.

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

Research questions of enterprise development can be investigated from both sides of producer and consumer. From the side of producer main questions are:

- way of management including regulations and recommendations of forest authority;
- decision about afforestation;
- decision about tree species selection (within the actual site conditions);
- decision about the intensity of forest utilisation.

From the side of producers, there are several external qualifications, which will determine or control the decisions of the producers. In Hungary, tree species selection is one of the most crucial factors of forest management, as various site conditions allow the forest owner to choose between conifers of broad-leaved, between long or short term rotation periods. Actually, forest owners prefer black locust forests, while forest authority makes an attempt formulate state subsidy system in that way to increase share of long term native tree species.

Table 8. Afforestation activities and tree species selection

	1995	1996	1997	1998	1999
Oak	257	739	1041	1176	1190
Other hardwood	466	641	386	642	665
Black locust	1991	2762	3553	3241	3291
Softwood	1297	2047	3034	2833	3288
Conifers	169	421	305	312	280

From the side of consumption there are also several questions wood utilisation. These are the following: consumption of local or import wood, consumption of wood or wood substitutes, packaging materials, etc. When export-import is taken into consideration, it must be clear that Hungary has a small and open market for forest products, with a high share of international trade: Hungary is a net importer of conifer timber and an exporter of broad-leaved timber. Due to the high share of international trade, local and even national consumption is difficult to detect.

Table 9. Timber product balance in Hungary (1000 m<sup>3</sup>)

Products	Production	Import	Export	Consumption
Sawn timber	481	695	284	892
conifer	124	659	37	746
broad-leaved	357	36	247	146
Plywood	23	19	30	12
Flax board	764	129	192	701
Wallboard	75	15	52	38
Laminated board	6	26	6	26

Source: FAGOSZ - FATÁJ 2000

In order to clarify problems and development possibilities in enterprise development, a SWOT analysis was carried out to determine the actual situation and possible future directions of Hungarian wood production and wood consumption market.

<p><b>Strength</b></p> <ul style="list-style-type: none"> <li>• high share of hardwood production</li> <li>• well developed fuelwood market</li> </ul>	<p><b>Weakness</b></p> <ul style="list-style-type: none"> <li>• low level of domestic consumption</li> <li>• low level of re-utilisation</li> <li>• high dependency of conifer import</li> <li>• export of hardwood timber instead of domestic processing</li> </ul>
<p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>• increase of self consumption</li> <li>• development of private forest managing organisations</li> <li>• afforestation</li> <li>• increase of the role of Hungary in wood trade in East-European countries</li> </ul>	<p><b>Threats</b></p> <ul style="list-style-type: none"> <li>• changes in exchange rate of HUF</li> <li>• share of complementing products</li> <li>• low interest of new forest owners</li> <li>• lack of capital of further investigations</li> </ul>

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

#### Organisations

University of West Hungary [www.nyme.hu](http://www.nyme.hu)

Forest Research Institute [www.erti.hu](http://www.erti.hu)

Central statistical office [www.ksh.hu](http://www.ksh.hu)

State Forest Service [www.aesz.hu](http://www.aesz.hu)

Publications:

- Annual Reports of the State Forest Service, of the Ministry of Agriculture Forestry Authority 1994-2003. Budapest
- Horváth , Z. (1994): Country Statement, Hungary – Development of Marketing of Sawwood Products in Countries in Transition. Sopron
- Jáger, L. – Dr. Mészáros K. (2001): Current state and conflicts of small-scale forestry in Hungary. in: Niskanen, A. (ed.): Economic sustainability of small scale forestry. Proceedings of European Forestry Institute. Joensuu, Finland. p. 61-70.
- Jáger, L. – Mészáros, K. (1999): Establishing a forest accountancy network in Hungary with the help of the Guidelines. In: Niskanen, A. (ed). EFI Proceedings 29. Joensuu. p. 85-96.
- Jáger, L. (2000): Forestry and rural development: regional forest strategies. In: Sulek, R. Herich, M. (eds.) The forest – economy versus ecology. Zvolen, Szlovákia.
- Laskay, L. - Mőcsényi, M.: Fapiaci adatok és elemzések (Fakereeskedelmi Konferenciák 1997-1999) FAGOSZ, Budapest-Siófok
- Lett, B. - Stark, M. (1998): Accountancy Obligations and Possibilities in Hungarian Forest Management. IUFRO 4.04.02. - 4.13.00 Symposium on Institutional Aspects of Managerial Economics and Accounting in Forestry. Proceedings, Roma-Ostia
- Lett, B. (1997): Organisationsverhältnisse zwischen Forstwirtschaft und Holzindustrie – In: Iseod'97, State And Development Trends In Wood Industry, VIII. Interchair, Meeting of Organizers and Economists in Wood Industry, XII Economic Forum, Proceedings, Croatia
- Makrogazdasági elemzések-prognózis 1999-re. (Macroeconomic Analyses for 1999.) Budapest Bank, Budapest
- Monthly Bulletin of Statistics: Hungarian Central Statistical Office 1993-1999, Budapest
- Tóth, S. (1997): Az ezredforduló fagazdaságáról (Forestry and Timber Industry on the Millenium) Magyar Asztalos 97/10.

## 2 Small-scale forestry practises

### 2.1 State of the art and historical development

In central Europe transformation from feudalism into a civilian society took place in the second part of the XIX century. During this transformation forest ownership was also affected. During the demolition of feudalistic ownership some part of the forest estates had previously owned by landlords was distributed to societies of peasants who managed these forests jointly. As a result of this transformation there is a historical tradition of joint forest ownership in Hungary.

1945, due to the introduction of the communist regime forests larger than 60 hectares were nationalised. As the second step of the nationalisation in 1946 forests exceeding 6 hectares were also transformed into state ownership. From 1960 due to the process of collectivisation small forest lots had previously been owned by private persons, were also taken into public ownership. As a result of this transformation in this period practically no private forest remained in the country.

In the wake of the political reforms of the early 1990s, most of the countries of Central and Eastern Europe adopted new forestry legislation. In most cases the perceived need for new forest law had been related to reforms in the area of land tenure, mainly the recognition of private property rights. The influence of these trends on forest policy and law varied from country to country. In some cases privatisation extended to the ownership of forest resources and lands, while in others governments decided to retain their ownership. Apart from all the other transition countries there was a radical change in the ownership system in the last decade in Hungary. This change did not intend to restore the historical ownership situation, it was not directed by environmental, economical factors. Hungary had chosen a different course than restitution. The process usually referred as "privatisation", or "compensation". The groups involved in were the following:

- people who suffered political suppression (e.g. incarceration), or who sustained material losses under communist rule,
- former employees and members of socialist co-operative farms, who had been forced to merge their private agricultural land during the process of collectivisation.

The process, being part of a wider socio-economic privatisation effort, was not tailored to reflect characteristics of the forestry sector. Valuation of land selected for privatisation only reflected the value of the soil, and ignored both the material, and immaterial value of the growing forest stand. Forests and farmland were basically treated alike.

Former owners do not have legal claims to either their original forest area. Once a resident former members of co-operative had stated this claims, it was assigned parcels of (forest-) land according to the percentage of the member's former individual holding in relation to the total area of a co-operative farm. Non-resident former members received compensation in vouchers. Claimants who had lost valuables (including real estates), or who had suffered unjust persecution, receive vouchers up to a maximum value of 5 million HUF (approximately 16,000 euro). Vouchers might either be used for bidding in land auctions, or freely traded and exchanged. Vouchers have been traded at the Hungarian stock exchange, although at a rather limited scale. The described process

may therefore be generally defined as "privatisation by way of selling productive assets".

The main characteristics of privatisation were as follows:

- Disregarding the value of forest assets;
- Limitations concerning the partakers to be native natural persons of Hungary;
- Possibility of bidding downward on privatisation auctions;
- Absence of minimum limit of property.

As a result of the privatisation process there has been a dominance of undivided common properties in the ownership structure.

## **2.2 Small-scale forest holding**

### **Role of private forests**

A key factor is the improvement of the current unfavourable public opinion concerning private forestry. All the foresters' society is responsible to provide real and positive information, which can be a key issue in the transformation of public opinion. Role of private forestry sector in afforestation, importance of wood as a natural, sustainable resource can be highlighted.

During the transformation of the property relations in consequence of lacking long-term plans, a fragmented estate structure has emerged. The proportion of the unmanaged lands increased because most of the new owners are neither in possession of capital and financial knowledge, nor working tools - except the land.

### Structure of forest ownership

The current structure of the forest ownership in Hungary is rather heterogeneous. Besides the great owners possessing several hundred hectares of forest a great number of thousands of small owners having some tenth hectares is typical. As the land registry recording was not able to keep abreast with the rapid changes of ownership, we can only estimate that 250 - 300 thousand new forest owners have to be taken into account, who, in some cases, are not even aware of the location of their forests. Most of the new owners have not dealt with forestry earlier, and the shortage of woodcraft may have a negative effect on the forests. Especially the forests under afforestation are in danger, and deficiency of professional care and cultivation may lead to degradation of these forests.

### Forest owners

We must consider many landowners and forest owners as urban inhabitants more than real farmers, since most of them do not have the necessary equipment for agriculture, and they are not typically farmers. In order to establish a successful rural development policy level of knowledge, motivation, opinion and interest of forest owners have to be taken into consideration. Significant divergences can be observed in the intentions of the owners concerning the forests. Besides those wanting to deal with forestry, a considerable number of them do not have any long-term conception. They do not intend to perform forest management, they bought the forest just because it seemed to be a profitable investment, or it was the only way to utilise their privatisation tickets.

The economic orientation of private forest owners is very different. While some forest owners utilise their forest heavily, even without official permission or license, other forest owners practically abandon their forest and do not want to participate in any kind of management activity. The environmental orientation of forest owners is significantly high, compared to their economical orientation. The protection of natural assets and biodiversity were evaluated as a more important factor than economic functions. The result gives the evidence of the standpoint that private forest owners have a low grade of economical rationality. Within economic functions the primary function of the forest is to develop an asset rather than to provide yearly income.

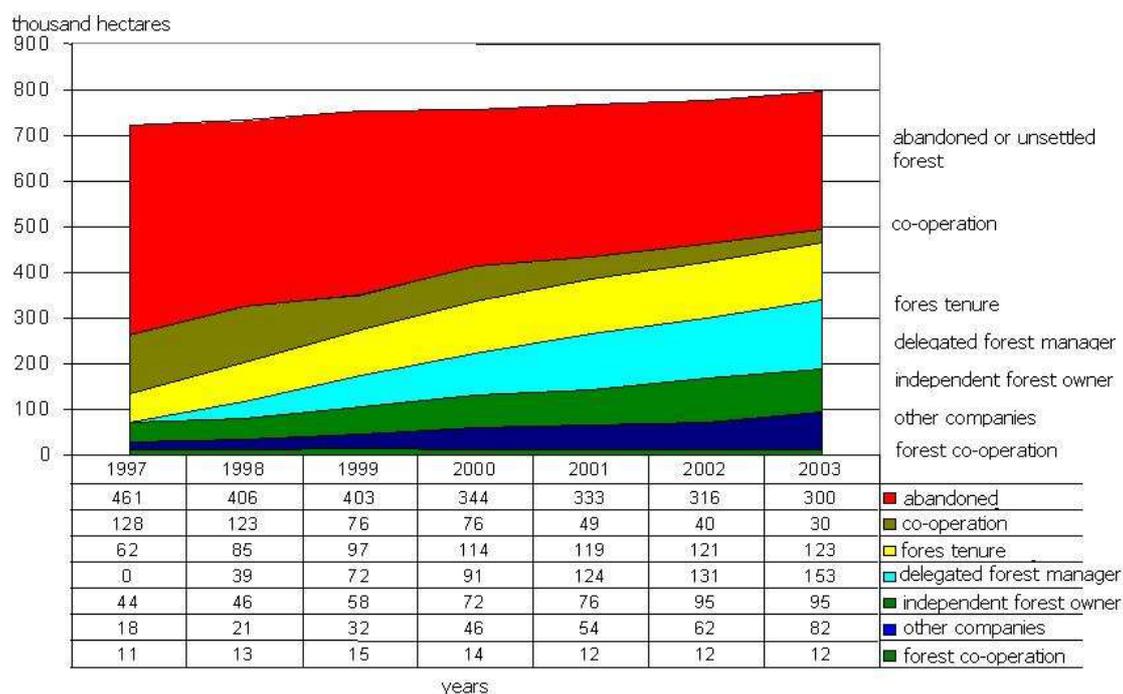


Figure 4. Private forest ownership and forest management

### 2.3. Small-scale forestry practices

#### Techniques and practices

In Hungary there is a dominance of oak and beech (deciduous) forests, where the technology of forest utilisation is based mostly on handwork (felling, measuring, cutting, quality control, etc). As a result there is no great difference of the technology applied by a 250 thousand hectares state forest company and a 5 hectares smallholder.

Table 10. Species composition of wood production in 2000 (1000 m<sup>3</sup>)

Property form	Oak	Beech	Other hardwood	Black locust	Poplar	Conifers
State-owned	509	307	541	387	545	226
Privately owned	61	31	70	734	595	49
Total	570	348	611	1121	1140	275

### Management

Basically two forest management models have been developed in the field of private forestry. At the various forms of joint forest management there is an economic organisation that functions as a property manager (joint-stock company) and settles up with the members annually. The profit or loss is realised by the members in accordance with their share of forest. In case of individual forestry management, the forest owner is responsible for the organisational, file keeping and planning tasks in connection with forest management, as it is common all over in Europe.

The joint forest management came into existence mostly upon the pressure from the forestry authorities since the large number of individual forest owners could hardly fit into the former official system. Moreover it is generally agreed that sustainable forest management was difficult to accomplish in small areas. Apart from size of ownership, it is the distance of the forest and the living place of the forest owner, which modifies the attitude toward joint forest management: urban forest owners usually accept this way of forest management. In case of rural landowners there is a demand toward formulating an independent farm unit, including both agricultural and forested area instead of participating within a joint forest management body.

### Cost benefits and profitability

Most of the joint management units, which were formulated in the last decade are usually below the economic threshold and too small to carry out a permanent management. In the long run most of the private forests will act as periodic enterprises when between two active years even several decades may pass. This fact makes evident that instead of great management units a stabile contractor system has to be established.

Table 11. Profit and taxation share of forestry and agriculture within total national economy (million HUF)

	<b>Net profit/loss before taxation</b>	<b>Profit</b>	<b>Loss</b>	<b>Tax paid (18%)</b>
Forestry	2,965	3,606	-640	646
Agriculture (inc. forestry)	11,548	44,198	-32,650	6,303
Total national economy	1,422,579	2,122,614	-700,034	354,843
Forestry/total (%)	0.21	0.17	0.09	0.18

Table 12. Profitability of state and private forestry (Million HUF)

	<b>Financial results</b>	<b>Net profit</b>	<b>Profit</b>	<b>Loss</b>	<b>Tax paid</b>
State total	1463	1942	1942	0	331
Private total	753	1263	1904	- 641	373
double entry	281	444	890	- 446	211
single entry	267	579	774	- 195	105
private person	205	240	240	n.a.	57

## 2.4. Policy framework and production conditions

### Legislation about transformation of ownership

The Hungarian constitution constitutes the basis for the entire privatisation process, as it prescribes the right to – and public protection of – individual private property (including means of production and real estates) and declares Hungary's commitment to the rule of law and democratic development. It also declares the state's commitment to environmental protection, and consequently forbids privatisation of formal conservation areas in compliance with nature protection laws. The latter exception, with its reversal tenor to the general commitment to privatisation, thus creates an inherent tension, and calls for due consideration in the course of subsequent legislation.

The Hungarian privatisation process rests on two bases: The law on compensation (passed in 1991, entered into effect in 1992) and the law on the dissolution of socialist co-operative farms (1992). According to the actual legal regulation, it is forbidden to purchase agricultural land and forest by foreign investors. Farmlands up to 0,6 hectare, flats and houses are allowed to sell out to foreigners. In order to maintain this prohibition, companies and enterprises are also excluded from land ownership, since a foreign presence can not be supervised or restricted in any Hungarian companies. As a result, partnerships, legal entities, companies are not allowed to own agricultural land and forest in Hungary. It is a generally accepted opinion that this prohibition was necessary due to the low Hungarian land and forest prices. The emotional part of this debate is also important: it is easy to generate a fear of rich foreign investors, who would buy out the whole country. However, even experts can not agree about the results of this prohibition as this ownership restriction will maintain actual low prices of forest land which is obviously against the interest of local inhabitants.

### Legislation of forest management

Main legal measures affecting forestry and forest management:

- Law on Forests and the Protection of Forests, 1996
- Law on Compensation (1991)
- Law on the Dissolution of Socialist Co-operative Farms (1992)
- New state Forest Service (1997) combined functions of planning and of supervision

As a part of the new legislative process after the political and economical changes in the early 90's, three main "green acts" were ratified:

- LIII Act of 1996 on Nature Protection
- LIV Act of 1996 on Forests and the Protection of Forests
- LV Act of 1996 on Game Management and Hunting.

The basis of regulations concerning forestry is the forest law of 1996. As for the non-wood services (others than hunting) their regulation is included in the forest and the nature conservation acts. As the influence of nature conservation on forestry practice is increasing, the LIII Act of 1996 on Nature Protection is valid in forests, which are under any level of protection. Therefore on nature conservation areas every forestry intervention also requires approval of the natural conservation authorities. From 1996, the forest law used to restrict private small-scale forestry strictly, as the fundamental principle of forestry policy was to establish large scale joint private forest entities. The modification of forestry act in 1998 provided more freedom for the owner to decide

about independent management. Obviously there had been no reason for the previous practice, when it had been obligatory to establish associated forest management in the existing forests, while in the new afforestation individual forest management was permitted.

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

Compared to other East-European countries, the previous, historical forest ownership pattern was not taken into account during the Hungarian forest privatisation and land allocation. Therefore positive effects of the historical traditions of forest management methods of former centuries could hardly be expressed.

Supporting factors:

- low cost level;
- self interest;
- heavy level of afforestation;
- self consumption;
- fuelwood production which allow small amounts marketing.

Limiting factors:

- confused ownership;
- pressure from the authority;
- low interest of urban forest owners;
- low income of the society as a whole;
- illegal logging.

#### Threats

According to the forest owners, the most important forest threats are wood thieving, excessive wood harvest and inappropriate forest management. There is no significant difference between the opinion of forest owners and other inhabitants, since forest owners themselves have a contradictory opinion about forest management. The lack of difference is explained by the relatively short time period of private forest ownership.

Due to the high emotional concern most of forest owners would maintain their ownership in the long run. This emotional interest restricts realisation a high level of spontaneous ownership concentration. Forest owners and local inhabitants have a positive relation with forests. This positive relation has not been influenced by the fact that the frequentation of the forest is very low in Hungary regarding to the international comparison. However, the acceptance of free accession into forests is extremely high in Hungary compared with other European countries from the side of forest owners.

The small-scale forest ownership can not be an obstacle in general to prevent owners to achieve a sustainable forest management. In case of independent small-scale forest management units, instead of continuous management a periodical forest management will be carried out. According to the previous statement, there is no reason to enforce joint ownership: a co-operation of forest owners may be based on joint work instead.

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

### Organisations studying small-scale forestry

University of West Hungary Faculty of Forestry: <http://www.nyme.hu>

Forest Research Institute: <http://www.erti.hu>

Hungarian Federation of Forestry and Wood Industries: <http://www.fagosz.hu>

National Federation of Private Forest Owners and Forest Managers  
<http://www.pointernet.pds.hu/megosz/>

Hungarian Forestry Association <http://www.oeo.hu>

### Main publications

Jáger, L. (1996): Magán-erdőtulajdonosok erdőgazdálkodással kapcsolatos felfogásának és viselkedésének vizsgálata. in: Lükő, I. (ed): "Ember – Technika – Környezet" Környezetpedagógiai és Környezetszociológiai Konferencia, Sopron. p. 125-139.

Jáger, L. – Mészáros, K. (1999): Establishing a forest accountancy network in Hungary with the help of the Guidelines. In: Niskanen, A. (ed). EFI Proceedings 29. Joensuu. p. 85-96.

Héjj, B. – Jáger, L. – Mészáros, K. (1999): Die Rolle der Universität Sopron im System der forstlichen Fachberantung. In: Jellasic. (ed): Development trends in production management for forestry and wood processing. Zagreb, Horvátország. p. 203-209.

Jáger, L. (2000): Az erdő szerepe a vidékfejlesztésben: Esettanulmányok. In: Magda, S. (ed): VII. Agrárökonómiai Tudományos Napok. Gyöngyös. II. p-115-119.

Mészáros, K. – Jáger, L. (2000): Az erdőgazdálkodás és vidékfejlesztés. In: Magda, S. (ed): VII. Agrárökonómiai Tudományos Napok. Gyöngyös. III. p-115-118.

Jáger, L. (2000): Az erdőtelepítés szerepe a vidékfejlesztésben. in: Kovács, T. (ed.): Integrált vidékfejlesztés. MTA Regionális Kutatások Központja, Pécs.

Jáger, L. (2000): Forestry and rural development: regional forest strategies. In: Sulek, R. Herich, M. (eds.) The forest – economy versus ecology. Zvolen, Szlovákia.

Jáger, L. – Dr. Mészáros K. (2001): Current state and conflicts of small-scale forestry in Hungary. in: Niskanen, A. (ed.): Economic sustainability of small scale forestry. Proceedings of European Forestry Institute. Joensuu, Finland. p. 61-70.

### 3 Wood-processing industries

#### 3.1 State of the art and historical development

From the production point of view, forestry plays a minor role in the national economy. About 35 percent of the GDP was produced by industry, 7 percent by transport and telecommunications, 11 percent by trade and 13.5 percent by agriculture. Forestry's contribution was about 2 percent.

The state forest companies underwent planned development since the late 1960s, and vertically organised wood processing complexes were established. This induced relatively rapid development in the field of processing technologies. A nation wide survey on sawmills was carried out in 1979 in this field. Out of the 654 plants registered, about 33 percent were state-owned while 67 percent, mainly very small mills with a capacity of less than 5000 m<sup>3</sup> per year, were owned by agricultural co-operatives.

During the 1980s, the structure of the state sawmill industry evolved; many small units were closed and the remaining 134 plants produced two-thirds of the total output in 1990. Of the total remaining plants, 35 have a capacity of more than 15,000 m<sup>3</sup> per year, and one of them can process more than 100,000 m<sup>3</sup> of roundwood annually. The state-owned sawmill industry was modernised at the beginning of the past decade and investments were made in the parquet and panel industries. However, the overestimation of desired capacities became the source of many economic problems in the late 1980s and the early 1990s.

The pulp and paper industry operates 30 paper machines in several plants, with a total production of 452,000 tonnes in 1990. There is currently intensive research and analysis being undertaken on the state of the pulp and paper industry. Hungary has great surpluses in pulpwood and a large negative trade balance in pulp and paper, which could be reduced by domestic processing of the available raw materials. It is assumed that the country's economic development will involve much greater paper consumption, which is far below the European average at present. Overall, the sector's production showed a steady increase until the mid-1980s, not only the annual cut was increasing, but so was the output of the wood processing industry. For instance, in 1975 exports of primary wood products were 846,000 m<sup>3</sup>, while imports were 1,796,000 m<sup>3</sup>. In 1985 exports were 1,303,000 m<sup>3</sup> and imports were 1,329,000 m<sup>3</sup> of roundwood equivalent. Therefore, through the mid-1980s forestry was one of the most successful sectors of the country's economy.

After this time, however, a period of decline started. One of the problems was that, owing to the income produced, harvesting and wood processing gained more and more importance, while silviculture had to face increasingly serious problems. As a consequence of increasing costs, an insufficient labour force, a rainfall deficit, extremely hot summer periods and, last but not least, increased game populations, regeneration did not keep pace with harvesting and often became the limiting factor of the annual cut. Many experts believe that too large a proportion of the income produced by forestry was spent on developing the processing industry instead of being spent on the forest itself.

Nowadays the wood-based panel industry consists of four veneer plants, six plywood plants, two complexes of particle board plants, one flaxboard plant and one fibreboard plant, producing hardboards only.

### 3.2. Wood processing industries

#### Transformation of the ownership structure

The decreasing production of the forestry sector has focused attention on the problems of the large vertically organised state companies. Their large processing capacities are not being sufficiently supplied with raw materials and there are difficulties in marketing their products. The recession in the construction and furniture industry is having a particularly negative impact. As a consequence of the political decision to separate wood processing from primary forestry activities, the widespread transformation and privatisation of wood processing units have accelerated. However, the process is expected to be very long because of a lack of domestic investors.

The pulp and paper industry also went through deliberate privatisation and, by mid-1991, more than half of the total capital of the industry was privatised with more than 20 percent of foreign capital. However, the pulp and paper industry is still desperately searching for a way out of its deep recession.

Table 13. Production and future estimation of main timber products (1000 m<sup>3</sup>)

Products	1980	1990	2000	2010	2020
Harvesting	6400	5000	5500	6000	6500
Sawnwood	959	813	350	450	480
Plywood	15	10	30	50	60
Particle board	232	299	489	530	590
Fibreboard	98	50	60	120	120
Total panel production	345	359	579	700	770
Raw material demand of panel production	695	700	1040	1090	1110

### 3.3. Wood processing industries practices

#### Structure

The capacity of sawmills is 87% little sawmills (below 5000 m<sup>3</sup>), the number of mills processing more than 15,000 m<sup>3</sup> is about 30. The use of the capacity of these mills is approximately 70%. Overwhelming part of the sawmills processed domestic broad-leaved logs, the two biggest mills with a capacity of 60-100 thousand m<sup>3</sup> were using conifer logs imported from the former Soviet Union. To improve efficiency the sawmill industry needed reconstruction.

The production of veneer and wood based panels is of smaller importance within the wood processing industry. The production of particle boards was started in the 50s, two big mills have been operating. Both of the mills were extended and provided with more productive technologies and machines. The fibreboard industry produces only hard fibreboard, and because of the lack of development resources the production of the new types of boards started only slowly, though there would be enough raw material, and a considerable market for the products.

The pulp and paper industry has production plants for half-ready products, and several paper and cardboard mills. In most of the mills the machines are old and there is a need of reconstruction. The smaller capacity paper machines of the former state owned paper industry were ceased production, the bigger ones were renewed, and for the increase of paper production mainly domestic waste paper has been used.

In the short term competition is likely to stiffen slightly in the markets for sawnwood and other wood products, but no major changes are expected in medium term. Hungary is not expected to be the most attractive potential location for investment by forest industry companies based in the EU. Moreover, investments will be held back by a number of factors, including uncertainty about the pace of economic growth and hence consumption of forest-based products.

### **3.4 Policy framework and production conditions**

In order to reduce risk for wood production a harmonisation of the supply of assortments and the wood processing technologies has to be achieved. Because of this in developing technologies in wood processing a greater emphasis should be put on the processing of valuable hardwood assortments, and processing of assortments with low diameter with a possibly high added value. To accomplish this there is no, or just very limited capital, and the products need a much bigger market than the Hungarian one. The importance of the use as energy source becomes more and more important, especially with the new afforestations in the framework of the rational land use program.

Wood is amongst the most important raw materials in the world, and the only one, which is renewable and it is considered to be environment-friendly in all its forms. When considering the characteristics of the wood industry of the turn of the century it is useful to investigate the international and first of all the European tendencies. It can be stated, that Hungary has a good supply of hardwoods and softwoods and this means a potential possibility in the development of processing the stacked wood assortments, and the panel industry may be a major direction in the development of domestic wood processing industry.

According to the statistics available domestic wood production can be increased to an annual 6-7 million m<sup>3</sup> wood. 2 million m<sup>3</sup> out of this is the most valuable log assortment, 0.5 million m<sup>3</sup> are other industrial wood and 4 million m<sup>3</sup> are the stacked wood assortments as pulpwood, bolt for panels and firewood. Afforestation trend shows that an increase is to be expected mainly from the latter assortments. Markets for fibre and firewood will not increase. In the EU a considerable part of the utilisation possibilities are also left in the forest, and the forced wood export puts the prices low, so in some cases low value assortments cannot even pay for transportation costs. In sawmill and panel industry production costs are decreasing, and new areas of use become available in the process of technological innovations.

According to the predicted situation the possibilities and tendencies in wood industry can be characterised as follows:

- Complete and full use of the wood material becomes a basic requirement;
- As a result of the technological development some species had not been utilised would be available for the process (poplars, black locust, turkey oak);
- In the domestic sawmill industry the inevitable reconstruction has been started, which enables a higher processing level in case of the use of domestic timber, the production of dried timber and the production of wood;
- It would be very important for the Hungarian wood industry to produce LVL veneer boards using poplar and turkey oak, and the production of OSB particle boards and possibly MDF fibre boards using domestic wood supply;
- As a source of the development common investments with forestry or foreign capital can be considered;
- The proportion of construction material made out of veneer and particle board will increase;
- cement-bounded panels production and MDF boards will increase in the long run;
- and parallel to this – as a result of reusing the used wood material – the raw material requirements of the board industry will not increase considerably.

#### Furniture industry

In the furniture industry the use of wood based raw materials will be characteristic, and the use of half ready materials will be overwhelming. In the export of furniture chairs and upholstered furniture will be typical. An increase in office and kitchen furniture is also to be expected. The export of high quality furniture may also increase. In order to attend domestic furniture demands the role of the import will remain, in some product areas this may even increase. Import from eastern European countries and from Southern-East Asia may also be considered.

As a summary of the possible development directions of the domestic wood industry it can be stated, that the development is influenced by two basic factors: the use of the domestic wood supply and effect of Hungarian membership in the European Union. The first factor is rather a limiting one, and the latter can contribute to the expansion of the markets. The resources of the development can either come from foreign capital, from joint ventures or from common investments with forestry.

As a result of capital injection foreign companies dealing with primary and secondary production will procure domestically a part the good quality material, formerly designated for export. Hopefully this tendency is going on, and an increasing part of the good raw material can be domestically processed providing additional income for wood production industry.

### 3.5 Supporting and limiting factors for enterprise development in wood processing industries and barriers to entrepreneurship

Table 14 . Swot analysis of wood industry

<p><b>Strengths</b></p> <ul style="list-style-type: none"> <li>- large scale broad-leaved forests containing many tree species</li> <li>- developed production sector</li> <li>- education centres in the field of industry workers, technical workers and engineers</li> <li>- developed professional press and newspapers, professional associations</li> <li>- international fairs</li> <li>- most of the enterprises can adopt to the changing demand of the market</li> <li>- export oriented large enterprises</li> </ul>	<p><b>Weakness</b></p> <ul style="list-style-type: none"> <li>- environmental problems and difficulties,</li> <li>- lack of postgraduate and trading education</li> <li>- underdeveloped informational system</li> <li>- lack of co-operation in wood industry, parallel production-capacity in some fields</li> <li>- low level of marketing, lack of wholesale business, underdeveloped retail trade</li> <li>- lack of research and development, enterprises focus on production of 'following products' and produce a minimal level of development</li> </ul>
<p><b>Possibilities</b></p> <ul style="list-style-type: none"> <li>- basis of wood production provides a possibility of expansion of expensive hardwood products</li> <li>- increase of the production level of semi-finished products</li> <li>- development of education and research</li> <li>- participation in international research activities</li> <li>- development of regional co-operation of the fields of raw material production and processing industry</li> </ul>	<p><b>Risks</b></p> <ul style="list-style-type: none"> <li>- EU accession may lead to a higher level of import of wood products</li> <li>- reduction of the development of building trade industry</li> <li>- lack of state support in the field of environmental investments</li> <li>- lack of the acceptance of a joint marketing strategy of domestic wood industry enterprises</li> </ul>

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

##### Elementary and secondary education of wood processing industries in Hungary:

- Kaesz Gyula SzKI és SZMK
- Dóri Sándor –Kozma L. Ipari Szakközépiskola OAFSZ Bp-I és Pest M-I Szerv.
- Encs Város Önkormányzat Aba Sámuel Szakiskola
- Hefele Menyhért Építő- és Faipari SzKI és SzMK
- Jelky András Szakmunkásképző Intézet és Szakközépiskola
- Kós Károly Szakképző és Általános Iskola
- Piarista Szakmunkásképző Isk.
- Szegedi Alternatív Kísérleti Speciális Szakiskola
- Tolna Megyei Önkormányzat Ady E. Szki és Kollégium
- Wesselényi SzMK

Other organisations studying wood processing industries:

- University of West Hungary, Faculty of Wood Sciences
- Hungarian Federation of Forestry and Wood Sciences
- Association of Woodworkers and Wood Industry

Online sources:

- [www.fakat.hu](http://www.fakat.hu)
- [www.fagosz.hu](http://www.fagosz.hu)
- [www.fa.lap.hu](http://www.fa.lap.hu)
- [www.fafeldolgozas.lap.hu](http://www.fafeldolgozas.lap.hu)
- [www.faipar.hu](http://www.faipar.hu)
- [www.profi-fa.hu](http://www.profi-fa.hu)

**4 Non-wood forest products and services****4.1 General information on forest related non-wood processing and services in Hungary**Historical development of non-wood production and services in Hungary

In the previous centuries the wild herbs were the most important NWFP in Hungary. Between I. and II. World War the Hungarian wild herb business prospered on a high level. There was a good demand for herbs in Western Europe, and Hungary had a leading role in this business.

After II World War the collection and utilisation system of NWFP was changed. New directions were adopted into herb business. As a result of state intervention and nationalisation, three divisions of state companies were formulated: trade division, agricultural herb division and industrial-healthy herb division. In spite of the fact that there were many economical and economic conflicts within herb business during this time, this sector met with complete success. The highest production level was reached in 1976-1978. During this time the management (buying up, processing, sales) of NWFP in Hungary was carried out by specialised state-owned companies, as in other Central and Eastern European Countries. After 1989, in the process of transition to market economy, a complete liberalisation of NWFP management was started to open economic markets. State companies were taken out of this economic area and their responsibilities were taken over by small dynamic private companies.

The actual direction of the development of non-wood forest products changes products by products. In many fields, changes in the ownership structure, modification of NWFP collection methods, and transformation of demand towards NWFP have created new dynamic, changeable and complex systems in NWFP management. Presently very little information is available for NWFP management and in case of some product-groups, (e.g. forest fruits) there is no information available. In case of other product, like the honey business, there are several information sources and a market chamber operates in order to achieve development in the production scale and marketing.

NWFP&S definition, classification and relevance in rural economies

Not primarily as timber used forest products are called non-wood forest products (NWFP) in Hungary. Usually terminology of NWFP is divided into two categories, as

shown in Figure 1. This categorisation is based on the importance of the products in the past and at present. The figure shows that in the past there was a wider range of non-wood products than there is nowadays. Some NWFP activities, like hunting and fishing have become independent economic areas.

Within the described categories NWFP can be divided by their linkage to the trees. On the left side there are NWFP which are parts of trees and on the other side there are three non-wood forest product-groups, such as plant, animal and mineral, which are not directly related to trees.

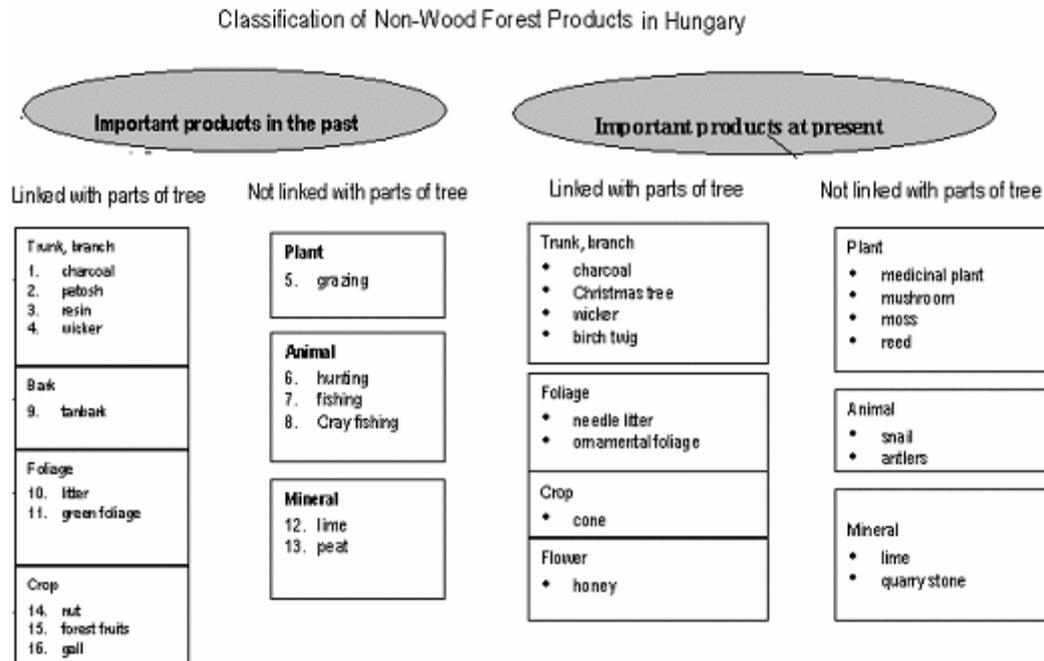


Figure 5. Classification of non wood forest products in Hungary

### Role of ownership in NWFP

Presently, the most important products in state-owned forestry management are charcoal, Christmas trees and ornamental foliage. However, the income from these products is as little as 1 percent of the total income from all state forestry activities, with the remaining 99 percent comes from wood lumbering and other activities. In spite of this, state companies do not intend to cease dealing with these three NWFPs.

Investigations on small-scale forestry in Hungary show that the most important non-wood forest products are honey and forest mushrooms in private forestry. 300 different private forest management units were questioned in the study. At the same time the Christmas trees and ornamental foliage have moderate importance, while ivy, pine-cone, black alder, chestnut and reed were indicated as small important non-wood forest products. In relation with regional differences it can be told that the greatest number (nine different products) of NWFP was identified in Transdanubia. The work reported that 23% of the private management units marked some kind of non-wood forest products in Transdanubia. In another respect in Great Plan only 10% of private forest managers indicated non-wood products in their forest management. This indicator is 20% in Northern-mountains.

### Property rights regulation system

For the purposes of the Forest Act a forest usufruct shall be considered:

- collection of pine branches, fir-cones and decorative greenery from felled trees;
- collection of mushrooms, wild fruits, moss, flowers, and medical herbs;
- production of sticks, reed, sedge, bulrush and the cutting of grass;
- apiary activities;
- collection of pine resin.

The exercising of the forest usufructs may not damage and/or endanger the surface and subsurface waters, the soil, the regeneration of the forest and the forest biocoenosis. The forest manager may exercise the forest usufructs with the conditions set forth in this Act. In respect of the forests located in a protected natural area the preliminary consent of the expert authority of the nature conservation authority is required for licensing the exercising of the usufructs.

The Hungarian forestry act says that the non-wood forest products are free to collect in state-owned forests for own need, but not for commercial need. For collection on a commercial level, permission from the forest manager is required. It should be declared the own need per person per day per volume. In private forests right of utilisation of non wood products belongs to the owner of the forest. Visitors are allowed to locate in private forests but activities like mushroom picking or honey making can not be accomplished without permission from the owners. This regulation is difficult to execute in practice and pickers collect NWFP without any payment for the owners.

### Honey production

In the last decades, a steady development of honey sector could be perceived in Hungary. Since that time Hungary has become an important honey-exporter country in Europe. Presently 1% of global honey production belongs to Hungary. This accomplishment is remarkable, because Hungary's territory is very small compared with other great honey producers as Russia or US.

The total honey production is approximately 15-17 thousand tons per year in Hungary, but adverse weather conditions may reduce the output to a great extent. In 1997 there was a loss of 4-4.5 thousand tons black locust (*Robinia pseudoacacia*) honey production.

Table 15. Statistical data of honey business in Hungary

<b>Years</b>	<b>Honey production (tons)</b>	<b>Export (tons)</b>	<b>Import (tons)</b>	<b>Income (mil. US\$)</b>	<b>Export support (mill. HUF)</b>
1992	10,742	6,818	434	11.07	174
1993	15,873	13,369	556	14.60	337
1994	16,236	13,424	700	16.80	500
1995	16,000	13,254	760	23.14	772
1996	16,500	13,159	710	25.13	390
1997	12,200	7,655	410	14.10	151
1998	13,800	9,261	548	19.62	stopped
1999	20,500	9,889	441	15.91	stopped

Source: Honey Advisory Council, 2000

Between 1993-1996 Hungary's honey export volume had doubled (Table 1.) due to a government export subsidy system which is not operating any more due to GATT-WTO agreement in 1998. At present natural lifestyle, bio products including forest mushrooms and medicinal herbs have high value again. Parallel with this trend the income from non-wood forest products is very important for rural people.

#### Medicinal plants

Medicinal plants are important in private sector. In fact, in Hungary there are currently about 200 companies interested in medicinal plant management. These companies are primarily privately owned, but these companies are not interested in forest management. The revival of this industry, through increased export activity, has resulted a creation of several thousand jobs in rural areas.

Table 16. The most considerable export drugs from wild gathering (1991-1995)

<b>Latin names of drugs</b>	<b>Volume (tons/year)</b>
Chamomillae anthodium	50-200
Equiseti herba	20-200
Tiliae flos	20-60
Sambuci flos	60-500
Urticae folium	5-150 (increase)
Achilleae herba	10-50 (stable)
Chelidonii herba	10-60
Taraxi herba et radix	10-60 (increase)
Juniperi galbulus, Crataegi fructus, Cynosbati pseudofructus	100-2000

Source: Hegedűs, 2000

#### Forest mushrooms.

There are approximately 15 companies interested in forest mushroom business in Hungary. These companies are in a strong competition with each other, occasionally in unfair way, which shows that the market of forest mushrooms is not a consolidated one. The forest mushrooms will be analysed in details in case study.

#### Forest tourism

In Hungary, limited studies are available describing forest tourism. In 2003, a countrywide survey was made on recreational use of forests, when 1100 people were interviewed. The most important results can be seen in Figure 5 and 6. The investigation shows that approximately 5% of people have visited forested area daily and only less than 10% of the inhabitants has no connection with the forest at all.

The study pointed out that the top five forest-related activities (Figure 7.) are forest walk, trip, bicycling, taking photos and nature observation. The study also mentioned the mushroom picking as a nature-based activity: almost one third of tourists gathered the forest mushrooms during their stay in the forests.

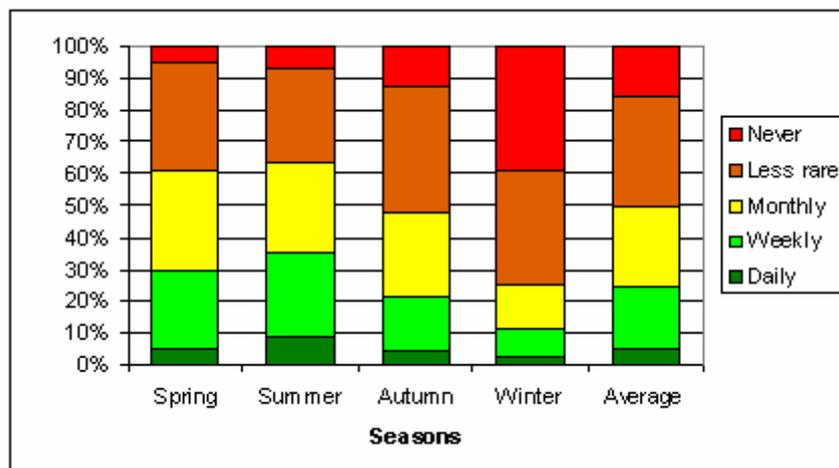


Figure 6. Frequency of forest visits in different seasons

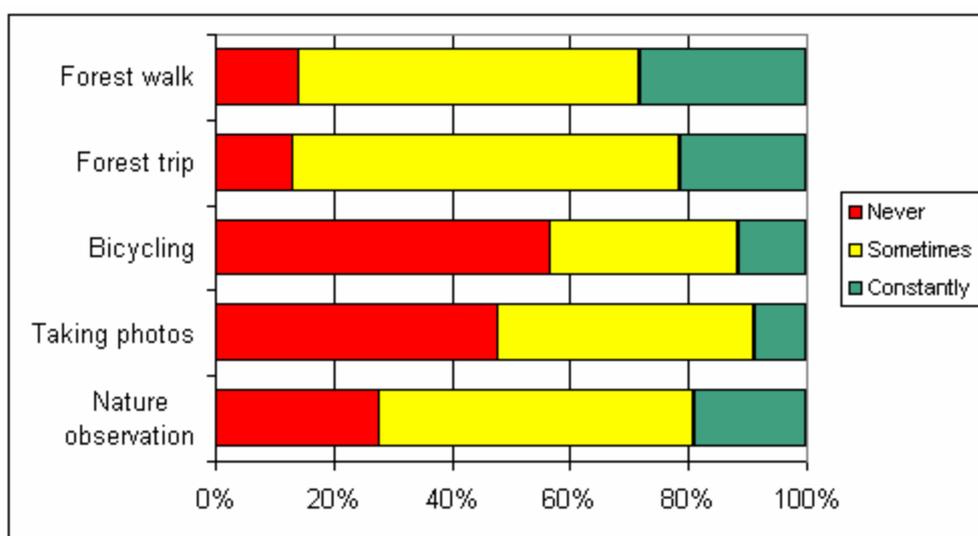


Figure 7. Top 5 forest-based outdoor activities

## 4.2 Case studies of successful marketing strategies

### 1. Case study – forest mushrooms

#### NWFP&S definition, area of production, harvesting level, technical characteristics of production

This case study focuses on wild forest mushrooms which is one of the most important non-wood forest product in Hungary. As there is no published data regarding forest mushroom production available in Hungary, this study relies mostly on market research and experts' estimation. As it was described before, previously only one state owned enterprise worked in the forest mushroom business. That company did not only gather the mushrooms, but also collected other non-wood forest products, like medicinal plants, snails. Its activities have been taken over by small, dynamic private enterprises. There are currently about 13-17 companies interested in forest mushroom business in Hungary. These companies are privately owned.

In Hungary, the most important forest mushroom species are cep (*Boletus edulis*) and chanterelle (*Chantharellus cibarius*). These species cover 90% of the total mushrooms gathered in revenue value. Apart from the aforementioned species, several other mushroom species are gathered with a moderated volume. *Russula* sp. and *Cratarellus cornucopioides* have medium importance, while *Morchella* sp. and other *Boletales* sp. are indicated as insignificant forest mushrooms.

In Hungary, the importance of cultivated fungi exceeds value of forest mushrooms. According to several experts' estimation (based on customs statistics) the total export turnover of cultivated *Agaricus* was 19.84 million US\$, the cultivated *Pleurotus* (oyster mushroom) was 3.2 million US\$ in 2001. The total sale volume of export market was 18,200 tons, of which were 16,700 tons cultivated *Agaricus* in 2001. *Boletus* export reached 378 tons and there was an app. 22 tons *Chantharellus cibarius* on the export market in 2001. The total value of forest mushroom production was 1.6 million US\$ in 2001.

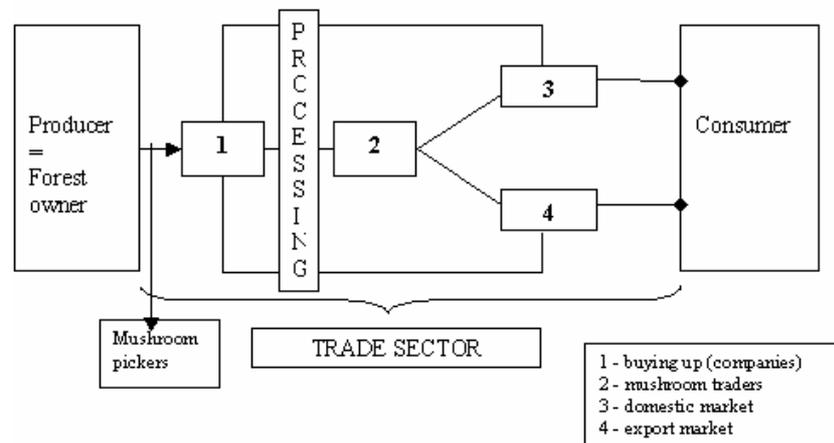


Figure 8. Description of the “product chain” organisation

Most important marketing channels in forest mushroom trade are summarised in Table . On the left side forest owners can be seen as producers. From the sector of producers the mushroom goes into the marketing channel by buying up. This means that companies buy the mushroom from the pickers and not from the forest owners. The mushroom picking is done by individuals. This activity is not a permanent job for rural people only an opportunity to get additional income. In Hungary, mushroom picking appears more a business activity rather than a recreation due to the low level of income of rural society.

In the trade sector the mushroom goes from the above mentioned companies either directly to the market - after processing - or to intermediary mushroom traders who bring it to the market. The term of processing means drying, freezing, powder making and canning. Having access to forest mushroom resources results conflicts in many cases. First, conflict situations can be emerged outside the marketing channel, between forest owners and mushroom pickers. There can also be conflicts inside the marketing channel when different traders occupy new territories. In Hungary, there is a sharpened

conflict between Hungarian traders and temporary foreign trade companies (most of them are Italian-owned), which usually pay more than Hungarians traders.

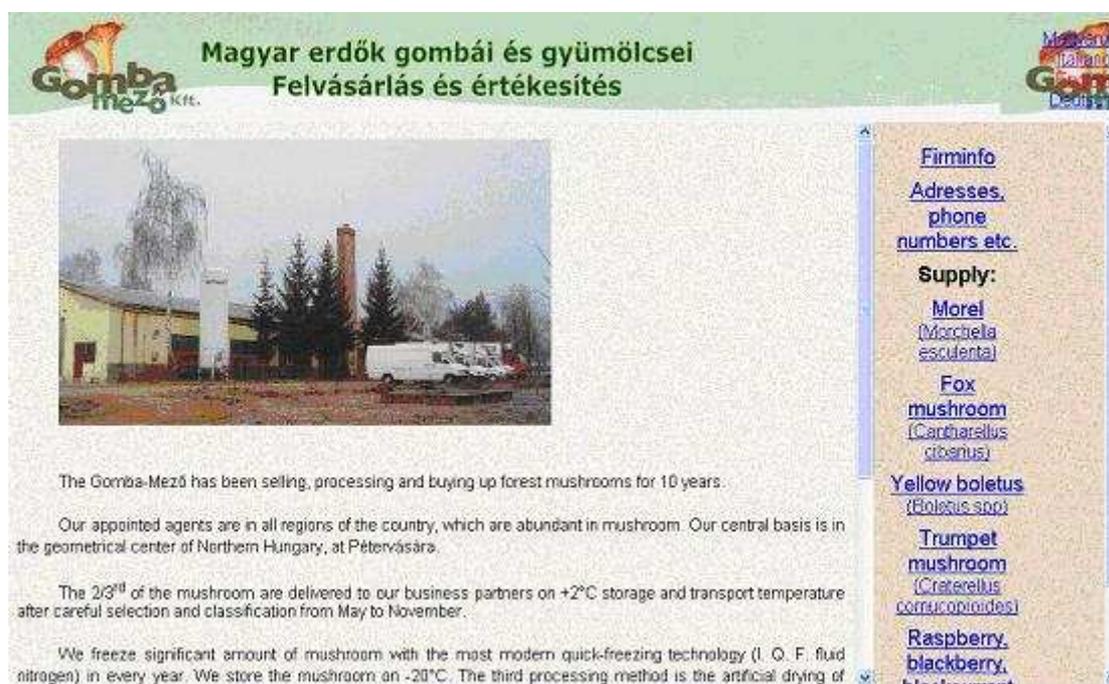


Figure 9. – One of the largest companies in forest mushroom business

### Export/Import

Before the political changes, Hungarian forest mushrooms mostly (90%) went to export market, that trend worked until 1995. From 1995 some positive demand from the home-market can be observed. Still, the Hungarian wild mushroom has two main markets in the European Union: Italy and Germany.

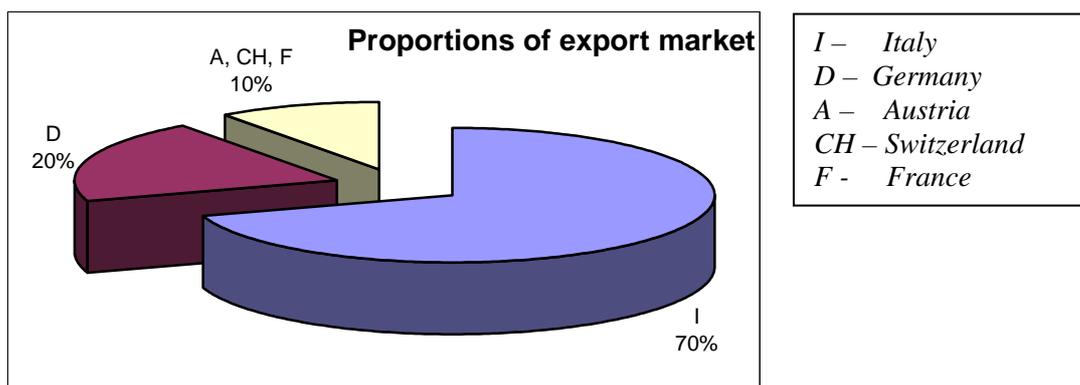


Figure 10. Main directions of export of wild mushroom

In case of Romania and Slovakia import activity can be experienced. There is a high volume forest mushroom in Ukraine, but it is difficult to build fair business connections in this country. Symptoms of grey-economy works are easy to perceive in this sector: the real amount of sold mushrooms is higher than stated in customs statistics. For

instance, during the mushroom season the Austrian restaurant owners usually come to West-Hungary to buy wild mushrooms, because the prices are half of home conditions.

#### Policy framework

Policy institutions involved in the sector and regulations (esp. property rights regulations) that directly influence the NWFP&S production and harvesting. At present the forestry act declares that the mushroom picking is a free in all state-owned forests for personal need, but not for commercial purposes. For commercial need permission from the local forest manager is required. The mushroom pickers never applied for permits. In practice, the mushroom companies are applying for permits for a territory. All in all, the mushroom pickers enter to forests without any permits and pick the mushroom without any payment for the owners. It should be declared the own need per person per day per volume.

#### Role of research, education, and training extension services in NWFP&S development

Approximately 13-17 small-medium enterprises are involved in forest mushroom business. They are suitable to submit project proposal for investments. During the accession period it was accessible the Sapard program. One of the Sapard measures was indicated as improvement of processing and marketing of agricultural and fishery products, including forest mushrooms. At present, there are open tenders for these companies supported by National Development Plan, National Rural Development Plan.

Concerning the taxation issues, these companies are under SME's rules.

The Hungarian mushroom products are not certified at all. The Hungarian companies, which are interested in the forest mushroom and wild herb business, formed a NGO (Medicinal Plant and Product Advisory Council) to represent their interests. This organisation has a special group for the forest mushroom companies, so-called Branch for Wild Harvested Mushrooms. Otherwise, the power of this group is quite weak. No real cohesion to enforce their goals, the private business interest stands above branch approach.

The main research area is to study the mushrooms from the ecological point of view. No marketing or economical aspects can be observed. Other important topic is the preservation against forest mushrooms, which are marked as damages.

The Corvinus University, Faculty of Horticultural Sciences, Budapest and the University of West Hungary, Faculty of Forestry, Sopron are organising courses to identify mushrooms. This training is quite popular among students from the universities.

#### Profitability

No economical data on profitability of forest mushrooms business in Hungary. Three price-groups can be seen on dealer level. The first group holds two mushrooms, *Morchella* sp. and *Chantarellus* sp.. They have high values (12.5-17.08 US\$/kg), because the crop is small in Hungary. The second one includes the *Boletus*-family. *Boletus* has many prices depending on the quality, but the prices are standing on the middle level (7.5-12.25 US\$/kg). The last group contains the rest, which have low price mostly under 7 US\$/kg. No information available for the turnover at this stage.

About 500-700 tons of Hungarian wild mushrooms are harvested annually. 2002 was an exceptional year from the forest mushrooms point of view. According to the expert estimation during 3 weeks about 2,000 tons mushrooms were appeared on the Hungarian market. The buying up price was very low: 200 HUF/kg (0.83 US\$/kg) because the annual crop was very high. The turnover was almost 1.6 million US\$ at works parity. The high volume of forest mushrooms in 2002 was favourable for local people, because of picking 30 kg mushrooms per day meant 6,000 HUF (25 US\$) as income. On the other hand, between 1,000 and 5,000 HUF/kg/person (4.1-20.8 US\$) is determined as potential income level during mushroom season.

#### Lessons learns/driving forces/factors affecting competitiveness (SWOT analysis)

A SWOT analysis was made to summarise the findings of the wild forest mushroom sector.

STRENGTHS (S)	WEAKNESSES (W)
<ul style="list-style-type: none"> <li>• Flexibility</li> <li>• Reliability</li> <li>• Expert's knowledge</li> <li>• Stable picking-network</li> <li>• Versatility</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of capital</li> <li>• No real packaging, processing background</li> <li>• No real product innovation</li> <li>• Enterprise management</li> <li>• Marketing knowledge</li> </ul>
OPPORTUNITIES (O)	THREATS (T)
<ul style="list-style-type: none"> <li>• EU accession</li> <li>• Home trade expansion</li> <li>• Forest area expansion</li> <li>• Tax discount</li> <li>• Hungaricum</li> <li>• Increasing processing level</li> <li>• Finance help</li> </ul>	<ul style="list-style-type: none"> <li>• Arid climate</li> <li>• Strong competition</li> <li>• Imported wild mushroom in large quantities</li> <li>• Owners forbidding</li> <li>• Nature conservation</li> <li>• General economy fall down</li> </ul>

Investigation of characteristics of technological or organisational innovation behaviour in non-wood production, processing and service industries are also important. The most important areas of innovation are:

- Labelling/certification issues (marked as Hungaricum);
- Development of e-business;
- Value-added processing on local level;
- Improvement of home market;
- Taking full advantages of resources: local mushroom processing can be added the ecotourism services.

#### Recommendations proposals

A more obvious regulation should be introduced on how the problem between the mushroom pickers and the forest owners, forest managers should be handled. It would also be important to add values to the harvested mushrooms through local processing. This activity can improve the diversification of the rural area, create jobs and extend the value of other non-wood forest products as well.

Taking full advantages of resources: local mushroom processing can be added the ecotourism services. For instance in Finland the local farmer produces own berries, dried mushroom and he also provides accommodation and guides for nature tourism who also appreciate the experience of staying where the products are produced.

It can be significant to launch a development project in the Central-Eastern European Region co-operated with international organisations (e.g. FAO) and international institutions (e.g. EFI). The goal of this project would be to explore the problems of the non-wood forest products sector as well as to figure out the right solutions.

## 2 Case study – Arnica Montana Co. as specialised in forest recreation and ecotourism

There are different definitions for ecotourism in Hungary. In accordance with the best approach ecotourism means special accommodation, transport and programs together, which minimise the environmental damages for the natural land. Furthermore, the income from ecotourism goes to local people, from which they can manage the natural land in a sustainable way.

In Hungary, there are two types of ecotourism. One of them is when national parks organise ecotourism services. On the other hand, ecotourism has business aspects, when private companies are involved in this kind of environmental service. For instance, there is a micro firm, named Arnica Montana Co, which is specialised in forest recreation and ecotourism service. This organisation is accessible at <http://www.castanea.hu/arnika/index.html>.

The Arnica Montana Co. started its activities with guiding nature tours for hotel guests in Sopron (this city locates in West-Hungary, close to the border with Austria) in 1997. The denominator of the company was Arnica Montana as a well-known medicinal herb in the region of Pre-Alps. This herb is salve for all kinds of traumas; the plant is also used in homeopathy.

Program for primary school children	Noted days	Nature-based adventure tours
Program for nursery school children		Ivy club
Education at the university	Research	Ivy environmental leaflet

Figure 11. Main activities of Arnica Montana Co.

The organisation has been working as an independent forest school since 1998. The most important activity is the implementation of forest school programs for school children. The teaching activities are dealing with 2-3 professional educators with the occasional help of university students. The main event of the year 2000 was the organisation of the conference "Harmony of environment and human" sponsored by PHARE CBC.

To understand the value of the natural environment of Sopron and its unity with this historic town, it is important to glance over this western corner of Hungary for an overview. The nationally unique statement of Sopron is due to the fact, that in its immediate environment 3-4 strikingly different regions and living worlds join hands. In direction of southwest it can be found cold, shady, alpine-like forests, and only in a distance of 40-50 km there are the 2000 m peaks of the Alps. On the north Sopron leans on the „Bécsi”-hill of Mediterranean features, eastwards lays the famous „Szárhalmi”-forest with its steppe meadows and dry oak stands. Beyond the range hills of Szárhalom, Fertő, the westernmost alkaline steppe-lake of the continent is situated with its vast reeds.

The Arnica Montana Co. holds its programs in the above described environment. They have different programs for adults and children, as well. Quite popular weekend program among tourists is the “revival with the power of nature”. This tour includes massage, forest meditation and special physical training in the forest. Other option within this offer is an adventure walk in the forest.

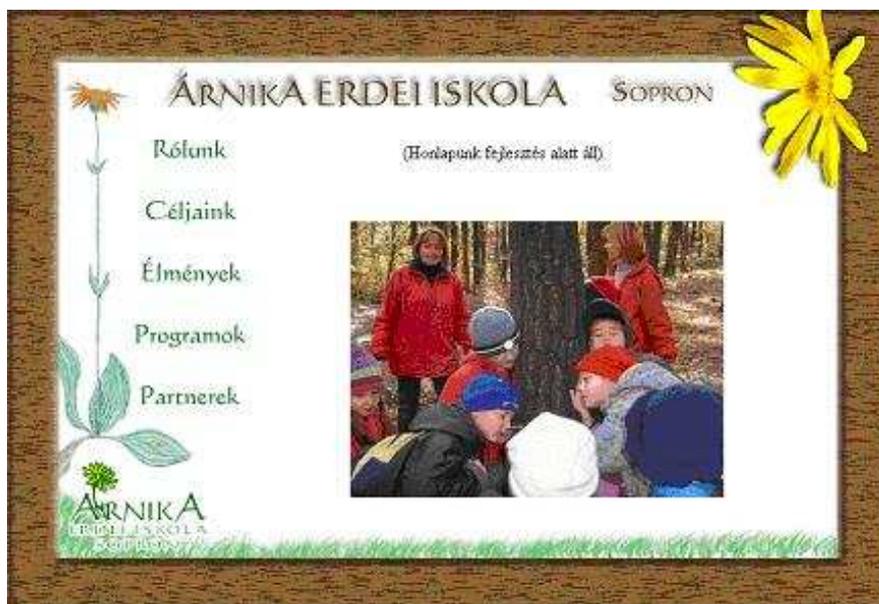


Figure 12. Website of Arnica Montana (<http://www.castanea.hu/arnika/index.html>)

### **Annex: List of statistical information sources, databases, web sites**

#### Articles

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Lett B. – Mészáros K. – Hegedűs A. (2002): Az erdőgazdálkodás gazdasági szabályozásának lehetőségei az EU-s csatlakozás tükrében. Wood-Tech 2002, Konferencia Kiadvány, Sopron.

#### Internet sites, institutions

Start point website for honey business <http://mez.lap.hu/>

Start point website for mushroom business <http://gomba.lap.hu>

Start point website for herb industry <http://gyogynoveny.lap.hu/>

#### National and local organisations studying non-wood forest products

University of West Hungary, Faculty of Forestry, Sopron [www.nyme.hu/emk](http://www.nyme.hu/emk)

Corvinus University, Faculty of Horticultural Sciences, Budapest [www.kee.hu/ktk](http://www.kee.hu/ktk)

Forest Research Institute, Budapest [www.erti.hu](http://www.erti.hu)

Agro Chamber <http://www.agrarkamara.hu/>

Ministry of Agricultural and Rural Development [www.fvm.hu](http://www.fvm.hu)

Ministry for Environment and Water Management [www.kvvm.hu](http://www.kvvm.hu)

Herbaria Co. [www.herbaria.hu](http://www.herbaria.hu)

Nagy Mihály Medicinal Plant Ltd. [www.nam.hu](http://www.nam.hu)

Medicinal Plant and Product Advisory Council (GYTT)

Federation for Forestry and Wood Industries (FAGOSZ) [www.fagosz.hu](http://www.fagosz.hu)

Agricultural Marketing Centre [www.amc.hu](http://www.amc.hu)

Gomba-Mező Ltd. [www.boletus.hu](http://www.boletus.hu)

Agro-Quality Ltd. <http://www.truffle.hu/>

First Hungarian Truffle Society <http://falco.elte.hu/emsze/>

APIMEL-R. health- and spa-tourism, tourism and honey-processing Reha Ltd. [www.apimel.hu](http://www.apimel.hu)

Honey Advisory Council <http://w3.datanet.hu/~meheszet/>

TERRA FOUNDATION [http://www.terraalapitvany.hu/index\\_en.html](http://www.terraalapitvany.hu/index_en.html)

## 5 Forests and ownership

### 5.1 State of the art and historical development

The main stages of the changes in the 20<sup>th</sup> century were as follows: in 1920 on account of the Trianon pacification the territory of forests fell from 7.4 million hectares to 1.2 million hectares. This radical reduction was accompanied by the fact that dominantly low productivity areas remained within the new borders. The 19 % proportion of forest cover was the lowest among the European countries. After World War 2, in 1945 the forests larger than 58 hectares were nationalised. As the second step in 1946 forests exceeding 6 hectares were also nationalised. From 1960 owing to collectivisation the previously privately owned small forest lots were also taken into public ownership.

In the beginning of the 1990s during the social-economic transformation the property relations basically changed due to privatisation. While before the change of regime the percentage of privately owned forests did not reach 1%, now 40% of the forests are in private hands and only 60% is of state property. As a point of interest, only one of the 6 political parties that were formed after the disintegration of the one-party system has set alteration of property structure as a main political goal. This large-scale modification of property structure is a result of a decision of the constitutional court that declared that any discrimination between different former grievances is anti-constitutional.

### 5.2 Forest resources

Hungarian forests' growing stock was in 2000 estimated at about 318 million cubic metres solid wood, with an average (relative to the total forest area) of 190 cubic metres per ha. Deciduous forest accounts for about 85% the growing stock (for details refer to chart 4 below). The annual increment is estimated at 12 million cubic metres solid wood, with an average (relative to the total forest area) of 6.8 cubic metres per hectare.

Table 16. Felling achievements by groups of tree species in 2002.

Species	1000 m <sup>3</sup>	%	Species	1000 m <sup>3</sup>	%
Oak	1161	16.6	Black locust	1480	21.1
Beech	618	8.8	Improved poplars	976	13.9
Conifers	774	11.0	Other soft broad-leaved	507	7.2
Turkey oak	973	13.9	Other hardwood	192	2.7
Hornbeam	332	4.7			

Source: FVM Forest Department

### 5.3 Forest ownership

Out of the 1.9 million hectares officially registered forest land, 1,128 thousand hectares owned by the state, while the area of private forests exceed 732 thousand hectares. Hungarian forests in general are unevenly distributed. The densest, and best-linked up forests are located in highland areas. At the same time, four out of the five most forested counties are in the Southwest. On the other hand, lowland plains like, for example the Puszta have little – if any - forest cover. Large forest blocks dominated by native species remained the property of the state, while private forests (the majority was the property of the agricultural co-operatives before privatisation) are more scattered and comprise mainly fast growing tree species.

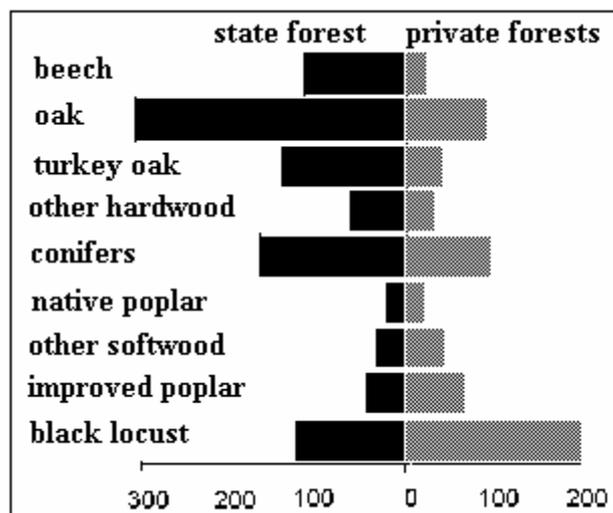


Figure 13. Distribution of different tree species, plotted in state and private ownership forms

#### Protected forests

Table 17. – Primary functions of the forests in Hungary

Forest land	2000 (%)	2002 (%)
Protection forest	23.2	33.6
Productive forest	74.5	64.8
Health care, social, tourism forest	2.3	1.6
Total	100.0	100.0

Source: State Forest Service, 2003

The high increase in the share of protection forest (Table 1) is a result of a classification development; forest lands under declared nature protection have been reclassified in terms of primary function, become protective forest and the National Forest Database was up-dated accordingly. Protection forest includes protective forest (soil, wildlife, settlement protection etc.) and protected forest (e.g. in protected natural areas). Their share tends to be increased in the next decade.

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

1. The opinion and perceptions of private forests owners in connection with the forests, especially in the area of

- ownership rights;
- income possibilities;
- protection of the property;
- settlement of legal directions;
- and realisation of the objectives of the owners.

2. Whether the formulating private forestry will meet the economic, social demands of the Hungarian society.

- How can sustainable forest management be accomplished in private forestry.
- How will change the public opinion on private forestry.

- How can the recreation effects of private forests be improved.
  - What are the main conflicts between forest owners and the society.
3. How will the ownership patterns be modified in the future?
- What kind of long time changes might be expected;
  - How can the desired ownership system be described;
  - What kind of decisions and tools can be applied to reach a preferred ownership system.

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