The Baltic forest sector in a global perspective

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Nilsson S. 1998. The Baltic forest sector in a global perspective. *Baltic Forestry*, 1: 47-55.

In this paper I am trying to put the Baltic Forest Sector in a global perspective. Initially, the future global wood balance is discussed. Based on current knowledge, it looks as though the global supply of industrial wood (with a time horizon until the year 2030) will continue to increase, but is unlikely to keep pace with even moderate increases in demand. Demand is growing faster than supply. This will cause regional wood shortages and constraints during the next 30 years.

This is of importance for the Baltic region, which is a forestry region and where much of the economy is driven by the forest sector.

Analyses of the wood balance for the Baltic States show that the region's forest resources are underutilized, and in the mid-term there is a potential of increasing the harvest (on a sustainable basis) by some 10 million m³. This means great potential for further industrial expansion in the region.

But to materialize this industrial expansion, a substantial amount of capital is needed.

The question is from where this capital is to come. Different strategies are being discussed in order to secure the needed capital and a sustainable development (in a broad sense) of the Baltic forest sector.

Key words: Baltic forest sector, wood balance, industrial wood, strategies of incomes.

Introduction

The objective of this paper is to try to put the forest sector of the Baltic States into a global perspective. Based on this, I will attempt to identify strategic choices facing the Baltic forest sector. I will first start with the global demand and supply outlook for wood and fibres.

Material, results and discussion

To get an outlook on the global fibre balance, I have used the sustainable yield approach, which tries to reflect supply as the sustainable yield (net annual growth or annual allowable cut on productive, closed, and exploitable forests). Basic data are used from Apsey and Reed (1995), Nilsson (1996), and WRI (1997), with a time horizon until the year 2030. The sustainable yield is the biological supply of wood under currently identified land-use rules and growth conditions. Probable supply is defined as the part of the biological supply that is likely to be available for use given available utilization technology, landowner attitudes, environmental restrictions, etc.

The estimates on the sustainable yield supply according to world regions and probable supply are presented in Tables 1 and 2.

The global probable supply is estimated to be some 83 % of the biological supply. However, in reality, the entire probable supply will not be used, as it is not all

Table 1. Sustainable Yield Timber Supply — 1995. Biological and Probable Supply (in million m³/year)

Region*	Conifer		Non-Conifer	
	Biological supply	Probable supply	Biological supply	Probable supply
NA	436	392	276	193
LA	97	88	378	290
WE	288	260	124	90
Rus	350	289	162	138
Asia	224	195	406	320
ROW	23	21	170	124
Total	1418	1245	1516	1155

Table 2. Forecasted Changes in Probable Supply 1995–2030 (in million m³/year)

Regions	Conifer		Non-Conifer	
	1995	2030	1995	2030
NA	392	448	193	173
LA	88	130	290	417
WE	260	294	90	107
EE	62	64	47	48
Rus	289	156–289**	138	79–138**
Asia	195	214	320	517
ROW	21	28	124	116

* Abbreviations here and further are used according to FAO classification

** With 10 % increase in relative prices in forest products and investments in infrastructure.

economically accessible. Furthermore, I do not present any estimates on the global economic accessibility over time. Such estimates are available using general equilibrium approaches, but so far these approaches have generated unrealistic results (e.g., FAO, 1997).

There will be a structural change in the future wood supply, meaning a reduction in supply from natural and extensively managed forests (Figure 1). On the other side, plantation fibres will more than offset reductions in supply from natural forests. Although increased roundwood supply from short and medium-term plantations will not only be used for pulp production, but also for solid wood products. Plantations, originally planted for fuelwood production, will increasingly be used as a fibre source by the forest industry. By the year 2030, plantation fibre will account for approximately 38% of the total probable supply to the forest industry, compared to 17% today.

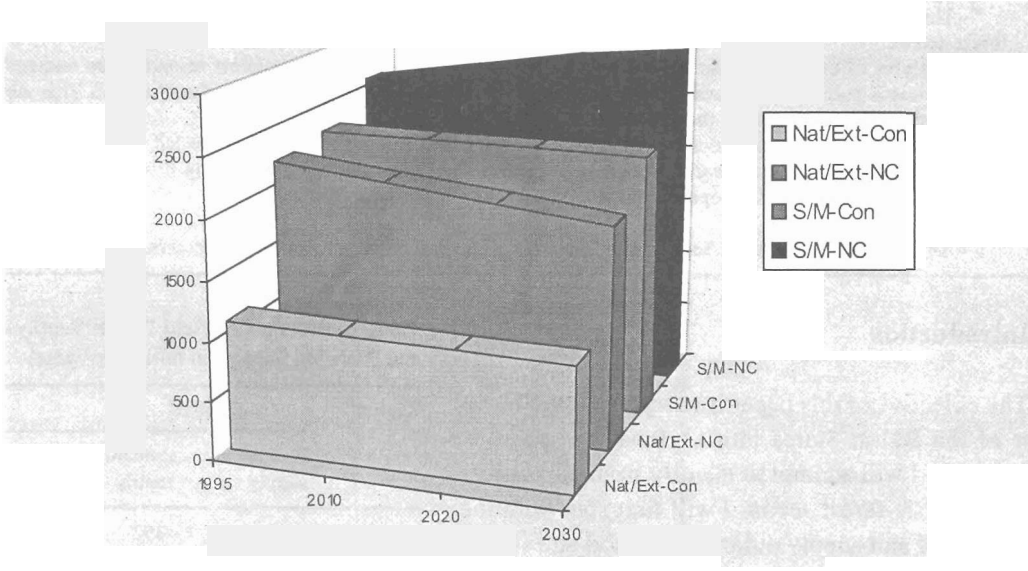

Fig. 1. Structural changes in probable supply 1995-2030 (million m^3/year).

Paper and board production is projected to increase from approximately 281 million tons in 1995 to just over 700 million tons in 2030. Printing and writing papers, and tissue are among the fastest growing paper and board products, with regional growth dominated by the economies of Asia, Latin America and Russia. A fundamental change projected with respect to the pulp and paper sector is the continued substitution of recycled fiber and coatings/fillers for virgin pulp. As a percentage of the total furnish, wood pulp decreases from 56 % in 1995, to 43 % by the year 2030. The increased use of recycled fibre helps reduce the incremental demand for wood by some 290 million m^3 annually.

The fastest growing product areas are composite boards (some 4 % per year). Substitution for both solid wood products (composite products, non-wood products) and pulp and paper (electronic media), will play a key role in defining demand. North America is expected to be one of the first regions to experience this phenomena in any significant way. The incremental demand for some major forest industrial products is illustrated in *Figures 2-3*. All of these factors result in an increase of *industrial* roundwood demand by 1.74 % per year during 1995–2030 (1.44 % coniferous and 2.16 % per year for deciduous). The *industrial* roundwood demand is expected to increase from some 1.6 billion m^3 per year in 1995 to 2.9 billion m^3 per year in 2030 (Figure 4).

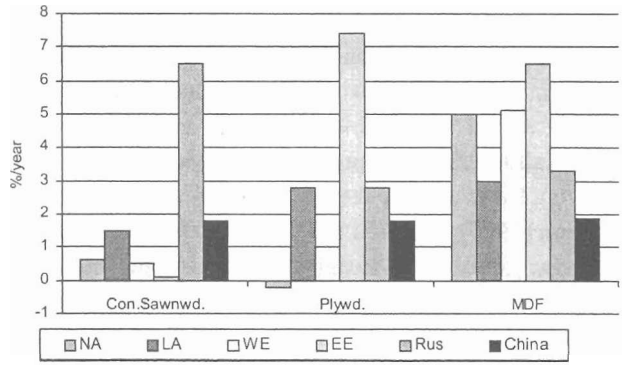

Fig. 2. 1995–2030 demand growth for selected SWP.

There will be a number of imbalances at the regional level with respect to *industrial* wood in the year 2030.

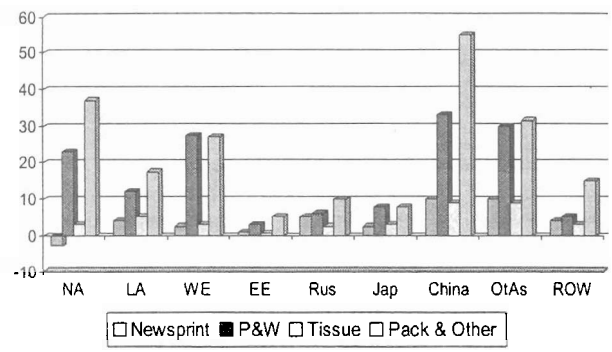

Fig. 3. Incremental demand for P&Pb 1995–2030 by region

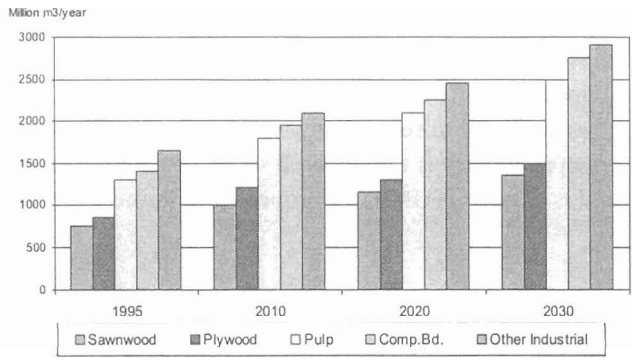

Fig. 4. 1995-2030 projected industrial roundwood demand

For coniferous wood, the most expressed deficits are for North America, Eastern Europe, and Other Asia. The dominating surplus regions are Western Europe and Russia. The large deficit regions with respect to deciduous wood are North America and Other Asia. The dominating surplus regions are Latin America, Russia, and China. This results in a global outlook according to Figure 5.

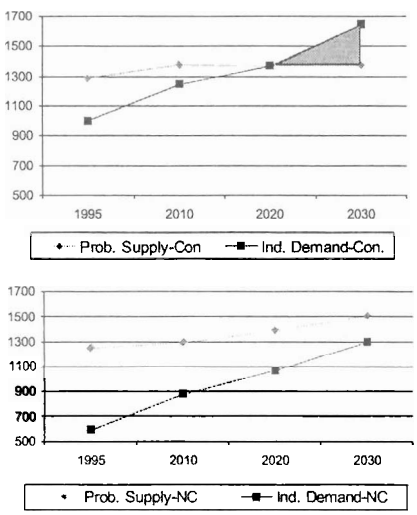

Fig. 5. Global **Timber Supply/** Demand 1995–2030 (MM m^3/ year)

In this figure the total *probable* roundwood supply is compared with the *industrial* wood demand. It means that wood, used for energy production, is also included in the total probable wood supply. In 1995, 1.93 billion m^3 of wood was consumed for energy production (however all of this wood did not come from the total probable roundwood supply component).

The major conclusions that can be drawn from this exercise, based on the global wood balance, are:

- global supply, while increasing, is unlikely to keep pace with even moderate increases in demand. Demand for forest products is increasing at a faster rate than the available global supply;

the next 30 years will bring regional wood shortages and constraints;

- investments in plantations throughout the southern hemisphere (especially Asia and Latin America) will increase. Investments in conifer plantations may prove to provide a better return;
- new primary manufacturing operations will be targeted toward emerging resources, rather than traditional demand areas of the world;
- the acquisition of start-up resources and manufacturing investments in the southern hemisphere will be the mechanism by which some old-line players in the north become global forest industry players; and
- it will be those companies that understand the evolving role fibre will play in shaping the global forest industry of the future that will survive to be part of the future.

Potential wood supply in the Baltic Region

It is difficult to obtain consistent input data in the Baltic region for quantitative analyses of potential removals, fellings, wood supply, etc. The information is contradictory regarding exploitable forested areas, different units are used (m^3f under bark and m^3f over bark), and definitions for sawlogs, pulplogs and fuelwood are not always clear. Official Baltic analyses of this kind are often a result of biological, technical, and economic considerations, which frequently underestimate real potentials. In the following analyses, I have attempted to estimate the sustainable biological potential harvests using different methods, by deducting the completely protected areas from the exploitable areas, by downsizing the supply from the partly protected areas, and have expressed my estimates in m^3f over bark. For the analyses, I have used different model approaches that we have at IIASA. Thus, it should be underlined

that there are substantial uncertainties in the calculations. I start with a brief description of the forest resources of the Baltic States (Table 3).

Table 3. The forest resources of the Baltic States (calculated from UN, 1997)

Country	Exploitable forests (million ha)	Growing stock (million m³)			Net annual increment o.b. million m³	Fellings o.b. million m³
		Total	Coniferous	Non-coniferous		
Estonia	1.854	285	183	102	7.4	3.6
Latvia	2.366	489	305	184	13.7	7.5
Lithuania	1.876	353	235	118	11.8*	7.2
Total	6.096	1127	723	404	32.9	18.3

* According to the information more precise net annual increment o.b. in Lithuania 9.8 mil. m³ (Ed.)

Annual Fellings in relation to Net Annual Increment (NAI) is some 55% for the Baltic States. This can be compared with a ratio of 70 % in the Nordic countries (Finland–78 %, Norway–45 %, Sweden–70 %) (UN, 1997). An increase of the ratio to 70 % in the Baltic States, indicates an increased harvest of some 5 million m³/year. This illustrates that the harvesting potential is underutilized in the Baltic States.

The estimated felling potentials are presented in Table 4.

Table 4. Estimates on the felling potentials in million m³f over bark. (Based on Nilsson _et al., 1992; Jaakko Pöyry, 1993; Pajuoja, 1995; UN, 1996 and 1997; and interviews with various experts)

Country	1995	2010	2020	2030
Estonia	3.6	7.0	7.5	8.0
Latvia	7.5	8.8	9.5	10.3
Lithuania	7.2	6.9	7.5	7.7
Total	18.3	22.7	24.5	26.0
Net annual increment*	32.9	35.0	35.0	35.0

* All closed forests

There seems to be a solid basis for increased harvests (felling) in the regions in the future. There is still a substantial gap to the Net Annual Increment (even if this is valid for all forests). As stated earlier, there is a high probability that the estimate is an underestimate of the real potential.

More interesting is the estimate of removals (fellings minus what remains in the forest) and the distribution of species groups and assortments (Table 5).

The potential removals are dominated by coniferous species and sawlogs. The estimated accessible biomass can be used for energy production. The numbers shown in Table 5 result from model calculations; however, given the uncertainties in the calculations, only the whole number should be considered. The estimated potentials above assume that the forests' vitality in the region can be maintained. Currently it is estimated that about 1 million hectares of exploitable forests (or 16 %) have moderate to severely decreased vitality. The worst affected country is Latvia, with some 20 % of the forests in this category (UN and European Commission, 1997).

Table 5. Estimate on the potential removals in the Baltic States (in million m³ over bark)

Year	1995	2010	2020	2030
Total	14.5	20.5	22.3	23.6
Coniferous	8.0	11.9	13.0	14.5
Deciduous	6.5	8.6	9.3	9.1
Sawlogs	6.1	8.6	9.4	10.2
Pulplogs	4.6	7.8	7.7	7.5
Fuelwood	3.8	4.1	5.2	5.9
Accessible Biomass*	4.8	5.9	6.4	6.8

* Not included in the total

Domestic demand estimates for the Baltic Region

The other side of the coin is the development of the domestic demand for wood in the Baltic States. The current demand is rather low due to the economic transition, but is expected to increase strongly over time. The difficulties in estimating the future domestic demand are even greater than for supply because future demand is strongly dependent on the efficiency and the path of macroeconomic recovery and technological development.

With the help of models available at IIASA, I have attempted to develop a base scenario on the future domestic demand in the Baltic States, expressed in roundwood equivalents (Table 6), based on the assumption that the Baltic States would be self-sufficient.

With a quite different model, which attempts to estimate the demand development for each of the units in the former USSR (Backman, 1998), we obtain a quite different estimate for the domestic demand of industrial wood, which is presented in brackets in Table 6. This

Table 6. Demand scenario on forest products in the Baltic States expressed in million roundwood equivalents m^3 over bark.

	1995	2010	2020	2030
Industrial wood	4.7	6.2 (6.6)	7.4 (11.2)	8.9 (13.6)
Fuelwood	3.2	5.2	5.5	5.9
Total	7.9	11.4	12.9	14.8
Sawlogs	1.2	4.0	4.6	5.3
Pulplogs	1.0	2.2	2.8	3.6
Fuelwood	3.2	5.2	5.5	5.9

latter estimate is much higher and illustrates the uncertainties in the demand estimates. However, the lower estimates are more in line with the current consumption per capita in Western Europe (UN, 1997) and are therefore used in the succeeding discussion.

Wood balance for the Baltic States

By using potential removal estimates and demand estimates (assuming that the region would be self sufficient on forest products), we can establish a rough wood balance expressed in roundwood equivalents (Table 7).

Based on these calculations, there seems to be a positive balance of some 5 million m^3 over bark of sawlogs and some 4–4.5 million m^3 over bark of pulplogs. The balance seems to break even for fuelwood. This may seem strange compared to today's situation with a

Table 7. Wood balance under the assumption of self-sufficiency by the Baltic States in million m^3 over bark of roundwood equivalents.

	1995*	2010	2020	2030
Sawlogs	+5.7	+4.6	+4.8	+4.9
Pulplogs	+4.2	+5.6	+4.9	+3.9
Fuelwood	+1.0	-1.1	-0.3	±0

* Based on potential removals and not current removals

lack of sawlogs on the market in the Baltic States, and with a substantial import of sawlogs from Russia and Belarus. This latter situation is caused by the market because there is a limited market for pulplogs in the Baltic States today. It should be stressed that there is no lack of physically available sawlogs in the region today.

Another way to establish a wood balance is to compare the potential removals with the existing industrial capacity. However, there are even greater difficulties to determine solid estimates on the existing industrial capacities than with those on removals and demand. The reason being that the capacities are not very well documented for the mechanical wood industries and there are many obsolete capacities of the existing ones. However, I have tried, based on available information, to calculate an estimate on the existing industrial capacities, expressed in roundwood equivalents (Table 8).

Table 8. Estimate on existing functioning industrial capacity, expressed in million roundwood equivalents m^3 over bark.

Sawmilling and Veneer Industry	Panel Industry	Pulp, Paper and Board
5.0	1.5	2.5

The existing industrial capacity corresponds to some 28% of the Net Annual Increment. This can be compared with a ratio of 60-65 % for Sweden. The current ratio indicates a huge potential for industrial expansion in the Baltic States.

A wood balance, comparing the potential removals and the existing industrial capacities is presented in Table 9.

Table 9. Wood balance based on comparison of existing industrial capacities and the potential removals, expressed in million roundwood equivalent m^3 overbark.

	1995	2010	2020	2030
Sawlogs	+1.5	+3.0	+4.0	+5.0
Pulplogs	+1.5	+3.0	+4.0	+4.0

Again, the conclusion is that there is great potential for industrial expansion in the Baltic States and it should again be underlined that potential removal estimates are cautious and probably underestimated.

Which Strategy to Choose?

The key forces during the change in the global forest sector in the 21st century according to McNutt et al. (1996) and Closset (1997) are: a) future demand on forest industrial products, b) demand/supply of wood, c) environmental issues and changing societal values, d) technological development, e) financial community.

We have already concluded that the global wood balance favors a more intensified utilization of wood

resources in the Baltic States and above we have concluded that there is a substantial basis for increased industrial production in the region. The question is for which products should the investment efforts be made? To shed some light on this issue, I will start to look into the socio-economic impacts of different investment strategies in order to get the most efficient utilization of the existing wood potential. To do that I have tried to estimate the relative socio-economic impacts of 1 m^3 of wood (Table 10). For these calculations I have manipulated work carried out by Jacques (1996).

Table 10. Relative socio-economic impact of 1 m^3 of wood. Manipulated after Jacques (1996)

Export of	Export Revenue	Contribution to GDP	Labour Income	Employment
Roundwood softwood	100	100	100	100
Roundwood hardwood	113	113	113	113
Softwood lumber	191	193	210	218
Hardwood lumber	349	352	378	398
Particle board	129	112	118	123
Fibre board	139	121	127	133
Mechanical Pulp	208	192	156	153
Bleached sulphate pulp	140	130	105	103
Newsprint	292	276	265	257
Multi-layered board	176	157	152	151
Uncoated wood free	261	233	226	223
Coated wood free	542	484	469	464

From the table a number of general conclusions can be made:

- The selection of new forest products production will depend on which goals the Baltic States would like to apply to the forest sector (export revenues, contribution to GDP, employment, etc.),
- The wood should be processed as much as possible before products are exported,
- By going through all grades (not all are listed in Table 10), it can be concluded that paper from chemical pulp generates greater impacts than paper made from mechanical pulp. This is somewhat at odds with the generally accepted view that papers from mechanical pulp have greater socio-economic impacts, and
- Paper products generate a substantially higher economic impact than softwood lumber production.

In addition, it can be pointed out, based on other studies, e.g., Lindgren (1997), that paper qualities requiring first-rate wood fibres should be produced in proximity to the wood sources, but recycled fibre-based products should be located on the market sites. Thus, increased demand for recycled fibres for a number of paper grades have resulted in locations close to urban forests. Because the Baltic region is not a huge market and not a wastepaper center, recycled fiber-based products seem to be of less interest for investment. So far, the overall analysis leaves us with the conclusion that hardwood lumber and paper grades requiring first-rate wood fibres seem to be interesting for investment for export production by the Baltic region. But other factors also heavily influence the investment possibilities. One of these factors or questions is if there are any markets for these products. Going back to the overall global demand/supply situation at the beginning of the presentation, it can be concluded that great market growth will take place outside the traditional markets and mainly in the so-called emerging markets (Asia, Latin America, and Russia).

Because it is necessary to be close to the markets, the emerging markets in Asia and Latin America can be disregarded as main targets for the Baltic region. In order to look into the market possibilities it is important to understand how suppliers of forest industrial products are chosen. Price is the single most important factor that decides which suppliers are most frequently chosen. The second most important factor is that local suppliers are most frequently chosen. Thus, the proximity to the market is crucial. The buyers often have many other reasons as selection criteria, but there is no clear cut picture on these other factors (e.g., Lindgren, 1997).

Because price is the single most important factor for the buyer, given the quality is there, means that *economic competitiveness* is a crucial issue. Analysis of the price competitiveness in the Baltic region illustrates that the region could be very competitive in comparison with traditional suppliers. This leaves us with few markets as targeted markets: the traditional European market; the former republics of the USSR (outside Russia); former Eastern Europe and Russia. The latter may seem odd, given the huge forest resources and an existing industry in Russia, and, as shown by Nilsson and Shvidenko (1998), there is a pent-up demand of some 100 million m^3 (roundwood equivalents), which could easily be supplied by domestic Russian production. Although the necessary restructuring of the industry is not taking place (and will probably not take place in the short-term) and the domestic market for forest products is growing rapidly. This indicates that the market in Russia is importing and establishing market relations, which will be very difficult for the Russian industry to break at the time it comes on stream. In addition, the

Russian market prefers imported products over Russian-produced products.

Another factor to consider is the availability of capital. The Baltic region needs capital in order to invest in the forest sector. Since forest industrial activities are capital intensive and still benefit from large-scale production, the need for financial strength necessitates the need for partners to the Baltic region. Partners that probably have to come from outside the region, which means the new industry will be international.

With whom to go to bed?

It can be argued that the current internationalization of the forest industry is not primarily a result of a carefully prepared strategy, but driven by the assumption that it is necessary to be big in order to maintain or improve competitiveness (e.g., Lindgren, 1997). The current economic theories are of little help in understanding the internationalization process (Nilsson et al., 1996). Following the current debate in the forest industry, one gets the impression that one has to be global, and that there is room for only one company in Europe. This would imply that the Baltic region should search for a partnership among the big giants in the forest industry.

It is true that a forest-based industry has a somewhat different feature than other industries with an expressed economics of scale. However, economics of scale, in relative terms, have fallen since the 1970s. Lean manufacturing and just-in-time production have shifted the emphasis from size to timeliness and the diseconomics of scale have loomed even larger (Micklethwait and Wooldridge, 1998). Kay, and Kay and Hannah (1998) have presented a number of articles arguing that achieving mass has virtually no effect on the long-term survival of a company despite the myths about size. Most people use the car industry to illustrate the importance of size and scale. But in reality the high concentration in the car industry was in the 1950s. A study in 1995 analyzing 150 deals made in 1990, worth more than $500 million dollars each, found that only 17 % created substantial returns in relation to other companies and non-acquirers out-performed acquirers (Micklethwait and Wooldridge, 1998).

Following the myths about size and critical mass in the forest industry is the belief that the forest industry must go global. But also here we have myths. In reality there are only few real globalized sectors: finance, science, news and media, information-technology, the fashion industry, and the mafia. The future picture will probably not see much more globalization, but increased internationalization and most of all regionalization (Marin, 1998).

The lesson we learn from this is that it is not necessary to seek a partner for the industrialization of the forest in the Baltic region among the biggest and most global companies. Personally, I cannot understand how anyone thinks that they will produce a gazelle by mating two dinosaurs—and a gazelle is required to meet the requirements of lean manufacturing and just-in-time production in the market.

Thus, there are other items that are more important in the search for suitable partners for the restructuring of the forest sector of the Baltic region. A suitable partner should be able to harvest from the existing *Regional Capital* in the Baltic region. Regional capital includes *cultural*, *social* and *economic* capital (Kortelainen, 1997). There are always two major forces at stake in the restructuring of a sector, the path-dependent and the path-breaking. The path-dependent force is said to be formed by the social and cultural capital and the path-breaking force is formed by the economic order one lives under. The struggle between these two forces results in a new industrial structure. To be a successful partner with the Baltic region, one prerequisite is to understand how these two forces interact and can interact to achieve the best results (Tykkyläinen and Jussila, 1998). Only candidates to partnership who are willing to make this effort should be considered as real candidates.

There are great difficulties in reaching competitive advantages simply through improved processing and technological development in the forest sector (NFR, 1995). Kearney (1997) estimates that there are huge forest industrial saving potentials in sourcing, manufacturing, and logistics through efficient integration. They estimate the global savings potential in just these three areas to be some $25 billion dollars (compared with a global sales value of $450 billion dollars). The best integrated companies today have better customer service performance, better inventory cycle times, shorter order cycle times, and a superior shareholder value, in comparison with the less integrated companies (Kearney, 1997). Thus, the lesson is that only companies willing to fully integrate the Baltic region in their existing structure should be considered as possible partners for the development of the forest sector of the Baltic region.

Finally, I would like to strongly point out that in this frantic world of globalization internationalization, region-

alization, take-overs, etc., all of this only makes *knowledge* increasingly important. The only thing which overshadows all other factors discussed is knowledge. Therefore, a potential candidate for partnership to the Baltic region should be a partner who is willing to help the forest sector in the region in building up the required and most updated knowledge base. Economic development and economic growth are strongly linked to a society's capability to use knowledge as a tool. It should also be pointed out that industrial development takes place by individual companies, communities, and individuals using the existing knowledge base.

Conclusions

In the following, I will try to give a short summary of the messages I have attempted to address.

• Global demand and supply balances indicate that the balance will be tight in the future. This suggests an intensified utilization of forest resources and a further development of the forest industries in the Baltic region,

• There is potential for an increased long-term sustainable harvesting level of some 10 million m^3 over bark in the region.

• There seems to be potential for industrial expansion in the region also corresponding to some 10 million m^3 over bark.

• Products that look promising for industrial expansion in the region are hardwood lumber and paper-grades requiring first-rate coniferous wood fibres.

• The markets to concentrate on seem to be the traditional European market, republics of the former USSR (outside Russia), former Eastern Europe and Russia.

• The Baltic region could be competitive enough to compete on these markets successfully.

• The region requires much capital for the reconstruction and development of the forest sector. This capital will probably only be available through the partnership of a foreign group or by forming multi-facility Baltic groups.

• The choice of which partner is crucial. I have illustrated that;

• • the biggest and most global companies are not necessarily the best partners,

• • a suitable partner should be sought among those

– who understand the importance of developing the *regional capital*

– who have an integrated approach to fully integrate the Baltic region into their existing structure, and

– who are keen to increase the knowledge base in the Baltic region.

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Received February 1998

ЛЕСНОЙ СЕКТОР ПРИБАЛТИЙСКОГО РЕГИОНА В ГЛОБАЛЬНОЙ ПЕРСПЕКТИВЕ

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Резюме

В данной статье я представляю Лесной Сектор Прибалтики в глобальной перспективе. Прежде всего, обсуждается глобальный баланс древесины на перспективу. В существующем понятии, это трактуется как бы дальнейшее увеличение глобального обеспечения промышленной древесины (во временной перспективе до 2030 года), однако оно вряд ли способно достигнуть соответствия даже со среднем увеличением потребности. Потребность растет быстрее прироста ресурсов. Это вызовет региональные недостатки и ограничения поставки древесины в последующие 30 лет.

Такое положение имеет большое зачение для Прибалтийского региона, являющегося лесным регионом, экономика которого в значительной степени связана с лесным сектором.

Анализ баланса древесины в государствах Прибалтики показал, что лесные ресурсы региона недостаточно используются, что является потенциалом увеличения лесозаготовок (в условиях постоянного лесопользования) до 10 миллионов м^3. Это указывает на значительный потенциал для расширения индустрии в регионе. Однако для осуществления такого промышленного расширения требуются большие инвестиции капитала. Вопрос в том, откуда указанный капитал поступит. Обсуждаются разные стратегии привлечения нужного капитала и непрерывного стабильного развития (в широком смысле) лесного сектора Прибалтики.

Ключевые слова: лесной сектор Прибалтики, баланс древесины, промышленная древесина, стратегии привлечения капитала.