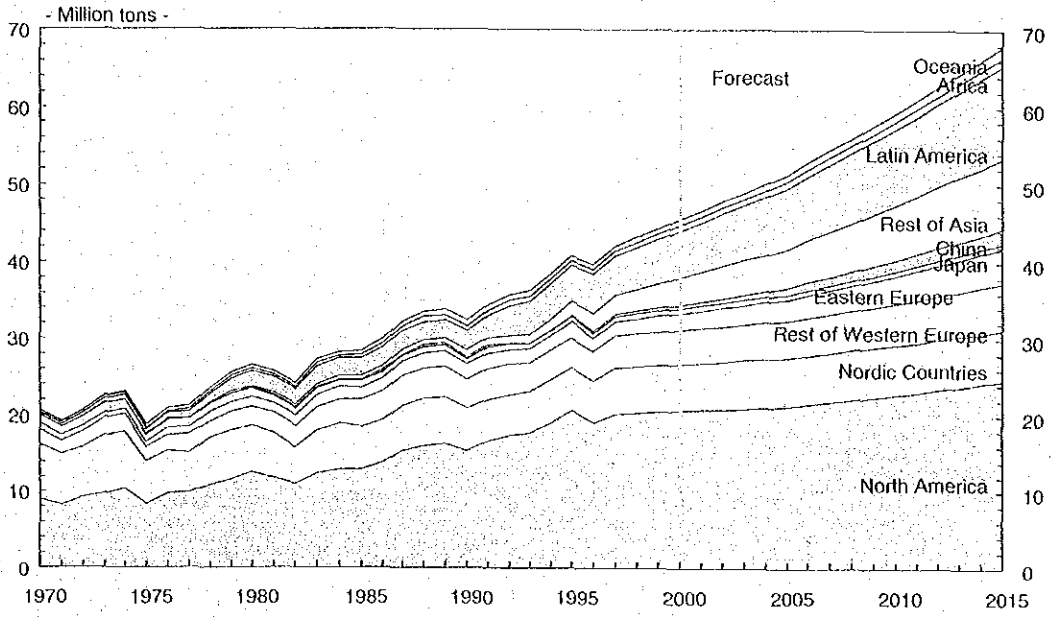


## 2.5 Market Pulp Supply

### *Dominance in the market pulp industry will gradually move to the southern hemisphere*

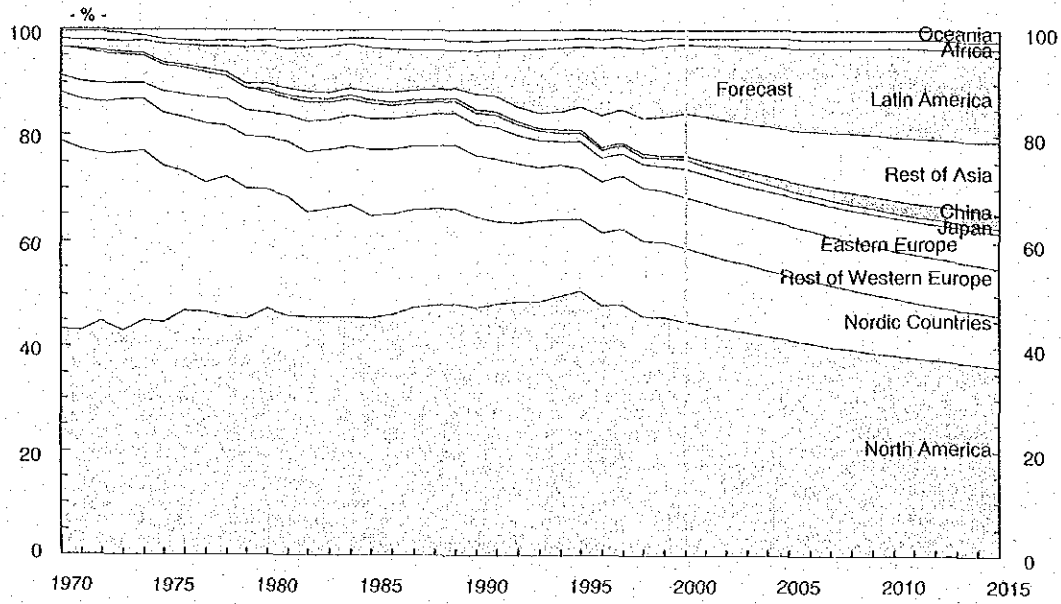
- North America is the dominant producer of market pulp and within North America, Canada's output of market pulp clearly exceeds that of the United States. Western Europe and Latin America are next in this ranking, but Asia which has very fast growth of market BHKP production has no support from other grades, and remains just below the Western European and Latin American volumes (Figures 2-17 and 2-18).
- Indonesia, Brazil, China and Russia will continue to grow in importance as market pulp producers. Other Asian countries such as Thailand and in particular Malaysia have the fibre potential to grow as well.
- On the other hand, the Nordic countries will increase their market pulp output substantially in the period to 2002, but will lose some of the gains in later years as a result of further integration. Similarly, Portugal and Spain are likely to experience further integration with paper production.
- Availability of suitable wood is good and increasing in several European countries such as Lithuania, Latvia, Estonia, Germany, France and the United Kingdom. The number one requirement for pulp production is, therefore, fulfilled.

**FIGURE 2-17 GLOBAL MARKET WOODPULP PRODUCTION BY REGION 1970-2015**



Source: JICA Study Team

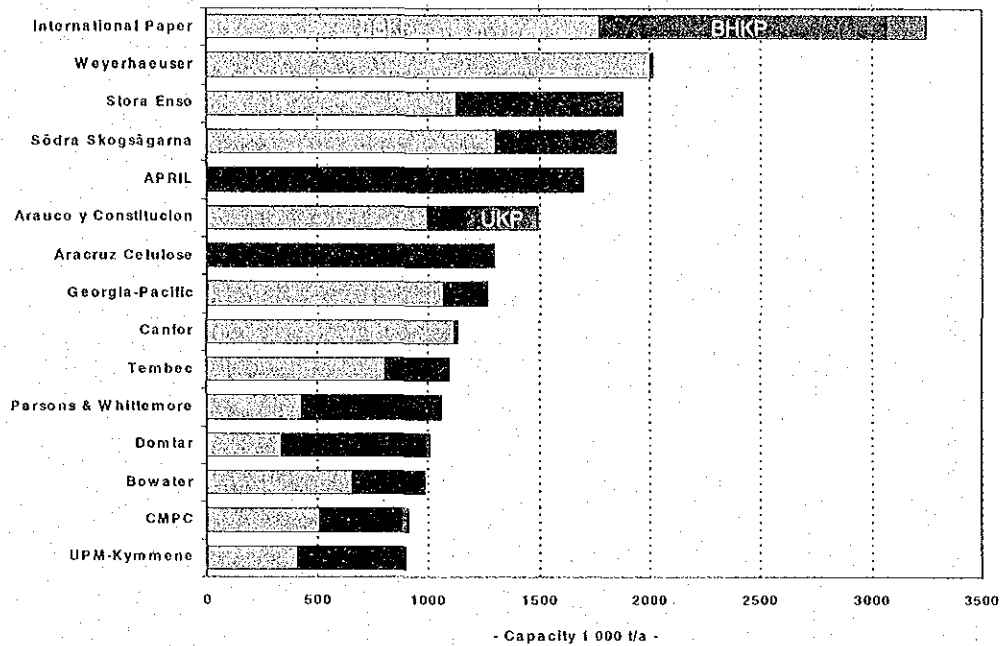
**FIGURE 2-18 RELATIVE SHARE OF MARKET WOODPULP PRODUCTION BY REGION 1970-2015**



Source: JICA Study Team

- There are now 13 companies with more than one million tons of market pulp capacity, including fluff pulp and specialities (Figure 2-19).

**FIGURE 2-19 THE 15 LARGEST COMPANIES/GROUPS IN THE WORLD OF KRAFT MARKET - PULP CAPACITY 2001:IV**

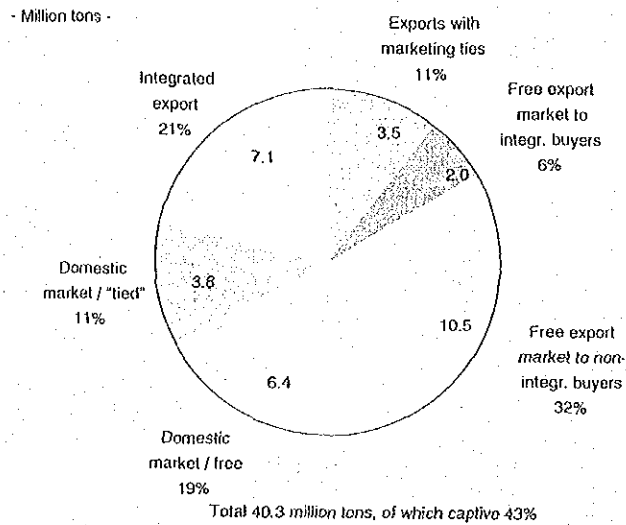


Source: JICA Study Team

***Integration of market pulp is not growing despite common ownership of pulp and paper mills***

- The move towards integration is no longer evident, even though some countries, such as Indonesia, and companies are pursuing this trend.
- Indeed, there have recently been substantial swings from integrated back to market pulp as companies have sold off their “non-core” pulp assets.
- Common ownership of pulp and paper mills is, however, increasing, but it is very largely ownership across national borders. The growing pulp shipments within pulp and paper groups are therefore still considered statistically as market pulp.
- “Tied” sales of pulp currently account for 43% or 14.4 million tons of the market pulp business and are increasing. They will most likely exceed 50% of the business by 2015 (Figure 2-20).

**FIGURE 2-20 BREAK-DOWN OF MARKET PULP BY TYPE OF ACCESSIBILITY 2000**



Source: JICA Study Team

***Technology development is led by environmental considerations***

- Currently, changes and developments in pulping technology are determined by environmental considerations.
- There is a strong trend towards closed-loop effluent systems in bleaching to reduce fresh water consumption and minimise or even eliminate bleach plant effluents. The totally effluent free (TEF) mill is the ultimate goal. Both ECF and TCF bleaching are compatible with the TEF concept.

***TCF vs ECF is no longer an issue***

- But the move to TCF bleaching has almost ceased as TCF is not a prerequisite for operating closed-loop bleaching systems, nor is TCF required to meet AOX emission limits in most countries.
- ECF bleaching and the so-called ECF-light bleaching concept using  $ClO_2$  followed by for example  $H_2O_2$  to reach low AOX emission levels, will most likely become the bleaching sequence of choice.
- Bleaching with chlorine and hypochlorite will most probably cease within the next few years, with the possible exception of some developing countries, including many small, non-wood based mills.

***The Cluster Rule will have a major impact***

- The Cluster Rule, which actions guidelines for water effluents and air emissions for the pulp, paper and paperboard industry in the United States, dictates certain changes in US mills. The average incremental costs, i.e. variable plus capital, for Cluster Rule compliance in the United States are estimated at USD 10-20 per ton. This is less than originally anticipated and whilst mills in Indonesia and the Nordic countries face lower cost increments, typical mills in Western Europe, Oceania and Japan face even higher costs.
- Several US pulp mill closures have been made or decided, either directly because of a decision not to invest for Cluster Rule compliance or indirectly, usually due to the insufficient profitability, which might be further depressed by investments for Cluster Rule compliance or other purposes (Table 2-1).

**TABLE 2-1 NET CHANGE OF DECIDED TOTAL PULP CAPACITY  
(MARKET+INTEGRATED) IN THE WORLD 1999 – 2006**

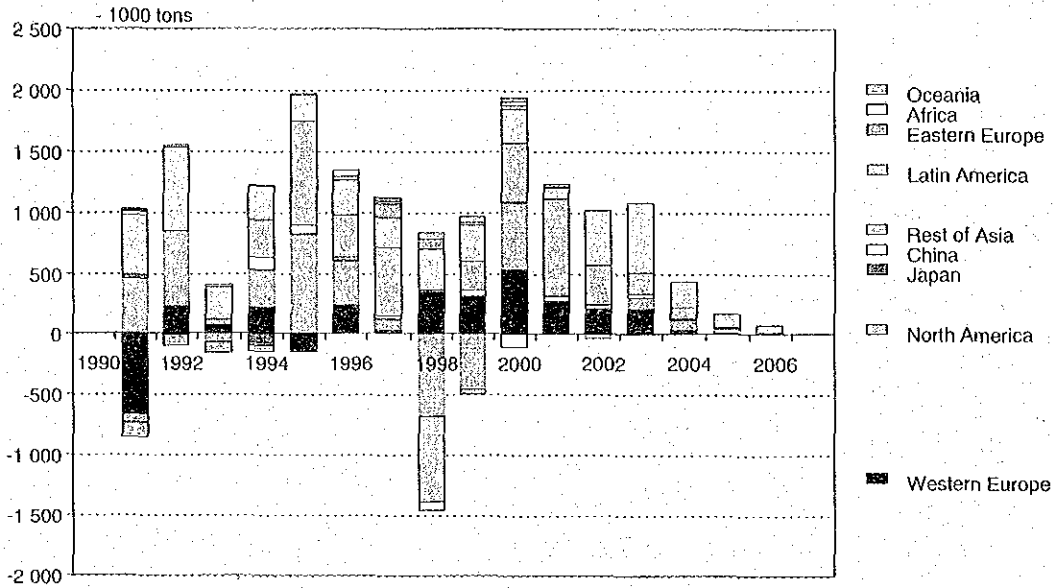
Region	1999	2000	2001	2002	2003	2004	2005	2006
- 1000 tons -								
North America	1 224	49	676	578	210	134	32	29
Europe incl Russia	711	1786	1558	971	462	129	31	12
Asia	1 565	1 471	1 393	1 217	564	241	36	3
Rest of the World	813	596	386	629	653	246	114	56
<b>World total</b>	<b>1 866</b>	<b>3 804</b>	<b>2 661</b>	<b>3 395</b>	<b>1 889</b>	<b>750</b>	<b>213</b>	<b>100</b>

Source: JICA Study Team

***Pulp capacity increases will become very modest during the next couple of years***

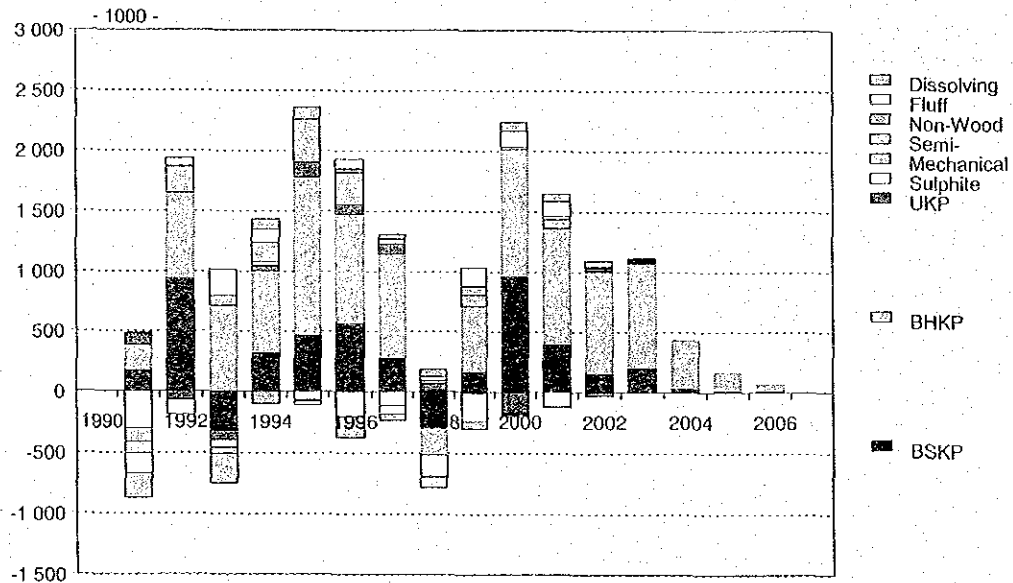
- Decided capacity changes of chemical market pulps as by autumn 2001 are shown in Figures 2-21 and 2-22, respectively.

**FIGURE 2-21 DECIDED CAPACITY CHANGES OF CHEMICAL MARKET PULPS BY REGION**



Source: JICA Study Team

**FIGURE 2-22 DECIDED CAPACITY CHANGES OF CHEMICAL MARKET PULPS BY GRADE**



Source: JICA Study Team

- Major decided mill capacity changes are presented in Figure 2-22.

**FIGURE 2-23 MAJOR MILL CAPACITY CHANGES OF CHEMICAL MARKET PULP**

<b>2001</b>				
Riaupulp, Pekanbaru, Kerinci, IDN	1 100	bl hw sa	new line	
Enocell, Uimaharju, FIN	100	bl hw sa	change in integration	
Burgo Ardennes, BEL	100	bl hw sa	capacity expansion	
Metsä-Botnia, Joutseno	60	bl sw sa	new line	
Metsä-Botnia, Kaskinen	50	bl sw sa	change in integration	
International Paper, Courtland, AL	-110	bl hw sa	decrease	
Georgia-Pacific, Bellingham, WA	-140	bl sw si	shut down	
Soporcel, Lavos, PRT	-175	bl hw sa	change in integration	
Skeena, BC	-450	bl sw sa	shut down	
	<b>Sub-total</b>			<b>535</b>
<b>2002</b>				
Aracruz, BRA	700	bl hw sa	new line	
Votorantim, Jacarei, BRA	400	bl hw sa	new line	
Klabin Riocell, Porte Alegre, BRA	135	bl hw sa	capacity expansion	
Ripasa, Limeira, BRA	105	bl hw sa	capacity expansion	
CMPC, Mininco, CHL	90	bl sw sa	capacity expansion	
Lwarcel, Lencois Paulista, BRA	70	bl hw sa	capacity expansion	
Shandong Rizhao, CHN	70	bl sw sa	new mill	
Willamette, Port Wentworth, GA	-150	bl hw sa	change in integration	
	<b>Sub-total</b>			<b>1 420</b>
<b>2003</b>				
Willamette, Port Wentworth, GA	150	bl hw sa	change in integration	
ENCE, Navia, ESP	80	bl hw sa	capacity expansion	
	<b>Sub-total</b>			<b>230</b>
<b>2004</b>				
Arauco, San Jose Marquina, CHL	600	bl hw &sw	new mill	
	<b>Sub-total</b>			<b>600</b>

Source: JICA Study Team

- A list of some major pulp projects planned or discussed presently is shown in Table 2. Probably many of these projects will not be materialised. The list shows, however, that there is obviously no lack of project ideas.



TABLE 2-2 PLANNED OR DISCUSSED MARKET PULP PROJECTS

Country	Company	Mill Location		Capacity		Date	Description
				Market	Total		
				- 1000 tons -			
DEU	Zellstoff Stendal GmbH	Arneburg	bl sw sa	550	550	Mid-2004	new mill
EST	EM Capital	..	bl sw & hw sa	500	500	planned	new mill
LTU	Lithuanian Pulp	..	bl sw & hw sa	500	500	planned	new mill
LVA	A/S Baltic Pulp	Ozolsala, near Jekabpils	bl sw & hw sa	600	600	2005	new mill
GBR	Scottish Pulp	..	bl sw sa	250-400	250-400	planned	new mill
ARG	Celulosa del Plata	.. Corrientes	bl sw sa	500	500	2005-07	new mill
BRA	Bahia Sul Celulose S.A.	Mucuri	bl hw sa	600	600	planned	new line
BRA	Bahia Sul Celulose S.A.	Mucuri	bl hw sa	105	100	2002-03	capacity expansion
BRA	Celmar Industria de Celulose e Papel	Imperatriz	bl hw sa	600	600	planned	new mill
BRA	Cenibra - Celulose Nipo-Brasilcira S.A.	Belo Oriente	bl hw sa	200	200	2002	capacity expansion
BRA	Ripasa S.A. Celulose e Papel	Limreira	bl hw sa	100	100	planned	capacity expansion
BRA	Veracel Celulose S.A.	Eunapolis	bl hw sa	750	750	2005	new mill
CHL	Celulosa Arauco y Constitucion S.A.	Arauco, Bio-Bio	bl hw sa	110	110	By 2002	capacity expansion
CHL	Celulosa Arauco y Constitucion S.A., Complejo Forestal Industrial Itata	Nueva Aldea, Bio Bio	bl sw & hw sa	550	550	planned	new mill
CHL	CMPC Celulosa S.A., Santa Fe Mill	Nacimiento, Bio-Bio	bl hw sa	500	500	2005	new line
CHN	Hainan Jinhai Pulp & Paper Co., Ltd.	Yangpu, Hainan	bl hw sa	540	540	planned	new mill
CHN	Huaihua Paper Mill	Huaihua	bl sw sa	200	200	planned	new mill
CHN	Zhanjiang Pulp Mill	..	bl hw sa	500	500	planned	new mill
IDN	Finnantara Intiga PT International Timber Corporation of Indonesia	Sanggau Region	bl hw sa	600	600	planned	new mill
IDN	PT Inti Indorayon Utama	Balikpapan	bl hw sa	650	650	planned	new mill
IDN	PT Inti Indorayon Utama	Porsea	bl hw sa	120	120	planned	restart
IDN	PT Marga Buana Bumi Mulia	near Banjar Masin	bl hw sa	600	600	planned	new mill
IDN	PT Sinar Kalbar Raya	Pontianak	bl hw sa	300	300	planned	new mill
MYS	Borneo Pulp and Paper Sdn. Bhd. Advance Agro/Government of China	Samarakan, Bintulu	bl hw sa	750	750	planned	new mill
THA	China	Tha Toom, Prachinburi	bl hw sa	700	700	planned	new mill
THA	Phoenix Pulp and Paper Co. Ltd.	Khon Kaen	bl hw sa	250	250	planned	new line
AUS	Visy Industries Inc., Tumut Pulp and Paper Mill	Gilmore, near Tumut	unbl sw sa	200	200	planned	new line

Source: JICA Study Team

## Chapter 3 Wood Raw Material

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### **3. Wood Raw Material**

(Ref. Chapter 3 of Final Report and Investment Guide)

#### **3.1 Introduction**

The initial study carried out in year 2000 suggested a pulp plant producing some 500,000 ADt/a of bleached kraft pulp. A mix of hardwood and softwood pulp was assumed to be produced, roughly in the proportion 50/50. The corresponding wood raw material demand was estimated at 2,450,000 m<sup>3</sup>sub per annum divided on softwood and hardwood as follows

- 1,350,000 m<sup>3</sup>sub per annum of softwood – pine and spruce
- 1,100,000 m<sup>3</sup>sub per annum of hardwood – birch and other species

Due to the lack of large modern sawmills, all wood was assumed to initially be acquired as round wood from the domestic market. The supply of sawmill chips was considered an option for the future when the sawmill sector has been restructured and modernised. Import from for example Belarus was also considered an option but not included at this stage in the wood supply plan for the mill.

Present Follow-up Study is focusing major changes in the conditions for the pulp mill, which may substantially affect the viability or profitability of the Project, or which may substantially change any of the principal findings and recommendations for the realisation of the Project. The wood raw material supply issues, addressed in the initial study, are shortly commented below as concerns identified major changes, if any, in assumptions or conditions, and the expected consequences thereof. Additional actions required to further improve and secure the wood supply to the mill are presented as well.

If not otherwise specified, statistical figures below about the Lithuanian forest resources, removals, use of wood resources, industrial production and trade, etc., refer to the Lithuanian Statistical Yearbook of Forestry 2001, or to data received directly from MEC (Centre of Forest Economics).

#### **3.2 General Comments and Main Findings**

The initial study in year 2000 made clear that there are enough wood raw material within the country for a 500,000 t/a kraft pulp mill. This was shown in spite of rather

conservative assumptions of the future potential cut and not considering sawmill chips as a source of wood raw material for the pulp mill.

Recent forest inventories and analyses of the status of the forest resources indicate a positive development and the forestry conditions are currently considered even more favourable as concerns the wood supply for a new pulp mill. However, no new official figures on the potential future cut, is yet available, but it is judged that the annual cut can be further increased without jeopardising the long-term sustainability. Previously presented allowable cut of 8 Mm<sup>3</sup>/a within next decades are considered as a minimum level.

Also about 25% of the productive forest area is currently not used – only sanitary cuttings allowed – as these areas are reserved for additional restitution and privatisation of the land. Thus areas of mature forests are accumulating on this land.

### **3.3 Forest Resources**

The forest resources are continuously increasing, both in terms of forestland and in terms of growing stock. According to latest official figures (1 January 2001) the area of forestland now amounts to 2,020,300 hectares, corresponding to 30.9% (30.3% in 1998) of the total area of Lithuania. The area of forestland will continue to grow slowly as abandoned agriculture land is afforested.

Over the last three years (1998 – 2001) the growing stock increased by some 7% according to official statistics and reached 372 Mm<sup>3</sup>s, corresponding to 193 m<sup>3</sup>s/ha. The increase can to a large extent be referred to maturing forest stands. Area of mature stands increased, as well as the average age of forest stands.

About 37.5% of the growing stock is made up of pine forests, 23.5% of spruce and some 18.4% of birch. The growing stock is increasing for all forest types.

### **3.4 Ownership Structure**

Privatisation and restitution of forestland continues, although the process is complicated and slow. By 1 January 2001 the forestland area under management of State Forest Enterprises and in national parks amounted to 1,002,000 ha or roughly half the total area of forestland. Private forestland reached 458,000 ha, corresponding to

23% of the forestland. The share of private forestland is preliminary estimated at 26% by January 2002. Remaining forestland is primarily under the process for restitution or reserved for future restitution to private land.

It should be noticed that in forestland, reserved for future restitution, only sanitary cuttings are allowed (carried out by State Forest Enterprises), thus accumulating substantial volumes of mature forests.

### **3.5 Annual Growth and Current Felling**

Current annual increment reached 11.7 Mm<sup>3</sup>s in year 2000, which is a slight increase compared to year 1998. The current annual increment in Group III and IV forests is estimated at 10.3 Mm<sup>3</sup>s. Group III and IV forest make up the actual production forests, while forestry activities in Group II forests are more restricted. No forestry business is allowed in Group I.

The annual felling continuous to slowly increase but is still below the official allowable cut (see below). One reason for the low cutting level can be related to the forests reserved for future restitution, which makes up roughly one quarter of the forestland. Only sanitary cuttings are currently allowed in these forests.

Statistics for year 2000 shows that almost 75% were cut in state forests and some 25% in private forests. Cutting in areas reserved for restitution is negligible. It can be noticed that state forests make up roughly 50% of the forestland and private land some 25%, thus indicating less intensive logging activities in private forests compared to state forests. When comparing forestry intensity on state and private land, consideration must also be taken to species and age class distribution, as well as to possible illegal and/or non-registered felling on private land.

**TABLE 3-1 CURRENT AND RECENT FELLING IN LITHUANIAN FORESTS  
1991 – 2001, MM<sup>3</sup>SUB (1)**

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Felling in state forests	3.32	3.35	4.61	3.99	5.28	4.77	4.25	4.09	3.90	3.94	3.68
Permits issued for felling in private forests and forests reserved for restitution (2)	-	-	0.07	0.17	0.70	0.77	0.90	0.79	1.02	1.41	1.76
<b>TOTAL</b>	<b>3.32</b>	<b>3.35</b>	<b>4.68</b>	<b>4.16</b>	<b>5.98</b>	<b>5.54</b>	<b>5.15</b>	<b>4.88</b>	<b>4.92</b>	<b>5.35</b>	<b>5.44</b>

Source: MEC

(1) Figures include some volumes of firewood from stem wood, which are measured on bark, m<sup>3</sup>sub

(2) No official statistic is available on volumes actually cut.

### 3.6 Industrial Production and Wood Consumption

The production in the wood based industry continuous to grow. This is especially true for the sawmill and board industry, but also the production of paperboard is increasing. The pulp production is stopped and paper and paperboard factories are today primarily using waste paper as raw material, possibly complemented with some volumes of purchased pulp (imported). Also the furniture and other wood processing industries show a positive development.

The sawmill industry is however still to a great extent characterised by a large number of small units with worn out equipment. No major investments have been made in new sawmills and presently there is no mill producing more than 100,000 m<sup>3</sup>/a. Pajūro Mediena in Klaipėda is the largest sawmill with a production of some 70 – 75,000 m<sup>3</sup>/a in 2001. Ochoco Lumber in Kupiškis shows the same production. However, Ochoco Lumber purchases sawn wood from nearby local mills and imports from Russia for further processing at their plant (drying, planing, sorting) but does not have any own equipment for sawing of round wood.

**TABLE 3-2 PRODUCTION IN THE WOOD BASED INDUSTRY 1990 - 2001**

	Unit	1990	1993	1994	1995	1996	1997	1998	1999	2000	2001
Sawn wood (1)	m <sup>3</sup> x 10 <sup>3</sup>	776	699	840	1150	1450	1250	1150	1150	1300	1250
Plywood	m <sup>3</sup> x 10 <sup>3</sup>	22	15	15	15	21	30	36	32	38	..
Fibre board	m <sup>2</sup> x 10 <sup>6</sup>	26	12	16	18	17	19	20	12	15	16
Particle board (19 mm)	m <sup>3</sup> x 10 <sup>3</sup>	176	90	75	70	110	170	159	100	170	195
Mechanical pulp	t x 10 <sup>3</sup>	38	4	1	11	3	2	1	0	-	-
Chemical pulp	t x 10 <sup>3</sup>	40	6	-	-	-	-	-	-	-	-
Paper	t x 10 <sup>3</sup>	101	14	14	18	17	14	13	10	12	14
Paperboard	t x 10 <sup>3</sup>	117	17	8	9	14	14	19	28	41	54

Source: MEC

(1) Figures for sawn wood for 1994 to 2001 are estimates by MEC

### 3.7 International Trade of Wood Raw Material

The export of round wood is increasing for the 5<sup>th</sup> successive year. Sweden remains the dominating buyer followed by Poland and Russia (primarily Kaliningrad), but export to Finland showed the biggest increase during last year. The dominating part of the export is made up of pulpwood. Saw logs make up only a small share.

**TABLE 3-3 EXPORT OF ROUND WOOD FROM LITHUANIA 1994 TO 2001, 1000 M<sup>3</sup>SUB**

	1994	1995	1996	1997	1998	1999	2000	2001	Of which softwood
Sweden	460	584	257	373	384	506	620	565	266
Poland	4	18	73	26	93	205	285	310	203
Russia	210	784	442	273	213	148	222	185	168
Finland	6	34	8	16	-	16	13	138	56
Latvia	24	38	28	36	88	47	44	79	50
Germany	-	-	1	-	4	15	3	24	24
Others	183	311	143	40	10	1	13	14	13
<b>Total</b>	<b>887</b>	<b>1769</b>	<b>952</b>	<b>764</b>	<b>792</b>	<b>938</b>	<b>1200</b>	<b>1314</b>	<b>780</b>

Source: MEC

The import of round wood to Lithuania reached 96,000 m<sup>3</sup>s, primarily coming from Belarus and Russia.

### 3.8 Future Potential Cut

The long-term potential sustainable cut (annual allowable cut) has been calculated as follows for the next decades (Source: Forest Inventory and Planning Institute in Kaunas)

Year 2000 – 2010	6.5 Mm <sup>3</sup> sub/a
Year 2011 – 2020	7.4 Mm <sup>3</sup> sub/a
Year 2021 – 2030	8.0 Mm <sup>3</sup> sub/a

The figures refer to Group III and IV forests. In addition some 0.5- 0.6 Mm<sup>3</sup>sub/a can be cut in Group II forests (present cut is estimated at 0.3 – 0.5 Mm<sup>3</sup>sub/a in Group II forests). The figures further refer to stem wood, and include some volumes of wood classified as fuel wood, which is measured on bark.

Thus compared to present situation there are good opportunities to further increase the annual felling also in the short term.

Above figures on allowable cut are the latest available official figures. They are considered conservative or as the minimum level for the future potential cut. New updated figures may be available next year when new calculations based on the new National Forest Inventory data will be prepared. It is expected that these calculations will show higher figures for the potential cut.

### 3.9 Supply of Pulp Chips from Sawmills

The initial study observed the possibility to acquire chips from sawmills for the pulp mill. However, the number of sawmills with facilities to produce high quality chips is limited, as is their production capacity. Thus sawmill chips was never actually included in the supply plan for the pulp mill, but was considered an option for the future.

The sawmill industry is developing but, as mentioned above, the old structure remains to a large extent and the capacity and capability is still limited. However, it will increase and sawmill chips should be included in the supply plan of wood raw material for the pulp mill.



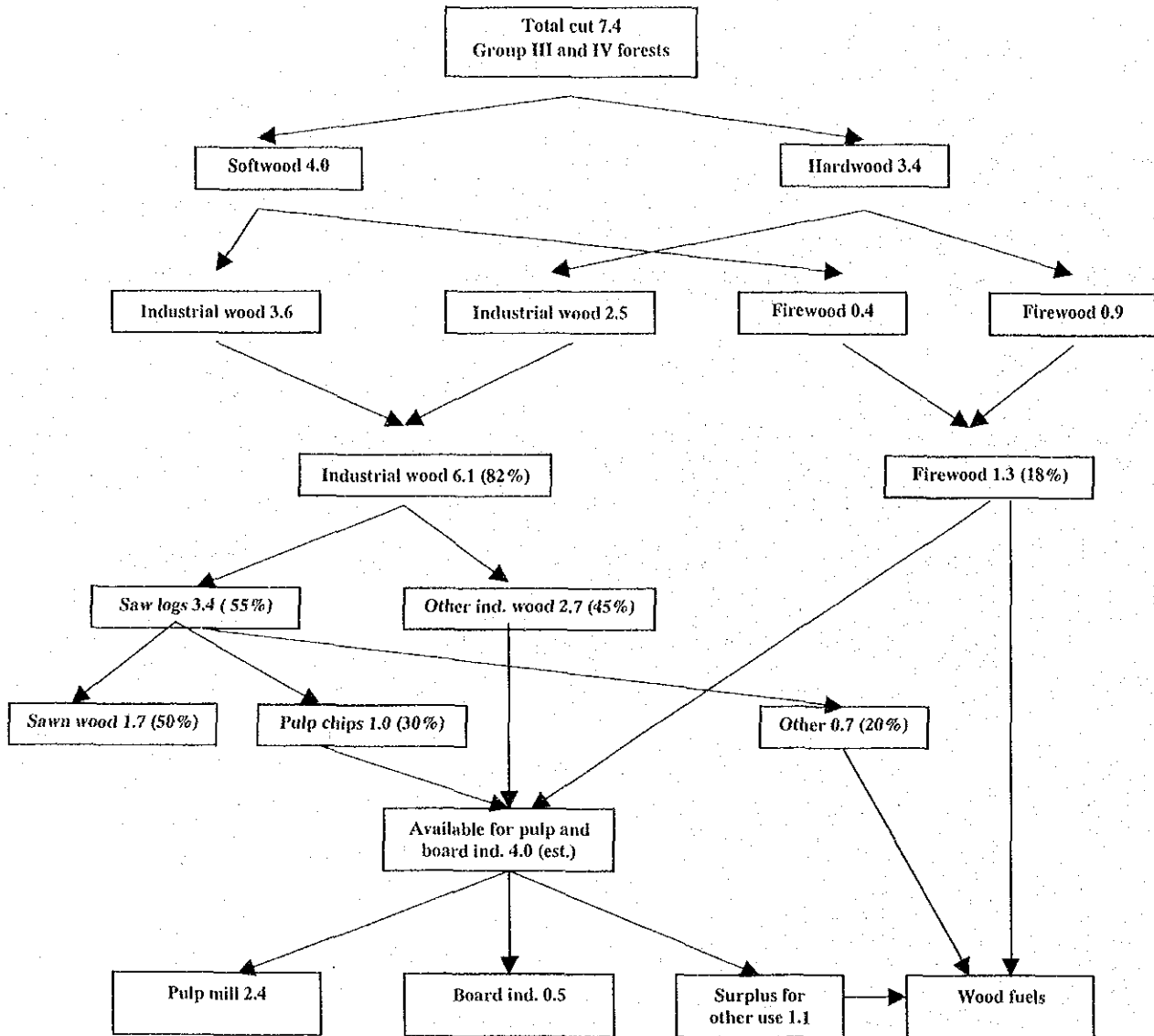
Current production of sawn wood amounts to 1.3 Mm<sup>3</sup>/a. The production of sawn wood can be expected to further increase and the industry successively modernized. A production of 1.5 – 2.0 Mm<sup>3</sup> of sawn wood within a near future and a corresponding wood consumption of 3.0 – 4.0 Mm<sup>3</sup>sub would produce also large volumes of by-products. Roughly up to 30% of the wood consumption is made up of by-products usable for pulp chips, volumes which otherwise are used for fuel or wasted.

Assuming that 50% of the sawn wood will be produced in modern plants with facilities for producing high quality pulp chips, then some 450 – 600,000 m<sup>3</sup>sub/a of pulp chips would be available, with possibilities to be further increased as the industry develops.

### **3.10 Future Supply of Wood Raw Material for the Pulp Mill**

A rough wood supply/demand balance for Lithuania considering the potential cut for next decade 2010 – 2020 is indicated in below diagram (figures in Mm<sup>3</sup>sub and Mm<sup>3</sup> respectively). A more detailed balance should be elaborated based on an overall Lithuanian Forest Cluster Development Strategy.

FIGURE 3-1 WOOD RAW MATERIAL SUPPLY PLAN



To above figures shall be added some 0.5 – 0.6 Mm<sup>3</sup>sub from Group II forests. It is tentatively estimated that half the volume will be saw logs thus allowing for an additional production of some 150,000 m<sup>3</sup> of sawn wood. Remaining volumes plus by-products from the sawmill industry can be considered as available for the pulp and board industry as well as for fuel.

It shall further be noticed that above figures of about 8.0 Mm<sup>3</sup>sub/a (7.4 in Group III and IV forests plus 0.6 in Group II) only make up some 70% of current growth.

The potential for import from Russia and Belarus is substantial. Also Latvia is a potential supplier of pulpwood in case no pulp mill will be built in the country.

### **3.11 Proposed Action Programme**

To promote the Pulp Mill Project a number of actions are required to further clarify the wood supply/demand balance and eliminate any doubts of the potential supply of pulpwood for the mill.

- As soon as new reliable forest inventory data are available new calculations of the future potential sustainable cut shall be carried out and presented. The Forest Inventory and Management Planning Institute in Kaunas will carry out these calculations on the basis of the new National Forest Inventory introduced five years ago. Preliminary data from the inventory indicate an even better status and development of the Lithuanian forest resources than previously declared. All efforts to confirm these indications are important and should be emphasised.
- The future policy and strategy as concerns forestland ownership shall be clarified. Areas reserved for possible future restitution should be included in more efficient forest management regimes than for the time being. It is judged that a higher share of non-state forests - than the present development indicates - would be beneficial for promotion of the pulp mill project. It would confirm the Lithuanian market economy policy and avoid a too strong state dominance on the important wood market.
- The sawmill industry shall be encouraged and supported to invest in new modern equipment and larger units, capable of providing high quality pulp chips in larger volumes in a cost-efficient way. Restructuring the sawmill sector is judged necessary for the sawmill industry to stay competitive and profitable, independently whether the pulp mill will be built or not. An overall strategy for the restructuring and development of the mechanical wood industry is required. Initially, however, also individual sawmill projects can be investigated. The Ignalina district, as well as the proposed sites for the pulp mill, is considered suitable for a new large sawmill. Special consideration must also be paid to current sawmill industry in order to support the development of the most suitable mills and successively close down the smallest ones with worn out equipment.

- An overall wood supply/demand balance should be prepared as part of a forest industry policy and development strategy, which shows the potential for different sectors to grow and expand the production. The strategy and the supply/demand balance shall consider not only the overall volumes and potential sustainable cut, but further penetrate the conditions as concerns species, assortments and wood quality factors, and the potential use of different assortments. Consideration must further be taken to expected development and production increase of various industrial branches as well as the bio-energy sector. Preparing an overall forest industry development strategy is considered *the most important activity, not only for this pulp mill project, but also for the development of the whole Lithuanian forest cluster.*
- In order to attract foreign investors the commitment by the Lithuanian Government to guarantee a certain volume of pulpwood to be delivered to the pulp mill from the state forests shall be further clarified. Although most important is to prove the physical availability and supply of pulpwood, enough for a new large pulp mill, a commitment to initially guarantee part of the volume needed by the mill from state forests, is *judged of great importance and an advantage in promoting the Project.* Tentatively a guarantee of 1.5 Mm<sup>3</sup>sub per annum has been discussed.

## Appendix (for Chapter 3)

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- Appendix I Summary of Estonia forest industry
- Appendix II Summary of Latvian forest industry
- Appendix III Reference for Long Term Wood Raw  
Material Supply Contract

## Summary of Estonian forest industry

(information from year 2000)

Production in forest industry has partly recovered during the 90's. This is especially true for the sawmill industry while production in the board, **Table 1 Production in forest industry 1990-1998** pulp and paper industry still remains on a very low level.

	1990	1995	1997	1998
Sawn wood, 1000m <sup>3</sup>	500	364	729	924
Plywood, 1000m <sup>3</sup>	23	11	20	20
Fiberboard, Mm <sup>2</sup>	20	11	17	18
Particle board, 1000m <sup>3</sup> (19 mm)	136	155	179	177
Pulp, 1000t	68	7	36	44
Paper, 1000t	77	6	35	43
Paper board, 1000t	5	0	1	1

### Pulp and paper industry

The production at Kehra pulp and paper mill (southeast of Tallinn) was stopped in beginning of the 90s but was restarted again in 1996 after that Tolaram Group, an Indian owned and Singapore based textile company, took over the mill. The pulp company has been reconstructed and is now named Horizon Pulp & Paper Co. Today sack paper is produced from unbleached pulp and tissue from waste paper.

Presently to new pulp mill projects are discussed in Estonia. One CTMP plant of about 100 000 t/a capacity, and one chemical plant with a capacity of some 500 000 ADt/a. Both projects are in an early stage of discussions and preparations.

Swedish Rottneros AB has, among other investors, shown an interest in the CTMP plant project.

## Sawmill industry

Estonia has officially 360 sawmills (most probably several more small plants but it is unknown how many of these which are actually in operation), of which the 15 largest produce 50 % of the total production. Production statistics is not fully reliable and production data vary between different sources.

**Tabell 2 Largest sawmills in Estonia, production in 1000 m<sup>3</sup>**

Company	Production 1999	Planned prod. 2000	Current capacity
Imavere Saeveski AS	190	210	200
Paikuse Saeveski AS	90	140	80
Toftan AS	75	75	80
Näpi Saeveski AS	35	50	40
Brittanic Eesti AS	30	40	50
Balcas Eesti AS	65	65	60
Balti Äri & Kaubanduse AS	..	..	60
Metsä-Timber Eesti AS	40	50	45
Arbor AS	..	15	20
Põlva Puidutööstus AS			
Hofbrok AS			
Boxer AS			
Förman NT AS	20	20	25
Metsavester AS			
Aegviidu Puit AS			

The sawmill industry has during the later part of the 90s been subject for a rather hard restructuring and modernization. The old Russian frame saws has in most cases been replaced by more modern equipment and equipment for drying and sorting the sawn wood have been installed. Initially primarily second hand equipment from Finland or Sweden was used, but during last years a few new modern sawmills have also been built.

Imavere Saeveski (Imavere sawmill), founded in 1994, is today the largest sawmill company in Estonia with a production of close to 200 000 m<sup>3</sup> sawn wood during 1999 and a planned production for year 2000 over 200 000 m<sup>3</sup>. It is one of the most modern sawmills in Estonia and the largest exporter of sawn wood.

Imavere is owned by the private Estonian company Sylvester and Finnish/Swedish Stora Enso plus some additional private investors. The investment amounts to close to 500 MEEK. An expansion of a second saw line has been announced for year 2000. Main lender for both this phase and the initial investment phase has been EBRD.

Estonia's most modern sawmill is Paikuse Saeveski, which was started for about two years ago in Paikuse close to Pärnu. Paikuse Saeveski is

mainly owned of one Estonian investor with Finnish UPM Kymmene as partner.

Toftan Saeviski at Sömerspalu close to Võru is owned by Swedish Hebeda and Finnish Thomesto. The production is about 85000 m<sup>3</sup>/a of sawn wood.

Close to Rakvere the British company Brittanic Group has established an Estonian subsidiary – Brittanic Eesti – with an investment of more than 200 M EEK. In the same county – Lääne-Vinnumaa – also Danish supported Flexa Eesti is located.



## Summary of Latvian forest industry

(information from year 2001)

### Sawmill industry

The mechanical wood industry – sawmills, furniture factories, doors and window manufacturers, etc. – is characterized by a great number of small actors.

The sawmills make up a very heterogeneous group of companies. Only four sawmills have presently (year 2000) a production of 50 000 m<sup>3</sup> of sawn wood or more. These sawmills are comparably modern and use modern technique.

Another 20-30 sawmills can be characterized as medium-sized with an annual production of some 15 000 – 40 000 m<sup>3</sup>. These sawmills use various types of equipment from very old and practically worn out Russian equipment to more modern German or Nordic equipment, often purchased as second-hand equipment.

In addition there are about 1 500 small facilities with a production from 15 000 m<sup>3</sup> down to only 500 m<sup>3</sup>. The majority of these sawmills are equipped with old worn out equipment with low efficiency.

Production in the sawmill industry is steadily increasing but still focusing low grades construction and pallet timber. During last years a few new sawmills have been built and modernization is ongoing in others. Some actors are focusing on drying and sorting sawn wood before exporting. The raw material/sawn wood is procured from other sawmills in the country, not having the necessary facilities for drying and sorting, etc.

Production of sawn wood has developed as follows:

**Table 1 Production of Sawn Wood in Latvia**

	Unit	1995	1996	1997	1998	1999	2000	2001*
Sawn wood	1000 m <sup>3</sup>	1300	1800	2700	3200	3520	3850	4000

\* forecast

The competition for saw logs is strong but still new capacity is built. This is expected to continue and makes up a part of the on-going and necessary restructuring process of the sawmill industry. Small, less efficient sawmills with worn out equipment are simultaneously closed, thus balancing the total sawing capacity in the country. The 10 largest sawmills in Latvia by production are presented below.

**Table 2 Largest Sawmills in Latvia, 2000.**

Company	Location	Production, 1000 m <sup>3</sup>	
		1999	2000
Inčukalns Timber	Inčukalns	97	119
Vika Wood	Lauciena	91	106
Nelss	Aizkraukle	78	90
Komiss	Rīga	49	70
Gaujas koks	Siguolda	35	45
Kalna Rauduvites	Cēsis	33	35
Stali	Cēsis	34	34
Pielbalgas	Vecumnieki	28	31
DL Linija	Lielvarde	0	30
BSW Latvija	Rīga	0	38

### **Pulp and paper industry**

The pulp and paper industry in Latvia is presently primarily made up of the units presented in Table 3 below.

All production of wood pulp in Latvia is today closed. Sloka Pulp & Paper Mill in Jurmala produced chemical pulp during the Soviet period but the production is closed since beginning of the 90ies. Today the operations at the Sloka mill are limited to some conversion and processing of paper.

The only unit presently producing paper is Ligatne Paper Mill in Ligatne, using waste paper as the raw material. All other paper machines are today closed or idle.

Since mid 90ies the preparations have been ongoing for a new green-field kraft pulp mill in Latvia. A company – Baltic Pulp Company – has been established, jointly owned by Finnish Metsäliitto, Swedish Södra and the Latvian state in order to further develop the project.

**Table 3 Latvian Pulp and Paper Industry – Main Units**

<b>Name and location</b>	<b>Main owners</b>	<b>Previous production, Type of products</b>	<b>Present production, Products and production 2000</b>
Jaunciema Paper Mill, Riga	Milman Properties Ltd	Paper and paperboard, 14 thousands t/a	Simple paper converting operations only (cutting, etc.) and trade (roundwood and wood products)
Ligatne Paper Mill, Ligatne	State approx. 70% and individual persons 30%	Paper (writing, printing, wrapping, drawing), 15 thousands t/a	Same paper grades as earlier plus fluting for corrugated board but small capacities: 2 to 5 thousands t/a. In 2000 about 2000 t.
StoraEnso Packaging Mill, Riga (former Pakenso Baltika SIA)	Subsidiary of Stora Enso		Corrugated board and boxes from purchased paper. Output 14 000 t in 2000.
Ranka Cardboard Factory, Ranka (Subsidiary of Jaunciema Paper Mill)	Milman Properties Ltd	Paperboard converting	Idle
Riga Company "Juglas Papirs" Ltd, Riga	Private persons	Paper and paperboard 16 thousands t/a	Trading waste paper and paper products, simple converting operations
Sloka Pulp & Paper Mill, Jurmala	SVG Ltd	Chemical pulp, paper and paperboard	Converting of paper.
Staicele Paper Mill, Staicele	Private persons	Paperboard production till 70-ties	Paperboard converting (paper bags mainly)

### Reference for Long Term Wood Raw Material Supply Contract

#### **Background**

In autumn 2001 the Lithuanian Government through the Ministry of Economy invited foreign investors to take part in the planned green field kraft pulp mill project in Lithuania. An Investment Guide was distributed to a large number of potential investors. In this Investment Guide the Government of Lithuania expressed their will and readiness to negotiate the conditions for the investment. The Government especially expressed its commitment to sign a long-term contract to supply pulpwood to the mill from state forests amounting to 1.5 Mm<sup>3</sup>sub per annum. This would roughly correspond to 60 % of the total annual demand of wood raw material for the mill. Details of the contract – species, price, schedule and place of delivery, etc. - were said to be subject for later negotiations and a mutual agreement.

Below some issues related to a long term contract for wood deliveries are commented. However, it should be noticed that a commitment concerning the wood supply to the mill is not considered a prerequisite for the realisation of the pulp mill project. The most important is the physical availability of enough wood raw material quantities and an open free wood market based on a stable policy and a democratic market economy. These conditions are prevailing and fulfilled in Lithuania today, which should be clearly spoken out to potential foreign investors. Nevertheless, it is judged that a commitment of the Government concerning the wood supply to the mill will be a strong argument in promoting the project and in attracting foreign investors. For an investor a guarantee for some period of time of the supply of a major part of the wood demand will reduce the risk and facilitate building up the wood procurement function and the start up of the mill.

#### **Different Types of Long Term Contracts**

Long term contracts for wood supply can be of different types. In some countries different types of concession or land lease systems are applied, for example:

- Long term – normally 25 to 100 years – lease of forestland with right for the leaseholder to utilise the forest resources within the prevailing legislative framework, possibly with some additional restrictions specified in the lease, but also full responsibility for the leaseholder to manage the forests in a sustainable way, including proper reforestation and investments in necessary infrastructure facilities. The leasing fee can be based on area or on volume extracted. This type of long term lease are rather common in tropical and sub-tropical areas, but is also applied in for example Canada and in some cases recently introduced also in Russia. It generally requires a strong and efficient monitoring and control system and is very much dependent upon the leaseholders will and interest to manage the forests properly. Due to the generally long rotation periods in forestry, investments in reforestation and infrastructure facilities are considered uncertain investments, which are not necessarily refunded to the leaseholder until the lease expires. (Compare corresponding investments on own forestland). The experience from several

countries is that reforestation, environmental consideration and investments in infrastructure facilities are suffering from these types of land lease or concessions.

- A second type of long term wood supply contracts are made up of so called logging concessions or logging contracts, implying that the concessionaire have the right to fell and extract – for his own use or for sale – specified areas or volumes in accordance with the prevailing legislation and possible additional restrictions specified in the logging contract. The fee is generally based on estimated or actually extracted volume. The responsibility for reforestation and other silviculture actions remains with the landowner while investments in infrastructure facilities can be the responsibility of any part or a joint effort. Also this system requires monitoring and control of the fulfilment of the contract and does not include any direct incentives to the concessionaire to take for example specific environmental consideration, more than the minimum required by the contract. The split responsibility for the forest management implies difficulties, which generally is not in favour of sustainable forest management and proper environmental considerations. The system has to some extent been applied in Estonia and Latvia.

Another type of long or medium term contracts - applied for example in Sweden – are made up of so called “forest management contracts”. These contracts are set up between for example a private landowner and a forest company or, as is common in Sweden, a forest owners’ association. The forest company or the forest owners’ association acts as contractor and takes full responsibility for managing the forests and for felling, extracting and selling the wood on behalf of the landowner. A contract is typically signed for some 3-5 years with automatic prolongation if neither part gives notice of termination of the contract. The “contractor” is normally paid for the work carried out and through provision on sales of wood. Often the wood is delivered to the “contractors” own mill and paid according to prevailing market prices. This type of contract is especially favourable for landowners without own capacity to manage their forests. Instead of contracting different companies/workers for the various forestry operations, he can contract one company that take the full responsibility including selling and delivering the wood to the proper buyer.

Larger private landowners and state or private forest companies with own resources for silviculture and logging operations, etc. generally take the full responsibility themselves and sell and deliver the wood at for example roadside, mill or export harbour. Certain operations are sometimes contracted to for example external logging or transport companies. Short or long term wood supply contracts are signed with the wood buyers. This type of wood supply contract is generally speaking the simplest type from a juridical point of view and as concerns division of responsibilities. It is assumed that this type will be applied between the Lithuanian State and the future Pulp Mill Company, if the pulp mill project will be realised.

### ***Important Issues to be Included in a Long Term Wood Supply Contract***

The most important and relevant issues to be included in a long-term wood supply and delivery contract are briefly commented below. Recommendations on details in the final contract can't be given at this stage but a contract will be subject for future negotiations. Below list does not claim to be complete but should be used only as a draft basis for designing the final contract.

Contracting part	Only one part shall represent the Lithuanian State Forestry with full responsibility to fulfil the contract and with full support by the Government/responsible Ministry. Presently the General State Forest Enterprise (below further on called "the seller") should take the role as contracting part. A foreign investor (below further on called "the buyer") would most certainly dislike a split responsibility between a number of regional State Forest Enterprises.
Undertaking	The undertaking by the seller and the buyer shall be specified in general terms, for example: "The seller undertakes to deliver and sell below specified quantities of pulpwood to the agreed delivery place(s) in accordance with agreed quality and delivery terms, and the buyer agrees to receive and buy these quantities at agreed prices. Wood delivered will be cut and extracted from state owned forests only". It is judged important that the commitment encompass wood only from state forests, thus excluding the seller to purchase wood on the open private market for delivery to the pulp mill.
Measurement unit and measuring method	The measurement unit to be applied as well as the measurement system shall be clearly defined and specified in the contract. Most relevant measurement unit is "cubic metre solid volume measured under bark" – m <sup>3</sup> sub. Measurement system shall be specified as to technique, place of measurement and part responsible for measurement (seller, buyer or independent part).
Volumes	The agreed volume to be delivered shall be specified by species, assortment, etc. Upper and lower limits shall be agreed in order to allow for some flexibility. Rules for divergence from agreed basic volume shall be agreed, as well as actions to be taken or economic compensation when the contract is not fulfilled – relevant for both parties and in both directions.
Quality aspects	Besides species, various quality factors must be specified. Certain flexibility is required also concerning quality factors and maximum divergence from the basic requirements shall be specified, as well as actions when this is not fulfilled. Quality factors can include <i>max and min dimensions of logs, decay, crookedness, etc. factors generally noticed at the wood measurement.</i> Possible request for certified wood should also be specified. It is judged favourable if all wood delivered by the seller would be certified according to FSC criteria and a "Chain of Custody"-certificate provided.
Transport means and unloading facilities	Transport means and their shares shall be agreed – truck/train – as well as responsibility and facilities used for unloading wood at the delivery place.
Delivery place	Wood can be delivered free at mill, at wood terminals or at roadside. Delivery place and responsibility for wood transport shall be agreed and considered in price negotiations.
Delivery schedule	A detailed delivery schedule can generally not be specified and agreed in a long-term contract of this type. Most important, however, is to agree on principles and frequency for detailed planning and mutual agreements of short-term delivery schedules, covering next months or one year and possibly broken down on for example weekly deliveries. A high flexibility is required and a cooperative approach from both parties based on mutual respect for each parties specific problems to deliver or receive overall agreed volumes of wood.

Price and price modifications	A basic price by species/assortment shall be agreed on the basis of above conditions. Prices can be further differentiated depending on quality aspects, etc. Of greatest importance is to agree on a relevant formula for adjusting the price over time and as the price on the open wood market fluctuates.
Terms of payment	Terms of payment shall be agreed as well as measures to be taken at possible disputes about the wood deliveries.
Duration of contract	It is always difficult to foresee all aspects influencing a contract of this type, both for seller and for buyer. It is therefore recommended that the contract period is limited to some years, for example 3 years, with automatic prolongation as long as no part asks for its expiration.
Expiration of contract	Rules for the parties to request termination of the contract shall be clearly specified – reasons for premature expiration, method for informing the other contract part, term of notice, etc.
Force majeure	Standard formulation.
Actions or legal proceedings at disputes	Actions or legal proceedings to be taken at disputes, if any, shall be agreed in the contract as far as possible. Some reasons for disputes are mentioned above, for example disputes on wood measurement or price escalations.

## Chapter 4 Review and Comments to Mill Site Alternatives

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## **4. Review of and Comments to Mill Site Alternatives** (Ref. Chapter 4 of Final Report and Investment Guide)

### **4.1 Introduction**

The study carried out in year 2000 selected three areas as the most promising and favourable for construction of a new green field kraft pulp mill. A comprehensive screening procedure was performed, initially encompassing 20 potential mill site areas, which successively were reduced to the final recommendation on following three sites

- Alytus North, located north of the city of Alytus
- Jonava Rukla, located east of the city of Jonava
- Vievis, located north of the municipality of Vievis

No order of priority between the three proposed sites was given, but all were considered to fulfil the necessary criteria and provide the best possible conditions among the evaluated site alternatives.

The site screening procedure addressed all major issues having impact on the final selection of an industrial site for the mill to that level which is reasonable in a Pre-feasibility Study. This means that some issues could be evaluated more in detail while other were only temporarily assessed and will require further more detailed investigations, for example the geological conditions at the site. Following issues were addressed in the site evaluation.

#### *Supply of Wood Raw Material*

- supply of domestic pulp wood (round wood)
- supply of chips from domestic sawmills
- possibilities for import of wood raw material

#### *Water Supply and Recipient of Treated Effluent Water*

- supply of process water
- supply of potable water
- recipient of treated effluent water

### *Energy Supply and Solid Waste Handling*

- nearness to power lines
- nearness to gas pipelines
- nearness to local district heating system
- solid waste deposit

### *Transport Infrastructure*

- transports of wood raw material
- transports of end products (pulp)
- transports of other necessities and goods
- main roads and site access roads - road transports
- railway system - railway transports
- harbour and harbour facilities - sea transports

### *Mill Site Characteristics*

- available area and expansion opportunities
- topography and geological conditions
- ownership status

### *Specific Environmental Issues*

- impact on water flow due to use of fresh water
- impact of discharged treated effluent water
- effects of emissions to the air
- handling of solid waste
- traffic, noise, smell and other disturbances in nearby residential areas
- sensitive surrounding areas

### *Other Aspects*

- access to research, development and educational resources
- availability of skilled labour
- housing/accommodation conditions
- political and local support
- social aspects

Present Follow-up Study is focusing major changes in the conditions for the pulp mill, which may substantially affect the viability or profitability of the Project, or which may substantially change any of the principal findings and recommendations for the realisation of the Project. Above issues addressed in the initial site screening are shortly commented below as concerns identified major changes, if any, in the assumptions or conditions, and the expected consequences presented. Additional actions required to further prove the suitability of the selected sites – or possibly reject one or two - are presented as well.

#### **4.2 General Comments and Main Findings**

The Follow-up Study has not identified any major changes, which substantially changes the recommendations from the initial Study on most suitable sites for a new pulp mill. No new alternative site areas have been identified, nor have the conditions changed that would motivate the re-introduction to the process of any of the previously assessed and rejected areas. Nor have the conditions changed that would motivate to exclude any of the recommended sites at this stage.

However, important issues must be further addressed and confirmed before the final decision can be taken. Since last Study in year 2000 very little has been done in this respect and major efforts now are required on national, regional and district level to confirm availability and technical viability of the preliminary sites. These issues are further commented below and actions required specified in Section 4.10 below.

The final selection of the mill site will be based on an overall valuation of the conditions of the site alternatives and which advantages/disadvantages the different alternatives offer an investor. This decision will very much be based on the financial conditions, but environmental restrictions must be fulfilled and a national regional and local support for the project is required.

#### **4.3 Supply of Wood Raw Material**

The overall wood supply situation is commented in Chapter 3 – Wood Raw Material. No major changes are notified that will substantially influence the recommendation on most suitable sites.

The forest resources are scattered and distributed all over the country with less densely forested regions in the west and more densely forested areas, especially conifers, in the east. Central Lithuania has higher share of mixed forests. Both conifers and broadleaved species are assumed to be used as raw material for the mill. A location of

the mill in the centre of the raw material area is preferred due to transport costs. Average transport distances for round wood are judged to be somewhat longer for the Alytus alternative compared to the proposed Jonava and Vicvis sites. This is true for both road transports and railway transports. Alytus is connected to the railway net only in one direction to the west. See further Section 4.6 below.

Part of the wood raw material to the mill will be supplied as pulp chips from domestic sawmills. No major changes in the sawmill structure are notified but the industry is slowly developing and improving. However, new investments will be required in the sawmill industry to stay competitive and to have the capacity to provide high quality chips to a pulp mill. Primarily inland locations are expected for new sawmills, which is also in favour for a Lithuanian pulp mill considering transport distances and competition of pulp chips from the Nordic countries. A possible sawmill located at and integrated with the pulp mill would be advantageous.

#### **4.4 Water Supply and Recipient of Treated Effluent Water**

No new information is available that affect the findings of the initial evaluation of alternative sites. The issue is further commented in Chapter 5 and will be specifically addressed, from an environmental point of view, in the Preliminary Environmental Assessment (PEA) planned to be carried out later this year. See further Section 4.8 below and Chapter 5.

#### **4.5 Energy Supply and Solid Waste Handling**

Neither concerning the issue of energy supply to the mill nor for the possibilities for handling and deposit of solid waste, are any changes in the pre-conditions for the site selection identified. Several municipal waste deposits will be closed or rebuilt in accordance with current EU norms. However, this does only marginally affect the pulp mill project as the mill is supposed to handle and take care of its own waste.

The issue of integrating the energy system with nearby energy production plants or the national electricity grid has been discussed and should be further addressed in the valuation of the three site alternatives and in the design of the Project. This should include possible integration to nearby district heating system or industrial energy systems and supply of surplus heat from the pulp mill, as well as the viability and profitability in expanding the pulp mill boiler and power generation capacity and replacing older worn out power plants. The size and complexity of the pulp mill project is of such a magnitude that discussions about the energy system should be introduced to

the ongoing discussions for a new energy strategy and on closing down of Ignalina Nuclear Power Plant (INPP) and the negotiations with EU. The various conditions of the three mill sites in this respect may have an impact on the final choice of mill site.

## **4.6 Transport Infrastructure**

### *Road network and road connections to mill site*

Alternative suitable connection roads to the mill site from the main road network shall be preliminary investigated as to technical viability and investment need. The Lithuanian state's or the local municipalities' commitment to cover all or part of the investment should be expressed.

### *Road transport and traffic regulations*

According to present Lithuanian road and traffic legislation the maximum gross vehicle weight (GVW) is 40 tonnes, allowing for a load of some 25 tonnes per vehicle. This is comparable to many EU countries but much lower than the allowed GVW and load in for example Finland and Sweden, where 60 tonnes max GVW is applied. The low allowed GVW for trucks increases the road transport costs but increases also the competitiveness of railway transports on longer distances.

According to information from the Ministry of Transports and Communication, Lithuania has not requested any exceptions or temporary solutions in this respect in the negotiations about EU membership. Thus EU norms will most probably be applied in Lithuania indicating a maximum GVW of some 44 tonnes and a maximum axle load of 11.5 tonnes. Short transport distances for the wood raw material will become more important, thus being in favour of the Jonava and Vievis sites being located more in the centre of the wood raw material supply area. The increased road transport costs, caused by lower allowed GVW and corresponding lower load capacity, can partly be compensated for by using train transports on longer distances. However, reloading from various transport means is normally costly. Also from a railway transport point of view Jonava and Vievis are more favourably located than Alytus.

### *Railway network and rail branch line*

The planning of the Rail Baltica Project is progressing. The project encompasses modernisation of the railway section Warsaw-Bialystok-Sokolka-Trakiszki in Poland to West European standard. On the Lithuanian side the project include a new railway line

of West European standard and gauge. The Lithuanian railway line will connect to the Polish network in Trakiszki and end, according to present plans, south of Kaunas where also a reloading station will be built (reloading from EU to standard Lithuanian rail network). Different alternatives for the line from the Polish border are investigated. There are also preliminary plans to extend the line to Kaunas FEZ (Free Economic Zone). In the long term Rail Baltica will be extended further on to Latvia. Different alternatives are considered, one of which is via Jonava.

The possibilities to extend the railway line also to the proposed pulp mill sites should be preliminary investigated and evaluated for the three sites as concerns technical viability, environmental impact and profitability. The required extra investment should be estimated and the Lithuanian state's possible commitment and/or EU engagement in realising the construction of the line should be assessed.

A railway line of West European standard directly to the mill site is judged to be a great advantage to a Lithuanian pulp mill and would give direct access to important markets in Western and Central Europe. It would also give the selected site access to both the European railway net and the Lithuanian and East European network, as the new railway line will be constructed in parallel to the present existing network. This allows for wood supply by rail to the mill as well as transports of the manufactured pulp to Klaipeda for further sea transport to customer harbour, when this option is more profitable compared to direct transport to Western Europe by rail. Access to both railway networks would also be an advantage considering alternative options for purchase and transport of other raw materials and consumable supplies to the mill.

Tentatively it is considered most realistic to extend the railway line to the Jonava site area, as a natural prolongation of the Rail Baltica, although extending the line to Elektreniai/Vievis, and possibly further on to Vilnius, would provide also other advantages. The Alytus alternative seems more unfavourable in this respect.

A possible new railway line to the site area may have an impact on the exact location of the site in order to minimise investment need considering technical and environmental restrictions for the railway line.

Alternative suitable rail branch lines to the mill site from the main rail network shall be preliminary investigated as to technical viability and investment need. The

Lithuanian state's will to commit it to cover all or part of the investment should be expressed.

#### **4.7 Mill Site Characteristics**

The borders of the possible industrial area should be further specified. An area of minimum 130 ha is required, preferably up to 150 ha. However, the potential industrial area should, if possible, not be restricted to this, but cover a larger area that will allow for some flexibility in the final design of the pulp mill site, when consideration will be taken in detail to topographical and geological conditions, infrastructure connections, and social and environmental impact. Areas outside the mill site, required for roads, railway connections, water and waste water pipe lines and pumping stations, etc. must also be secured as industrial or infrastructure land. Areas for expansion should as far as possible also be included – for example integrated paper mill or adjacent sawmill.

The land ownership conditions have to be assessed and clearly specified. The process and legal conditions for acquiring industrial land must be clarified for each site. Any possible future problems in acquiring the land for the pulp mill and for necessary additional infrastructure facilities must be identified and as far as possible mitigated. Land required for facilities outside the mill site fences, or land that temporarily has to be used during the mill construction period, must be included in this assessment.

Guarantees must be given to future investors that the area is not previously contaminated and, in case any problems of this kind are discovered at a later stage, the investor will in no way be responsible for acting or paying for possible necessary actions to mitigate for example expected environmental problems. The historical use of the land should be documented.

The geological conditions on the possible sites must be further investigated to a level that it can be guaranteed that the geological conditions will not make up a definite restriction for the mill or a major additional investment in comparison to other competing sites/projects.

#### **4.8 Specific Environmental Issues**

Since the initial study was carried out in year 2000 a preliminary proposal for a National Plan on Land Use has been prepared and is now under discussion (so called

Nature Frames – see further Chapter 5). The plan is still not approved by the Parliament and no time schedule for its approval or possible modifications is available. The Land Use Plan/Nature Frame is comprehensive and addresses economic, social and environmental issues. Separate plans are prepared for conservation of bio-diversity corridors, for urban and industrial areas, for agriculture and forestry businesses, etc. The information received during this Follow-up Study does not exclude any of the recommended sites, but the compliance with the plan should be further investigated, possible conflicts identified and mitigation actions suggested. As the plan is still a preliminary proposal and is supposed to balance environmental, social and economic interests, also modifications of the plan, considering the needs and impacts of a pulp mill, shall be considered. The pulp mill project has so far not been included in the pre-conditions for the preparation of the plan.

The environmental issues are crucial to the selection of the industrial site and to the realisation of the Project. Certain changes in the environmental legislation has been approved and implemented since last study. These changes and their expected impact to the Project are specifically commented in Chapter 5 – Environmental Aspects, and are not further commented here.

It is also decided that a Preliminary Environmental Assessment (PEA) of the Project will be carried out during spring – early summer 2002. This PEA does not replace a complete Environmental Impact Assessment (EIA), which has to be carried out once the details of the Project have been further specified and the investors identified. The PEA will encompass all three areas identified as potential areas for localisation of a pulp mill. As far as possible the PEA will identify advantages and disadvantages of the three site areas and propose mitigation actions. The compliance with above mentioned Land Use Plan/Nature Frame should be analysed. Social aspects will be included only to a limited extent in the PEA. The scope and Terms of Reference of the PEA is further commented in Chapter 5.

#### **4.9 Other Aspects**

No other major changes or new conditions affecting the choice or the suitability of the mill sites have been identified.



The dialogue with environmental NGOs has been continued in a positive and constructive manner with the purpose of reaching consensus and balancing environmental, social and economic interests in the Project. Contacted NGOs have expressed their positive attitude to the Project and its importance to the national economy. However, of natural reasons no final judgement can be expressed of the Project or any of the selected sites until more detailed information is made available and the environmental and social impact of the Project is clarified. No specific objections to any of the selected sites have so far been expressed but the NGOs will continue to follow and assess the impact of the Project. Generally speaking, in locating new industrial facilities, the regional development aspect should be considered, thus favouring sites at longer distances from the Capital Vilnius.

Additional contacts and discussions with official representatives of the three concerned municipalities have confirmed their full support for the Project. Although no specific investigations have been carried out since the initial Study all three confirmed the availability of the mill site area. The Project is discussed in local media and no objections towards the Project have been raised so far. Most people are positive to the Project and look forward to the investment and the additional employment opportunities the mill will create. Acquisition of the industrial site will not become any problem according to the judgement of the local representatives.

#### **4.10 Proposed Action Programme**

A number of additional investigations and studies are required to finally judge the suitability of the preliminary selected sites and screen out the optimal one. Some of the investigations/studies are directly related to the mill site area and nearby areas, which may become directly or indirectly affected by the mill construction and the mill operations. Some investigations are costly and can realistically not be implemented until an investor is identified and involved in the work. Initially focus must be on activities, which in a cost-efficient and easy way clarify certain basic information about the sites and supports the promotion of the Project and each specific site.

- One of the most important actions will be the PEA, planned to be carried out during first half of this year. The PEA will assess and answer the most relevant questions related to environmental and socio-economic issues of specific relevance to each of the three sites. See further Chapter 5.

- The issue of integrating the energy system with nearby energy production plants or the national electricity grid should be further addressed in the valuation of the three site alternatives and in the design of the Project. This should include possible integration to nearby district heating system or industrial energy systems and the supply of surplus heat from the pulp mill. It should further consider on a national level the viability and profitability in expanding the pulp mill boiler and power generation capacity thus replacing older worn out power plants. The size and complexity of the pulp mill project is of such a magnitude that discussions about the energy system should be introduced to the ongoing discussions for a new energy strategy and on closing down of Ignalina Nuclear Power Plant (INPP) and the negotiations with EU. The various conditions of the three mill sites in this respect may have an impact on the final choice of mill site.
- A detailed land use plan for the mill site and nearby areas must be prepared showing existing and planned infrastructure facilities – main roads, access roads, railway branch lines, electricity lines, etc. - industrial estates, possible residential areas, land ownership, etc. The details can not be elaborated until the pulp mill area is specified more in detail but a rough plan indicating the future structure and design of the area should be elaborated.
- The possibilities to extend the planned new railway of EU standard to any of the mill sites should be assessed and the profitability and investment tentatively estimated. The study must be closely integrated with present analyses of the Rail Baltica project and consider not only the benefits for the pulp mill but also other possible advantages by an extension of the railway. This should include both passenger traffic as well as goods traffic. The possible extension of the Rail Baltica project as indicated above should be considered an *integrated part of the project* and of the joint efforts of EU and Lithuania to develop the south–north communications in the Baltic states. The pulp mill, if realised, would substantially contribute to form a relevant basis for developing the Lithuanian railway net.
- A geological investigation must be carried out for the proposed mill site area. Unless geological information is not already available, it is judged that this investigation - for cost reasons - has to be postponed until an investor is identified and the Project further developed. However, all efforts should be done to gather tentative information on the geological conditions and the impact they

may have on the construction of a pulp mill, including necessary access roads, railway lines, water pipelines, etc.

- Dissemination to the people of the scope and progress of the Project and the dialog with national and local environmental NGO's, as well as with different organisations representing various local interests, who may be affected by the pulp mill project, shall be intensified. There are two main purposes for this activity. Firstly to inform concerned people of the Project, to increase the knowledge and status of the Project, and to promote the Project and the specific site on all levels. Secondly to identify as early as possible all negative impacts of the Project and possible opposition towards the Project, identify possible mitigation actions and jointly develop the Project in consensus. Information shall be distributed through mass media, local hearings, organised meetings with selected organisations or individuals, or any other means normally and by tradition used for informing and involving people in complex processes, also involving a great share of local/regional policy.

## Chapter 5 Environment Aspects

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## **5. Environmental Aspects**

### **5.1 Technology and environmental loads**

There is at present no reason to anticipate any changes of the technology, proposed in the Pulp Mill Study. Therefore, it is still assumed that Best Available Technique for environmental control shall be applied in the new pulp mill.

The estimated pollution loads of the Pulp Mill Study are still relevant, and should be the base for the planned Preliminary Environmental Assessment (PEA), to be performed during first half-year of 2002. The PEA will also more in detail evaluate the environmental impacts.

### **5.2 Legislation**

The environmental legislation in Lithuania has been changed on several points since 2000, although not dramatically. These changes will not substantially affect the original plan and its study results. One possible exception will be found under "Protected Areas", item (6) below. The main changes are summarized below.

#### **(1) Environmental Impact Assessment**

There is actually no change in the EIA legislation since 2000. As this issue is presently important for the Pulp Mill Study, a summary of the situation is given below.

Environmental Impact Assessments in Lithuania are governed by law:  
Law on Environmental Impact Assessment of the Proposed Economic Activity, 18 April 2000, No. VIII – 1636

Details of the EIA procedure are governed in five Ministerial Orders, addressing various issues:

- Screening
- Program (Scoping) and Report
- Informing the Public and Public participation
- Quality control of the EIA
- Investigating the EIA documents

According to the legislation, a strict procedure shall be followed in implementing the EIA.

The Screening aims at determining whether an EIA for a specific project is required or not. For certain types of projects, however, the EIA is compulsory, so the Screening can be omitted. This is the case for “Wood and paper industry / Production of cellulose and pulp from similar fibrous materials”, i.e. this project.

This legislation is strictly based on the European Union legislation, with the basic Directives:

- Directive 85/337/EEC of 27 June 1985 on the assessment of the effects of certain public and private projects on the environment
- Directive 97/11/EC of 3 March 1997 amending Directive 85/337/EEC on the assessment of the effects of certain public and private projects on the environment

These Directives are complemented by a number of Guidance documents on EIA, basically addressing the following issues:

- Screening
- Scoping
- EIS Review

EIS is short for Environmental Impact Statement, i.e. the basic document, which is the report of the EIA.

The EU Directives etc. stipulate that each Member state must pass its own laws, based on these Directives. In certain parts of the EU legislation there are degrees of freedom, so the Member state can formulate details according to its own requirements.

Lithuania is presently negotiating with the EU concerning membership. This required an adaptation of Lithuania’s legislation to EU legislation. As regards the Law on EIA and other environmental legislation, this adaptation is now basically implemented.

For the practical EIA work, a special document has been prepared, “Manual for Environmental Impact Assessment in Lithuania”. This is a comprehensive “readable” description of the EIA procedures, with the legal Acts included as annexes.

*So, to put it briefly, an EIA carried out according to the Lithuanian legislation, will follow "EU standards".*

## **(2) Water Quality**

A new system for classification of surface waters and water quality standards, based on EU Directives, has been prepared. New regulations, all dated in 2001, are in force for new installations. The regulations on "Environmental requirements for wastewater management" and "Procedures of qualification of surface waters and their quality standards" contain some data, which slightly differ from the old regulations.

Our estimation is that these changes will not influence the requirements to be set for a new pulp mill. This has to be further evaluated in the Preliminary Environmental Assessment.

## **(3) Air Quality**

Changes in the legislation for air pollution control have been implemented, generally as an adaptation to the EU legislation. This is reflected in Ministerial Orders of 2001, which refer to EU Directives. At least the following are applicable to a new, large pulp mill, i.e. the Directives on

- Limitations of emissions on certain pollutants into the air from large combustion plants
- Incineration of waste
- Limit values for **SO<sub>2</sub>**, **NO<sub>x</sub>**, **Particles** and **Lead** (in ambient air)
- Benzene and **CO** in ambient air
- Reduction in the sulphur content of certain liquid fuels

The extent to which these changes will influence the requirements to be set for a new pulp mill cannot be judged at present – this has to be done in the Preliminary Environmental Assessment. The overall requirement, that Best Available Techniques shall be applied, is still valid.

#### **(4) Solid Waste**

The existing "Law on Waste Management" of 1998 is now under amendment.

A new "Law on Management of Packaging and Packaging Waste" was passed in 2001.

Ministerial Order on "General Requirements on Waste Incineration" of 1999 will be changed in 2002.

New Ministerial Orders have been passed on "Rules for the Construction, Operation, Closure and After-care of Landfills" and "Rules on Management of Spent Batteries and Accumulators".

Regional Waste Management Systems are being implemented for all Regions. As regards the implementation of these systems in the Regions in question for the pulp mill, the following is valid:

Alytus	Implemented
Vilnius (Vievis site)	Under implementation
Kaunas (Jonava site)	Documentation ready by 2004 – 2005

In Vilnius Region, one of the sites for a central solid waste landfill, presently being evaluated, is close to the proposed mill site in Vievis.

#### **(5) Noise**

A Draft regulation on "Noise reduction and control from industrial enterprises" will come into force on January 1, 2003. This is based on the EU Directive 2000/14/EC of 2000 "On the approximation of the laws of the Member States relating to the noise emission in the environment by equipment for use outdoors".

#### **(6) Protected areas**

A new law was passed December 4, 2001, "The Amendment Law on the Protected Areas of the Republic of Lithuania", replacing the old Law of 1993. The new Law does



actually not raise any new obstacles against the pulp mill, but one issue may become critical:

The Law specifies restrictions for so-called Nature Frame areas. These are a part of the European Ecological Network. One of the purposes of the Nature Frame is:

“to create a continuous network of the natural ecological compensation areas, ensuring the geo-ecological balance of the landscape and natural relations among the preserved areas, to create preconditions for preservation of biological diversities”.

Restrictions for the Nature Frame include i.a.:

“Construction of industrial enterprises, which require permits for integral pollution prevention and control, and residential blocks, is prohibited in the nature frame areas of recreational, forest and agricultural purposes.”

The Nature Frame borders in Lithuania are presently being developed, but not yet approved. The proposed Nature Frame, and the restriction quoted above, may be critical for the proposed mill sites. This matter has to be addressed in the Preliminary Environmental Assessment.

The Nature Frame was not a very hot issue in 2000, when the Pulp Mill Study was performed, which explains why it was not observed then. At present, however, the Nature Frame has emerged as important in Lithuania.

The other restriction, observed in the Pulp Mill Study, was:

“In state parks it is prohibited to ... lay down transit communication lines ...”

In the new Law this is formulated as “...to install transiting engineering networks”.

This may set restriction to fresh water and wastewater lines in Alytus and Vievis, which may have to be drawn through State Regional Parks. Also this matter must be addressed in the Preliminary Environmental Assessment.

## **(7) Taxes on Pollution and Natural resources**

A new Law was passed January 22, 2002, "Amended Law on Environmental Pollution Charges". The changes from the old Law are limited; a few taxation rates for certain items have been slightly changed. The only main change is the introduction of certain *products* as taxation objects, i.e.

- Packaging (primary, i.e. industrial packaging)
- Mercury containing lamps
- Batteries
- Tyres
- Oil filters and air filters for cars
- Shock absorbers for cars.

Those parts of the Law, which are relevant for a new pulp mill, have not been changed.

## **5.3 Recommendations for Further Project Promotion**

### **(1) Environmental Impact Assessment**

#### **1) Procedure of implementation of preliminary EIA**

The Ministry of Economy (MoEcon) and the Ministry of Environment (MoEnv) have decided to perform a preliminary EIA for the pulp mill project. A private company, Baltic Consulting Group (BKG), Vilnius, has been appointed to carry out this, with the Institute of Geography as a sub-consultant.

This preliminary EIA does not fulfil some of the prerequisites for a formal EIA, i.e. there is no investor (= "organizer/developer of the economic activity"), and the mill design is not decided. For this reason, MoEcon will act as the Client for this EIA. MoEnv will act in their normal role as "competent authority".

The concept "preliminary EIA" is not defined in the legislation, neither the EU nor the Lithuanian. This means that neither the procedure, nor the scope of this EIA must necessarily follow the legislation for a formal EIA. So the procedure and the scope of any preliminary EIA has to be negotiated and

agreed between the parties, which are involved. In this negotiation, an important basis must be the purpose of the EIA, i.e.: how shall it be used ?

The JICA Study Group discussed, during weeks 9 -10, with MoEnv and BKG concerning the procedure for the preliminary EIA. Some of the points noted were:

- The official term for this assessment will be Preliminary Environmental Assessment, PEA
- The PEA procedure will be adapted to the main features of the legal EIA procedure, but will not follow this exactly. The latter would actually not be possible; i.a. as there is no real project and no investor.
- The contents of the PEA will be adapted to the contents of a legal EIA, but with less detail and with some issues on a preliminary level.
- Main steps will be
  - Prepare the Terms of Reference for the PEA – shall be approved by MoEcon and MoEnv
  - Prepare the Structure/Contents of the PEA – shall be approved by MoEnv
  - Prepare the Scope of the PEA – shall be approved by MoEnv
  - Perform the PEA
  - Public participation shall be included – but the formal procedures are not yet defined
- Time schedule: finalized PEA by June 2002.

The Structure/Contents of the PEA, available in a draft version, was reviewed by the JICA Study Group. A proposed revised version was sent to BKG on March 12.

The Study Group has also undertaken to review the Scope of the PEA.

The issue of "EIA according to EU standard" can be summarized as follows. As the PEA will not be a formal EIA (no real project and no investor exist at present), an exact performance according to the EU standard is not possible. However, the PEA will be adapted to the EU standard, as expressed in the Lithuanian legislation, at a reasonable extent.

## 2) Recommended Terms of Reference for the PEA

The draft version of the Terms of Reference (ToR) was reviewed by the JICA Study Group during weeks 12-13. A proposed revised version was sent to BKG, MoEcon and MoEnv. Some important issues, that were included in the revised ToR, are the following:

- The whole PEA shall be performed for all the three "most favourable sites" according to the Pulp Mill Study, i.e. Alytus, Jonava and Vievis.
- The influence of the pulp mill on forestry and on transports in Lithuania, and the corresponding environmental impacts, shall be included in the PEA.
- Local authorities at the three sites, as well as the Public, shall be involved in the PEA at an appropriate extent, to be agreed in detail between the Contractor, the MoEcon and the MoEnv.
- The Draft PEA Report shall be reviewed and commented by the Local authorities, the MoEcon and the MoEnv, and the comments be taken into account for the Final Report.
- The Time schedule shall be specified.

## 3) Public participation

Public participation is compulsory in the formal EIA, and the procedures are defined in the legislation. All parties agree that some level of public participation is essential also in this PEA. As pointed out above, our proposal is that the contents and organization of the public participation shall be separately agreed between the Contractor, the MoEcon and the MoEnv.

A first step in the public participation was taken on March 09, when a meeting was arranged with the Lithuanian Green Movement, the leading environmental NGO in Lithuania. Participants were representatives from MoEcon, MoEnv and BKG, and the JICA Study Group. From the LGM participated the chairman, the vice-chairman and 4 – 5 other members. The LGM was informed about the status of the Project, the ongoing promotion process and the planned PEA, and they expressed their views on the Project and the PEA. It was decided that these contacts shall be continued.

A meeting was also arranged March 23, with local representatives of the concerned municipalities. The status and progress of the Project were discussed, and information of the planned PEA was submitted to the representatives.

#### **4) Contents and purpose of the PEA**

These issues were discussed between the Study Group and the Lithuanian parties during weeks 9. As conclusions of these discussions can be summarized:

- One important purpose of the PEA is the comparison, and possibly ranking, of the three sites Alytus, Jonava and Vievis, from the environmental point of view.
- A conceivable result of the PEA might be the exclusion of some of the sites as a potential site, if that site would appear as most unsuitable. However, one aim shall be to keep at least two, but preferably all three, as potential sites for the pulp mill. For the final selection of the site, there are several other factors, which must be considered.
- The PEA should give the total environmental image of the Project. Thus most of the relevant aspects must be addressed, although on a preliminary level. This includes, besides the environmental situation on the pulp mill sites, also the forestry aspects, the wood and products transports within Lithuania, and the socio-economic environment.
- The total environmental image is important not least for informing the Public about the Project.

- As the Pulp Mill is not yet designed in detail, and flexibility is prevailing, some modifications are still possible and expected, compared to the descriptions in the Pulp Mill Study. Thus the PEA should focus more on identifying possible mitigation measures, rather than excluding any site based on the present preliminary mill design.

## (2) Special notes and recommendations for promotion of the Project

Information to the Public is most important for the promotion of the Project. A certain extent of public participation is assumed to be included in the Preliminary Environmental Assessment (PEA). It is recommended that this public participation (in the form of hearings etc.) should be utilized for informing about and discussing *not only* the environmental aspects *but also* the Project in general.

One aspect that would help in promoting the Project could be:

- One or more of the potential sites is shown to be suitable, or very suitable, for the pulp mill, from the environmental point of view.

The PEA will give the answer whether this statement is correct.

The PEA process may also result in expressed opinions by the national and local authorities, by the public and by NGOs, concerning the Project in general and from the environmental point of view. These opinions will also be important for the promotion process.

As regards the present opinions, positive attitudes to the Project in general have been expressed from e.g. the Ministry of Environment, the local authorities and the Lithuanian Green Movement. It is important to point out that a positive dialogue between different concerned parties has started, and will continue, with an aim to reach a consensus.

Moreover, if there might be some environmental problems, critical to the Project but not foreseen in the present Pulp Mill Study, it would be an advantage if the PEA clarifies these. Then there are better possibilities to find solutions at an early stage.

The fact that the pulp mill is supposed to be built with the most modern environmental technology, utilizing Best Available Techniques, is an important issue to

point out in the information to Local authorities and the Public. From the promotion point of view, however, this issue is of limited value, as BAT most certainly will be a requirement wherever a new pulp mill is to be implemented.

## **Part II**

### **Proposal on Investment Promotion Work**

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## Chapter 1 Review of Investment Promotion Activities

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## **Part II Proposal on Investment Promotion Work**

### **1. Review of Investment Promotion Activities**

The Government of Lithuania with a key role by Ministry of Economy, have engaged in a promotion work to invite potential investors in the world, as follows.

#### **1.1 Progress of Promotion Activities**

Chronological progress of promotion work are as follows.

- |  |               |
|--|---------------|
| a. Submission of INVESTMENT GUIDE by JICA to the Lithuanian Government | October 2000  |
| b. Approval by the Government to distribute the INVESTMENT GUIDE       | April 2001    |
| c. Submittal Letter was signed by Minister of Economy                  | August 2001   |
| d. Started distribution of INVESTMENT GUIDE                            | August 2001   |
| e. Receipt of first response   | October 2001  |
| f. First Task Force Meeting  | November 2001 |
| g. Hearing with potential investors by Lithuanian Embassy in abroad    | December 2001 |
| h. Follow-up Study by JICA   | February 2002 |

#### **1.2 Responses to the Invitation Letter**

##### **(1) Direct responses**

Direct responses were received from 10 companies, most of which gave negative answers to the invitation. Major reasons are summarized as follows.

- Ongoing investment in expansion of an existing pulp mill
- Ongoing investment in construction of a new pulp mill
- Lack of interest in the proposed pulp mill project in Lithuania

On the other hand, there were several responses that included some positive comments, suggesting future prospects.

- a. We would like to study the proposal in the near future.
- b. We closely watch a paper mill project in the Baltic region.

Companies that responded to the invitation are classified by country as follows: 3 companies from Finland, 2 Sweden, 2 Japan, 1 Germany, 1 France, 1 the U.S. Nordic companies account for 50% of the total, and European companies 70%.

## **(2) Direct contact by Lithuanian embassies**

Lithuanian embassies in the following 12 countries contacted pulp and paper companies based in each country for promotion of the project: Australia, France, the Netherlands, Germany, the U.K., Italy, the U.S., Canada, Sweden, Finland, Poland, and Japan. While no contact was made in most cases because the embassy was unable to find the target company for promotion, embassy staff visited various companies and explained the project. As seen in the direct responses, most of them did not show interest, but some indicated "ongoing projects" and commented "possibility of making partial involvement if a major investor appears."

## Chapter 2 Problems, Doubts and Issues

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## 2. Problems, Doubts and Issues

The project appears to be faced with a serious problem: the first round of solicitation failed to receive a response from any potential investor. The result disappointed some key personnel involved in the project so badly that they are tempted to abandon their efforts to build and operate the pulp mill in the country. Before doing so, however, they should seriously think about whether the project is only a "dream" without a hope to become a reality.

Looking into the world market, total chemical pulp production capacity grew from 55 million tons in 1995 to 86 million tons in 1998, at an annual average growth rate of 3.5% during the 13-year period. This means, an average of 2 to 3 million ton capacity was added each year.

While production capacity is steadily added, why no company shows interest in our pulp project? There are a number of factors and reasons, and among them, general factors that are related to the current economic conditions are as follows:

- The worldwide recession makes pulp and paper companies cautious about large investment.
- The recession in the pulp and paper industry deteriorates profitability and weakens the financial base required to boost production capacity.
- The sluggish pulp market discourages manufacturers to make new investment in capacity expansion.

Then, if these unfavorable conditions improve significantly with a recovery of the world economy, can we expect some manufacturers to decide on investment in Lithuania? If not, we have to have a serious doubt about whether there is a reason, factor or condition that impedes investment decisions, which is peculiar to the country.

For instance, in the international ratings on government bonds, Lithuania ranks the lowest among the Baltic countries. And the ratings are often used as a key indicator to measure country risks. While there are various reasons for the country's lowest rating in the region - which are complex and require careful analysis, the ratings can be used by many investors as one of key evaluation criteria for investment decision making.

If they do, they never choose to go for investment in Lithuania until the country is rated as a place for safe investment, in particular better than Latvia that proposes a similar pulp project. Needless to say, the rating on government bond is not a single factor for investment decision, but at least it shows that Lithuania has still to improve its investment climate in order to attract foreign direct investment.

More precisely, the investment climate constitutes an essential factor for attracting foreign companies, not to mention pulp manufacturers, because it is indicative of economic infrastructure in any country. Thus, the improvement of the investment climate is a major issue for the country to address with the highest priority. Note that specific issues to be tackled in this area are discussed in Chapter 11 of the JICA study report in 2000 and partially in Chapter 1.1 of this report.

## **2.1 Basic Strategy for Future Investment Promotion**

Construction of a large pulp mill is a major undertaking even for world-class pulp and paper companies and must be carefully planned according to their long-term business strategy. It cannot be decided on the basis of a study report made by an independent organization. At the same time, investment promotion we have initiated has certainly made the pulp project in Lithuania known to many companies. Some companies, which have so far shown little interest, may make a favorable decision if they find our proposal to match their business strategy, i.e., when specific conditions are met.

It is not conceivable that a simple letter of invitation results in a clear response because a company's intention in capital investment constitutes its business strategy that belongs to top secret. We will likely hear its intent after the company has conducted its own research and study on the project.

At this stage, therefore, we should realize that information provided by the Lithuanian government could be used by some companies as part of their strategic investment consideration. In particular, data and information on forest resources and logistics, and the government's policy and commitment to project support presumably serve as vital information for pulp manufacturers that examine the possibility of strategic investment.

Thus, it is premature to be disappointed of no reaction to initial promotion and give up our efforts entirely. Instead, we should continue our promotional activities by disseminating information and expanding contacts that we have established so far, while making efforts to improve the investment climate of the country as a whole.

## **2.2 Organization to Lead Investment Promotion Activities**

Investment promotion activities required for this project differ from those relating to foreign direct investment projects in that: (1) this project is very large in size; (2) it takes some time until the project rolls out; and (3) the government is required to provide a large number of support services once the project starts. Investment promotion activities required for the project may be divided into several stages, according to the progress of the project preparation process, as follows.

### **I. Dissemination of information and basic research and study:**

In this stage, the major challenge is to identify a final investor (candidate). Investment promotion activities include the effective appealing of the country's advantages and government support policies, improvement of social and economic conditions, infrastructure development, dissemination of information on related laws and regulations, including their possible amendment, availability of raw materials and market trends, locational conditions, environmental regulation and conditions. As the information is provided to potential investors, communication is maintained and their intention is sounded to find a general outlook and prospect. At the same time, the pulp and paper market trend is analyzed to forecast capital investment.

### **II. Cooperation with corporate study**

If a company asks for the government's cooperation, the government is expected to provide various advices. In this stage, coordinated efforts of related agencies and organizations, including local governments, become critical.

### **III. Investment (initial stage)**

In this stage, the company must initiate a variety of legal and administrative procedures, including incorporation, land acquisition, and

various licenses and approvals. The government needs to provide support in many areas.

After this stage, investment promotion will complete its purpose.

Throughout these stages, government agencies and organizations should work together to coordinate their efforts and resources in key activities, including information gathering (e.g., company information), provision of investment-related information, and intermediary service for potential investors to contact relevant organizations and other sources of information. In particular, continuous efforts should be made until a primary candidate emerges. And it is important that the personnel in charge of investment promotion attempts to spot prospective investors as early as possible through effective contact and communication. The investment promotion organization will be managed by one full-time personnel who should be supported by several persons representing related organizations. As investment promotion activities are mostly marketing in nature, they should be knowledgeable about commerce and business, rather than technology. The organization should be called a "project team."

To this date, promotion activities have been managed by one personnel of the Ministry of Economy (part-time assignment). It has become apparent, however, that the arrangement does not meet demand in terms of job quality and quantity, and that LDA seems to be suitable because of human resources and experience in similar services. It is therefore recommended to establish an organization led by LDA.

To implement a broad range of activities with a small organization, cooperation of related government agencies and organizations is essential. To ensure such cooperation, the Task Force Committee should act as not only an organization to make important decisions, but also an organization to maintain and warrant the collaborative relationship between the project team and related government agencies.

### **2.3 Action Program**

The action program consists of actions to be taken by the government in order to promote materialization of the project and activities to be initiated by the project team, which are summarized as follows.



**(1) Government action to assure investment incentives with legislative backup**

Item 11 of Investment Guide "Investment Incentives by the Government" provides various special privileges. However, they are considered as firm commitment by the government, because they are "subject to final confirmation by the authorities." Also, incentives for investment in the free economic zone (FEZ) are "subject to approval by the Parliament and not exceeding the limit provided by the relevant legislation." This means, these privileges and incentives are not warranted by statutory law. Rather, they should be interpreted as "conditional promises." Now the government is required to assure potential investors that they will keep these promises under legal obligation, i.e., legislation to warrant and verify such privileges and incentives. Then, the government needs to take appropriate action to provide proper legislative backup.

**(2) Preliminary EIA**

Adequate information on the preliminary EIA (environmental impact assessment), which is currently performed under the EU standards, should be disseminated to potential investors. The process led by the government means that the government will conduct some of activities that will be conducted by the investor later to obtain government approvals, thereby to server as a precursor for and facilitate the formal EIA process. Also, compliance with the EU standard creates a sense of assurance for the investor.

**(3) Dissemination of information**

As pointed out earlier, information provided by the government for the purpose of investment promotion is highly useful for the investor's own study. The government should move a step forward to provide information that is essential for feasibility study from the business point of view. It should therefore announce that it is ready to furnish information required by potential investors as far as possible.

**(4) Establishment of a focused promotion strategy**

The investment promotion strategy should be established through discussion within the government. The following is a general framework recommended by the study team.

\* Selection of target countries

It is important to make the short list of countries where we can find potential investors. For instance, the following selection criteria can be used to select companies that may have incentive for direct investment in Lithuania as part of their long-term business strategy.

- a. Intent to have a pulp supply source within the EU;
- b. Intent to have a pulp supply source within the EU in a hope to explore the EU market;
- c. Intent to secure a competitive (limited) source of raw materials within the EU;
- d. Intent to construct a new plant within the EU as part of factory modernization and rationalization efforts; and
- e. A country that finds a geographic advantage in Lithuania and already makes direct investment.

By selecting countries that meet the above criteria or where potential investors appear to have any of the above intensives, they can be considered as primary candidates on which investment promotion efforts should focus on. Countries that are considered to meet the above criteria include Scandinavian countries (Sweden, Finland and Norway), pulp importing countries in Western Europe (Italy, Germany, France, and the UK), countries that already made direct investment in Lithuania (Denmark), and countries that intend to explore the EU market (the U.S.). Note that careful consideration and evaluation is required in the selection process.

\* Search of prospective companies

The primary task of the project team is to find "prospective companies" through extensive research and study, particularly advice from industry insiders and analysts. Thus, the project team should establish close contacts with the pulp and paper industry. Then, such contacts should be developed to a channel of communication to obtain information related to business strategies of potential investors.

\* Perusal of a consortium approach

In Lithuania, large investment projects by foreign companies have been dominantly implemented in the form of a consortium that consists of several companies from different countries (9 out of 12 projects). This indicates that these foreign firms felt the need for risk spreading in consideration of the country's investment climate

including economic and other stabilities. Thus, it is conceivable that the project will likely be implemented by a consortium of foreign companies, rather than a single company. Investment promotion activities should therefore take into account such possibility by providing information that induces formation of a consortium. When required, initiatives should be made to promote such formation.

\* Project financing

Implemented by either a single owner or a consortium, the project will be financed by a consortium of financiers. In this connection, it is important to secure loans from international financial institutions, for political or other substantive reasons. If conditions are met, the government can ask participation of international institutions such as EBRD, IFC or EIB. At the same time, it is important to realize that security is a critical factor for project financing and the government should be ready to provide sovereign guarantee in some cases.

\* Long term guarantee for product off-taking

In fact, product off-taking is the most important requirements for implementation of the pulp mill project. If product off-taking is guaranteed in the long term, other requirements can be relatively easily solvable. Furthermore, the primary target market for the project is Western Europe that is a major pulp importer. For instance, ASSOCARTA in Italy conducts a study to identify future sources of pulp supply for the Italian industry. As the study covers Brazil, Chile, Argentina, Indonesia, and the Baltic countries, ASSOCARTA should be considered as one of the primary targets for product off-taking.

**(5) Long-term pulpwood supply guarantee**

Long-term guarantee for supply of pulpwood from national forecasts is the most important bargaining asset for the government. In fact, well-managed forests and a reliable pulpwood supply system in the country surely appeal to most potential investors. These advantages should therefore be advertised in investment promotion activities in order to send a clear message to investors. In this connection, it is desirable to increase the amount of supply guarantee and/or the percentage of softwood, which will make the offer more attractive.

**(6) Collection and dissemination of site information**

The pulp mill requires large land and land acquisition is one of the most important tasks to bring an investment plan into reality. The land acquisition process often encounters serious problems, such as legal conflicts, title and ownership issues, opposition from local residents, and environmental risks. If the government can provide useful information and effective support to help the investor overcome these obstacles, the project will receive favorable evaluation on this account.

**(7) Updating of Investment Guide**

Investment Guide was prepared on the basis of 2000 data, which are quickly becoming obsolete and should be updated quickly. If the project team needs information and/or support for preparation of the updated version, we are ready to extend cooperation to a maximum practicable extent.

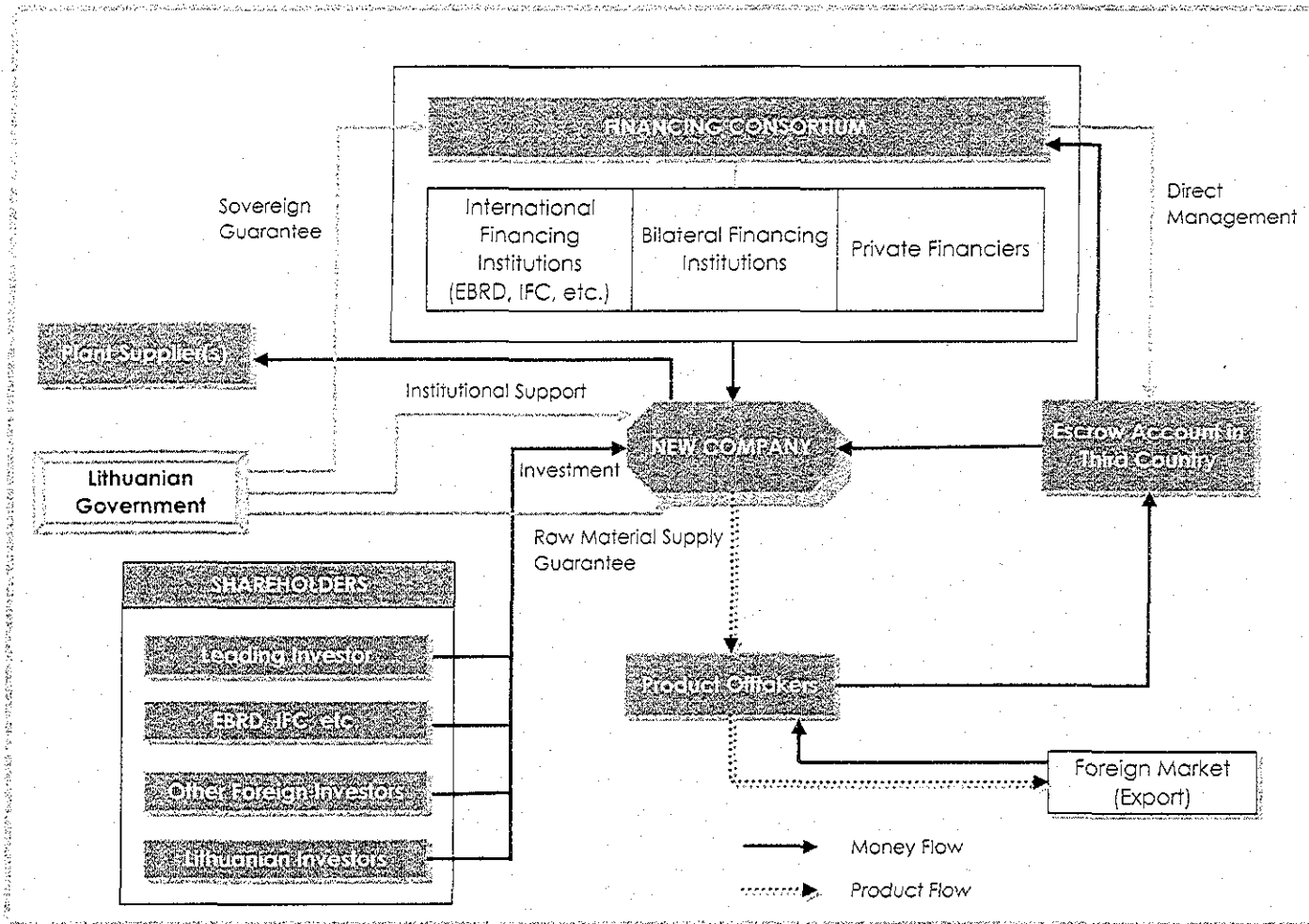
**(8) Establishment of systematic government support**

When the project finds a prospective investor, its final decision is often affected by quality of government service. While the government should not necessarily provide excess service in order to allure the investor, care should be taken to maintain high quality service that meets the investor's needs. In particular, as many government agencies and organizations are expected to be involved in promotion and implementation of the project, an organization to provide systematic government support should be established in order to ensure uniform quality of service by various agencies and organizations.

**ROLES AND FUNCTIONS OF THE PARTIES**

Party \ Role	Project Promotion Cooperation	Project Ownership	Investment (Share Holding)	Financing	Equipment Supply & Construction	Operation & Management	Marketing (Off-taking)	Raw Material Supply	Note
Government	⊙	X	X	⊙ (Sovereign Guarantee)	X	X	X	⊙	Min. Economy, Environment, Finance
Municipality	X	X	○	X	X	X	X	X	
Domestic Investors	○	X	⊙	X	X	X	○	⊙	Foresters, P&P Firms, Others
Foreign Investors	⊙	⊙	⊙	⊙	○	⊙	○	X	P&P Firms, Conglomerate, Others
Product Off-takers	○	⊙	⊙	○	X	⊙	⊙	X	P&P Firms, P&P Distributors, Trading Firms, Others
Equipment Suppliers	⊙	X	○	⊙	⊙	X	X	X	Equipment Manufacturers
Engineering Contractors	○	X	X	○	⊙	X	X	X	Foreign Engineering Contractors, Local Contractors
Consultants	⊙	X	X	X	Advisor	Advisor	X	X	Project Management Consultants
EBRD/IFC	⊙ (Tech'l Assistance)	X	⊙	⊙	X	Supervisor	X	X	
Private Financiers	X	X	X	⊙	X	X	X	X	Governmental Financing Institutions, Private Financiers

## IMPLEMENTATION SCHEME FOR A PULP MILL PROJECT IN LITHUANIA (Example)



JICA