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**HIGH-LEVEL ADVISORY SERVICES FOR THE
BAIKALSK PULP AND PAPER MILL**

SI/RUS/94/801/11-56

RUSSIA

Technical report: Investment analysis*

Prepared for the Government of the Russian Federation
by the United Nations Industrial Development Organization,
acting as executing agency for the United Nations Development Programme

Based on the work of Engineer Risto Salama

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Vienna

* This document has not been edited.

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANISATION
Mission Report on Baikalsk Pulp and Paper Mill
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INTRODUCTION

A Background

UNIDO retained the author as well as five other specialists from outside Russia and one Russian specialist to provide independent expert advice on options to introduce cleaner technologies in pulp mill operations.

The author visited Baikalsk Mill from 14th February until 1st March 1995. During the mission it was expected in close co-operation with Mr. Jalkanen, Mr. McCubbin and mill management to:

- a. evaluate the market for pulp and paper including dissolving in Russia and abroad;
- b. evaluate the actual situation of the mill concerning cost and financial situation;
- c. evaluate the cost and financial aspects of the existing study being proposed by the mill

The details of the mill visit and people met are shown in Appendix I.

The author visited Baikalsk Mill from 24 until 28 September 1995 at the presentation of UNIDO draft report.

B Objectives attained

1. Marketing

During the visits information was received on the development of the marketing volumes and prices as well as price forecasts for the produced grades below:

- dissolving pulp, cord
- dissolving pulp, viscose
- bleached softwood kraft pulp (NBSK)
- semibleached softwood kraft pulp
- unbleached softwood kraft pulp
- wrapping papers.

To have a more detailed view of the market in Russia and in the former Soviet states especially for viscose pulp the author has asked the mill for more information of consumption data and actual production volumes of competitors in Russia.

Information on distribution costs was received.

It should be reviewed if there are allocated enough resources in the cost, financial and market missions to produce adequate report for international financial institutions.

The preliminary findings indicate that the mill would be technically and environmentally viable to continue operation and feasible for operation improvements. The marketing part of the study may require more concern to provide wider view of the domestic and global markets as well as the global competitiveness situation of the Baikalsk Pulp Mill for viscose and kraft pulp. A separate bankable report might be needed to present the mill operation improvement recommendations to financial institutions.

2. Unit prices and costs

The mill management provided adequate information on unit prices and costs covering the development during the past three years.

During the first mission in February the unit costs and prices prevailing in the first quarter of 1995 were received and during the second mission in September the unit costs and prices prevailing in the third quarter of 1995 were received.

3. Manufacturing costs

The mill management provided adequate information on consumption data for the produced grades as well as the details of fixed costs all for the present operation.

4. Tax on uses of natural resources

Details on taxes on uses of natural resources, the government tax on the effluent load to lake Baikal and air emissions, were received.

5. Manufacturing cost and financial assessment of the present operation

The received information covers the manufacturing cost and financial situation of the present operation of the mill.

To provide bankable information for financial institutions a more covering report on the global competitiveness situation of the Baikalsk Pulp Mill for viscose and kraft pulp may be needed.

6. Manufacturing cost and financial assessment of the modernisation of the mill

The manufacturing costs and profitability calculation of the proposed modernisation of mill is included in this report. The capital costs of the modernisation project and the consumption data have been based on mission report of Mr. Jalkanen.

I MARKETING

A Annual production volumes of the mill

The annual production volumes for 1992, 1993, 1994, the plan for 1995 and the modernisation project are shown in Table I-1 and in details in Appendix III.

TABLE I-1
Annual production volumes of pulp and paper

Year	1992	1993	1994	1995	199	Project 1999..
Domestic market	158.3	128.8	126.8	84.8	100.0	130.0
Export market	34.8	28.1	26.2	66.8	60.0	100.0
Total 1000 ADt/a	193.1	156.9	153.0	151.5	160.0	230.0

The prevailing environmental permit is for an annual production of 163,000 ADt/a.

B Production and consumption in Russia

The author has asked the mill for more market information.

The Russian mills producing viscose pulp are shown in Table I-2

TABLE I-2
Annual production of viscose pulp in Russia

Year	1993	1994
Amursk, viscose		
Baikalsk, cord viscose	39.8 55.9	5.1 74.1
Bratsk		
Kotlask		
Sovjetsk		
Svetogorsk		
Total 1000 ADt/a		

C Global dissolving pulp markets and trades

This chapter would be desirable for a bankable report.

D Price forecasts

The past development and forecast of pulp prices are shown in Table I/D-1.

TABLE I/D-1
Price development and forecast by BPPM

Year	1993	1994	1995	1996	1997..98	1999...
			USD/ ADt			trend
Domestic market						
cord	215	277				
viscose	221	525	1200	1075	900	820
BSKP	156	314	830	1000	800	720
Export market						
viscose	536	643	1020	1060	900	820
BSKP	130	554	900	1000	800	720
Unbl. kraft	216	454	580	630	630	630

The development of the real list price CIF Rotterdam of bleached softwood kraft BSKP is shown in Figure I/D1. The forecast of BSKP and the development of the list price of dissolving pulp delivered in USA east coast are shown in Figure I/D2. The price of the viscose pulp obtained by BPPM is shown in Figure I/D3 and compared with the list price of dissolving pulp in US South delivered.

FIGURE I/D1
Price development of BSKP by JAAKKO PÖYRY

REAL PRICE DEVELOPMENT AND FORECAST OF SW PULP CIF ROTTERDAM

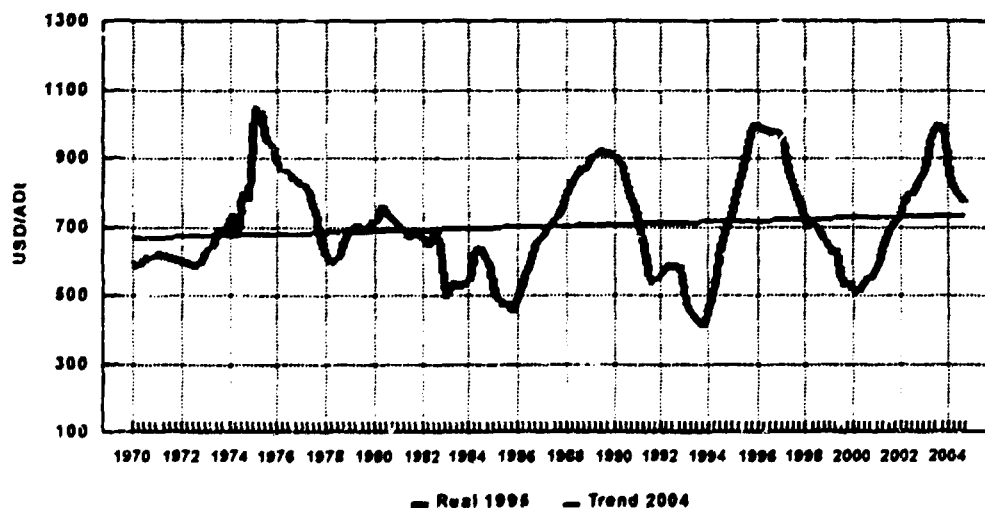


FIGURE I/D2
Price development and forecast by JAAKKO PÖYRY

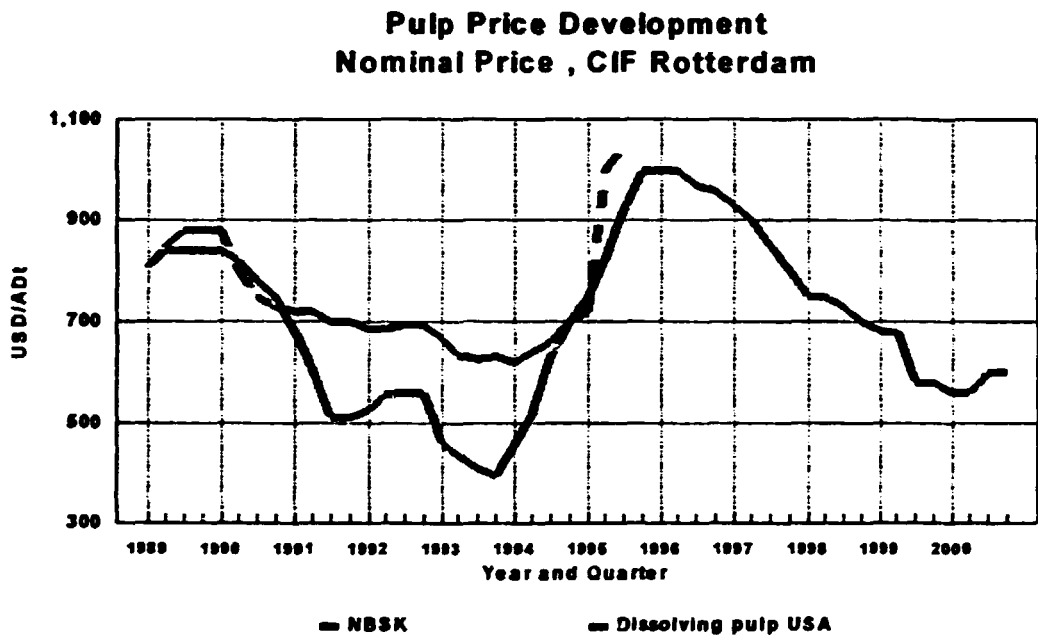
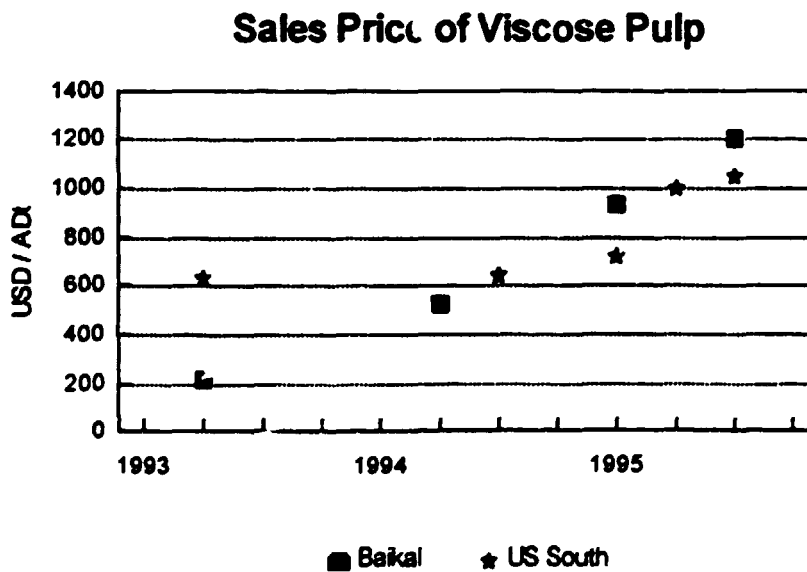


FIGURE I/D3
Sales price development of viscose pulp obtained by BPPM



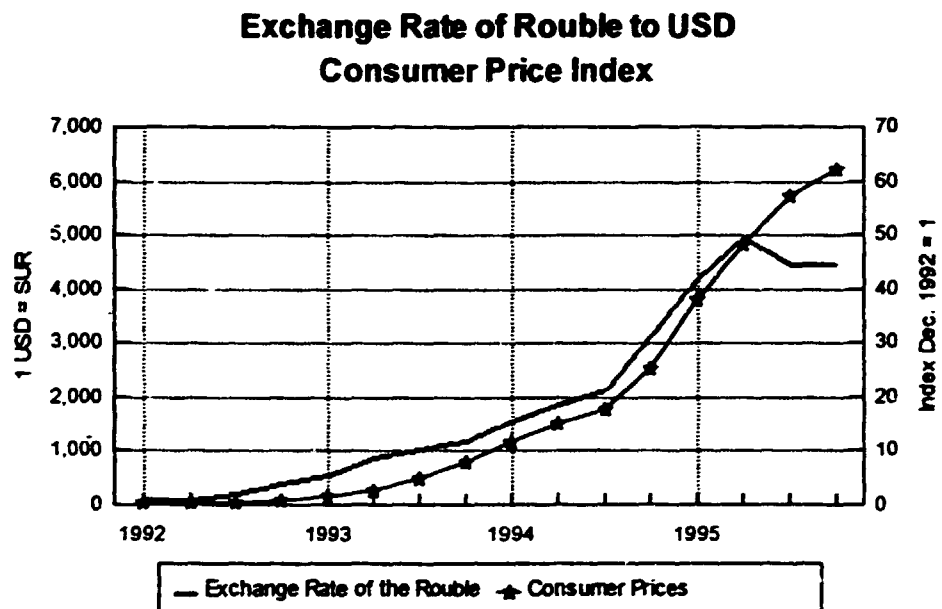
II ECONOMIC ASSESSMENT OF PRESENT OPERATION

A Prices and costs

The prices and unit costs as provided by the mill during the mill visit are shown in Appendix II in Roubles and converted to US dollars with average exchange rate.

The development of the average exchange rate the Rouble to US dollar and the development of consumer price index in Russia are shown in Figure II/A1.

FIGURE II/A1



The development of the wood price is shown in Figure II/A2. The price of caustic soda, which represents with chlorine the most part of the cost of chemicals, is shown in Figure II/A3. In the figures is shown the recent price prevailing in US South.

FIGURE II/A2

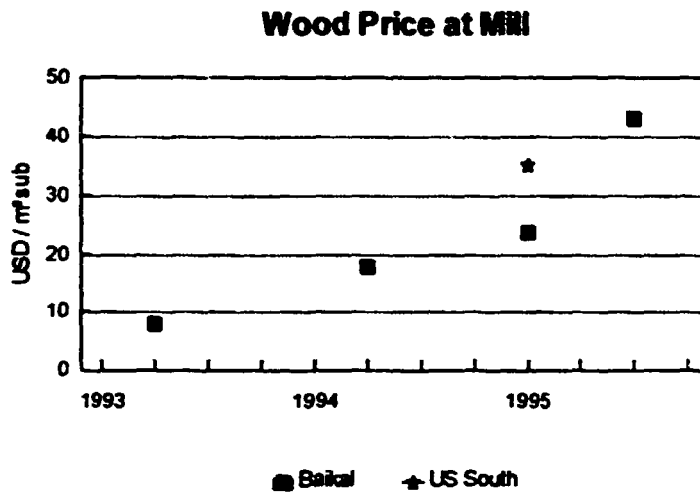
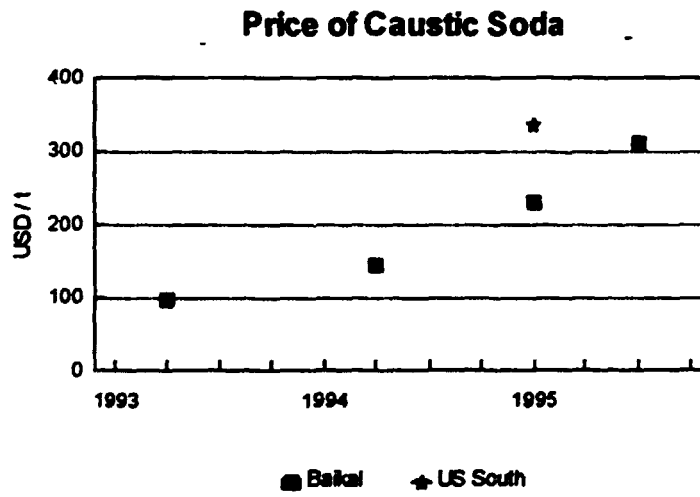


FIGURE II/A3



B Variable costs

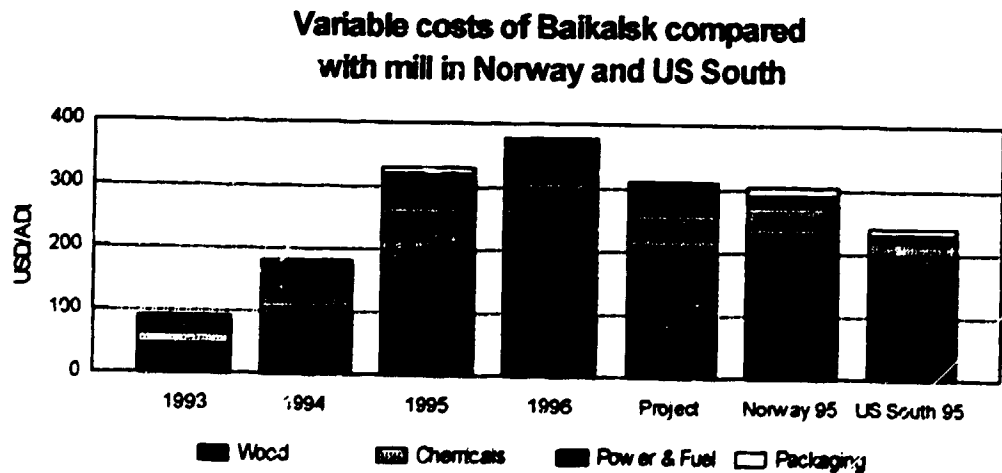
The calculated variable costs have been based on the consumption data and unit prices provided by the mill during the mill visits. The unit prices and costs used for 1995 are the average of those in the first and third quarter of 1995. For years 1996...2000 the unit prices and costs prevailing in the third quarter of 1995 have been used. The variable costs are shown in Appendix IV in Roubles and converted to US dollars with average exchange rate.

The development of the variable costs in US Dollars is shown in Table II/B-1 and in Figure II/B1.

TABLE II/B-1
Variable costs

	1993	1994	1995	1996	Project	Norway 95	US South 95
USD/ADt							
Wood	47	103	184	221	206	229	180
Chemicals	20	31	83	88	56	45	40
Power & Fuel	22	43	54	65	44	18	10
Packaging	3	5	7	5	3	10	10
Total	92	182	328	379	310	302	240

FIGURE II/B1
Variable costs



C Fixed costs

The fixed costs shown in Appendix IV in Roubles and converted to US dollars with average exchange rate.

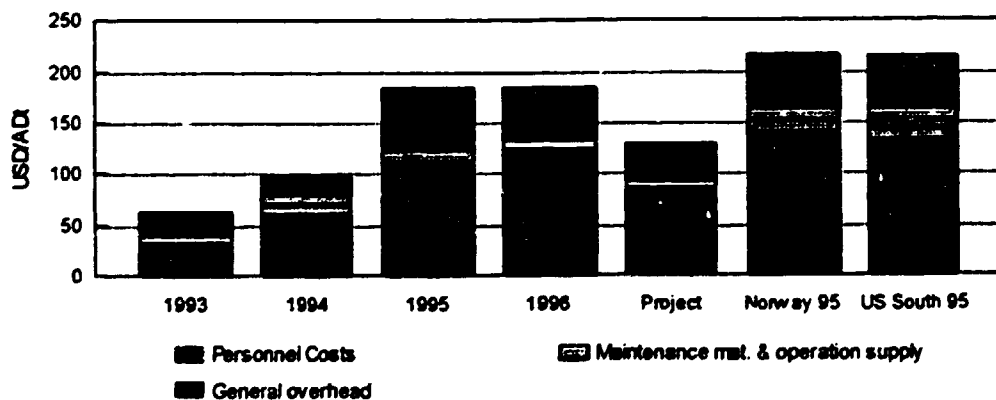
The development of the fixed costs in US Dollars is shown in Table II/C-1 and in Figure II/C1.

TABLE II/C-1
Fixed costs

	1993	1994	1995	1996	Project	Norway 95	US South 95
USD/ADt							
Personnel costs	32	60	122	123	85	140	133
Maintenance materials	7	20	11	11	7	23	30
General overhead	24	19	60	51	36	51	52
Total	63	99	183	185	128	215	215

FIGURE II/C1
Fixed costs

Fixed costs of Baikalsk compared with mill in Norway and US South

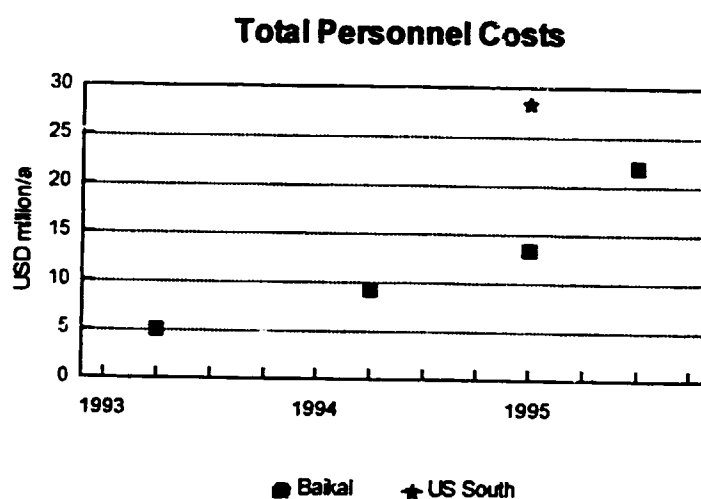


The total number of personnel is shown in the Table II/C-2 and in details in Appendix V. The personnel in the infrastructure is included in numbers below. The non-industrial personnel is 13 % of the total personnel.

TABLE II/C-2
Number of Personnel

	1993	1994	1995
Total Personnel	4,115	3,512	3,600

FIGURE II/C2
Total personnel costs



D Tax on uses of natural resource :

The determination of taxes on effluent loads to lake Baikal are shown in Appendix V. As the level of the calculated taxes for Baikalsk Pulp and Paper Mill are unreasonable high the actual payments are annually negotiated with authorities of Irkutsk region and settled at about of 10 % of the operating profit.

TABLE II/D-1
Environmental protection payment

	1993	1994	1995
	USD/ADt		
Environmental protection payment	1.1	5.9	17.5

E Cash flow analysis

The calculated cash flows are shown in Table II/E-1 in Roubles and in Table II/E-2 in US Dollars and in details in Appendix VI in Roubles and converted to US dollars with average exchange rate.

TABLE II/E-1
Annual cash flows in Roubles

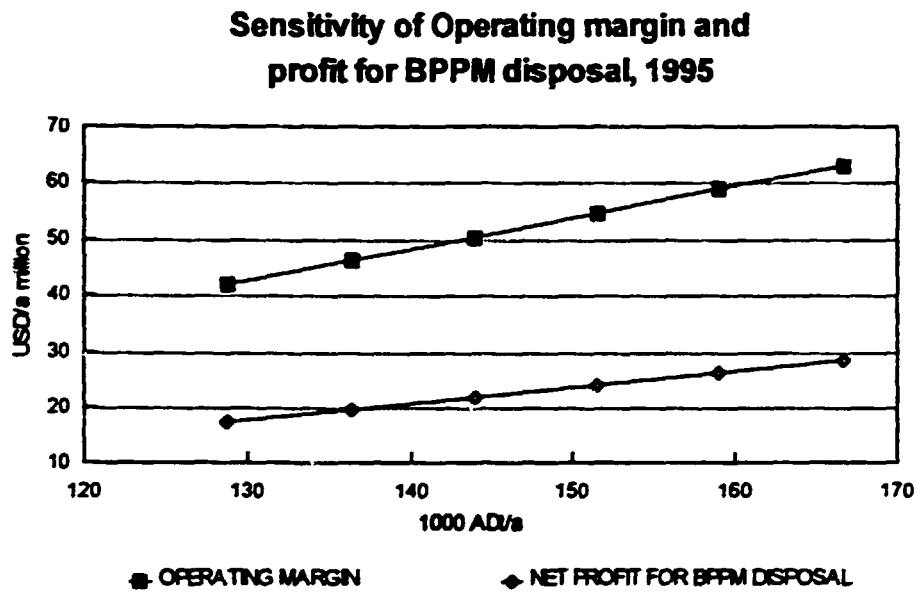
	1993	1994	1995	1996
PRODUCTION VOLUMES		1000 t		
Total domestic production	128.8	126.8	84.75	100.0
Total export production	28.1	26.2	66.75	60.0
Total production	156.9	153	151.5	160.0
		million SUR/a		
SALES INCOME				
Domestic	21,778	115,549	357,418	507,799
Export	7,487	35,098	254,285	264,139
Total Sales Income	29,265	150,647	611,704	771,938
Distribution	3,499	10,173	24,431	20,400
Total Net Sales	25,766	140,474	587,272	751,538
Variable Costs	13,347	58,549	202,215	269,707
Fixed Costs	9,859	33,336	135,699	158,015
Total Manufacturing Costs	23,206	91,886	337,914	427,722
OPERATING MARGIN	2,561	48,589	249,358	323,816
Interests	0	9,127	0	0
Reinvestments	313	5,752	38,000	40,000
OPERATING PROFIT	2,248	33,710	211,358	283,816
Taxes	960	14,394	90,250	121,189
PROFIT FOR BPPM DISPOSAL	1,288	19,316	121,108	162,626
Environmental protection payment	129	1,932	12,111	16,263
NET PROFIT FOR BPPM DISPOSAL	1,159	17,384	108,998	146,364

TABLE II/E-2
Annual cash flows in Dollars

	1993	1994	1995	1996
PRODUCTION VOLUMES		1000 t		
Total domestic production	128.8	126.8	84.75	100.0
Total export production	28.1	26.2	66.75	60.0
Total production	156.9	153	151.5	160.0
		1000 USD/a		
SALES INCOME				
Domestic	23,174	52,704	78,382	101,560
Export	7,967	16,009	55,765	52,828
Total Sales Income	31,142	68,713	134,147	154,388
Distribution	3,723	4,640	5,358	4,080
Total Net Sales	27,418	64,073	128,789	150,308
Variable Costs	13,384	24,671	44,346	53,941
Fixed Costs	10,491	16,897	29,759	31,603
Total Manufacturing Costs	23,875	41,568	74,105	85,544
OPERATING MARGIN	3,543	22,605	54,684	64,763
Interests	0	4,163	0	0
Reinvestments	333	2,624	8,333	8,000
OPERATING PROFIT	3,210	15,719	46,351	56,763
Taxes	1,571	6,712	19,792	24,238
PROFIT FOR BPPM DISPOSAL	1,839	9,007	26,559	32,525
Environmental protection payment	184	901	2,656	3,253
NET PROFIT FOR BPPM DISPOSAL	1,655	8,106	23,903	29,273

In Figure II/E1 is shown the sensitivity of Net Profit to the total production volume in 1995.

FIGURE II/E1
Sensitivity of Operating Margin and Net Profit



III ECONOMIC ASSESSMENT OF THE MODERNISATION OF THE MILL

The technical design of the modernisation of the is presented in the mission report of Mr. Jalkanen. The modernisation has been assumed to include:

- the woodhandling will be totally rebuild as a single line drum debarking
- the fibre line will include new digester plant and oxygen delignification
- the bleaching will be rebuild to ECF bleaching
- the drying machines can be substantially as they presently are
- the recovery, caustisizing and lime kilns requires some modifications

The capital costs have been estimated at USD 150 million by Mr. Jalkanen. This fixed investment has been used in the calculations.

The manufacturing cost calculations have been based on design data of Mr. Jalkanen and a total pulp capacity of 230,000 Adt/a has been used. The unit prices and costs are those of the third quarter of 1995. For sales prices estimated trend prices as shown in previous chapters have been used.

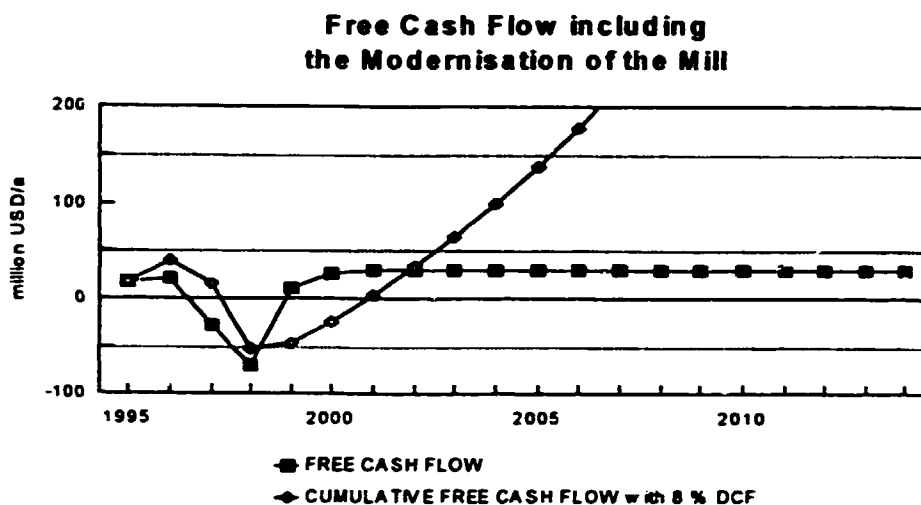
The manufacturing costs and cash flow calculations are shown in the Appendix VIII.

For the assessment of the profitability of the modernisation a **Free Cash Flow before financial Charges** has calculated As follows:

Sales income	(+)
Manufacturing cost	(-)
	=====
Operating Margin	
Tax Depreciation	(-)
	=====
Earnings before taxes	
Taxes	(-)
	=====
Net Income	
Tax Depreciation	(+)
Capital expenditures (Fixed Investment and Replacements)	(-)
Change in Working Capital	(-)
	=====
Free Cash Flow before financial Charges	

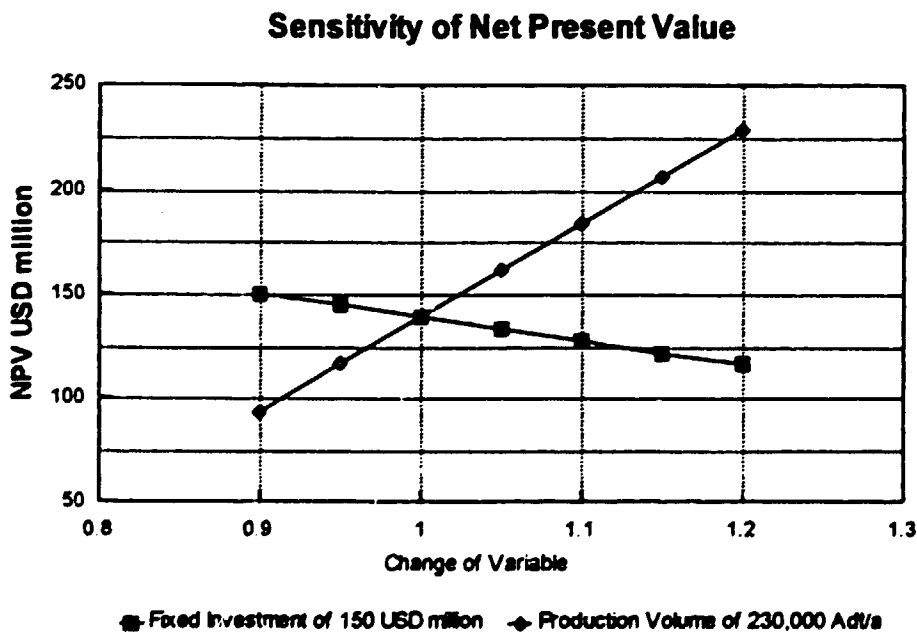
The development of the free cash flow and the cumulative cash flow with a annual DCF rate of 8 % is presented in the Figure III/1

FIGURE III/1
Free cash flow and the cumulative cash flow



As the profitability criteria for the mill operation with the modernisation plan Net Present Value (NPV) of the Free cash Flow has been used. In the Figure III/2 the sensitivity of the NPV against the fixed investment and the production volume is shown.

FIGURE III/2
Sensitivity of the NPV in USD Dollars



The mill is at present operating and financially performing good. Also the mill modernisation program as presented in the report of Mr. Jalkanen indicates a good profitability.

Even the calculation indicates a good profitability of the mill modernisation project the calculations should be reviewed by mill personnel. In the calculations it has been assumed that there are no other funds out, which has to be reviewed.

To ascertain the financial analysis an incremental profitability calculation should be carried out, which has not been possible within this mission report.

Appendix I**Baikalsk Pulp and Paper Mill****Details of visit and people met**

14 Feb Olli Jalkanen, Neil McCubbin and Risto Salama were met in Moscow by
Sergey U. Slobodskiy, Foreign economical connection department chief

15 Feb The mill was introduced by
Valery V. Glazirin, General director

The company was 1993 formed to a Joint stock company, 51 % owned by the employees and 49 % by the state, Ministry of Finance

and the counterparts of the mission were introduced:

Anatoliy V. Steinberg, Vice president
Rem L. Latipov, Chief of conversion division
Sergey V. Semiletko, Chief engineer
Raisa M. Zaikova, Deputy chief on environmental protection
Alexsandra V. Afanasieva, Chief economist
Mikhail Trufanof, Interpreter

Albert Beim, General director Institute of ecological toxicology
Andrei Beim, Interpreter Institute of ecological toxicology

The town was introduced by Alexandr Sukhodolov, Irkutsk

The town was build 1964 at the begin of the construction of the pulp mill. The town has 17 000 citizens, 4 000 in the pulp mill. Other enterprises are construction company, prefabricated concrete, food processing and dairy. Strawberry crowing is becoming commercial. The living standard is higher than average. The town has schools, kindergarten, sport centre, culture house. ski resort, theatre, peoples club.

16 Feb Sergey V. Shapkin, Production chief introduced wood room, chip storages, digesters, washing, screening, bleach plant and drying machines. The mill visit gave overall information of the design data, equipment physical dimensions, number and type of equipment and impression of physical condition.

17 Feb Raisa M. Zaikova introduced the effluent treatment and sludge handling.

20to24 Feb Gennady P. Tikhonov, Chief technologist:

- introduced evaporation and recovery plant
- supplied design data of all departments
- supplied consumption data of all departments

Alexsandra V. Afanasieva supplied unit prices, unit costs and details of fixed costs.

Sergey U. Slobodskiy and Rem L. Latipov supplied market data.

Uriy N. Ribin, Deputy manager for timber supply described wood supply and wood costs.

27to28Feb Alexsandra V. Afanasieva supplied financial data, distribution costs and reinvestments.

Tamara N. Irtegova, Deputy chief technologist, introduced power boilers.

Rem L. Latipov supplied additional market data and information on development options for wood room, paper machine and fibre line.

Rete Salama

Finland, Espoo.

21-Oct-95

Appendix II
Baltisk Pulp and Paper Mill
SALES PRICES AND
RAW MATERIAL PRICES

		year over. 1983	year over. 1984	year over. 1985	1st quarter 1985	3 rd quarter 1985	year over. 1986	year over. 1987-88	year over. 1988-
Average exchange rate SURUSD		940	2,182	4,580	4,242	4,480	5,000	5,000	5,000
1 SALES PRICES		year over. 1983	year over. 1984	year over. 1985	1st quarter 1985	3 rd quarter 1985	year over. 1986	year over. 1987-88	year over. 1988-
Mill Net Prices:									
Domestic delivery									
card pulp	roubles/ADt	202,238	610,140	0	0	0	0		
vacuole pulp	roubles/ADt	207,483	1,158,887	4,886,703	3,980,000	5,373,406	5,373,406	4,500,000	4,100,000
SW bleached kraft	roubles/ADt	147,018	882,186	3,609,887	3,420,000	3,788,374	5,000,000	4,000,000	3,800,000
SW esmilt kraft	roubles/ADt	44,885	388,000	0	0	0	0		
SW unbleached kraft	roubles/ADt	61,832	1,048,791	2,751,702	2,300,000	3,203,404	4,000,000	3,500,000	3,000,000
HW bleached kraft	roubles/ADt								
Wrapping paper	roubles/ADt	28,532	213,886	1,202,713	700,000	1,705,426	1,705,426	1,705,426	1,705,426
Distribution costs:									
domestic pulp	roubles/ADt	19,167	57,500	115,000	80,000	140,000	200,000	200,000	200,000
Mill Net Prices:									
Export									
card pulp	roubles/ADt								
vacuole pulp	roubles/ADt	503,458	1,417,838	4,856,475	4,005,000	5,307,950	5,307,950	4,500,000	4,100,000
SW bleached kraft	roubles/ADt	122,172	1,221,723	3,784,119	3,800,000	3,988,238	5,000,000	4,250,000	3,800,000
SW esmilt kraft	roubles/ADt	103,846	1,038,465	0	0	0	0		
SW unbleached kraft	roubles/ADt	202,924	1,001,806	2,722,022	2,300,000	3,144,043	3,144,043	3,144,043	3,144,043
HW bleached kraft	roubles/ADt								
Distribution costs:									
export pulp	roubles/ADt	36,887	110,000	220,000	190,000	250,000	250,000	250,000	250,000
2 RAW MATERIAL PRICES		year over. 1983	year over. 1984	year over. 1985	1st quarter 1985	3 rd quarter 1985	year over. 1986	year over. 1987-88	year over. 1988-
Wood logs at mill	roubles/m3 solid over bark								
pine and larch	- / -	7,553	39,285	145,888	100,000	191,976	191,976	191,976	191,976
sawmill chip	- / -	7,806	27,570	128,720	100,000	157,440	157,440	157,440	157,440
birch	- / -								
sodium sulphate	rouble/leaf	43,450	128,032	744,918	591,379	886,457	886,457	886,457	886,457
lime stone	rouble/leaf	1,376	3,119	35,509	23,094	47,923	47,923	47,923	47,923
sodium hydroxide 100%	rouble/leaf	92,352	317,333	1,181,858	974,051	1,389,264	1,389,264	1,389,264	1,389,264
terpentine	rouble/leaf	18,551	112,325	248,056	215,000	277,111	277,111	277,111	277,111
Blotch Chemicals									
chlorine	rouble/leaf	93,340	194,796	1,180,584	1,087,127	1,294,000	1,294,000	1,294,000	1,294,000
sodium hydroxide	rouble/leaf	92,352	317,333	1,181,858	974,051	1,389,264	1,389,264	1,389,264	1,389,264
sulfuric acid	rouble/leaf	12,040	97,880	387,482	367,131	417,782	417,782	417,782	417,782
sodium chlorate 50 %	rouble/leaf	118,035	442,038	1,113,789	837,578	1,380,000	1,380,000	1,380,000	1,380,000
sulphur dioxide	rouble/leaf	85,386	481,085	1,411,886	1,411,886	1,411,886	1,411,886	1,411,886	1,411,886
oxygen	rouble/leaf			594,200		635,000	635,000	635,000	635,000
peroxide 50 %	rouble/leaf			2,080,000		2,080,000	2,080,000	2,080,000	2,080,000
salt (NaCl)	rouble/leaf	3,140	4,900	8,000	5,000	11,000	11,000	11,000	11,000
taic	rouble/leaf								
tallol	rouble/leaf	15,089	117,373	415,121	330,000	500,241	500,241	500,241	500,241
other chemicals	roubles/ADt	5,100	30,500	125,000	100,000	150,000	150,000	150,000	150,000
Electricity	roubles/100Wh	4.44	20.01	85	46.3	124.8	124.8	124.8	124.8
Coal	rouble/leaf	8,826	26,889	61,447	45,283	77,890	77,890	77,890	77,890
Fuel oil	rouble/leaf	27,569	36,806	207,250	120,000	294,500	294,500	294,500	294,500
Raw water charge	roubles/m3	3	1	68	61	76	76	76	76
Wrapping wire	rouble/leaf	470,000	1,200,000	1,268,724	1,880,918	886,639	886,639	886,639	886,639
Kraftliner	rouble/leaf	61,832	1,048,791	1,276,490	2,300,000	252,900	252,900	252,900	252,900
White board	rouble/leaf	147,018	882,186	6,030,860	3,420,000	8,841,700	8,841,700	8,841,700	8,841,700
Effluent chemicals									
sodium hydroxide	rouble/leaf	92,352	317,333	1,181,858	974,051	1,389,264	1,389,264	1,389,264	1,389,264
sulphuric acid	rouble/leaf	12,040	97,880	387,482	367,131	417,782	417,782	417,782	417,782
polyacrylamid	rouble/leaf	48,440	200,000	785,106	983,128	977,083	977,083	977,083	977,083
stum	rouble/leaf	16,505	219,900	612,367	514,739	709,986	709,986	709,986	709,986
phosphorus salts	rouble/leaf	19,872	48,271	478,889	489,280	487,957	487,957	487,957	487,957
ammonium hydrate	rouble/leaf	235,446	1,404,980	2,052,985	1,406,980	2,700,000	2,700,000	2,700,000	2,700,000
floculant, sludge floc	rouble/leaf	291,800	4,536,087	12,100,215	11,994,380	12,208,039	12,208,039	12,208,039	12,208,039
floculant, centrifuge floc	rouble/leaf	2,000,070	8,197,470	26,240,823	22,427,900	30,064,146	30,064,146	30,064,146	30,064,146
3 FIXED COSTS		year over. 1983	year over. 1984	year over. 1985	1st quarter 1985	3 rd quarter 1985	year over. 1986	year over. 1987-88	year over. 1988-
number of personnel	number	4,115	3,512	3,866	3,520	3,789	3,789	3,789	3,789
over. annual salary	1000 roubles/year	831	4,185	15,306	11,712	16,900	16,900	16,900	16,900

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Finland, Espoo.

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Appendix II
Baltic Pulp and Paper Mill
SALES PRICES AND
RAW MATERIAL PRICES

	year over. 1988-	year over. 1983	year over. 1984	year over. 1985	1st quarter 1985	3rd quarter 1985	year over. 1986	year over. 1987-88	year over. 1988-
Average exchange rate SUR/USD		940	2,182	4,580	4,242	4,480	5,000	5,000	5,000
1 SALES PRICES	year over. 1988-	year over. 1983	year over. 1984	year over. 1985	1st quarter 1985	3rd quarter 1985	year over. 1986	year over. 1987-88	year over. 1988-
Mill Net Prices:									
Domestic delivery									
cord pulp	USD/ADr	215	278	0	0	0	0		
waxose pulp	USD/ADr	221	529	1,023	934	1,189	1,075	800	820
SW bleached kraft	USD/ADr	156	316	782	806	848	1,000	800	720
SW semibl kraft	USD/ADr	48	273	0	0	0	0		
SW unbleached kraft	USD/ADr	66	478	603	542	715	800	700	600
HW bleached kraft	USD/ADr	0	0	0	0	0	0		
Wrapping paper	USD/ADr	30	98	264	165	37	341	341	341
Distribution costs									
domestic pulp	USD/ADr	20	26	25	21	31	40	40	40
Mill Net Prices:									
Export									
cord pulp	USD/ADr	0	0	0	0	0	0		
waxose pulp	USD/ADr	536	647	1,021	944	1,185	1,062	800	820
SW bleached kraft	USD/ADr	130	357	830	848	886	1,000	800	720
SW semibl kraft	USD/ADr	111	474	0	0	0	0		
SW unbleached kraft	USD/ADr	216	457	587	542	702	629	629	629
HW bleached kraft	USD/ADr	0	0	0	0	0	0		
Distribution costs									
export pulp	USD/ADr	38	50	48	45	56	50	50	50
2 RAW MATERIAL PRICES	year over. 1988-	year over. 1983	year over. 1984	year over. 1985	1st quarter 1985	3rd quarter 1985	year over. 1986	year over. 1987-88	year over. 1988-
Wood logs at mill	roubles/m3 solid over bark								
pine and larch	-/-	8	18	32	24	43	38	38	38
sawmill chip	-/-	8	13	28	24	35	31	31	31
birch	-/-	0	0	0	0	0	0	0	0
sodium sulphate	USDt	46	58	143	139	201	180	180	180
lime stone	USDt	1	1	8	5	11	10	10	10
sodium hydroxide 100%	USDt	98	145	258	230	310	278	278	278
turpentine	USDt	20	51	54	51	62	55	55	55
Bleach Chemicals									
chlorine	USDt	88	88	281	256	288	258	258	258
sodium hydroxide	USDt	98	145	258	230	310	278	278	278
sulfuric acid	USDt	13	45	85	84	93	84	84	84
sodium chlorate 50 %	USDt	126	202	244	197	310	278	278	278
sulphur dioxide	USDt	70	210	310	333	315	282	282	282
oxygen	USDt	0	0	128	0	0	127	127	127
peroxide 50 %	USDt	0	0	480	0	458	410	410	410
salt (NaCl)	USDt	3	2	2	1	2	2	2	2
zinc	USDt	0	0	0	0	0	0	0	0
talcum	USDt	16	54	91	78	112	100	100	100
other chemicals	USDt	5	14	27	24	33	30	30	30
Electricity	USD/kWh	0.006	0.008	0.019	0.011	0.028	0.025	0.025	0.025
Coal	USDt	9	12	13	11	17	16	16	16
Fuel oil	USDt	28	17	45	28	68	58	58	58
Raw water charge	USD/m3	0.00	0.00	0.01	0.01	0.02	0.02	0.02	0.02
Wrapping wire	USDt	800	847	278	438	149	133	133	133
Kraftliner	USDt	68	478	280	542	96	51	51	51
White board	USDt	156	316	1,323	806	1,929	1,728	1,728	1,728
Effluent chemicals									
sodium hydroxide	USDt	98	145	258	230	310	278	278	278
sulfuric acid	USDt	13	45	85	84	93	84	84	84
polyacrylamid	USDt	48	91	172	140	218	185	185	185
slum	USDt	18	100	134	121	158	142	142	142
phosphorus salts	USDt	21	23	105	108	111	100	100	100
ammonium hydrate	USDt	283	641	450	331	603	540	540	540
flocculant, sludge floor	USDt	311	2,088	2,854	2,828	2,725	2,441	2,441	2,441
flocculant, centrifuge floor	USDt	2,128	3,738	5,756	5,288	6,708	6,011	6,011	6,011
3 FIXED COSTS	year over. 1988-	year over. 1983	year over. 1984	year over. 1985	1st quarter 1985	3rd quarter 1985	year over. 1986	year over. 1987-88	year over. 1988-
number of personnel over annual salary	USD/ya	684	1,908	3,357	2,761	4,218	3,780	3,780	3,780

Appendix III
Baikalsk Pulp and Paper Mill
Annual Production Volumes

Pulp and Paper	1992	1993	1994	1995	1996	1997-98	1999	2000
Production volumes	1000 ADt/a	1000 ADt/a	1000 ADt/a	1000 ADt/a	1000 ADt/a	1000 ADt/a	1000 ADt/a	1000 ADt/a
Cord	51.4	39.8	5.1	0.0	0.0	0.0	0.0	0.0
Viscose	52.4	55.9	74.1	82.6	90.0	90.0	110.0	140.0
Semibleached kraft	4.8	1.6	0.0	0.0	0.0	0.0	0.0	0.0
BSKP	70.0	45.5	52.3	34.7	50.0	50.0	50.0	70.0
USKP	4.5	8.1	14.9	16.2	10.0	10.0	10.0	10.0
Wrapping paper	10.0	6.0	6.6	8.1	10.0	10.0	10.0	10.0
Total pulp and paper	193.1	156.9	153.0	151.5	160.0	160.0	180.0	230.0
Deliveries to domestic market								
Cord	40.3	31.8	4.9	0.0	0.0	0.0	0.0	0.0
Viscose	39.4	42.8	56.3	63.6	65.0	65.0	65.0	85.0
Semibleached kraft	4.1	1.4	0.0	0.0	0.0	0.0	0.0	0.0
BSKP	60.3	39.2	44.8	13.7	30.0	30.0	30.0	40.0
USKP	4.2	7.6	14.2	1.5	0.0	0.0	0.0	0.0
Wrapping paper	10.0	6.0	6.6	6.0	5.0	5.0	5.0	5.0
Total domestic pulp and paper	158.3	128.8	128.8	84.8	100.0	100.0	100.0	130.0
Deliveries to export market								
Cord	11.1	8.0	0.2	0.0	0.0	0.0	0.0	0.0
Viscose	13.0	13.1	17.8	29.0	25.0	25.0	45.0	55.0
Semibleached kraft	0.7	0.2	0.0	0.0	0.0	0.0	0.0	0.0
BSKP	9.7	6.3	7.5	21.0	20.0	20.0	20.0	30.0
USKP	0.3	0.5	0.7	14.7	10.0	10.0	10.0	10.0
Wrapping paper	0.0	0.0	0.0	2.1	5.0	5.0	5.0	5.0
Total export pulp	34.8	28.1	26.2	66.8	60.0	60.0	60.0	100.0
Byproducts								
Turpentine	0.91	0.93	0.83	1.10	1.10	1.10	1.24	1.78
Tallow	5.66	4.86	4.93	6.07	6.07	6.07	6.83	9.82

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Appendix IV
Baikalsk Pulp and Paper Mill
VARIABLE COSTS IN 1996..1998

1 Variable Costs		Price	Consumption	Consumption	Consumption	Consumption	Consumption
Cost level of the third quarter of 1996		USD/UNIT	unit/ADt	unit/ADt	unit/ADt	unit/ADt	unit/ADt
			Cord	Viscose	NBSK	NUSK	Paper
Wood logs: at mill							
pine and larch	m3 sob	0.9	38	5.82	5.18	4.01	3.52
sawmill chip	m3 sob	0.1	38	0.65	0.58	0.45	0.39
birch							
Subtotal wood			6.47	5.75	4.46	3.91	
Chemicals							
sodium sulphate	t	180	36	36	36	36	36
lime stone	t	10	50	50	50	50	50
sodium hydroxide	t	2.78					
turpentine	t	-55	7.4	7.4	7.4	7.4	7.4
Bleach Chemicals							
		Concentration					
chlorine	t		259	53	50	70	
sodium hydroxide	t	50%	278	85	75	75	
sulfuric acid	t	100%	84	8	8	8	
sodium chlorate	t		278	20	22	22	
sulphur dioxide	t		282	19	19	19	
oxygen	t		127				
peroxide	t		410				
salt (NaCl)	t		2	5	5	5	
bic	t		0				
Tallol							
sulfuric acid	t		84	4.3	4.3	4.3	4.3
tallol	t		(100)	77	77	77	77
Effluent chemicals							
Sludge to treatment	m3H2O/ADt			305	305	305	305
	BDU/ADt			0.100	0.100	0.100	0.100
sodium hydroxide	t		278	2.1	2.1	2.1	2.1
sulphuric acid	t		84	2.1	2.1	2.1	2.1
polyacrylamid	t		195	1.4	1.4	1.4	1.4
alum	t		142	48.8	48.8	48.8	48.8
phosphorus salts	t		100	1.1	1.1	1.1	1.1
ammonium hydrate	t		540	1.2	1.2	1.2	1.2
flocculant, sludge	t		2,441	0.57	0.57	0.57	0.57
flocculant, centrifuge	t		6,011	0.45	0.45	0.45	0.45
Other Chemicals							
			30	1	1	1	1
Subtotal chemicals							
Electricity	MWh:	25	350	350	350	350	350
Coal	t	18	2,600	2,600	2,600	2,600	2,600
Fuel oil, recovery & power	t	59	200	200	200	200	200
Fuel oil, lime lain	t	59	60	60	60	60	60
Fuel oil, sludge burning	t	59	3.0	3.0	3.0	3.0	3.0
Subtotal fuels							
Total energy							
Raw water charge	USD/m3	0	305	305	305	305	305
Wrapping wire	t	133	2.5	2.5	2.5	2.5	2.5
Kraftliner	t	51	0.0	6.4	0.0	6.4	6.4
White board	t	1,728	6.4	0.0	6.4	0.0	0.0
Subtotal packing							
TOTAL VARIABLE COSTS							

Appendix IV

Baltic Pulp and Paper Mill

VARIABLE COSTS IN 1996-1998

1 Variable Costs	Cost		Cost		Cost	
	USD	USD	USD	USD	USD	USD
Cost level of the third quarter of 1996	ADT	ADT	ADT	ADT	ADT	ADT
	Cord	Viscose	Kraft	NUSK		
Wood logs at mill						
pine and larch	223.6	198.7	154.1	135.0		
sawmill chip	24.8	22.1	17.1	15.0		
birch						
Subtotal wood	248.4	220.8	171.2	150.0		
Chemicals						
sodium sulphate	6.5	6.5	6.5	6.5		
lime stone	0.5	0.5	0.5	0.5		
sodium hydroxide	0.0	0.0	0.0	0.0		
turpentine	(0.4)	(0.4)	(0.4)	(0.4)		
Bleach Chemicals						
chlorine	13.7	12.9	19.1	0.0		
sodium hydroxide	23.6	20.8	20.8	0.0		
sulfuric acid	0.7	0.7	0.7	0.0		
sodium chlorate	5.6	6.1	6.1	0.0		
sulphur dioxide	5.4	5.4	5.4	0.0		
oxygen	0.0	0.0	0.0	0.0		
peroxide	0.0	0.0	0.0	0.0		
salt (NaCl)	0.0	0.0	0.0	0.0		
taic	0.0	0.0	0.0	0.0		
Talcoi						
sulfuric acid	0.4	0.4	0.4	0.4		
talcoi	(7.7)	(7.7)	(7.7)	(7.7)		
Effluent chemicals						
Sludge to treatment						
sodium hydroxide	0.6	0.6	0.6	0.6		
sulphuric acid	0.2	0.2	0.2	0.2		
polycrylate	0.3	0.3	0.3	0.3		
alum	6.9	6.9	6.9	6.9		
phosphorus salts	0.1	0.1	0.1	0.1		
ammonium hydrate	0.7	0.7	0.7	0.7		
flocculant, sludge	1.4	1.4	1.4	1.4		
flocculant, centrifuge	2.7	2.7	2.7	2.7		
Other Chemicals	30.0	30.0	30.0	30.0		
Subtotal chemicals	91.0	86.0	83.2	42.1		
Electricity	8.7	8.7	8.7	8.7		
Coal	40.4	40.4	40.4	40.4		
Fuel oil, recovery & power	11.8	11.8	11.8	11.8		
Fuel oil, lime kiln	3.5	3.5	3.5	3.5		
Fuel oil, sludge burning	0.2	0.2	0.2	0.2		
Subtotal fuels	55.8	55.8	55.8	55.8		
Total energy	64.6	64.6	64.6	64.6		
Raw water charge	4.6	4.6	4.6	4.6		
Wrapping wire	0.3	0.3	0.3	0.3		
Kraftliner	0.0	0.3	0.0	0.3		
White board	11.1	0.0	11.1	0.0		
Subtotal packing	11.4	0.7	11.4	0.7		
TOTAL VARIABLE COSTS	420.0	378.6	344.9	261.9		

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Appendix IV
Baltisk Pulp and Paper Mill
VARIABLE COSTS IN 1996, 1998

1 Variable Costs		Price	Consumption	Consumption	Consumption	Consumption	Consumption
Cost level of the third quarter of 1996		SUR/unit	unit/ADT	unit/ADT	unit/ADT	unit/ADT	unit/ADT
			Card	Viscose	NBSK	NUSK	Paper
Wood logs at mill							
pine and larch	m3 sob	0.9	191,976	5.82	5.18	4.01	3.52
sawmill chip	m3 sob	0.1	191,976	0.65	0.58	0.45	0.39
birch							
Subtotal wood				6.47	5.75	4.46	3.91
Chemicals							
sodium sulphate	kg	896	36	36	36	36	36
lime stone	kg	48	50	50	50	50	50
sodium hydroxide	kg	1389					
turpentine	kg	-277	7.4	7.4	7.4	7.4	7.4
Bleach Chemicals							
Concentration							
chlorine	kg		1,294	53	50	70	
sodium hydroxide	kg	50%	1,389	85	75	75	
sulfuric acid	kg	100%	418	8	8	8	
sodium chlorate	kg		1,390	20	22	22	
sulphur dioxide	kg		1,412	19	19	19	
oxygen	kg		635				
peroxide	kg	2,050					
salt (NaCl)	kg	11	5	5	5	5	
talc	kg	0					
Tailoil							
sulfuric acid	kg	418	4.3	4.3	4.3	4.3	4.3
tailoil	kg	(500)	77	77	77	77	77
Effluent chemicals							
Sludge to treatment	m ³ H ₂ O/ADT			305	305	305	305
sodium hydroxide	kg			0.100	0.100	0.100	0.100
sulphuric acid	kg	1,389	2.1	2.1	2.1	2.1	2.1
polyacrylamid	kg	418	2.1	2.1	2.1	2.1	2.1
alum	kg	977	1.4	1.4	1.4	1.4	1.4
phosphorus salts	kg	710	48.8	48.8	48.8	48.8	48.8
ammonium hydrate	kg	488	1.1	1.1	1.1	1.1	1.1
flocculant, sludge	kg	2,700	1.2	1.2	1.2	1.2	1.2
flocculant, centrifuge	kg	12,206	0.57	0.57	0.57	0.57	0.57
	kg	30,054	0.45	0.45	0.45	0.45	0.45
Other Chemicals							
		150,000	1	1	1	1	1
Subtotal chemicals							
Electricity							
	kWh	125	350	350	350	350	350
Fuels							
Coal	kg	78	2,800	2,800	2,800	2,800	2,800
Fuel oil, recovery & power	kg	295	200	200	200	200	200
Fuel oil, lime lohn	kg	295	60	60	60	60	60
Fuel oil, sludge burning	kg	295	3.0	3.0	3.0	3.0	3.0
Subtotal fuels							
Total energy							
Raw water charge	SUR/m ³	78	305	305	305	305	305
Packing							
Wrapping wire	kg	667	2.5	2.5	2.5	2.5	2.5
Kraftliner	kg	253	0.0	6.4	0.0	6.4	6.4
White board	kg	8,642	6.4	0.0	6.4	0.0	0.0
Subtotal packing							
TOTAL VARIABLE COSTS							

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Appendix IV
Baikalsk Pulp and Paper Mill
VARIABLE COSTS IN 1996-1998

1 Variable Costs	Cost	Cost	Cost	Cost
	1000 SUR	1000 SUR	1000 SUR	1000 SUR
Cost level of the third quarter of 1996 /ADt	/ADt	/ADt	/ADt	/ADt
	Cord	Viscoee	Kraft	NUSK
Wood logs at mill				
pine and larch	1,117.9	903.6	770.3	675.0
sawmill chip	124.2	110.4	85.6	75.0
birch				
Subtotal wood	1,242.2	1,104.0	855.9	750.0
Chemicals				
sodium sulphate	32.3	32.3	32.3	32.3
lime stone	2.4	2.4	2.4	2.4
sodium hydroxide	0.0	0.0	0.0	0.0
turpentine	(2.0)	(2.0)	(2.0)	(2.0)
Bleach Chemicals				
chlone	68.6	64.7	90.6	0.0
sodium hydroxide	118.1	104.2	104.2	0.0
sulfuric acid	3.3	3.3	3.3	0.0
sodium chlorate	27.8	30.6	30.6	0.0
sulphur dioxide	26.8	26.8	26.8	0.0
oxygen	0.0	0.0	0.0	0.0
peroxide	0.0	0.0	0.0	0.0
salt (NaCl)	0.1	0.1	0.1	0.0
talc	0.0	0.0	0.0	0.0
Talcoil				
sulfuric acid	1.8	1.8	1.8	1.8
talcoil	(38.4)	(38.4)	(38.4)	(38.4)
Effluent chemicals				
Sludge to treatment				
sodium hydroxide	3.0	3.0	3.0	3.0
sulphuric acid	0.9	0.9	0.9	0.9
polyacrylamid	1.3	1.3	1.3	1.3
alum	34.6	34.6	34.6	34.6
phosphorus salts	0.5	0.5	0.5	0.5
ammonium hydrate	3.3	3.3	3.3	3.3
flocculant, sludge	7.0	7.0	7.0	7.0
flocculant, centrifuge	13.5	13.5	13.5	13.5
Other Chemicals				
	150.0	150.0	150.0	150.0
Subtotal chemicals	456.0	440.0	485.9	210.3
Electricity				
	43.6	43.6	43.6	43.6
Fuels				
Coal	201.8	201.8	201.8	201.8
Fuel oil, recovery & power	58.9	58.9	58.9	58.9
Fuel oil, lime ion	17.7	17.7	17.7	17.7
Fuel oil, sludge burning	0.9	0.9	0.9	0.9
Subtotal fuels	279.2	279.2	279.2	279.2
Total energy	322.8	322.8	322.8	322.8
Raw water charge				
	23.1	23.1	23.1	23.1
Wrapping wire				
	1.7	1.7	1.7	1.7
Kraftliner				
	0.0	1.6	0.0	1.6
White board				
	56.3	0.0	56.3	0.0
Subtotal pecking	57.0	3.3	57.0	3.3
TOTAL VARIABLE COSTS	2,100.0	1,893.1	1,724.6	1,309.5

Appendix IV
Baikalsk Pulp and Paper Mill
VARIABLE COSTS IN 1993

1 Variable Costs		Price	Consumption	Consumption	Consumption	Consumption	Consumption
Cost level of the average of 1993		USD/UNIT	unit/ADt	unit/ADt	unit/ADt	unit/ADt	unit/ADt
			Cord	Viscose	BSKP	NUSK	Paper
Wood logs at mill							
pine and larch	m3 sob	0.9	8	5.95	5.29	3.95	3.52
sawmill chip	m3 sob	0.1	8	0.66	0.59	0.44	0.39
berch							
Subtotal wood				6.61	5.87	4.39	3.91
Chemicals							
sodium sulphate	t	46	36	36	36	36	36
lime stone	t	1	50	50	50	50	50
sodium hydroxide	t	98					
turpentine	t	(20)	7.4	7.4	7.4	7.4	7.4
Bleach Chemicals							
Concentration							
chlornne	t	99	53	50	70		
sodium hydroxide	t	50%	98	85	75	75	
sulfuric acid	t	100%	13	8	8	8	
sodium chlorate	t	126	20	22	22		
sulphur dioxide	t	70	19	19	19		
oxygen	t	0					
peroxide	t	0					
salt (NaCl)	t	3	5	5	5		
taic	t	0					
Tallol							
sulfuric acid	t	13	4.3	4.3	4.3	4.3	4.3
tallol	t	(16)	77	77	77	77	77
Effluent chemicals							
Sludge to treatment	m3H2O/ADt		305	305	305	305	305
	BDt/ADt		0.100	0.100	0.100	0.100	0.100
sodium hydroxide	t	98	2.1	2.1	2.1	2.1	2.1
sulphuric acid	t	13	2.1	2.1	2.1	2.1	2.1
polyacrylamid	t	49	1.4	1.4	1.4	1.4	1.4
alum	t	18	48.8	48.8	48.8	48.8	48.8
phosphorus salts	t	21	1.1	1.1	1.1	1.1	1.1
ammonium hydrate	t	283	1.2	1.2	1.2	1.2	1.2
floculant, sludge	t	311	0.57	0.57	0.57	0.57	0.57
floculant, centrifuge	t	2,128	0.45	0.45	0.45	0.45	0.45
Other Chemicals							
		5	1	1	1	1	1
Subtotal chemicals							
Electricity	MWh	4.7246808	289	289	289	289	289
Coal	t	9	1,692	1,692	1,692	1,692	1,692
Fuel oil, recovery & power	t	29	120	120	120	120	120
Fuel oil, lime kiln	t	29	60	60	60	60	60
Fuel oil, sludge burning	t	29	2.4	2.4	2.4	2.4	2.4
Subtotal fuels							
Total energy							
Raw water charge	USD/m3	0	305	305	305	305	305
Wrapping wire	t	500	2.5	2.5	2.5	2.5	2.5
Kraftliner	t	66	0.0	6.4	0.0	6.4	6.4
White board	t	156	6.4	0.0	6.4	0.0	6.4
Subtotal packing							
TOTAL VARIABLE COSTS							

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Appendix IV
Baikalsk Pulp and Paper Mill
VARIABLE COSTS IN 1993

1 Variable Costs	Cost		Cost		Cost	
	USD	USD	USD	USD	USD	USD
Cost level of the average of 1993	/ADt	/ADt	/ADt	/ADt	/ADt	/ADt
	Card	Viscose BSKP			NUSK	
Wood logs at mill						
pine and larch	47.8	42.5	31.8		28.3	
sawmill chip	5.3	4.7	3.5		3.1	
birch						
Subtotal wood	53.1	47.2	35.3		31.4	
Chemicals						
sodium sulphate	1.7	1.7	1.7		1.7	
lime stone	0.1	0.1	0.1		0.1	
sodium hydroxide	0.0	0.0	0.0		0.0	
turpentine	(0.1)	(0.1)	(0.1)		(0.1)	
Bleach Chemicals						
chlorine	5.3	5.0	7.0		0.0	
sodium hydroxide	8.4	7.4	7.4		0.0	
sulfuric acid	0.1	0.1	0.1		0.0	
sodium chlorate	2.5	2.8	2.8		0.0	
sulphur dioxide	1.3	1.3	1.3		0.0	
oxygen	0.0	0.0	0.0		0.0	
peroxide	0.0	0.0	0.0		0.0	
salt (NaCl)	0.0	0.0	0.0		0.0	
talc	0.0	0.0	0.0		0.0	
Tallow						
sulfuric acid	0.1	0.1	0.1		0.1	
tallow	(1.2)	(1.2)	(1.2)		(1.2)	
Effluent chemicals						
Sludge to treatment:						
sodium hydroxide	0.2	0.2	0.2		0.2	
sulphuric acid	0.0	0.0	0.0		0.0	
polyacrylamid	0.1	0.1	0.1		0.1	
alum	0.9	0.9	0.9		0.9	
phosphorus salts	0.0	0.0	0.0		0.0	
ammonium hydrate	0.3	0.3	0.3		0.3	
flocculant, sludge	0.2	0.2	0.2		0.2	
flocculant, centrifuge	1.0	1.0	1.0		1.0	
Other Chemicals						
	0.0	0.0	0.0		0.0	
Subtotal chemicals	20.7	19.6	21.6		31	
Electricity						
	1.4	1.4	1.4		1.4	
Coal						
	15.6	15.6	15.6		15.6	
Fuel oil, recovery & power	3.5	3.5	3.5		3.5	
Fuel oil, lime kiln	1.8	1.8	1.8		1.8	
Fuel oil, sludge burning	0.1	0.1	0.1		0.1	
Subtotal fuels	20.9	20.9	20.9		20.9	
Total energy						
	22.3	22.3	22.3		22.3	
Raw water charge						
	0.8	0.8	0.8		0.8	
Wrapping wire						
	1.3	1.3	1.3		1.3	
Kraftliner	0.0	0.4	0.0		0.4	
White board	1.0	0.0	1.0		0.0	
Subtotal packing	2.3	1.7	2.3		1.7	
TOTAL VARIABLE COSTS	99.1	91.6	92.3		59.3	

Appendix IV
Baikalsk Pulp and Paper Mill
VARIABLE COSTS IN 1993

1 Variable Costs		Price	Consumption	Consumption	Consumption	Consumption	Consumption
Cost level of the average of 1983		SUR/unit	unit/ADt	unit/ADt	unit/ADt	unit/ADt	unit/ADt
			Cord	Viscose	BSKP	NUSK	Paper
Wood logs at mill							
pine and larch	m3 sob	0.9	7,553	5.95	5.29	3.95	3.52
sawmill chip	m3 sob	0.1	7,553	0.66	0.59	0.44	0.39
birch							
Subtotal wood				6.61	5.87	4.39	3.91
Chemicals							
sodium sulphate	kg	43	36	36	36	36	36
lime stone	kg	1	50	50	50	50	50
sodium hydroxide	kg	92					
Turpentine	kg	(19)	7.4	7.4	7.4	7.4	7.4
Bleach Chemicals							
Concentration							
chlorine	kg		93	53	50	70	
sodium hydroxide	kg	50%	92	85	75	75	
sulfuric acid	kg	100%	12	8	8	8	
sodium chlorate	kg		118	20	22	22	
sulphur dioxide	kg		65	19	19	19	
oxygen	kg		0				
peroxide	kg		0				
salt (NaCl)	kg		3	5	5	5	
talc	kg		0				
Tallol							
sulfuric acid	kg	12	4.3	4.3	4.3	4.3	4.3
tallol	kg	(15)	77	77	77	77	77
Effluent chemicals							
Sludge to treatment	m ³ H ₂ O/ADt		305	305	305	305	305
sodium hydroxide	BOt/ADt		0.100	0.100	0.100	0.100	0.100
sulphuric acid	kg	92	2.1	2.1	2.1	2.1	2.1
polyacrylamid	kg	12	2.1	2.1	2.1	2.1	2.1
alum	kg	46	1.4	1.4	1.4	1.4	1.4
phosphorus salts	kg	17	48.8	48.8	48.8	48.8	48.8
ammonium hydrate	kg	20	1.1	1.1	1.1	1.1	1.1
floculant, sludge	kg	285	1.2	1.2	1.2	1.2	1.2
floculant, centrifuge	kg	292	0.57	0.57	0.57	0.57	0.57
		2,000	0.45	0.45	0.45	0.45	0.45
Other Chemicals							
		5,100	1	1	1	1	1
Subtotal chemicals							
Electroty	kWh	4.44	289	289	289	289	289
Coal	kg	9	1,892	1,892	1,892	1,892	1,892
Fuel oil, recovery & power	kg	28	120	120	120	120	120
Fuel oil, lime lain	kg	28	60	60	60	60	60
Fuel oil, sludge burning	kg	28	2.4	2.4	2.4	2.4	2.4
Subtotal fuels							
Total energy							
Raw water charge	SUR/m ³	3	305	305	305	305	305
Wrapping wire	kg	470	2.5	2.5	2.5	2.5	2.5
Kraftliner	kg	62	0.0	6.4	0.0	6.4	0.0
White board	kg	147	6.4	0.0	6.4	0.0	0.0
Subtotal pecking							
TOTAL VARIABLE COSTS							

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Appendix IV
Baikalsk Pulp and Paper Mill
VARIABLE COSTS IN 1993

1 Variable Costs	Cost	Cost	Cost	Cost
	1000 SUR	1000 SUR	1000 SUR	1000 SUR
Cost level of the average of 1983	IADr	IADr	IADr	IADr
	Cord	Viscose BSKP		NJSK
Wood logs at mill				
pine and larch	44.9	39.9	29.8	26.6
sawmill chip	5.0	4.4	3.3	3.0
birch				
Subtotal wood	49.9	44.4	33.2	29.5
Chemicals				
sodium sulphate	1.6	1.6	1.6	1.6
lime stone	0.1	0.1	0.1	0.1
sodium hydroxide	0.0	0.0	0.0	0.0
turpentine	(0.1)	(0.1)	(0.1)	(0.1)
Bleach Chemicals				
chlorine	4.9	4.7	6.5	0.0
sodium hydroxide	7.8	6.9	6.9	0.0
sulfuric acid	0.1	0.1	0.1	0.0
sodium chlorate	2.4	2.6	2.6	0.0
sulphur dioxide	1.2	1.2	1.2	0.0
oxygen	0.0	0.0	0.0	0.0
peroxide	0.0	0.0	0.0	0.0
salt (NaCl)	0.0	0.0	0.0	0.0
taic	0.0	0.0	0.0	0.0
Tallol				
sulfuric acid	0.1	0.1	0.1	0.1
tallol	(1.2)	(1.2)	(1.2)	(1.2)
Effluent chemicals				
Sludge to treatment				
sodium hydroxide	0.2	0.2	0.2	0.2
sulphuric acid	0.0	0.0	0.0	0.0
polyacrylamid	0.1	0.1	0.1	0.1
alum	0.8	0.8	0.8	0.8
phosphorus salts	0.0	0.0	0.0	0.0
ammonium hydrate	0.3	0.3	0.3	0.3
floculant, sludge	0.2	0.2	0.2	0.2
floculant, centrifuge	0.9	0.9	0.9	0.9
Other Chemicals				
	5.1	5.1	5.1	5.1
Subtotal chemicals	24.5	23.5	25.4	8.0
Electricity				
	1.3	1.3	1.3	1.3
Fuels				
Coal	14.6	14.6	14.6	14.6
Fuel oil, recovery & power	3.3	3.3	3.3	3.3
Fuel oil, lime kiln	1.7	1.7	1.7	1.7
Fuel oil, sludge burning	0.1	0.1	0.1	0.1
Subtotal fuels	19.6	19.6	19.6	19.6
Total energy	20.9	20.8	20.9	20.9
Raw water charge				
	0.8	0.8	0.8	0.8
Wrapping wire				
Kraftliner	1.2	1.2	1.2	1.2
White board	0.0	0.4	0.0	0.4
White board	0.9	0.0	0.9	0.0
Subtotal pecking	2.1	1.6	2.1	1.6
TOTAL VARIABLE COSTS	98.2	91.2	82.4	60.8

Resto Salama

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Appendix IV
Baltic Pulp and Paper Mill
VARIABLE COSTS IN 1994

1 Variable Costs		Price	Consumption	Consumption	Consumption	Consumption	Consumption
Cost level of the average of 1984		USD/UNIT	unit/ADT	unit/ADT	unit/ADT	unit/ADT	unit/ADT
			Coat	Vacase	Kraft	USKP	Paper
Wood logs at mill							
pine and larch	m3 sob	0.9	18	5.82	5.18	4.01	3.52
small chip	m3 sob	0.1	18	0.85	3.58	0.45	0.39
birch							
Subtotal wood				6.47	5.75	4.46	3.91
Chemicals							
sodium sulphate	t		58	36	36	36	36
lime stone	t		1	50	50	50	50
sodium hydroxide	t		145				
turpentine	t		(51)	7.4	7.4	7.4	7.4
Bleach Chemicals							
Concentration							
chlorine	t		89	53	50	70	
sodium hydroxide	t	50%	145	85	75	75	
sulfuric acid	t	100%	45	8	8	8	
sodium chlorate	t		202	20	22	22	
sulphur dioxide	t		210	19	19	19	
oxygen	t		0				
peroxide	t		0				
salt (NaCl)	t		2	5	5	5	
taic	t		0				
Tallow							
sulfuric acid	t		45	4.3	4.3	4.3	4.3
tallow	t		(54)	77	77	77	77
Effluent chemicals							
Sludge to treatment	m ³ H ₂ O/ADT			305	305	305	305
	BDVADT			0.100	0.100	0.100	0.100
sodium hydroxide	t		145	2.1	2.1	2.1	2.1
sulphuric acid	t		45	2.1	2.1	2.1	2.1
polyacrylamid	t		91	1.4	1.4	1.4	1.4
alum	t		100	48.8	48.8	48.8	48.8
phosphorus salts	t		23	1.1	1.1	1.1	1.1
ammonium hydrate	t		641	1.2	1.2	1.2	1.2
floculant, sludge	t		2,089	0.57	0.57	0.57	0.57
floculant, centrifuge	t		3,739	0.45	0.45	0.45	0.45
Other Chemicals							
			14	1	1	1	1
Subtotal chemicals							
Electricity							
	MWh		0.13	398	398	398	398
Fuel							
Coal	t		12	2,835	2,935	2,935	2,935
Fuel oil, recovery & power	t		17	218	218	218	218
Fuel oil, lime lain	t		17	59	59	59	59
Fuel oil, sludge burning	t		17	3.1	3.1	3.1	3.1
Subtotal fuels							
Total energy							
Raw water charge							
	USD/m ³		0.00	305	305	305	305
Packing							
Wrapping wire	t		547	2.5	2.5	2.5	2.5
Kraftliner	t		478	0.0	6.4	0.0	6.4
White board	t		316	6.4	0.0	6.4	0.0
Subtotal packing							
TOTAL VARIABLE COSTS							
Production	1000 ADt/a						
Wood							
Chemicals							
Power							
Coal							
Fuel oil							
Water							
Packing							
Variable costs	1000 USD/a						

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Appendix IV
Baltic Pulp and Paper Mill
VARIABLE COSTS IN 1984

1 Variable Costs	Cost	Cost	Cost	Cost
	USD IADt	USD IADt	USD IADt	USD IADt
Cost level of the average of 1984	Card	Vocasa	Kraft	USKP
Wood logs at mill				
pine and larch	104.3	82.7	71.9	63.0
small chip	11.6	10.3	8.0	7.0
larch				
Subtotal wood	115.9	103.0	79.8	70.0
Chemicals				
sodium sulphate	2.1	2.1	2.1	2.1
lime stone	0.1	0.1	0.1	0.1
sodium hydroxide	0.0	0.0	0.0	0.0
turpentine	(0.4)	(0.4)	(0.4)	(0.4)
Bleach Chemicals				
chlorine	4.7	4.4	6.2	0.0
sodium hydroxide	12.3	10.9	10.9	0.0
sulfuric acid	0.4	0.4	0.4	0.0
sodium chloride	4.0	4.4	4.4	0.0
sulphur dioxide	4.0	4.0	4.0	0.0
oxygen	0.0	0.0	0.0	0.0
peroxide	0.0	0.0	0.0	0.0
salt (NaCl)	0.0	0.0	0.0	0.0
silic	0.0	0.0	0.0	0.0
Tallow				
sulfuric acid	0.2	0.2	0.2	0.2
tallow	(4.1)	(4.1)	(4.1)	(4.1)
Effluent chemicals				
Sludge to treatment				
sodium hydroxide	0.3	0.3	0.3	0.3
sulfuric acid	0.1	0.1	0.1	0.1
polyacrylamid	0.1	0.1	0.1	0.1
alum	4.9	4.9	4.9	4.9
phosphorus salts	0.0	0.0	0.0	0.0
ammonium hydrate	0.8	0.8	0.8	0.8
floculant, sludge	1.2	1.2	1.2	1.2
floculant, centrifuge	1.7	1.7	1.7	1.7
Other Chemicals				
	0.0	0.0	0.0	0.0
Subtotal chemicals				
	32.4	31.1	32.9	7.0
Electricity				
	3.6	3.6	3.6	3.6
Coal				
	34.9	34.9	34.9	34.9
Fuel oil, recovery & power	3.6	3.6	3.6	3.6
Fuel oil, lime kiln	1.0	1.0	1.0	1.0
Fuel oil, sludge burning	0.1	0.1	0.1	0.1
Subtotal fuels				
	39.5	39.5	39.5	39.5
Total energy				
	43.2	43.2	43.2	43.2
Raw water charge				
	0.2	0.2	0.2	0.2
Wrapping wire				
Kraftliner	1.4	1.4	1.4	1.4
White board	0.0	3.1	0.0	3.1
	2.0	0.0	2.0	0.0
Subtotal , , clong				
	3.4	4.4	3.4	4.4
TOTAL VARIABLE COSTS				
	195.0	181.9	159.5	124.8
Production				
Wood	5.1	74.1	32.3	14.9
Chemicals	591	7,832	4,178	1,043
Power	185	2,303	1,718	104
Coal	19	289	180	54
Fuel oil	178	2,585	1,824	530
Water	24	348	244	70
Packing	1	15	10	3
Variable costs	17	328	177	86
	885	13,477	8,340	1,829

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Appendix IV
Baltisk Pulp and Paper Mill
VARIABLE COSTS IN 1994

1 Variable Costs		Price	Consumption	Consumption	Consumption	Consumption	Consumption
Cost level of the average of 1994		SUR/unit	unit/ADt	unit/ADt	unit/ADt	unit/ADt	unit/ADt
			Card	Viscose	Kraft	USKP	Paper
Wood logs at mill							
pine and birch	m3 sob	0.9	39,286	5.82	5.18	4.01	3.52
small chip	m3 sob	0.1	39,286	0.85	0.58	0.45	0.39
birch							
Subtotal wood				6.47	5.75	4.46	3.91
Chemicals							
sodium sulphate	kg	128	36	36	36	36	36
lime stone	kg	3	50	50	50	50	50
sodium hydroxide	kg	317					
turpentine	kg	(112)	7.4	7.4	7.4	7.4	7.4
Bleach Chemicals							
		Concentration					
chlorine	kg		185	53	50	70	
sodium hydroxide	kg	50%	317	85	75	75	
sulfuric acid	kg	100%	98	8	8	8	
sodium chlorate	kg		442	20	22	22	
sulphur dioxide	kg		461	19	19	19	
oxygen	kg		0				
peroxide	kg		0				
salt (NaCl)	kg		5	5	5	5	
calc	kg		0				
Tallow							
sulfuric acid	kg		98	4.3	4.3	4.3	4.3
tallow	kg		(117)	77	77	77	77
Effluent chemicals							
Sludge to treatment	m ³ H ₂ O/ADt			305	305	305	305
sodium hydroxide	kg			0.100	0.100	0.100	0.100
sulfuric acid	kg		31	2.1	2.1	2.1	2.1
polysilylamid	kg		98	2.1	2.1	2.1	2.1
alum	kg		200	1.4	1.4	1.4	1.4
phosphorus salts	kg		220	48.8	48.8	48.8	48.8
ammonium hydrate	kg		49	1.1	1.1	1.1	1.1
floculant, sludge	kg		1,405	1.2	1.2	1.2	1.2
floculant, centrifuge	kg		4,535	0.57	0.57	0.57	0.57
			8,197	0.45	0.45	0.45	0.45
Other Chemicals							
		30.500		1	1	1	1
Subtotal chemicals							
Electricity							
	MWh	20.01		398	398	398	398
Fuel							
Coal	kg	26	2,935	2,935	2,935	2,935	2,935
Fuel oil, recovery & power	kg	37	218	218	218	218	218
Fuel oil, lime tan	kg	37	59	59	59	59	59
Fuel oil, sludge burning	kg	37	3.1	3.1	3.1	3.1	3.1
Subtotal fuels							
Total energy							
Raw water charge							
	SUR/m ³	1.43		305	305	305	305
Wrapping wire							
Kraftliner	kg	1,200	2.5	2.5	2.5	2.5	2.5
White board	kg	1,049	0.0	6.4	0.0	6.4	0.0
		982	6.4	0.0	6.4	0.0	0.0
Subtotal packing							
TOTAL VARIABLE COSTS							
Production	1000 ADt/a						
Wood							
Chemicals							
Power							
Coal							
Fuel oil							
Water							
Packing							
Variable costs	million SUR/a						

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Appendix IV
 Baltzell Pulp and Paper Mill
 VARIABLE COSTS IN 1994

1 Variable Costs	Cost	Cost	Cost	Cost
	1000 SUR	1000 SUR	1000 SUR	1000 SUR
Cost level of the average of 1994	IADt	IADt	IADt	IADt
	Card	Viscose	Kraft	USKP
Wood logs at mill				
pine and larch	228.7	203.2	157.5	138.1
saw- & chip	25.4	22.6	17.5	15.3
larch				
Subtotal wood	254.1	225.8	175.1	153.4
Chemicals				
sodium sulphate	4.6	4.6	4.6	4.6
lime stone	0.2	0.2	0.2	0.2
sodium hydroxide	0.0	0.0	0.0	0.0
terpentine	(0.8)	(0.8)	(0.8)	(0.8)
Bleach Chemicals				
chlame	10.3	9.7	13.6	0.0
sodium hydroxide	27.0	23.8	23.8	0.0
sulfuric acid	0.8	0.8	0.8	0.0
sodium chlorate	8.8	9.7	9.7	0.0
sulphur dioxide	8.8	8.8	8.9	0.0
oxygen	0.0	0.0	0.0	0.0
peroxide	0.0	0.0	0.0	0.0
salt (NaCl)	0.0	0.0	0.0	0.0
taic	0.0	0.0	0.0	0.0
Talcol				
sulfuric acid	0.4	0.4	0.4	0.4
talcol	(9.0)	(9.0)	(9.0)	(9.0)
Effluent chemicals				
Sludge to treatment				
sodium hydroxide	0.7	0.7	0.7	0.7
sulphuric acid	0.2	0.2	0.2	0.2
polyacrylamid	0.3	0.3	0.3	0.3
alum	10.7	10.7	10.7	10.7
phosphorus salts	0.1	0.1	0.1	0.1
ammonium hydrate	1.7	1.7	1.7	1.7
floculant, sludge	2.6	2.6	2.6	2.6
floculant, centrifuge	3.7	3.7	3.7	3.7
Other Chemicals				
	30.5	30.5	30.5	30.5
Subtotal chemicals				
	101.5	98.6	102.5	45.8
Electricity				
	8.0	8.0	8.0	8.0
Coal				
Coal	78.5	78.5	78.5	78.5
Fuel oil, recovery & power	8.0	8.0	8.0	8.0
Fuel oil, lime kiln	2.2	2.2	2.2	2.2
Fuel oil, sludge burning	0.1	0.1	0.1	0.1
Subtotal fuels				
	86.7	86.7	86.7	86.7
Total energy				
	94.7	94.7	94.7	94.7
Raw water charge				
	0.4	0.4	0.4	0.4
Wrapping wire				
Kraftliner	3.0	3.0	3.0	3.0
Kraftliner	0.0	6.7	0.0	6.7
White board	4.4	0.0	4.4	0.0
Subtotal packing				
	7.4	9.7	7.4	9.7
TOTAL VARIABLE COSTS				
	456.1	429.2	380.1	304.0
Production				
Production	5.1	74.1	52.3	14.8
Wood	1,296	16,732	9,155	2,286
Chemicals	518	7,308	5,380	882
Power	41	580	417	119
Coal	380	5,867	4,000	1,138
Fuel oil	52	758	535	152
Water	2	32	23	7
Packing	38	720	388	145
Variable costs	2,338	31,805	19,878	4,528

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Appendix IV
Baikalsk Pulp and Paper Mill
VARIABLE COSTS IN 1995

1 Variable Costs		Price	Consumption	Consumption	Consumption	Consumption	Consumption
Cost level average of 1995		USD/UNIT	unit/ADt	unit/ADt	unit/ADt	unit/ADt	unit/t
			Card	Viscose	NBSK	NUSK	Paper
Wood logs at mill							
pine and larch	m3 sob	0.9	32	5.82	5.18	4.01	3.52
sawmill chip	m3 sob	0.1	32	0.65	0.58	0.45	0.39
birch							
Subtotal wood				6.47	5.75	4.46	3.91
Chemicals							
sodium sulphate	t	163	36	36	36	36	
lime stone	t	8	50	50	50	50	
sodium hydroxide	t	259					
turpentine	t	-54	7.4	7.4	7.4	7.4	
Bleach Chemicals							
Concentration							
chlorine	t	261	53	50	70		
sodium hydroxide	t	50%	259	85	75	75	
sulfuric acid	t	100%	85	8	8	8	
sodium chlorate	t	244	20	22	22		
sulphur dioxide	t	310	19	19	19		
oxygen	t	128					
peroxide	t	450					
salt (NaCl)	t	2	5	5	5		
taic	t	0					
Tallol							
sulfuric acid	t	85	4.3	4.3	4.3	4.3	
talloil	t	(91)	77	77	77	77	
Effluent chemicals							
Sludge to treatment	m3H2O/ADt		305	305	305	305	
	BDt/ADt		0.100	0.100	0.100	0.100	
sodium hydroxide	t	259	2.1	2.1	2.1	2.1	
sulphuric acid	t	85	2.1	2.1	2.1	2.1	
polyacrylamid	t	172	1.4	1.4	1.4	1.4	
slum	t	134	48.8	48.8	48.8	48.8	
phosphorus salts	t	105	1.1	1.1	1.1	1.1	
ammonium hydrate	t	450	1.2	1.2	1.2	1.2	
floculant, sludge	t	2,654	0.57	0.57	0.57	0.57	
floculant, centrifuge	t	5,755	0.45	0.45	0.45	0.45	
Other Chemicals							
		27	1	1	1	1	
Subtotal chemicals							
Electricity							
	MWh	19	350	350	350	350	
Coal							
	t	13	2,600	2,600	2,600	2,600	
Fuel oil, recovery & power	t	45	200	200	200	200	
Fuel oil, lime kiln	t	45	60	60	60	60	
Fuel oil, sludge burning	t	45	3.0	3.0	3.0	3.0	
Subtotal fuels							
Total energy							
Raw water charge	USD/m3	0.01	305	305	305	305	
Wrapping wire							
	t	278	2.5	2.5	2.5	2.5	
Kraftliner	t	280	0.0	6.4	0.0	6.4	
White board	t	1,323	6.4	0.0	6.4	0.0	
Subtotal packing							
TOTAL VARIABLE COSTS							

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Appendix IV
Baikalsk Pulp and Paper Mill
VARIABLE COSTS IN 1995

1 Variable Costs	Cost		Cost		Cost	
	USD	USD	USD	USD	USD	USD
Cost level average of 1995	/ADt	/ADt	/ADt	/ADt	/ADt	/ADt
	Cord	Viscose	Kraft	NUSK		
Wood logs at mill						
pine and larch	186.4	165.7	128.5	112.6		
sawmill chip	20.7	18.4	14.3	12.5		
birch						
Subtotal wood	207.2	184.1	142.7	125.1		
Chemicals						
sodium sulphate	5.9	5.9	5.9	5.9		
lime stone	0.4	0.4	0.4	0.4		
sodium hydroxide	0.0	0.0	0.0	0.0		
turpentine	(0.4)	(0.4)	(0.4)	(0.4)		
Bleach Chemicals						
chlorine	13.8	13.1	18.3	0.0		
sodium hydroxide	22.0	19.4	19.4	0.0		
sulfuric acid	0.7	0.7	0.7	0.0		
sodium chlorate	4.9	5.4	5.4	0.0		
sulphur dioxide	5.9	5.9	5.9	0.0		
oxygen	0.0	0.0	0.0	0.0		
peroxide	0.0	0.0	0.0	0.0		
salt (NaCl)	0.0	0.0	0.0	0.0		
taic	0.0	0.0	0.0	0.0		
Tailoil						
sulfuric acid	0.4	0.4	0.4	0.4		
tailoil	(7.0)	(7.0)	(7.0)	(7.0)		
Effluent chemical:						
Sludge to treatment						
sodium hydroxide	0.6	0.6	0.6	0.6		
sulphuric acid	0.2	0.2	0.2	0.2		
polyacrylamid	0.2	0.2	0.2	0.2		
alum	6.6	6.6	6.6	6.6		
phosphorus salts	0.1	0.1	0.1	0.1		
ammonium hydrate	0.5	0.5	0.5	0.5		
floculant, sludge	1.5	1.5	1.5	1.5		
floculant, centrifuge	2.6	2.6	2.6	2.6		
Other Chemicals						
	27.4	27.4	27.4	27.4		
Subtotal chemicals	86.3	83.4	88.6	39.0		
Electricity						
	6.5	6.5	6.5	6.5		
Coal						
	35.0	35.0	35.0	35.0		
Fuel oil, recovery & power	9.1	9.1	9.1	9.1		
Fuel oil, lime ion	2.7	2.7	2.7	2.7		
Fuel oil, sludge burning	0.1	0.1	0.1	0.1		
Subtotal fuels	47.0	47.0	47.0	47.0		
Total energy	53.5	53.5	53.5	53.5		
Raw water charge						
	4.6	4.6	4.6	4.6		
Wrapping wire						
	0.7	0.7	0.7	0.7		
Kraftliner	0.0	1.8	0.0	1.8		
White board	8.5	0.0	8.5	0.0		
Subtotal pecking	9.2	2.5	9.2	2.5		
TOTAL VARIABLE COSTS	367.7	328.1	298.6	224.6		

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Appendix IV
Baikalsk Pulp and Paper Mill
VARIABLE COSTS IN 1995

1 Variable Costs		Price	Consumption	Consumption	Consumption	Consumption	Consumption
Cost level average of 1995		SUR/unit	unit/ADt	unit/ADt	unit/ADt	unit/ADt	unit/ADt
			Cord	Viscose	NBSK	NUSK	Paper
Wood logs at mill							
pine and larch	m3 sob	0.9	145,988	5.82	5.18	4.01	3.52
sawmill chip	m3 sob	0.1	145,988	0.65	0.58	0.45	0.39
birch							
Subtotal wood				6.47	5.75	4.46	3.91
Chemicals							
sodium sulphate	kg	745	36	36	36	36	36
lime stone	kg	36	50	50	50	50	50
sodium hydroxide	kg	1182					
turpentine	kg	-246	7.4	7.4	7.4	7.4	7.4
Bleach Chemicals							
Concentration							
chlorine	kg	1,191	53	50	70		
sodium hydroxide	kg	50%	1,182	85	75	75	
sulfuric acid	kg	100%	387	8	8	8	
sodium chlorate	kg	1,114	20	22	22		
sulphur dioxide	kg	1,412	19	19	19		
oxygen	kg	584					
peroxide	kg	2,050					
salt (NaCl)	kg	8	5	5	5		
talc	kg	0					
Talloil							
sulfuric acid	kg	387	4.3	4.3	4.3	4.3	
talloil	kg	(415)	77	77	77	77	
Effluent chemicals							
Sludge to treatment	m3H2O/ADt		305	305	305	305	
sodium hydroxide	kg	1,182	0.100	0.100	0.100	0.100	
sulphuric acid	kg	387	2.1	2.1	2.1	2.1	
polyacrylamid	kg	785	1.4	1.4	1.4	1.4	
alum	kg	612	48.8	48.8	48.8	48.8	
phosphorus salts	kg	479	1.1	1.1	1.1	1.1	
ammonium hydrate	kg	2,053	1.2	1.2	1.2	1.2	
floculant, sludge	kg	12,100	0.57	0.57	0.57	0.57	
floculant, centrifuge	kg	26,241	0.45	0.45	0.45	0.45	
Other Chemicals							
		125,000	1	1	1	1	
Subtotal chemicals							
Electricity							
	kWh	85	350	350	350	350	
Coal							
	kg	61	2,800	2,800	2,800	2,800	
Fuel oil, recovery & power	kg	207	200	200	200	200	
Fuel oil, lime lohn	kg	207	80	80	80	80	
Fuel oil, sludge burning	kg	207	3.0	3.0	3.0	3.0	
Subtotal fuels							
Total energy							
Raw water charge	SUR/m3	68.36	305	305	305	305	
Wrapping mat.							
Kraftliner	kg	1,259	2.5	2.5	2.5	2.5	
White board	kg	1,278	0.0	6.4	0.0	6.4	
Subtotal packing							
TOTAL VARIABLE COSTS							

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Appendix IV
Baikalsk Pulp and Paper Mill
VARIABLE COSTS IN 1995

1 Variable Costs	Cost	Cost	Cost	Cost
	1000 SUR	1000 SUR	1000 SUR	1000 SUR
Cost level average of 1995	/ADr	/ADr	/ADr	/ADr
	Card	Viscose	Kraft	NUSK
Wood logs at mill				
pine and larch	850.1	755.6	585.7	513.3
sawmill chip	94.5	84.0	65.1	57.0
birch				
Subtotal wood	944.6	839.5	650.8	570.3
Chemicals				
sodium sulphate	26.8	26.8	26.8	26.8
lime stone	1.8	1.8	1.8	1.8
sodium hydroxide	0.0	0.0	0.0	0.0
turpentine	(1.8)	(1.8)	(1.8)	(1.8)
Bleach Chemicals				
chlorine	63.1	59.5	63.3	0.0
sodium hydroxide	100.4	88.6	88.6	0.0
sulfuric acid	3.1	3.1	3.1	0.0
sodium chlorate	22.3	24.5	24.5	0.0
sulphur dioxide	26.8	26.8	26.8	0.0
oxygen	0.0	0.0	0.0	0.0
peroxide	0.0	0.0	0.0	0.0
salt (NaCl)	0.0	0.0	0.0	0.0
taic	0.0	0.0	0.0	0.0
Tallol				
sulfuric acid	1.7	1.7	1.7	1.7
tallol	(31.8)	(31.8)	(31.8)	(31.8)
Effluent chemicals				
Sludge to treatment				
sodium hydroxide	2.5	2.5	2.5	2.5
sulphuric acid	0.8	0.8	0.8	0.8
polyacrylamid	1.1	1.1	1.1	1.1
slum	29.9	29.9	29.9	29.9
phosphorus salts	0.5	0.5	0.5	0.5
ammonium hydrate	2.5	2.5	2.5	2.5
floculant, sludge	6.9	6.9	6.9	6.9
floculant, centrifuge	11.8	11.8	11.8	11.8
Other Chemicals				
	125.0	125.0	125.0	125.0
Subtotal chemicals	393.4	380.3	404.1	177.6
Electricity				
	29.7	29.7	29.7	29.7
Coal				
	159.8	159.8	159.8	159.8
Fuel oil, recovery & power	41.5	41.5	41.5	41.5
Fuel oil, lime job	12.4	12.4	12.4	12.4
Fuel oil, sludge burning	0.6	0.6	0.6	0.6
Subtotal fuels	214.3	214.3	214.3	214.3
Total energy				
	244.0	244.0	244.0	244.0
Raw water charge				
	20.8	20.8	20.8	20.8
Wrapping wire				
	3.1	3.1	3.1	3.1
Kraftliner	0.0	8.2	0.0	8.2
White board	38.6	0.0	38.6	0.0
Subtotal packing	41.7	11.3	41.7	11.3
TOTAL VARIABLE COSTS	1,644.6	1,495.9	1,361.5	1,024.1

Appendix IV
Baikalsk Pulp and Paper Mill
VARIABLE COSTS IN 1999...

1 Variable Costs		Price	Consumption	Consumption	Consumption	Consumption	Consumption
Cost level of the third quarter of 1996		USD/UNIT	unit/ADt	unit/ADt	unit/ADt	unit/ADt	unit/ADt
			Cord	Viscose	NBSK	NUSK	Paper
Wood logs at mill							
pine and larch	m3 sob	0.9	38	5.95	4.84	3.71	3.37
sawm. chip	m3 sob	0.1	38	0.66	0.54	0.41	0.37
birch							
Subtotal wood				6.61	5.38	4.12	3.75
Chemicals							
sodium sulphate	t	180	10	10	10	10	
lime stone	t	10	50	50	50	50	
sodium hydroxide	t	278					
turpentine	t	-55	7.4	7.4	7.4	7.4	
Bleach Chemicals							
		Concentration					
chlorine	t		259	0	0	0	
sodium hydroxide	t	50%	278	30	30	30	
sulfuric acid	t	100%	84	8	8	8	
sodium chlorate	t		278	13	13	13	
sulphur dioxide	t		282	5	5	5	
oxygen	t		127	27	27	27	
peroxide	t		410	23	23	23	
salt (NaCl)	t		2	5	5	5	
talc	t		0				
Talioil							
sulfuric acid	t		84	4.3	4.3	4.3	4.3
talioil	t		(100)	77	77	77	77
Effluent chemicals							
Sludge to treatment	m3H2O/ADt			122	122	122	122
sodium hydroxide	BDt/ADt			0.030	0.03	0.03	0.03
sulphuric acid	t		278	0.9	0.9	0.9	0.9
polyacrylamid	t		84	0.9	0.9	0.9	0.9
alum	t		195	0.5	0.5	0.5	0.5
phosphorus salts	t		142	19.5	19.5	19.5	19.5
ammonium hydrate	t		100	0.4	0.4	0.4	0.4
flocculant, sludge	t		540	0.5	0.5	0.5	0.5
flocculant, centrifuge	t		2,441	0.17	0.17	0.17	0.17
	t		6,011	0.14	0.14	0.14	0.14
Other Chemicals							
			30	1	1	1	1
Subtotal chemicals							
Electricity							
	MWh		25	350	350	350	350
Fuels							
Coal	t		16	1,300	1,300	1,300	1,300
Fuel oil, recovery & power	t		59	200	200	200	200
Fuel oil, lime kiln	t		59	60	60	60	60
Fuel oil, sludge burning	t		59	3.0	3.0	3.0	3.0
Subtotal fuels							
Total energy							
Raw water charge	USD/m3		0	122	122	122	122
Wrapping							
Wrapping wire	t		133	2.5	2.5	2.5	2.5
Kraftliner	t		51	0.0	6.4	0.0	6.4
White board	t		1,728	6.4	0.0	6.4	0.0
Subtotal pecking							
TOTAL VARIABLE COSTS							

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Appendix IV
Baikalsk Pulp and Paper Mill
VARIABLE COSTS IN 1999...

1 Variable Costs	Cost		Cost		Cost	
	USD	USD	USD	USD	USD	USD
Cost level of the third quarter of 1996 /ADt	/ADt		/ADt		/ADt	
	Cord	Viscose	Kraft	NUSK		
Wood logs at mill						
pine and larch	228.3	185.8	142.4	129.6		
sawmill chip	25.4	20.6	15.8	14.4		
birch						
Subtotal wood	253.7	206.5	158.2	144.0		
Chemicals						
sodium sulphate	1.8	1.8	1.8	1.8		
lime stone	0.5	0.5	0.5	0.5		
sodium hydroxide	0.0	0.0	0.0	0.0		
turpentine	(0.4)	(0.4)	(0.4)	(0.4)		
Bleach Chemicals						
chlorine	0.0	0.0	0.0	0.0		
sodium hydroxide	8.3	8.3	8.3	0.0		
sulfuric acid	0.7	0.7	0.7	0.0		
sodium chlorate	3.6	3.6	3.6	0.0		
sulphur dioxide	1.4	1.4	1.4	0.0		
oxygen	3.4	3.4	3.4	0.0		
peroxide	9.4	9.4	9.4	0.0		
salt (NaCl)	0.0	0.0	0.0	0.0		
talc	0.0	0.0	0.0	0.0		
Taloi						
sulfuric acid	0.4	0.4	0.4	0.4		
taloi	(7.7)	(7.7)	(7.7)	(7.7)		
Effluent chemicals						
Sludge to treatment						
sodium hydroxide	0.2	0.2	0.2	0.2		
sulphuric acid	0.1	0.1	0.1	0.1		
polyacrylamid	0.1	0.1	0.1	0.1		
alum	2.8	2.8	2.8	2.8		
phosphorus salts	0.0	0.0	0.0	0.0		
ammonium hydrate	0.3	0.3	0.3	0.3		
flocculant, sludge	0.4	0.4	0.4	0.4		
flocculant, centrifuge	0.8	0.8	0.8	0.8		
Other Chemicals	30.0	30.0	30.0	30.0		
Subtotal chemicals	56.2	56.2	56.2	29.3		
Electricity	8.7	8.7	8.7	8.7		
Coal	20.2	20.2	20.2	20.2		
Fuel oil, recovery & power	11.8	11.8	11.8	11.8		
Fuel oil, lime kiln	3.5	3.5	3.5	3.5		
Fuel oil, sludge burning	0.2	0.2	0.2	0.2		
Subtotal fuels	35.7	35.7	35.7	35.7		
Total energy	44.4	44.4	44.4	44.4		
Raw water charge	1.8	1.8	1.8	1.8		
Wrapping wire	0.3	0.3	0.3	0.3		
Kraftliner	0.0	0.3	0.0	0.3		
White board	11.1	0.0	11.1	0.0		
Subtotal packing	11.4	0.7	11.4	0.7		
TOTAL VARIABLE COSTS	367.5	309.5	272.0	220.1		

Appendix IV
Baikalsk Pulp and Paper Mill
VARIABLE COSTS IN 1999...

1 Variable Costs		Price	Consumption	Consumption	Consumption	Consumption	Consumption
Cost level of the third quarter of 1996		SUR/unit	unit/ADt	unit/ADt	unit/ADt	unit/ADt	unit/ADt
			Card	Viscose	NBSK	NUSK	Paper
Wood logs at mill							
pine and larch	m3 sob	0.9	191,976	5.95	4.84	3.71	3.37
sawmill chip	m3 sob	0.1	191,976	0.65	0.54	0.41	0.37
birch							
Subtotal wood				6.61	5.38	4.12	3.75
Chemicals							
sodium sulphate	kg	898		10	10	10	10
lime stone	kg	48		50	50	50	50
sodium hydroxide	kg	1369					
turpentine	kg	-277		7.4	7.4	7.4	7.4
Bleach Chemicals							
Concentration							
chlorine	kg		1,294	0	0	0	
sodium hydroxide	kg	50%	1,369	30	30	30	
sulfuric acid	kg	100%	418	8	8	8	
sodium chlorate	kg		1,360	13	13	13	
sulphur dioxide	kg		1,412	5	5	5	
oxygen	kg		635	27	27	27	
peroxide	kg		2,050	23	23	23	
salt (NaCl)	kg		11	5	5	5	
talc	kg		0				
Tallos							
sulfuric acid	kg		418	4.3	4.3	4.3	4.3
tallos	kg		(500)	77	77	77	77
Effluent chemicals							
Sludge to treatment	m ³ H ₂ O/ADt			122	122	122	122
	BO/ADt			0.030	0.03	0.03	0.03
sodium hydroxide	kg		1,369	0.9	0.9	0.9	0.9
sulphuric acid	kg		418	0.9	0.9	0.9	0.9
polyacrylamid	kg		977	0.5	0.5	0.5	0.5
alum	kg		710	19.5	19.5	19.5	19.5
phosphorus salts	kg		498	0.4	0.4	0.4	0.4
ammonium hydrate	kg		2,700	0.5	0.5	0.5	0.5
flocculant, sludge	kg		12,208	0.17	0.17	0.17	0.17
flocculant, centrifuge	kg		30,054	0.14	0.14	0.14	0.14
Other Chemicals							
		150,000		1	1	1	1
Subtotal chemicals							
Electricity							
	kWh	125		350	350	350	350
Coal							
Fuel oil, recovery & power	kg	78		1,300	1,300	1,300	1,300
Fuel oil, lime lain	kg	295		200	200	200	200
Fuel oil, sludge burning	kg	295		60	60	60	60
	kg	295		3.0	3.0	3.0	3.0
Subtotal fuels							
Total energy							
Raw water charge	SUR/m ³	76		122	122	122	122
Wrapping wire							
Kraftliner	kg	667		2.5	2.5	2.5	2.5
White board	kg	253		0.0	6.4	0.0	6.4
	kg	8,642		6.4	0.0	6.4	0.0
Subtotal pecking							
TOTAL VARIABLE COSTS							

Appendix IV
Baitalski Pulp and Paper Mill
VARIABLE COSTS IN 1999

1 Variable Costs	Cost		Cost	
	1000 SUR Cost level of the third quarter of 1996 /ADt	1000 SUR /ADt	1000 SUR /ADt	1000 SUR /ADt
	Cord	Viscose	Kraft	NUSK
Wood logs at mill				
pine and larch	1,141.5	929.1	711.9	647.8
sawmill chip	126.8	103.2	79.1	72.0
birch				
Subtotal wood	1,268.4	1,032.4	791.0	719.8
Chemicals				
sodium sulphate	9.5	9.0	9.0	9.0
lime stone	2.4	2.4	2.4	2.4
sodium hydroxide	0.0	0.0	0.0	0.0
turpentine	(2.0)	(2.0)	(2.0)	(2.0)
Bleach Chemicals				
chlorine	0.0	0.0	0.0	0.0
sodium hydroxide	41.7	41.7	41.7	0.0
sulfuric acid	3.3	3.3	3.3	0.0
sodium chlorate	18.1	18.1	18.1	0.0
sulphur dioxide	7.1	7.1	7.1	0.0
oxygen	17.1	17.1	17.1	0.0
peroxide	47.2	47.2	47.2	0.0
salt (NaCl)	0.1	0.1	0.1	0.0
taic	0.0	0.0	0.0	0.0
Talcol				
sulfuric acid	1.8	1.8	1.8	1.8
talcol	(36.4)	(36.4)	(36.4)	(36.4)
Effluent chemicals				
Sludge to treatment				
sodium hydroxide	1.2	1.2	1.2	1.2
sulphuric acid	0.4	0.4	0.4	0.4
polyacrylamid	0.5	0.5	0.5	0.5
alum	13.9	13.9	13.9	13.9
phosphorus salts	0.2	0.2	0.2	0.2
ammonium hydrate	1.3	1.3	1.3	1.3
flocculant, sludge	2.1	2.1	2.1	2.1
flocculant, centrifuge	4.1	4.1	4.1	4.1
Other Chemicals				
	150.0	150.0	150.0	150.0
Subtotal chemicals	280.9	280.2	280.9	146.4
Electricity	43.6	43.6	43.6	43.6
Fuels				
Coal	100.9	100.9	100.9	100.9
Fuel oil, recovery & power	58.9	58.9	58.9	58.9
Fuel oil, lime kiln	17.7	17.7	17.7	17.7
Fuel oil, sludge burning	0.9	0.9	0.9	0.9
Subtotal fuels	178.3	178.3	178.3	178.3
Total energy	221.9	221.9	221.9	221.9
Raw water charge	9.2	9.2	9.2	9.2
Wrapping wire				
Kraftliner	1.7	1.7	1.7	1.7
White board	0.0	1.6	0.0	1.6
White board	55.3	0.0	55.3	0.0
Subtotal packing	57.0	3.3	57.0	3.3
TOTAL VARIABLE COSTS	1,837.4	1,547.7	1,380.1	1,100.7

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Appendix V
Baikalsk Pulp and Paper Mill
Personnel

MILL PERSONNEL

	Supervisors	Operators	Maintenance
Wood supply	11	120	29
Woodhandling	11	105	35
Digesters	10	50	38
Washing and screening		31	
Bleach Plant	10	42	40
Bleach Chemicals		27	
Drying and baling	12	96	36
Paper machine		33	15
Evaporation and talloil	4	46	28
Recovery boilers	4	40	26
Power boilers and turbines	2	29	8
Heat and power department	47	207	153
Causticizing and lime kilns	8	36	25
Water supply	4	28	47
Effluent treatment	11	90	34
Sludge treatment	9	43	24
Mechanical and electrical work shops	47	156	240
Administration	130	12	
Railway service	17	159	
Transport services	12	176	
Pilot and experiments	4	9	6
Communication and process control	19	32	23
Gas protection	2	9	6
Design department	11	2	
Warehouse	1	4	
Biological service	2	45	
Fleet		12	
Territory cleaning service	1	5	
Production management	31	67	
Building service	4	64	
Gates	8	54	
Total	432	1829	813
Mill total			3074

NON-INDUSTRIAL GROUP

Newspaper	4		
Medical service	12.5	4	
After-work sanatorium	1	12	
Children camp	2	4	
Building service	16	135	
Sport complex	24.5	29.4	
Trade firm	27	119	
Hostels	6	32	
Hotel	6	10	
Transport agency	2		
Total	101	345.4	0
Mill total			446.4
All total			3520.4

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Appendix VI
Balkalsk Pulp and Paper Mill
Effluent tax

Effluent flow

86,408,132 m³/a

Material	Absolute limits			Temporary limits				Total SUR/a	
	g/l	µa	SUR/a	1000 SUR/a	g/l	µa	SUR/a		
Total suspended solids	6,180	53.23	2,950	157	30,800	286.14	14750	3,928	4,083
BOD total	10,241	88.49	730	65	92,400	798.41	3650	2,914	2,979
COD	37,730	326.02	0	0	385,000	3,326.71	0	0	0
lignin	15,400	133.07	1,108	147	65,300	598.81	5540	3,317	3,465
furfural	77	0.67	221,750	148	1,540	13.31	1108750	14,764	14,902
Oil products	231	2.00	44,350	89	616	5.32	221750	1,180	1,269
phenols	0	0.00	2,217,500	0	77	0.67	11087500	7,377	7,377
chloroform	38.5	0.33	443,500	148	1,155	9.98	2217500	22,131	22,278
sulphate soap	770	6.65	22,175	148	23,100	199.60	110875	22,131	22,278
mercury	0.5159	0.004458	221,750,000	909	3,896	0.03	1.11E+09	35,418	36,406
dimethylsulphide	0.077	0.000665	221,750,000	148	231	2.00	1.11E+09	2,213,595	2,213,742
dimethyldisulphide	0.077	0.000665	221,750,000	148	308	2.66	1.11E+09	2,951,460	2,951,607
ammonium	308	2.66	5,545	15	6,468	55.89	27725	1,550	1,564
nitrites	15,400	133.07	58	7	15,400	133.07	278	37	44
chlorides	231,000	1,996.03	7	14	92,400	798.41	35	28	42
sulphates	77,000	665.34	20	13	1,593,900	13,772.59	100	1,377	1,391
methanol	770	6.65	22,175	148	770	6.65	110875	738	885
turpentine	955	8.25	11,090	91	955	8.25	55450	457	549
aluminium	308	2.66	5,540	15	616	5.32	277200	1,475	1,490
sulphide ions	0.077	0.00	221,750,000	148	0.077	0.00	1.11E+09	738	885
phosphates	308	2.66	3,636	10	770	6.65	18180	121	131
synthetic detergents	0.077	0.00	4,435	0	770	6.65	22170	148	148
formaldehyde	770	6.65	5,500	37	770	6.65	27500	183	220
AOX	0.077	0.00	221,750,000	148	6701	75.18	1.11E+09	83,376,740	83,376,888
nitrites	7.7	0.07	33,598	2	7.7	0.07	167992	11	13
			Total		2,831		Total	86,663,806	86,666,636
Balkal factor			1.7		4,812		1.7	150,728,470	150,733,282
Inflation factor			17		81,806		17	2,562,383,988	2,562,465,794
Total in USD								606,577	606,596

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Appendix VII
Baikalsk Pulp and Paper Mill
Cash Flow Calculation

	1993	1994	1995	1996	1997-98
PRODUCTION VOLUMES					
		1000 t			
Domestic					
Cord	31.8	4.9	0.0	0.0	0.0
Viscose	42.8	56.3	63.6	65.0	65.0
Semibl. kraft	1.4	0.0	0.0	0.0	0.0
NBSK	39.2	44.8	13.7	30.0	30.0
Unbl. kraft	7.6	14.2	1.5	0.0	0.0
Paper	6.0	6.6	6.0	5.0	5.0
Total domestic production	128.8	126.8	84.8	100.0	100.0
Export					
Cord	8.0	0.2	0.0	0.0	0.0
Viscose	13.1	17.8	29.0	25.0	25.0
Semibl. kraft	0.2	0.0	0.0	0.0	0.0
NBSK	6.3	7.5	21.0	20.0	20.0
Unbl. kraft	0.5	0.7	14.7	10.0	10.0
Paper	0.0	0.0	2.1	5.0	5.0
Total export production	28.1	26.2	66.8	60.0	60.0
Total production	156.9	153.0	151.5	160.0	160.0
SALES PRICES					
		USD/ADt			
Domestic					
Cord	215	278	0	0	0
Viscose	221	529	1,023	1,075	900
Semibl. kraft	48	273	0	0	0
NBSK	156	316	792	1,000	800
Unbl. kraft	66	478	603	800	700
Paper	30	98	264	341	341
Export					
Cord	0	0	0	0	0
Viscose	536	647	1,021	1,062	900
Semibl. kraft	111	474	0	0	0
NBSK	130	557	830	1,000	850
Unbl. kraft	216	457	597	629	629
Paper	0	0	0	0	0

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Appendix VII
Baikalsk Pulp and Paper Mill
Cash Flow Calculation

	1993	1994	1995	1996	1997-98
	1000 USD/a				
SALES INCOME	31,142	68,713	134,147	154,388	129,994
Domestic	23,174	52,704	78,382	101,560	84,205
Export	7,967	16,009	55,765	52,828	45,788
Distribution, domestic	2,627	3,326	2,137	1,800	2,800
Distribution, export	1,096	1,315	3,220	2,280	3,000
Total Net Sales	27,418	64,073	128,789	150,308	124,194
	1000 USD/a				
VARIABLE COSTS					
Wood	6,662	13,441	24,010	29,930	29,930
Chemicals	2,933	4,290	11,419	12,999	12,999
Power	206	532	935	1,308	1,308
Coal	2,347	5,107	5,024	6,053	6,053
Fuel oil	807	683	1,714	2,324	2,324
Water	128	29	656	693	693
Packaging	302	589	587	635	635
Total variable costs	13,384	24,671	44,346	53,941	53,941
CONTRIBUTION MARGIN	14,034	39,402	84,443	96,366	70,252
	1000 USD/a				
FIXED COSTS					
Personnel Costs	4,986	9,185	16,951	19,622	19,622
Contracted services	668	1,720	1,997	2,059	2,059
Maintenance materials and operating supply	1,138	3,110	1,647	1,698	1,698
general overhead costs:	3,268	2,707	7,977	8,224	8,224
- insurance					
- communication					
- travelling					
- administration and office costs					
Non-operational costs					
Non-operational domestic costs	53	175	203	0	
Export payments	0	0	0	0	
Scientific research and pilot works	378	0	984	0	
Total fixed costs	10,491	18,897	29,759	31,603	31,603
Total manufacturing costs	23,875	41,568	74,105	85,544	85,544
OPERATING MARGIN	3,543	22,505	54,684	64,763	38,649

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Appendix VII
Baikalsk Pulp and Paper Mill
Cash Flow Calculation

	1993	1994	1995	1996	1997-98
	1000 USD/a				
Interest on short term loans		4,163			
Reinvestments and major repairs	333	2,624	8,333	8,000	8,000
OPERATING PROFIT	3,210	15,719	46,351	56,763	30,649
Profit tax		of Oper. profit			
		35%			
Profit tax	1,123	5,502	16,223	19,867	10,727
Tax for labour payment fund	151	739	2,178	2,668	1,441
Special tax	96	472	1,391	1,703	919
		3%			
PROFIT FOR BPPM DISPOSAL	1,839	9,007	26,559	32,525	17,562
Environmental protection payment	184	901	2,556	3,253	1,756
		10%			
NET PROFIT FOR BPPM DISPOSAL	1,655	8,106	23,903	29,273	15,806

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Appendix VII
Baikalsk Pulp and Paper Mill
Cash Flow Calculation

	1993	1994	1995	1996	1997-98
PRODUCTION VOLUMES					
		1000 t			
Domestic					
Cord	31.8	4.9	0.0	0.0	0.0
Viscose	42.8	56.3	63.6	65.0	65.0
Semibl. kraft	1.4	0.0	0.0	0.0	0.0
NBSK	39.2	44.8	13.7	30.0	30.0
Unbl. kraft	7.6	14.2	1.5	0.0	0.0
Paper	6.0	6.6	6.0	5.0	5.0
Total domestic production	128.8	126.8	84.8	100.0	100.0
Export					
Cord	8.0	0.2	0.0	0.0	0.0
Viscose	13.1	17.8	29.0	25.0	25.0
Semibl. kraft	0.2	0.0	0.0	0.0	0.0
NBSK	6.3	7.5	21.0	20.0	20.0
Unbl. kraft	0.5	0.7	14.7	10.0	10.0
Paper	0.0	0.0	2.1	5.0	5.0
Total export production	28.1	26.2	66.8	60.0	60.0
Total production	156.9	153.0	151.5	160.0	160.0
SALES PRICES					
		SUR/ADt			
Domestic					
Cord	202,238	610,140	0	0	0
Viscose	207,483	1,158,887	4,666,703	5,373,406	4,500,000
Semibl. kraft	44,685	598,000	0	0	0
NBSK	147,018	692,166	3,609,687	5,000,000	4,000,000
Unbl. kraft	61,832	1,048,791	2,751,702	4,000,000	3,500,000
Paper	28,532	213,996	1,202,713	1,705,426	1,705,426
Export					
Cord	0	0	0	0	0
Viscose	503,458	1,417,638	4,656,475	5,307,950	4,500,000
Semibl. kraft	103,846	1,038,465	0	0	0
NBSK	122,172	1,221,723	3,784,119	5,000,000	4,250,000
Unbl. kraft	202,924	1,001,866	2,722,022	3,144,043	3,144,043
Paper	0	0	0	0	0

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Appendix VII
Baikalsk Pulp and Paper Mill
Cash Flow Calculation

	1993	1994	1995	1996	1997-98
	million SUR/a				
SALES INCOME	29,265	150,647	611,704	771,938	649,968
Domestic	21,778	115,549	357,418	507,799	421,027
Export	7,487	35,098	254,285	264,139	228,940
Distribution, domestic	2,469	7,291	9,746	9,000	14,000
Distribution, export	1,030	2,882	14,685	11,400	15,000
Total Net Sales	25,766	140,474	587,272	751,538	620,968
	million SUR/a				
VARIABLE COSTS					
Wood	6,260	29,468	109,487	149,649	149,649
Chemicals	3,525	13,866	52,072	64,994	64,994
Power	194	1,166	4,264	6,542	6,542
Coal	2,205	11,196	22,910	30,264	30,264
Fuel oil	758	1,498	7,816	11,618	11,618
Water	120	64	2,989	3,463	3,463
Packaging	284	1,291	2,677	3,177	3,177
Total variable costs	13,347	58,549	202,215	269,707	269,707
CONTRIBUTION MARGIN	12,420	81,925	385,057	481,831	351,261
	million SUR/a				
FIXED COSTS					
Personnel Costs	4,686	20,136	77,294	98,109	98,109
Contracted services	628	3,771	9,108	10,296	10,296
Maintenance materials and operating supply	1,070	3,110	7,511	8,490	8,490
general overhead costs:	3,072	5,935	36,376	41,120	41,120
- insurance					
- communication					
- travelling					
- administration and office costs					
Non-operational costs					
Non-operational domestic costs	49	383	925	0	
Export payments	0	0	0	0	
Scientific research and pilot works	355	0	4,485	0	
Total fixed costs	9,859	33,336	135,699	158,015	158,015
Total manufacturing costs	23,206	91,886	337,914	427,722	427,722
OPERATING MARGIN	2,561	48,589	249,358	323,816	193,246

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Appendix VII
Baikalsk Pulp and Paper Mill
Cash Flow Calculation

	1993	1994	1995	1996	1997-98
		million SUR/a			
Interest on short term loans		9,127			
Reinvestments and major repairs	313	5,752	38,000	40,000	40,000
OPERATING PROFIT	2,248	33,710	211,358	283,816	153,246
		of Oper. profit			
Profit tax	35%	787	11,798	73,975	99,335
Tax for labour payment fund	5%	106	1,584	9,934	13,339
Special tax	3%	67	1,011	6,341	8,514
PROFIT FOR BPPM DISPOSAL	1,288	19,316	121,108	162,626	87,810
Environmental protection payment	10%	129	1,932	12,111	16,263
NET PROFIT FOR BPPM DISPOSAL	1,159	17,384	108,998	146,364	79,029

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Appendix VII
Baikalsk Pulp and Paper Mill
Modernisation Program

Year	1995	1996	1997	1998	1999	2000	2001..14
SALES VOLUME (1000 t/a)							
Cord	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Viscose	92.6	90.0	90.0	90.0	110.0	140.0	140.0
Semibleached kraft	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BSKP	34.7	50.0	50.0	50.0	50.0	70.0	70.0
USKP	16.2	10.0	10.0	10.0	10.0	10.0	10.0
Wrapping paper	8.1	10.0	10.0	10.0	10.0	10.0	10.0
Total pulp and paper	151.5	160.0	160.0	160.0	180.0	230.0	230.0
SALES INCOME 1000 USD/a							
Cord	0	0	0	0	0	0	0
Viscose	94,651	96,394	81,000	81,000	90,200	114,800	114,800
Semibleached kraft	0	0	0	0	0	0	0
BSKP	28,232	50,000	41,000	41,000	36,000	50,400	50,400
USKP	9,680	6,288	6,288	6,288	6,288	6,288	6,288
Wrapping paper	1,583	1,705	1,705	1,705	1,705	1,705	1,705
Total Sales Income	134,147	154,388	129,994	129,994	134,194	173,194	173,194
Distribution	5,358	4,080	5,800	5,800	8,000	10,200	10,200
Sales Income	128,789	150,308	124,194	124,194	126,194	162,994	162,994
VARIABLE COSTS							
Wood	24,010	29,930	29,930	29,930	32,062	41,421	41,421
Chemicals	11,419	12,999	12,999	12,999	9,281	12,090	12,090
Power	935	1,308	1,308	1,308	1,483	1,919	1,919
Coal	5,024	6,053	6,053	6,053	3,430	4,439	4,439
Fuel oil	1,714	2,324	2,324	2,324	2,633	3,408	3,408
Water	656	693	693	693	314	406	406
Packaging	587	635	635	635	649	896	896
Variable Costs Total	44,346	53,941	53,941	53,941	49,852	64,579	64,579
Sales Margin	84,443	96,366	70,252	70,252	76,341	98,415	98,415
FIXED COSTS							
Personnel	16,951	19,622	19,622	19,622	19,622	19,622	19,622
Maintenance and Operating Material and Services	3,644	3,757	3,757	3,757	3,757	3,757	3,757
Administration	9,164	8,224	8,224	8,224	8,224	8,224	8,224
Fixed Costs Total	29,759	31,603	31,603	31,603	31,603	31,603	31,603
TOTAL MANUFACT. COSTS	74,105	85,544	85,544	85,544	81,455	96,182	96,182
OPERATING MARGIN	54,684	64,763	38,649	38,649	44,738	66,812	66,812
Tax depreciation (-)	7,260	7,260	7,260	7,260	7,260	7,260	7,260
Earnings before taxes	47,424	57,503	31,389	31,389	37,478	59,552	59,552
Profit tax	35%	16,599	20,126	10,986	10,986	13,117	20,843
Tax for labour payment fund	5%	2,371	2,875	1,569	1,569	1,874	2,978
Special tax	3%	1,423	1,725	942	942	1,124	1,787
NET INCOME	27,032	32,777	17,892	17,892	21,363	33,944	33,944
Environmental protection payment	10%	2,703	3,278	1,789	1,789	2,136	3,394
Tax depreciation (+)	7,260	7,260	7,260	7,260	7,260	7,260	7,260
Modernisation Program	0	4,500	45,000	85,500	15,000		
Replacement Investments	8,333	8,000	8,000	8,000	2,000	8,000	8,000
Change in working capital	5,456	2,860	(2,176)	0	(156)	4,270	0
FREE CASH FLOW	17,799	21,399	(27,461)	(70,137)	9,642	25,540	29,810
CUMULATIVE FREE CASH FLOW with 8 % DCF	17,799	40,622	16,410	(52,414)	(46,965)	(25,182)	2,613
NET PRESENT VALUE with 8 % DCF							139,002

Risto Salama

Espoo,

21-Oct-95

**Appendix VIII
Baltisk Pulp and Paper Mill
Modernisation Program**

Year	1995	1996	1997	1998	1999	2000	2001..14
SALES VOLUME (1000 t/a)							
Cord	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Viscose	92.6	90.0	90.0	90.0	110.0	140.0	140.0
Semibleached kraft	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BSKP	34.7	50.0	50.0	50.0	50.0	70.0	70.0
USKP	16.2	10.0	10.0	10.0	10.0	10.0	10.0
Wrapping paper	8.1	10.0	10.0	10.0	10.0	10.0	10.0
Total pulp and paper	151.5	160.0	160.0	160.0	180.0	230.0	230.0
SALES INCOME million SUR/a							
Cord	0	0	0	0	0	0	0
Viscose	431,607	481,970	405,000	405,000	451,000	574,000	574,000
Semibleached kraft	0	0	0	0	0	0	0
BSKP	128,739	250,000	205,000	205,000	180,000	252,000	252,000
USKP	44,141	31,440	31,440	31,440	31,440	31,440	31,440
Wrapping paper	7,216	8,527	8,527	8,527	8,527	8,527	8,527
Total Sales Income	611,704	771,938	649,968	649,968	670,968	865,968	865,968
Distribution	24,431	20,400	29,000	29,000	40,000	51,000	51,000
Sales Income	587,272	751,538	620,968	620,968	630,968	814,968	814,968
VARIABLE COSTS							
Wood	109,487	149,649	149,649	149,649	160,312	207,104	207,104
Chemicals	52,072	64,994	64,994	64,994	46,405	60,450	60,450
Power	4,264	6,542	6,542	6,542	7,414	9,594	9,594
Coal	22,910	30,264	30,264	30,264	17,150	22,194	22,194
Fuel oil	7,816	11,618	11,618	11,618	13,167	17,040	17,040
Water	2,989	3,463	3,463	3,463	1,570	2,032	2,032
Packaging	2,677	3,177	3,177	3,177	3,243	4,481	4,481
Variable Costs Total	202,215	269,707	269,707	269,707	249,261	322,894	322,894
Sales Margin	385,057	481,831	351,261	351,261	381,707	492,074	492,074
FIXED COSTS							
Personnel	77,294	98,109	98,109	98,109	98,109	98,109	98,109
Maintenance and Operating Material and Services	18,319	18,786	18,786	18,786	18,786	18,786	18,786
Administration	41,786	41,120	41,120	41,120	41,120	41,120	41,120
Fixed Costs Total	135,699	158,015	158,015	158,015	158,015	158,015	158,015
TOTAL MANUFACT. COSTS	337,914	427,722	427,722	427,722	407,276	480,909	480,909
OPERATING MARGIN	249,358	323,816	193,246	193,246	223,692	334,059	334,059
Tax depreciation (-)	33,105	36,300	36,300	36,300	36,300	36,300	36,300
Earnings before taxes	216,253	287,516	156,946	156,946	187,392	297,759	297,759
Profit tax	35%	75,689	100,630	54,931	54,931	65,587	104,215
Tax for labour payment fund	5%	10,813	14,376	7,847	7,847	9,370	14,888
Special tax	3%	6,488	8,625	4,708	4,708	5,622	8,933
NET INCOME	123,264	163,884	89,459	89,459	106,813	169,722	169,722
Environmental protection payment	10%	12,326	16,388	8,946	8,946	10,681	16,972
Tax depreciation (+)	33,105	36,300	36,300	36,300	36,300	36,300	36,300
Modernisation Program	0	22,500	225,000	427,500	75,000		
Replacement investments	38,000	40,000	40,000	40,000	10,000	40,000	40,000
Change in working capital	24,879	22,305	(10,881)	0	(780)	21,352	0
FREE CASH FLOW	91,164	98,990	(137,306)	(350,687)	48,212	127,698	149,050
CUMULATIVE FREE CASH FLOW with 8 % DCF	81,164	186,648	64,274	(281,271)	(255,561)	(148,308)	(11,123)
NET PRESENT VALUE with 8 % DCF		680,896					