

FOREST SERVICE ENTERPRISES IN THE ENLARGED EUROPE

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Abstract: *The collapse of the political systems in Middle and East Europe marked the beginning of private forest service enterprises to emerge. The development of forest service enterprises in Bulgaria, Estonia, Lithuania, Poland, Czechia and in the East German 'Länder' shows that there are different ways. The development of forest service enterprises without maintaining the former enterprise structures - it means a total new start - leads to a big number of small and smallest companies, which will form in the market competition into stabilised small and medium-sized enterprises (e.g. East German 'Länder', Poland probably). As for privatisation of the complete technical departments of the state forest enterprises, the big forest service units will remain, which are found to gradually develop their own profile in market competition side by side with the emerging new small companies using their chances in the gaps. (e.g. Czech Republic, Bulgaria probably). So the development of forest service enterprises will be analysed in the Baltic States also.*

1 Introduction

Along with the breakdown of the political systems in the states of the former COMECON and the reorientation on the foundation of private economy a fundamental structural changing in the fields of forestry and timber products was initiated. Forest was restituted to the legitimate owners. In other cases formerly expropriated forest property was privatised via a trustee company by means of share certificates. The proportion of state forest shrank in these states to percentages comparable to the situation prior to 1945.

At the same time, state or national forests were likewise restructured. The hitherto common way of management "from one hand" within the state-owned forestry firms was supplemented in favour of a multitude of privately owned companies, or completely superseded. In this way, forest service enterprises came into being that differ greatly in level of development. Subsequently, by means of selected examples this development in the states or countries, respectively, is outlined.

2 Forestry in the future EU-member states of Middle and East Europe

Totalling the enlarged Europe represents a chance for the forest and timber production sector. (Mannsberger, 2003) Along with the accession to the European Union of 10 Middle and East European states in transition starting from the year 2004 up to the year 2007 the forest area of the EU will enlarge by one quarter, i.e. from 136 Mill. ha to more than 170 Mill. ha.(cf. Table1). Poland in view of its population and territory as well as the forest area ranks first among the accession countries, which will become members of the EU in 2004. The next to follow – as related to forest area – will be the Baltic countries, as well as Czechia, Slovakia and Hungary. Slovenia has a forest area of only approx. 1 Mill. ha; however due to its small territory Slovenia with approx. 58 % is most forest-clad among those analysed countries. More distinctly than the forest area the number of employees in forestry of presently 268,800 will increase by 258,500, hence it will almost double (Blombäck et al., 2003). While in the 15 EU-member states approx. 2 employees work on a forest area of 1000 ha, in the 10 accession countries this number is 7.5 employees, thus the 3.5fold. This distinctly higher number of employees will decline strongly along with the progressing economic development in these countries, the increasing scope of services of private companies as well as the productivity increase to be expected. The development can be compared to the agrarian sector, having similar relations between the EU-member states and the accession countries. Poland will have biggest problems in adaptation with respect to its forest area as well as number of employees being largest among the accession countries.

Table 1: Statistical overview of forestry in some Middle and East European countries and in the EU (CIA Worldfactbook, 2002; Bemmann/Große, 2001; Blombäck et al., 2003)

Country	Area 10 ³ km ²	Inhabitants 10 ⁶	GDP 10 ³ US\$ per capita ¹	Woodland			Employment in Forestry employee	Average wages US \$ / a ²⁾
				10 ⁶ ha	% of Area	% by State ownership		
Poland	312.7	38.7	9.5	8.94	28.6	82.0	64,400	8,000
Estonia	45.2	1.4	10.9	2.16	47.8	57.0	8,800	9,000
Latvia	64.6	2.4	8.3	2.99	46.3	52.8	15,900	7,000
Lithuania	65.3	3.6	8.4	2.05	31.4	89.1	12,000	7,500
Slovakia	49.0	5.4	12.2	2.03	41.4	42.0	23,670	8,000
Czechia	78.9	10.3	15.3	2.63	33.3	61.5	34,000	11,000
Hungary	93.0	10.1	13.3	1.81	19.5	63.5	14,800	no data
Slovenia	20.3	1.9	18.0	1.17	57.6	15.0 ¹⁾	4,090	19,500
Bulgaria	110.9	7.8	6.6	3.90	35.2	85.2	23,180	no data
Romania	238.4	22.4	6.8	6.68	28.0	94.6	57,670	7,000
Total	1,078.3	104.0		34.36			258,510	
EU - 15	3,239.6	371.5		136.20			268,800	~ 20,000

¹ after re-privatisation / ² based on purchasing power parities

Forest service enterprises have developed in all countries. They offer their services and advertise for job orders from all types of forest ownership. Furthermore, they constitute a possibility for employment for qualified foresters, who were made redundant from the state and national forests as a consequence of rationalisation measures and cutbacks in staff. On the other hand, it is just the competition between the enterprises creating a rationalisation pressure, which along with increasing adjustment of labour costs and non-wage labour costs to the EU-15 average will increase markedly, thus implying less opportunities for employment than hitherto. Referring to the number of employees and the availability of modern machinery and devices the individual countries differ greatly. These differences lead to different performances and thus to distinctions in competitiveness of the enterprises. A changing in the next few years, subject to supply and demand, of the forest service market, which through the EU East enlargement has gained in size, is expected. The competitiveness of the forest service enterprises in the individual countries that compete with each other on this market is of interest in this connection.

3 Development of forest service enterprises within the scope of the former COMECON

3.1 Establishment of forest service enterprises in the East German 'Länder'

In the East-German 'Länder' forest enterprises have emerged primarily on the basis of those qualified staff who had lost their jobs due to the closing down of the state-owned forestry firms. Relying on the personnel of the latter and the technical equipment, about 150 private enterprises could be established in Saxony by the end of 1991, which mainly offered services on wage-contractor basis. As compared to the West German 'Länder' this was a very high density of enterprises. On the territory of the old Federal Republic approx. 15 private forest enterprises were in existence on an area of 100,000 ha in 1991. At the same time in Saxony there were 31 and in Thuringia even 40 of such enterprises per 100,000 ha woodland. The newly established enterprises had a small workforce and offered only few services. Only 13% of the enterprises in the East German 'Länder' had more than 10 employees. In the meantime structure and service patterns of the German enterprises are at comparable level (cf. Table 2).

Along with a decreasing density of enterprises the proportion of enterprises with more than 10 employees has distinctly increased. The broadened range of services of forest enterprises in the scope of fully mechanized activities is reflected in their forest machinery (cf. Table 3). However, it is obvious in this context that varying with capital resources of the enterprises there is due to the respective investments still a considerable gap between the developmental level of the East and West German 'Länder'. So in the Land of Lower Saxony the available harvesters per 100,000 ha woodland exceed by the 2.5 to 3 fold those in the East German 'Länder'. The reason behind this is in addition to the capacity for investment of the enterprises also the damage due to storm incurred during past calamities that struck Lower Saxony. This situation led to a considerable increase of harvesters due to plenty of work that had to be done in the primary conversion of storm damaged wood.

Table 2: Density of enterprises in the East German 'Länder'
(according to LFV-BB, 2003; SFV, 2003; LFV-MV, 2003)

Forest enterprises	Brandenburg	Mecklenburg – Western Pommerania	Saxony
Number (estimate)	150	100	170
Number per 10 ⁵ ha woodland	15	20	30

Table 3: Technical equipment of the forest enterprises as compared between East and West German Landesverbände (associations) (Narjes 1999; LFV-BB 2003; SFV 2003; LFV-MV 2003)

	Woodland 10 ³ ha	Forest-technological equipment					
		Harvesters		Forwarders		Skidders	
		No. of machines	and No. / 10 ⁵ ha	and No. / 10 ⁵ ha	woodland, resp.		
Brandenburg	1.022	36	3.5	100	9.8	no data	
Mecklenburg – Western Pommerania	496	13	2.6	78	15.7	106	21.3
Saxony	485	24	4.9	33	6.8	29	5.9
Lower Saxony (comparison)	985	113	11.4	300	30.4	no data	

Above all, the diversity of services offered has been greatly increasing. In some enterprises up to 26 types of service are offered, which span a field from traditional contractor activities in timber harvest up to the branches of forest planning / expert activity (cf. Figure 1). The main point for contractor activities within the framework Forest Administrations of the 'Länder' are invariably orders for skidding, while silvicultural work is still done by own labour (scheduled work) (cf. Table 4). Wage-intensive work is done preferably in terms of scheduled work via the Forest Administration of the 'Länder'; one reason for this is the still high number of lumbermen, which is politically intended and which is to be reduced exclusively on socially compatible terms.

Table 4: Contractor services within the framework of Forest Administrations of East German 'Länder' (according to LFV-BB, 2003; LFV-MV, 2003; LFV-SN, 2003)

Field of activity	Brandenburg	Mecklenburg – Western Pommerania	Saxony
Silviculture	5 ... 8	25	30 ¹
Skidding	90...95	80	91
Logging	20...25	5	24

¹exclusively soil cultivation

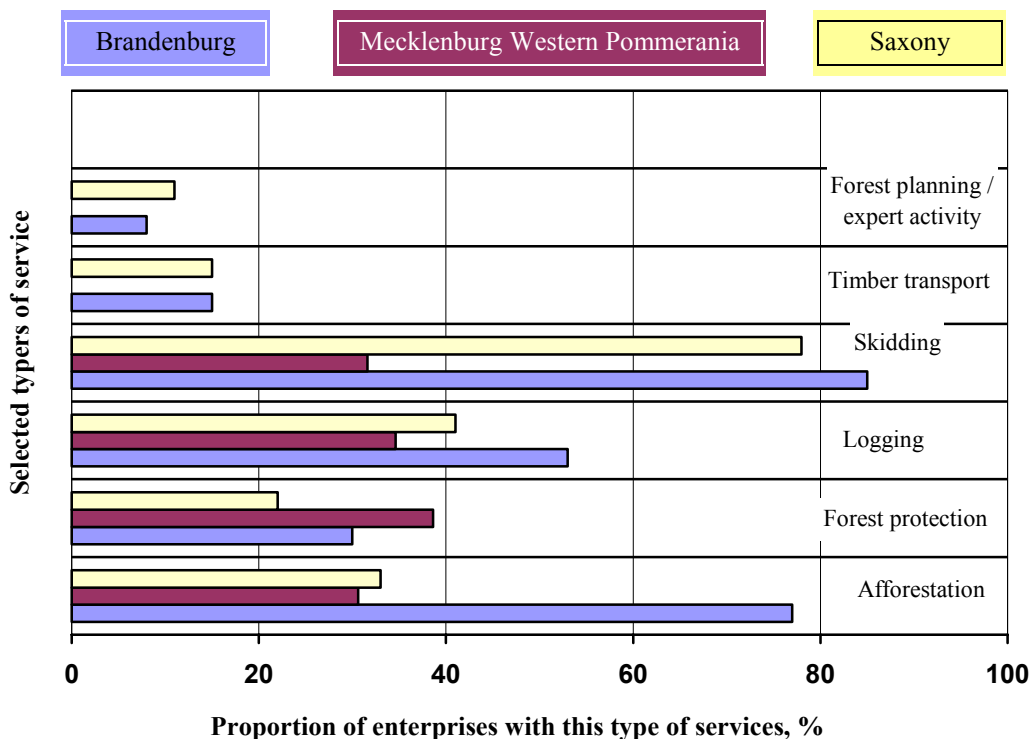


Figure 1: Selected services offered by the forest enterprises in East German Landesverbänden (BAFL, 2000; Sachse, 2000)

At present a comprehensive certification of forest service enterprises does not yet exist; the RAL-certification mark refers for instance only to one enterprise in Saxony. Likewise, the Saxon forest planning enterprises are, among others, not certified. Two forest planning service providers have been sworn to office so far, that is, they are entitled under public law to issue expertises.

3.2 Forest service enterprises in selected EU accession countries

In **Poland** forest service enterprises account for approx. 10,000 with approximately 15,000 employees, of which 50 % are one-man enterprises (cf. Table 5). The technical equipment consists largely of simplest instruments of labour for logging and skidding (Grodecki, 2003). Only 20 bigger enterprises exist, being equipped with few special machines. Contractor work in Polish state forest accounts for 90 %; in communal forest this share is 30 %. The small-patterned private forest – primarily belonging to farms – is entrepreneur-run to just an estimated 5%. Given low labour costs and low non-wage labour costs (ca. 3 €/h) due to lacking mechanization the forest enterprises achieve only low productivity; the costs for harvest and skidding (free truck road) are an estimated 7 €/m³ (InWent, 2003).

Table 5: Pattern of employment in the Polish forest service enterprises (Gieffing et al., 2003)

Total number of forest service enterprises	of which the number of employees is as follows:					
	1	2 ... 5	6 ... 10	11 ... 20	21 ... 50	> 50
9,961 (100%)	4,725(47%)	3,884 (39%)	877 (9%)	369 (4%)	101 (1%)	5

In the **Czech Republic** within the framework of privatisation initially 94 joint stock companies came into being in 1992, providing forest-technological services. By 1997 in this field 109 joint stock companies, 455 GmbHs (Limited Liability Companies), 81 co-operatives, 139 communal enterprises as well as some 2000 one-man enterprises had come into existence. Forest service enterprises in Czechia have a wide structural range. Besides 4 enterprises with more than 100 employees 50 enterprises exist employing up to 50 workers. The equipment of the enterprises is comparably modern and efficient. The degree of equipment with special machines (harvesters, forwarders) is an estimated 7 machines/100,000 ha woodland. Together with the numerous small and smallest enterprises ca. 2,700 enterprises work at national level; this leads to density of enterprises of an estimated 100 enterprises / 100.000 ha woodland (MLCR, 2000). In Czech forest enterprises, labour costs and non-wage labour costs account for about 4 €/h. Contractor work accounts for ca. 80 % in state forest, while its share is ca. 50% in communal and private forest. Within the scope of the national forest administration 5 forest enterprises exist, which independently perform management of each ca. 20,000 ha woodland in scheduled work. Thus, they fulfil a reference function, similar to the machine yards within the Forest Administrations of the German 'Länder'. (InWent, 2003; Krchov, 2003).

Regarding the national forest services of **Bulgaria**, any kind of activity yielding a return is strictly forbidden. Therefore during the process of restructuring of state-owned forestry firms into Forest Administrations a total of 63 forestry firms were hived out and privatised step by step (Stantschev, 2000). The main emphasis of the activities of these enterprises lies in the field of timber harvest and marketing. In addition to logging and transportation technology these enterprises possess equipment for road construction as well as facilities for primary processing of wood (e.g. saw mills). The available instruments of labour are used far beyond the scheduled period of repayment, the majority of which thus being obsolete (cf. Figure 2). Following the privatisation of the enterprises the necessary capacity for investment is missing. In the Bulgarian state forest the timber of all types of assortments is exclusively sold on the stump. The forest enterprises harvest the areas obtained by means of auction and market the timber thereafter. Related to the national forest area Bulgaria has about 2 forest enterprises / 100,000 ha. This number shows: Forest enterprises in Bulgaria are large-scale enterprises, which have emerged in direct transition from the technical departments of the former state-owned forestry firms.

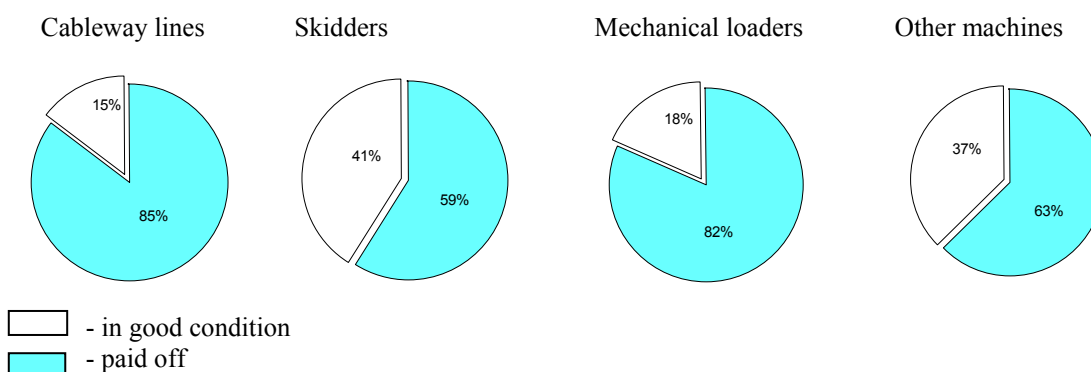


Figure 2: Condition of the machinery in Bulgarian forest service enterprises (Asparuchov and Dinev, 2000)

In **Estonia** the forest service sector has been developing since the beginning of privatisation starting from 1991. In 1995 as many as 295 enterprises existed at national level, which increased to 599 enterprises up to 1999; thereafter this number dropped again to 457 (cf. Figure 3). Thus, on statistical average each enterprise has 7 employees. Table 6 illustrates however, that in Estonia too small enterprises are dominant; the number of employees in more than 50 % of all enterprises ranges from 1 to 3. The density of enterprises is approximately 20 enterprises / 100,000 ha.

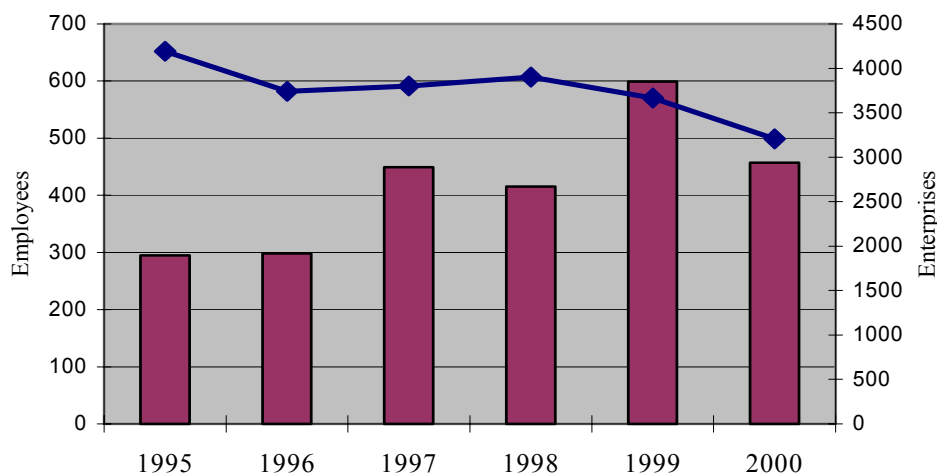


Figure 3: Forest service enterprises in Estonia – development of the number of enterprises and employees from 1995-2000 (Yearbook, 2001)

Table 6: Structure of employees in the Estonian forest service enterprises in 2000

number of Forest service enterprises	Total	of which the number of employees is as follows			
		1... 3	4 ... 10	11 ... 30	> 30
457		50 %	25 ... 35 %	10 ... 20 %	5 %

Forest service enterprises in Estonia are comparably well equipped with harvesters, forwarders and skidders (cf. Table 7). At present in Estonia there are approximately 100 harvesters, all of which being owned by forest service enterprises. Out of a total of 260 forwarders merely 55 are in state ownership; as many as 205 forwarders are in the possession of enterprises (RMK, 2003).

Table 7: Technical equipment of the Estonian forest service enterprises (RMK, 2003)

Forest area 10 ³ ha	Forest-technological equipment	
	Harvesters	Forwarders
	Number of machines and number / 100,000 ha forest area	
2,200	70 / 3.2	205 / 9.3

In **Lithuania** the number of forest service enterprises increased up to the years 2000 / 2001 and accounted for 500 to 600 enterprises, i.e. 25 to 30 enterprises per 100,000 ha woodland. Since then the number of enterprises has been declining. On the one hand, this was caused by enlargement of the enterprises given a stronger investment at the same time. This leads to the edging-out of small enterprises, working only with simplest equipment. In addition to this, skidding has been allowed only by means of forwarder or trailer in state forest since 2002. Within the state forest enterprises there are likewise still technical departments, having ca. 70 forwarders, as well as ca. 60 short-log haulage-equipment (tractor with trailer and loading crane). Obviously due to the higher investments required contractor assignments in skidding account for only 35 %, with just this type of work being a core area of contractor activity in other countries (Kupstaitis, 2003).

Table 8: Contractor shares in Lithuanian forestry (Kupstaitis, 2003)

Type of work	Contractor activities
Logging 2002	90%
Skidding	35%
Haulage on road	56%

4 Evaluation and Outlook

Forest service enterprises have developed in all countries. Various frameworks however led to a considerable differentiation both in size of the enterprises and their efficiency. Four groups can be distinguished (cf. Table 9):

- 1 Countries having structures in the field of forest service activities, being characterized by small and medium-size enterprises with modern efficient equipment
Examples: Estonia, Lithuania, East German 'Länder'.
- 2 Countries with a mixed structure of enterprises and with efficient medium-size and large enterprises, besides numerous smallest and small enterprises.
Example: Czechia.
- 3 Countries, where as a result of complete shut-down of the technological branches of former state forestry firms a very big number of smallest enterprises with simplest technological equipment and low efficiency have formed, supplemented by medium-size and larger enterprises with low-level of equipment
Example: Poland.
- 4 Countries, in which the complete technological branches of former state-owned forestry firms had been transformed in private companies; equipment is mostly obsolete, efficiency and flexibility of the enterprises is low
Example: Bulgaria.

From the viewpoint of an effective competition as well as the necessary flexibility of the enterprises to the changed market conditions this seems to be more an advantage for small-structured companies. Smallest enterprises with 1 or 2 employees will find niches also in the future; because of the necessary investment in forest-technological equipment and the possibility of fully utilizing these machines medium-sized enterprises, however, have advantages over smallest entrepreneurs.

Future developments on the forest service sector are strongly determined by competitiveness of the respective enterprises. By the accession of 10 Middle and East European countries to the EU in the next few years and an opening services market in these countries the competitiveness of these enterprises is to be elucidated.

Competitiveness in general gives an evaluation of the possibility of an enterprise to stand out against co-competitors successfully. Within the national framework this ability is influenced, among others, by productivity, unit labour costs, quality and flexibility. *Competitiveness* from the national economy perspective is concerned with the question of how well the performances of an enterprise come out on the (global) market (Samuelson and Nordhaus, 1998). Hence, competitiveness primarily depends on the relative height of the prices of commodities. It differs from productivity that for instance is measured by the amount of production per working hour. Competitiveness at international scale is additionally also controlled by influence other than that from the enterprise, e.g. by parity of currency. Low rates of exchange, given equal productivity, thus create for instance advantages in competition when selling commodities or rendering service, while conversely the situation in competition of the buyer worsens.

Table 9: Typical enterprise structures of forest service enterprises within the scope of selected EU accession countries

Group		Number of forest enterprises	Enterprises per 100,000 ha woodland	Characteristics
1	Estonia Lithuania	457 500*	21 24	Small and medium-size enterprises with partly modern equipment, efficient, flexible
2	Czechia	2,700*	100	Large enterprises with high productivity combined with small and smallest enterprises in niche areas
3	Poland	10,000*	110	Few medium-size enterprises, combined small and smallest enterprises, bad equipment
4	Bulgaria	63	2	Very big enterprises, low productivity and flexibility, obsolete machines
	Germany	2,300*	23	Small and medium-size enterprises with modern equipment, efficient, flexible

*substantiated estimate

In general, it is evident that country-specific enterprise structures of the groups 1 and 2 (cf. Table 9) have higher chances in international competition than those of groups 3 and 4. However, the development in the latter groups will also lead to more efficient and flexible structures.

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