

Feasibility Study of New Terminal  
Facilities in the Georgian Ports  
**Phase 2 Report**  
Vol. VI - Financial and  
Economic Impact Analysis  
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## Table of Contents

1. Introduction and Summary	
1.1 Poti, Container Terminal	1
1.2 Poti, General Cargo and Bulk Areas	2
1.3 Batumi, Multipurpose Terminal	3
2. Poti	
2.1 Cash Flow Analysis	20
2.1.1 General Assumptions and Inputs	20
2.1.2 Quantity framework	22
2.1.3 Investments	22
2.1.4 Income	23
2.1.5 Costs	24
2.1.6 Taxes	26
2.2 Calculation of the cash flow	26
2.2.1 Calculation of the „real case“	27
2.2.2 Modified calculation of the „best case“	27
2.2.3 Modified calculation of the „worst case“	31
2.2.4 Conclusions and recommendations (real case)	35
3. Batumi	
3.1 Cash Flow Analysis	39
3.1.1 General Assumptions and Inputs	39
3.1.2 Quantity framework	40
3.1.3 Proposed Investments	43
3.1.4 Proceeds	43
3.1.5 Costs	43
3.1.6 Taxes	43
3.2 Calculation of the cash flow	43
3.2.1 Basis of the conception	43
3.2.2 Calculation of the different cases	44
3.2.3 Analysis of the calculation (real case)	52
3.2.4 Recommendations and conclusions	56

## Annexes

- Annex 1: Cash flow analysis Poti, Container Terminal with breakwater
- Annex 2: Cash flow analysis Poti, general cargo and bulk areas
- Annex 3: Poti Container Terminal Business Plan (summarized 1998-2012)
- Annex 4: Tariff List of the Georgian Ports (dated 30. August 1995)
- Annex 5: Development of the operating costs of the Poti Container Terminal 1998-2012
- Annex 6: Business Plan Batumi, multipurpose terminal
- Annex 7: Development of the operating costs of the Batumi multi purpose terminal 1998-2012

# 1. Introduction and Summary

The purpose of this volume is to elaborate a financial plan for the development of the ports of Poti and Batumi. In this stage and in the available time a scheme was developed with which the relevant commodities can be calculated. The chosen example for the cash flow model is the planned new container terminal Poti. The other commodities can be adapted accordingly. The results of the calculation will lead to an intensive discussion about the input data and the assumptions on which the calculations are based in the next weeks.

The basis for the financial plan and the cash flow analysis is given in the previous volumes of the present report, especially in the traffic forecast and the master plan. Many discussions with the port management took place to get the relevant input data about the present situation and the expected development. Some adaptations to western standards were made both on the costside and the revenues.

The macro-economic situation in Georgia is in a phase of transition from the state planned economy of the former Soviet-Union to a modern market economy according to western example. As a result of this change the cost of the input factors can be expected to increase to a more realistic market price level within the forecast period. To avoid an estimation of a Georgian inflation rate, all figures have been expressed in constant USD. All increases in costs and revenues in this report are therefore real increases.

The cash flow and financial analysis are based on the evaluation of the proceeds and costs. For both ports detailed income and cost calculation have been made. The proceeds are orientated at the list of tariffs of the Georgian ports and the quantities calculated out of the traffic forecasts based on the real (most probable) scenario. The costs also based on the volumes out of the traffic forecasts and the productivity calculated in the port master plans.

The cash flow calculations are evaluated by several calculation runs. Calculations have been made for the planned new container terminal with and without the necessary infrastructure and the terminals for general cargo and bulk in Poti. For Batumi the multi purpose terminal has been calculated. The following tables will give an extract of the calculation runs. In fact, the real case variant calculation is shown.

All tables (every table consists of 4 pages) have the same structure:

First (page 1) the reader will find the time schedules of the investment with the yearly investment costs, the yearly proceeds depending on the traffic forecast and the annual total costs. One remark to the time axe: An optimistic beginning for the investment is the year 1998, but depending on the required decisions you can define year 1 as the beginning period. Further descriptions will be given in the following chapters.

Second (pages 2 and 3) the cash flow analyses for the real case is shown for the planned period of 15 years. And third (page 4), you will find the characteristic indicators to evaluate the investment under financial aspects. Beside the indicators earnings and cash flow (both after interest and tax), installments, accumulated investments and return on proceeds, the loan status is a very important criteria with ist information about the repayment of the needed credits.

## 1. Poti, Container Terminal

As mentioned the cash flow analysis has been made for both container terminal including and excluding the big infrastructure costs (breakwater, rail and road infrastructure).

**Table 1** shows the calculation run in the real case variant for Poti container terminal with breakwater and the required infrastructure investment for railtracks and road. The total investment sum amounts to 158.267 million USD, wherein the mentioned infrastructure is about 37 million USD plus incidental expenses. The investment peak will be in the fourth year when the finishing of the new container terminal will be started. The real case variant with 10% interest shows both earnings and cash flow with a bad line, the return on proceeds becomes mostly negative and above all there is no total repayment of the credits within the 15 years. (Remark: the replacement in the year 15 is not yet calculated as used credit!) Also the calculation run in the best case variant with 8% interest (see annex 1) shows no acceptable results.

The calculation runs for the container terminal **without** breakwater and the required external infrastructure shows an acceptable result, as to be seen in **table 2**. The real case variant produces a good result: Earnings and cash flow will get a good line after the phase of the high investment, just as the return on proceeds and the repayment of the loans in the 15 years period will be managed. Even the investment in the 15th year (11.5 million USD) can be financed with cash flow.

A comparison of the calculation runs shows that it must be recommended to discharge the container terminal from the investment costs for the infrastructure: The results of the runs with the infrastructure say that in the real case no repayment of the loan will be reached at the end of the 15 years period. The calculation run of the variant without the infrastructure as described above shows in the real case a very good course of the financial concept as the figures express. Both earnings and cash flow have a good line and the loan will be repaid in the project period.

## 1.1 Poti, General Cargo and Bulk Areas

**Table 3** shows the calculation run in the real case variant. The total sums up to nearly 30 million USD. All investments will be made in the first seven years. The beginning of replacement will take place after this time. This is the same time when the area of the extension container terminal can be used again for general cargo handling by reasons of operating the whole container activities by the new container terminal. Because of this, it is recommended to begin a new financing concept in the periods 7-9.

The calculation runs show that a very good result can be achieved with the input data given. To be on the save side of evaluation the real case variant is calculated with a reduction of proceed of 10% to 90%. The result diagrams show that earnings as well as cash flow (after interest and tax) have a good line. The peak in year 5 (2002) is the result of transport level which continues in the same height from this year on (see traffic forecast). The loan will be repayed during the project period, the return on proceeds will settle down between 5 and 10% after the peak in year 5. A comparison with the 10% interest and 100% proceeds defined best case variant shows a return on proceeds between 15 and 20%, earnings and cash flow show an about 30% higher value.

The calculation runs for the best and worst case variant and the detailed input datas are reproduced in annex 2.

## 1.3 Batumi, Multipurpose Terminal

**Table 4** shows the calculation run in the real case variant for the multipurpose terminal in Batumi. The whole investment amounts to about 30 million USD, the main activities as to the preparation, environmental and civil works are made in the first two years.

The calculation runs show a principle problem in the definition of the activities, proceeds and costs of the multipurpose terminal. In the first calculation run of the real case with the calculated proceeds, based on a certain part of the general cargo and bulk operation the earnings get to low. The cash flow analysis has a very bad result (see table 3.2.2-2, calculation of the worst case). The financial team thus decided to increase the proceeds by 10%. The result is documented in the tables of the real case. After the powerful investment in the first 4 years earnings and cash flow get a good result, the return on proceeds reaches nearly 10% and the loan (the maximum loan sum is about 25 million USD) can be repaid in the project period.

In the following chapter a detailed explanation of the cash flow analysis for the Poti container terminal and the Batumi multipurpose terminal is given.

**Table 1 (4 pages)**

**Poti Container Terminal: Time schedule (with breaker)**

year	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	sum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
Investment berth 6+7	9,134	5,035	0	0	0	0	0	0	0	0	0	0	0	0	0	14,165
Extension berth 6 + 7																
Rehabilitation equipment																
New equipment																
Other equipment																
Investment berth 12-14	0	2,538	1,258	0	0	0	0	0	0	0	0	0	0	0	0	3,796
Extension berth 12-14																
Utilities, site preparation																
New cargo equipment																
Investment New CT-Term.	0	12,333	16,193	38,122	24,144	0	420	0	0	3,954	11,044	3,258	8,233	0	11,500	129,201
Breakwater																
Site preparation																
Utilities, other																
Civil works, buildings																
Warehouse																
EDP																
New cargo equipment	828	2,212	2,429	5,407	225	0	0	0	0	0	0	0	0	0	0	11,101
Incidental expenses																
Total	9,962	22,118	19,880	43,529	24,369	0	420	0	0	3,954	11,044	3,258	8,233	0	11,500	158,267
all in all	9,962	32,080	51,960	95,489	119,858	119,858	120,278	120,278	120,278	124,232	135,276	138,534	146,767	146,767	158,267	
Proceeds	8,550	9,430	11,572	14,203	17,466	19,039	20,751	22,619	24,655	26,955	30,594	34,724	39,412	44,733	51,290	
Total costs	2,847	4,425	5,508	7,436	13,115	13,384	13,585	13,762	13,963	14,957	17,698	18,324	20,835	21,466	24,259	

[R] Replacement



Table 1 (4 pages)

Year	2	3	4	5	6	7	8
	1998	1999	2000	2001	2002	2003	2004
<b>Poti container terminal (with breakwater): Cash flow analysis, real case, interest 10%</b>							
Investment	approx.						
Investment berth 6+7	9.962	22.118	19.880	43.529	24.369	0	420
Investment berth 12-14							
Investment New CT-Term.							
Incidental expenses							
Investments total (per year)	9.962	22.118	19.880	43.529	24.369	0	420
net total accumulated	9.962	32.080	47.231	86.829	107.739	105.637	108.543
financed per Earnings incl. Deprec.	0	-4.729	-3.931	-3.459	-2.102	2.487	3.818
total accumulated	9.962	27.351	43.300	83.370	105.637	108.123	112.961
Proceeds	8.550	9.430	11.572	14.203	17.466	19.039	20.751
Proceeds total	8.550	9.430	11.572	14.203	17.466	19.039	20.751
Total costs (with depreciation)	2.847	4.425	5.508	7.436	13.115	13.384	13.585
Costs (without depreciation)	2.282	2.721	3.221	3.956	6.529	6.798	6.999
EBITDA (Cash Flow)	6.268	6.709	8.350	10.247	10.937	12.241	13.752
Depreciation	564	1.704	2.286	3.479	6.586	6.586	6.586
EBIT	5.704	5.005	6.064	6.767	4.351	5.655	7.166
Accumulated Capital Requirements	498	2.222	4.598	8.145	13.424	16.058	16.578
Earnings before Tax	5.205	2.784	1.466	-1.377	-9.073	-10.403	-9.412
Tax	1.041	557	293	0	0	0	0
Earnings (after interest & Tax)	4.164	2.227	1.173	-1.377	-9.073	-10.403	-9.412
Cash-Flow (after interest & Tax)	4.164	3.931	3.459	2.102	-2.487	-3.818	-2.626
Loan status	0	9.962	26.995	41.843	79.956	97.908	94.252
							91.549

Table 1 (4 pages)

Year	2006	2007	2008	2009	2010	2011	2012
<b>Poti container terminal (with breakeven): Cash flow analysis, real case, interest 10%</b>							
Investment	0	3.954	11.044	3.258	8.233	0	11.500
Investment berth 6+7							
Investment berth 12-14							
Investment New CT-Term.							
Incidental expenses							
Investments total (per year)	0	3.954	11.044	3.258	8.233	0	11.500
net total accumulated	115.187	120.999	132.017	134.474	140.955	138.493	144.786
financed per Earnings incl. Deprec.	1.858	-25	-801	-1.753	-2.462	-5.206	-6.859
total accumulated	117.045	120.973	131.216	132.722	138.493	133.286	137.928
Proceeds	24.655	26.955	30.594	34.724	39.412	44.733	51.290
Proceeds total	24.655	26.955	30.594	34.724	39.412	44.733	51.290
Total costs (with depreciation)	13.963	14.957	17.698	18.324	20.835	21.466	24.259
Costs (without depreciation)	7.377	8.371	9.706	10.331	11.457	12.089	13.266
EBITDA (Cash Flow)	17.278	18.584	20.888	24.392	27.955	32.644	38.024
Depreciation	6.586	6.586	7.992	7.992	9.377	9.377	10.992
EBIT	10.693	11.998	12.896	16.400	18.577	23.266	27.031
Accumulated Capital Requirements	17.253	17.783	19.135	21.930	22.748	25.785	26.017
Earnings before Tax	-6.561	-5.785	-6.240	-5.530	-4.171	-2.519	-1.014
Tax	0	0	0	0	0	0	203
Earnings (after Interest & Tax)	-6.561	-5.785	-6.240	-5.530	-4.171	-2.519	811
Cash-Flow (after Interest & Tax)	25	801	1753	2462	5206	6859	11804
Loan status	86.369	80.284	75.235	74.958	62.685	52.845	32.925

Table 1 (4 pages)

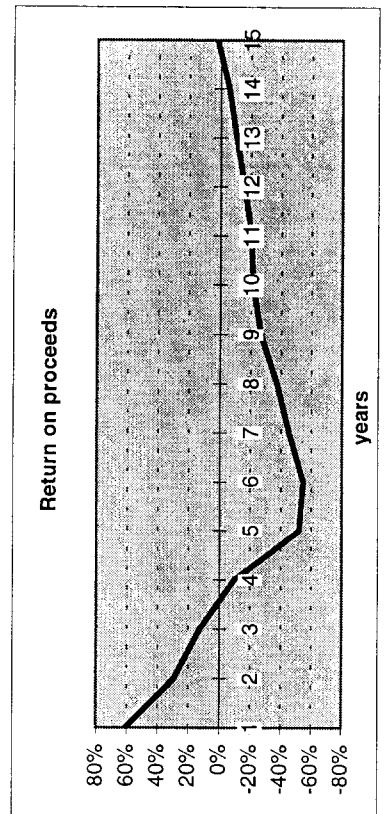
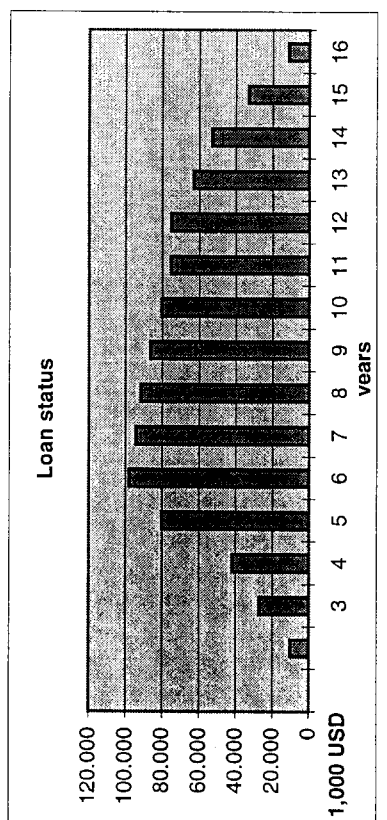
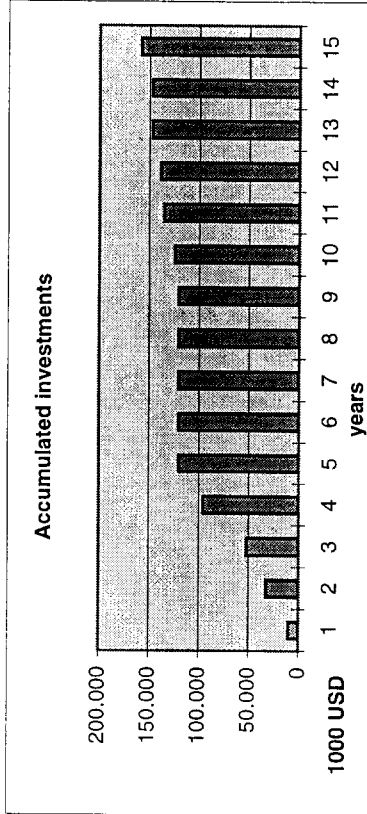
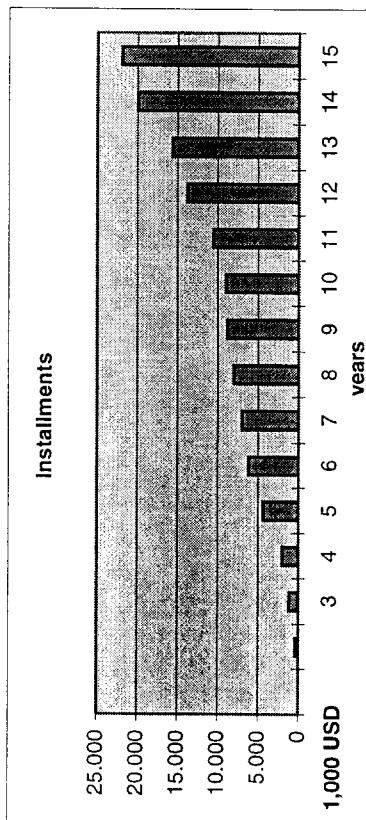
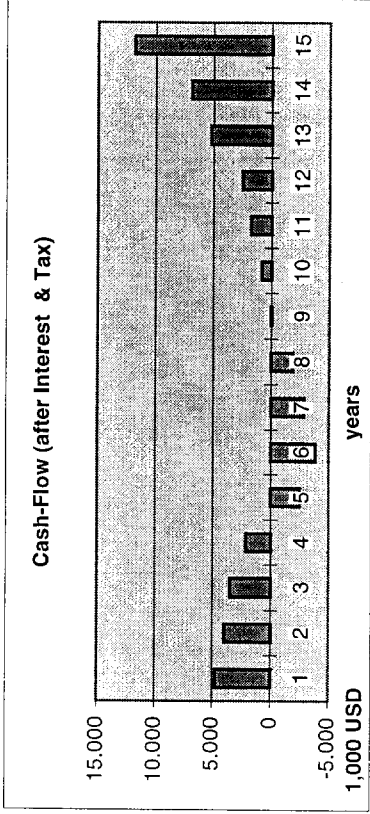
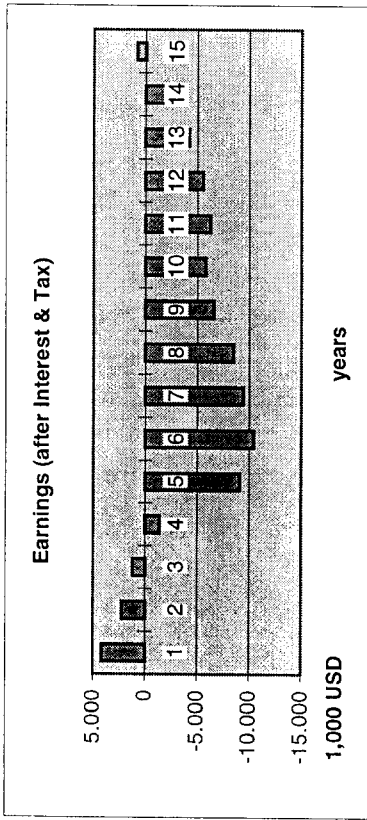




Table 2 (4 pages)

Poti container terminal: Time schedule (without breakwater)

year	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	sum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
<b>Investment berth 6+7</b>	9,134	5,035	0	0	0	0	0	0	0	0	0	0	0	0	0	14,169
Extension berth 6 + 7																
Rehabilitation equipment																
New equipment																
Other equipment																
<b>Investment berth 12-14</b>	0	2,538	1,258	0	0	0	0	0	0	0	0	0	0	0	0	3,796
Extension berth 12-14																
Utilities, site preparation																
New cargo equipment																
<b>Investment New CT-Term.</b>	0	0		24,144			420	0	0	3,954	11,044	3,258	8,233	0	11,500	92,202
Site preparation																
Utilities, other																
Civil works, buildings																
Warehouse																
EDP																
New cargo equipment																
<b>Incidental expenses</b>	828	362	579	3,557	225	0	0	0	0	0	0	0	0	0	0	5,551
<b>Total</b>	9,962	7,935	5,697	29,346	24,369	0	420	0	0	3,954	11,044	3,258	8,233	0	11,500	115,718
all in all	9,962	17,897	23,594	52,940	77,309	77,309	77,729	77,729	77,729	81,683	92,727	95,985	104,218	104,218	115,718	
<b>Proceeds</b>	8,550	9,430	11,572	14,203	17,466	19,039	20,751	22,619	24,655	26,955	30,594	34,724	39,412	44,733	51,290	
<b>Total costs</b>	2,847	4,425	5,508	7,436	13,115	13,384	13,585	13,762	13,963	14,957	17,698	18,324	20,835	21,466	24,259	

[R] Replacement

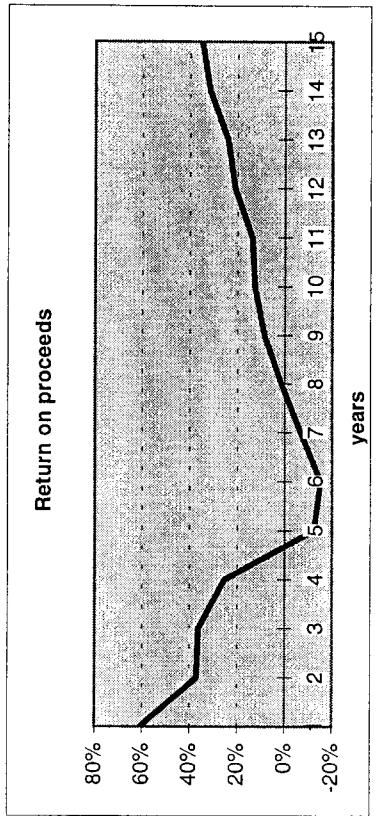
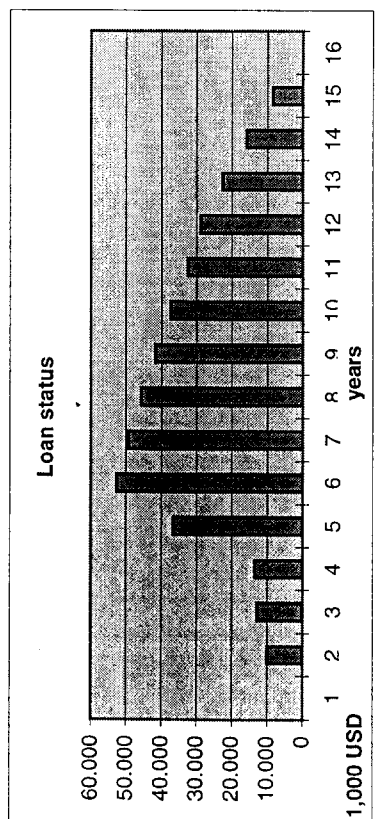
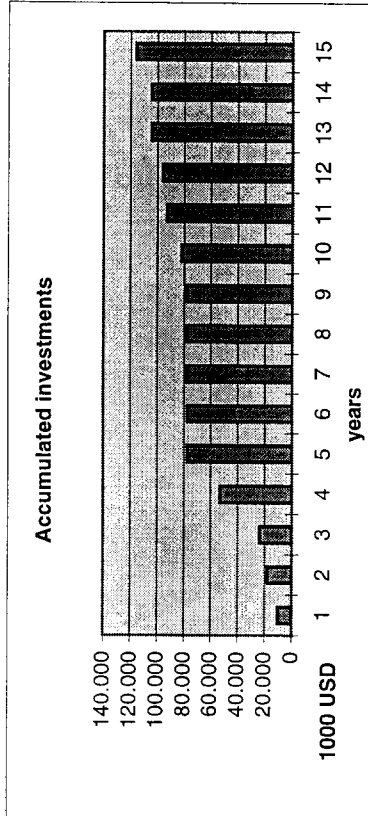
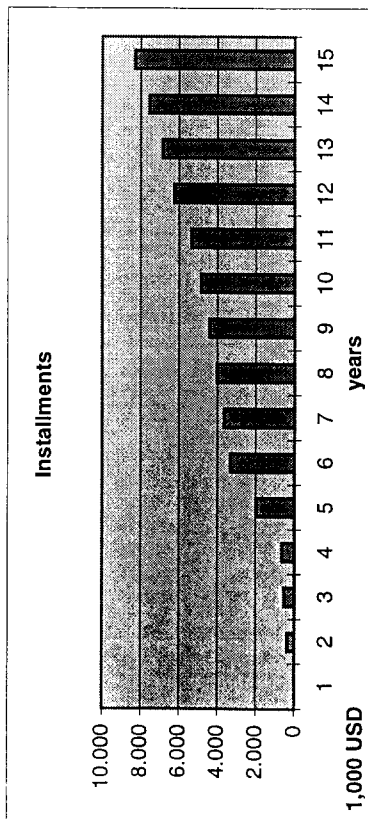
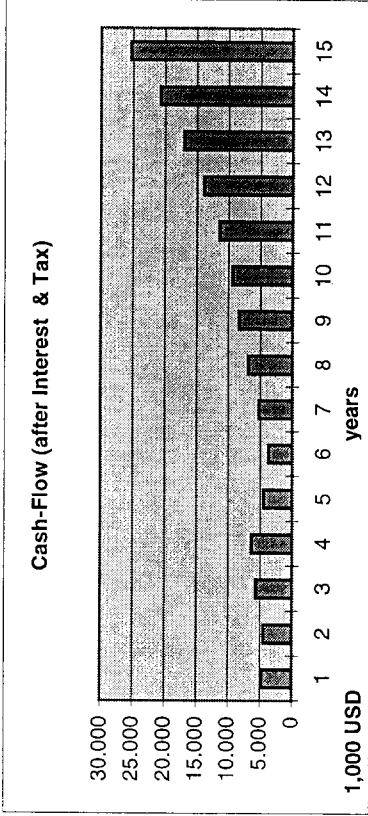
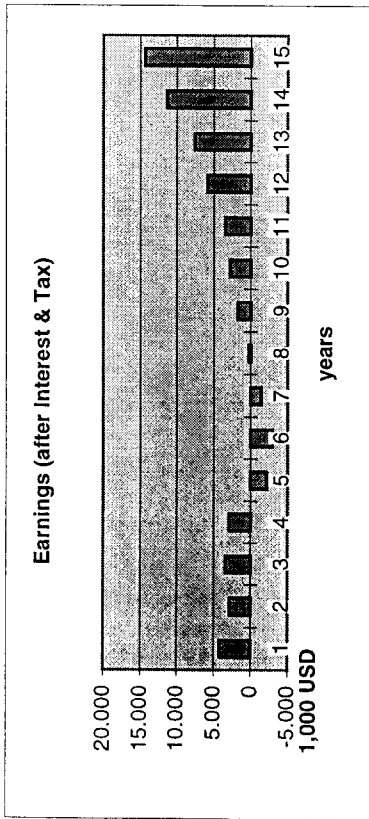
Table 2 (4 pages)

	1998	1999	2000	2001	2002	2003	2004	2005
<b>Poti container terminal (without breakwater): Cash flow analysis, real case, interest 10%</b>								
Investment								
Investment berth 6+7								
Investment berth 12-14								
Investment New CT-Term.								
Incidental expenses								
Investments total (per year)								
net total accumulated								
financed per Earnings incl. Deprec.								
<b>Total accumulated</b>								
Proceeds								
Total costs (with depreciation)								
Costs (without depreciation)								
EBITDA (Cash flow)								
Depreciation								
EBIT								
Accumulated Capital Requirements								
Earnings before tax								
Tax								
Earnings (after interest & tax)								
Cash-Flow (after interest & Tax)								
Loan status								

Table 2 (4 pages)

	2006	2007	2008	2009	2010	2011	2012
<b>Investment</b>							
Investment berth 6+7	0	3.954	11.044	3.258	8.233	0	11.500
Investment berth 12-14							
Investment New CT-Term.							
Incidental expenses							
<b>Investments total (per year)</b>	0	3.954	11.044	3.258	8.233	0	11.500
<b>net total accumulated</b>	43.210	40.340	43.091	37.011	33.851	20.017	14.556
<b>financed per Earnings incl. Deprec.</b>	-6.825	-8.293	-9.337	-11.393	-13.834	-16.961	-20.712
<b>total accumulated</b>	36.386	32.047	33.753	25.618	20.017	3.056	-6.157
<b>Proceeds</b>							
Proceeds total	24.655	26.955	30.594	34.724	39.412	44.733	51.290
<b>Total costs (with depreciation)</b>	13.963	14.957	17.698	18.324	20.835	21.466	24.259
Costs (with depreciation)	7.377	8.371	9.706	10.331	11.457	12.089	13.266
EBITDA (Cash Flow)	17.278	18.584	20.888	24.392	27.955	32.644	38.024
<b>Depreciation</b>	6.586	6.586	7.992	7.992	9.377	9.377	10.992
<b>EBIT</b>	10.693	11.998	12.896	16.400	18.577	23.266	27.031
<b>Accumulated Capital Requirements</b>	8.559	8.559	8.644	9.097	9.097	9.097	9.097
<b>Earnings before Tax</b>	2.134	3.439	4.251	7.302	9.480	14.169	17.934
Tax	427	688	850	1.460	1.896	2.834	3.587
<b>Earnings (after Interest &amp; Tax)</b>	1.707	2.751	3.401	5.842	7.584	11.335	14.347
<b>Cash-Flow (after Interest &amp; Tax)</b>	8293	9337	11393	13834	16961	20712	25339
<b>Loan status</b>							
	41.669	37.277	32.445	28.838	22.624	15.789	8.270

**Table 2 (4 pages)**



**Table 3 (4 pages)**

**Port Poti, general cargo and bulk areas, time schedule**

year	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Sum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
Site preparation	3,571															3,571
Civil works	7,962															7,962
Buildings	1,635															1,635
Utilities	664															664
Equipment	1,054	726	726	2,354	2,354	3,433	2,530									13,177
Other	50															50
Incidental expenses	1,975															1,975
<b>Total</b>	<b>16,911</b>	<b>726</b>	<b>726</b>	<b>2,354</b>	<b>2,354</b>	<b>3,433</b>	<b>2,530</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>29,034</b>
all in all	16,911	17,637	18,364	20,718	23,072	26,504	29,034	29,034	29,034	29,034	29,034	29,034	29,034	29,034	29,034	29,034
<b>Proceeds</b>	<b>6,812</b>	<b>7,890</b>	<b>9,236</b>	<b>10,961</b>	<b>13,181</b>	<b>13,673</b>	<b>14,204</b>	<b>14,778</b>	<b>15,398</b>	<b>16,080</b>	<b>17,121</b>	<b>17,725</b>	<b>18,363</b>	<b>19,040</b>	<b>19,756</b>	
<b>Total costs</b>	<b>4,058</b>	<b>4,486</b>	<b>5,038</b>	<b>6,003</b>	<b>7,007</b>	<b>8,295</b>	<b>9,351</b>	<b>10,001</b>	<b>10,692</b>	<b>11,479</b>	<b>12,272</b>	<b>12,839</b>	<b>13,473</b>	<b>13,848</b>	<b>14,304</b>	



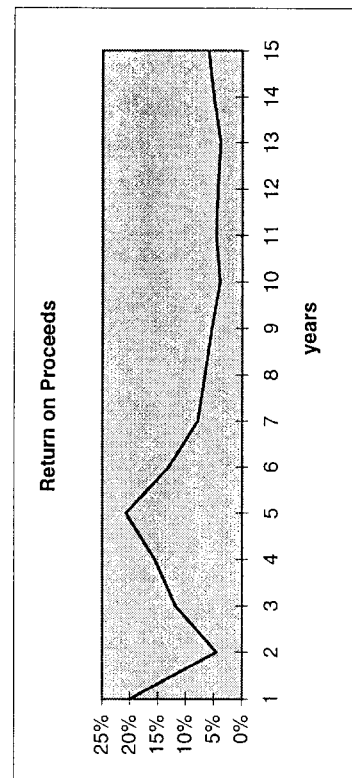
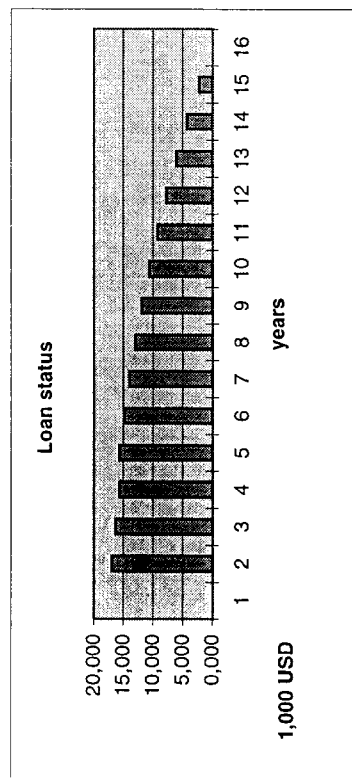
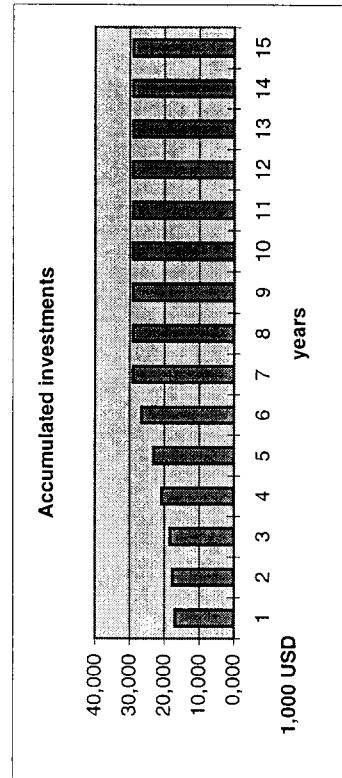
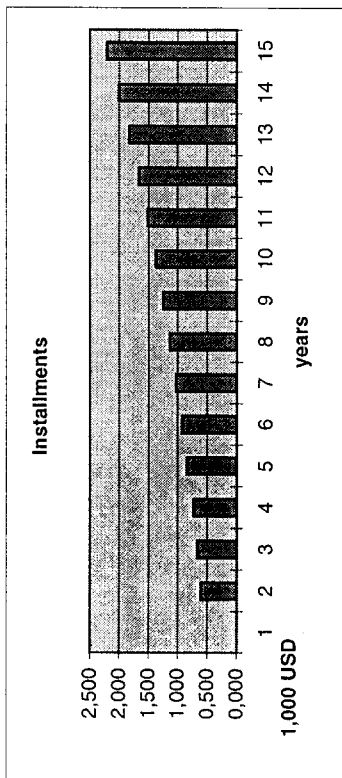
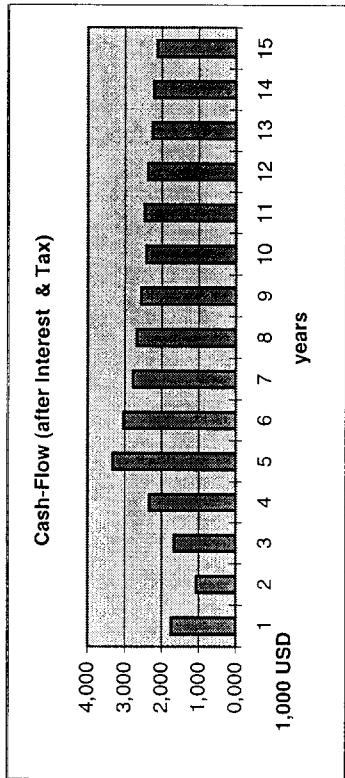
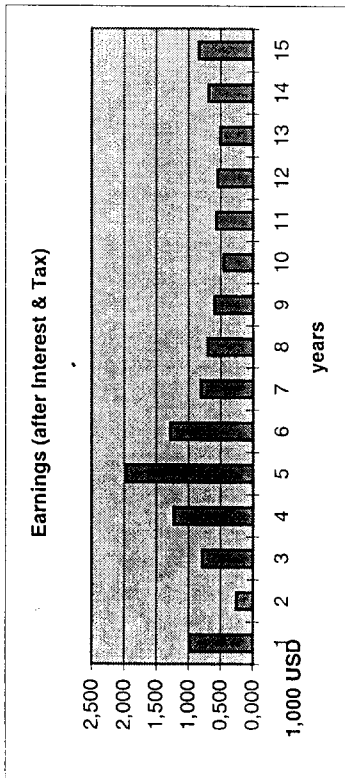
Table 3 (4 pages)

		1	2	3	4	5	6	7	8
		1998	1999	2000	2001	2002	2003	2004	2005
	approx.								
Site preparation	in 1,000 US\$	3,571							
Civil works	in 1,000 US\$	7,962							
Buildings	in 1,000 US\$	1,635							
Utilities	in 1,000 US\$	664							
New equipment	in 1,000 US\$	1,054	726		2,354	2,354	3,433	2,530	
Other	in 1,000 US\$	50							
Incidental expenses	in 1,000 US\$	1,975							
<b>Investments total (per year)</b>	<b>in 1,000 US\$</b>	<b>16,911</b>	<b>726</b>	<b>726</b>	<b>2,354</b>	<b>2,354</b>	<b>3,433</b>	<b>2,530</b>	<b>0</b>
<b>net total accumulated</b>	<b>in 1,000 US\$</b>	<b>16,911</b>	<b>17,637</b>	<b>16,625</b>	<b>17,921</b>	<b>18,616</b>	<b>19,713</b>	<b>18,935</b>	<b>15,909</b>
<b>financed per Earnings incl. Deprec.</b>	<b>in 1,000 US\$</b>	<b>0</b>	<b>-1,739</b>	<b>-1,058</b>	<b>-1,659</b>	<b>-2,336</b>	<b>-3,308</b>	<b>-3,026</b>	<b>-2,776</b>
<b>total accumulated</b>	<b>in 1,000 US\$</b>	<b>16,911</b>	<b>15,898</b>	<b>15,567</b>	<b>16,262</b>	<b>16,280</b>	<b>16,405</b>	<b>15,909</b>	<b>13,133</b>
<b>Proceeds</b>	<b>in 1,000 US\$</b>	<b>6,812</b>	<b>7,890</b>	<b>9,236</b>	<b>10,961</b>	<b>13,181</b>	<b>13,673</b>	<b>14,204</b>	<b>14,778</b>
<b>Proceeds total</b>	<b>in 1,000 US\$</b>	<b>6,131</b>	<b>7,101</b>	<b>8,313</b>	<b>9,865</b>	<b>11,863</b>	<b>12,306</b>	<b>12,784</b>	<b>13,300</b>
<b>Total costs (with depreciation)</b>		<b>4,058</b>	<b>4,486</b>	<b>5,038</b>	<b>6,003</b>	<b>7,007</b>	<b>8,295</b>	<b>9,351</b>	<b>10,001</b>
<b>Costs (without depreciation)</b>	<b>in 1,000 US\$</b>	<b>3,301</b>	<b>3,684</b>	<b>4,163</b>	<b>4,992</b>	<b>5,661</b>	<b>6,548</b>	<b>7,380</b>	<b>8,030</b>
<b>EBITDA (Cash Flow)</b>	<b>in 1,000 US\$</b>	<b>2,830</b>	<b>3,417</b>	<b>4,150</b>	<b>4,973</b>	<b>6,202</b>	<b>5,758</b>	<b>5,405</b>	<b>5,270</b>
<b>Depreciation</b>	<b>in 1,000 US\$</b>	<b>757</b>	<b>803</b>	<b>875</b>	<b>1,111</b>	<b>1,346</b>	<b>1,747</b>	<b>1,971</b>	<b>1,971</b>
<b>EBIT</b>	<b>in 1,000 US\$</b>	<b>2,072</b>	<b>2,615</b>	<b>3,275</b>	<b>3,862</b>	<b>4,856</b>	<b>4,011</b>	<b>3,433</b>	<b>3,299</b>
<b>Accumulated Capital Requirements</b>	<b>in 1,000 US\$</b>	<b>846</b>	<b>2,296</b>	<b>2,296</b>	<b>2,330</b>	<b>2,404</b>	<b>2,412</b>	<b>2,427</b>	<b>2,427</b>
<b>Earnings before Tax</b>	<b>in 1,000 US\$</b>	<b>1,227</b>	<b>319</b>	<b>979</b>	<b>1,532</b>	<b>2,452</b>	<b>1,599</b>	<b>1,006</b>	<b>872</b>
<b>Tax</b>	<b>in 1,000 US\$</b>	<b>245</b>	<b>64</b>	<b>196</b>	<b>306</b>	<b>490</b>	<b>320</b>	<b>201</b>	<b>174</b>
<b>Earnings (after interest &amp; Tax)</b>	<b>in 1,000 US\$</b>	<b>981</b>	<b>255</b>	<b>783</b>	<b>1,225</b>	<b>1,962</b>	<b>1,279</b>	<b>805</b>	<b>698</b>
<b>Cash-Flow (after interest &amp; Tax)</b>	<b>in 1,000 US\$</b>	<b>1,739</b>	<b>1,058</b>	<b>1,659</b>	<b>2,336</b>	<b>3,308</b>	<b>3,026</b>	<b>2,776</b>	<b>2,669</b>
<b>Loan status</b>	<b>in 1,000 US\$</b>	<b>0</b>	<b>16,911</b>	<b>16,306</b>	<b>15,641</b>	<b>15,605</b>	<b>14,781</b>	<b>13,979</b>	<b>12,949</b>

**Table 3 (4 pages)**

	2006	2007	2008	2009	2010	2011	2012
	<i>approx.</i>						
Site preparation	in 1,000 US\$						
Civil works	in 1,000 US\$						
Buildings	in 1,000 US\$						
Utilities	in 1,000 US\$						
New equipment	in 1,000 US\$						
Other	in 1,000 US\$						
Incidental expenses	in 1,000 US\$						
Investments total (per year)	in 1,000 US\$	0	0	0	0	0	0
net total accumulated	in 1,000 US\$	13,133	10,464	7,902	5,479	638	-1,616
financed per Earnings incl. Deprec.	in 1,000 US\$	-2,669	-2,562	-2,423	-2,467	-2,254	-2,206
total accumulated	in 1,000 US\$	10,464	7,902	5,479	3,012	1,616	-3,822
Proceeds	in 1,000 US\$	15,398	16,080	17,121	17,725	19,040	19,756
Proceeds total	in 1,000 US\$	13,858	14,472	15,409	15,952	17,136	17,781
Total costs (with depreciation)		10,692	11,479	12,272	12,839	13,473	14,303
Costs (with depreciation)	in 1,000 US\$	8,721	9,508	10,373	11,013	11,720	12,330
EBITDA (Cash Flow)	in 1,000 US\$	5,137	4,964	5,036	4,939	4,805	4,760
Depreciation	in 1,000 US\$	1,971	1,971	1,898	1,826	1,518	1,282
EBIT	in 1,000 US\$	3,166	2,993	3,138	3,113	3,287	3,478
Accumulated Capital Requirements	in 1,000 US\$	2,427	2,427	2,427	2,427	2,427	2,427
Earnings before Tax	in 1,000 US\$	739	566	710	686	860	1,050
Tax	in 1,000 US\$	148	113	142	137	172	210
Earnings (after interest & tax)	in 1,000 US\$	591	452	568	549	688	840
Cash-Flow (after interest & tax)	in 1,000 US\$	2,562	2,423	2,467	2,374	2,254	2,122
Loan status	in 1,000 US\$	11,817	10,571	9,201	7,694	6,036	4,213
							2,207

**Table 3 (4 pages)**



**Table 4 (4 pages)**

**Batumi, Multi purpose terminal, time schedule**

Year	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	sum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
Site preparation	2,398	161														2,559
Environmental	5,400															5,400
Civil works		7,261														7,261
Buildings		1,250														1,250
Utilities		867														867
Equipment	1,875	1,976	1,800	1,304		886	110	360			R 1,821	116				10,248
Other		361														361
Incidental expenses	1,170	1,431														2,601
<b>Total</b>	<b>10,843</b>	<b>13,308</b>	<b>1,800</b>	<b>1,304</b>	<b>0</b>	<b>886</b>	<b>110</b>	<b>360</b>	<b>0</b>	<b>0</b>	<b>1,821</b>	<b>116</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>30,547</b>
all in all	10,843	24,151	25,951	27,255	27,255	28,141	28,251	28,611	28,611	28,611	30,431	30,547	30,547	30,547	30,547	
<b>Proceeds</b>	<b>1,602</b>	<b>2,313</b>	<b>3,337</b>	<b>4,578</b>	<b>6,068</b>	<b>6,747</b>	<b>6,969</b>	<b>7,208</b>	<b>7,500</b>	<b>7,853</b>	<b>8,390</b>	<b>8,735</b>	<b>9,095</b>	<b>9,474</b>	<b>9,867</b>	
<b>Total costs</b>	<b>1,250</b>	<b>2,439</b>	<b>3,054</b>	<b>3,441</b>	<b>3,668</b>	<b>4,268</b>	<b>4,580</b>	<b>4,951</b>	<b>5,227</b>	<b>5,609</b>	<b>6,523</b>	<b>6,917</b>	<b>7,266</b>	<b>7,719</b>	<b>8,120</b>	

R Replacement



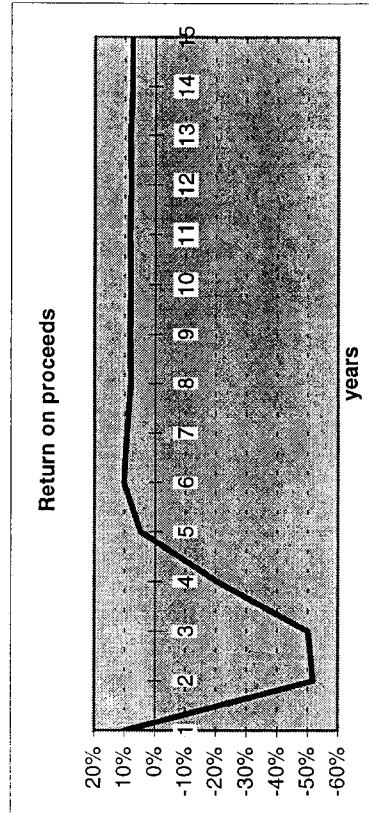
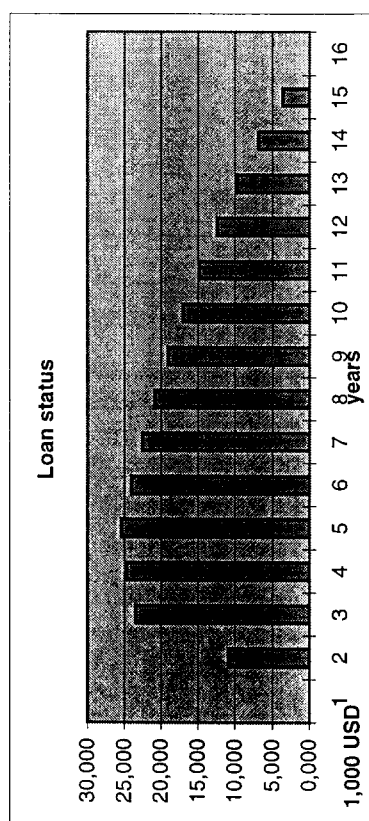
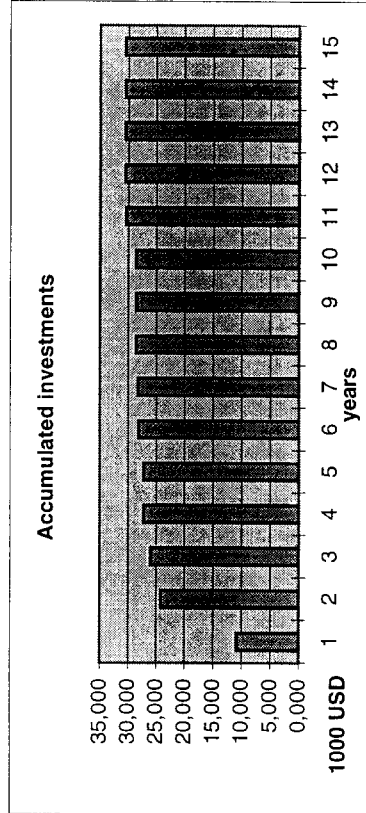
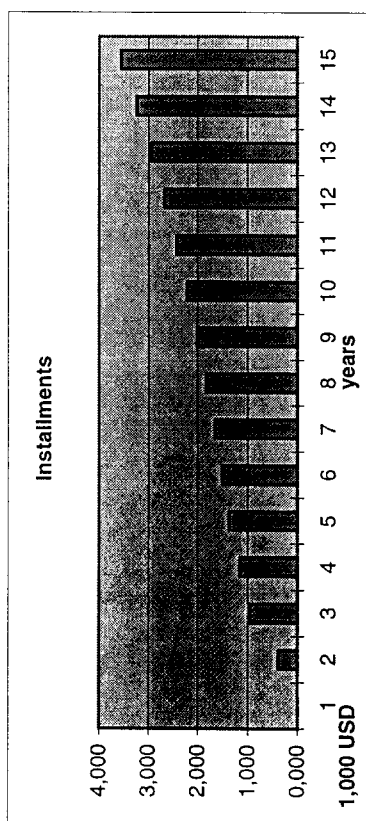
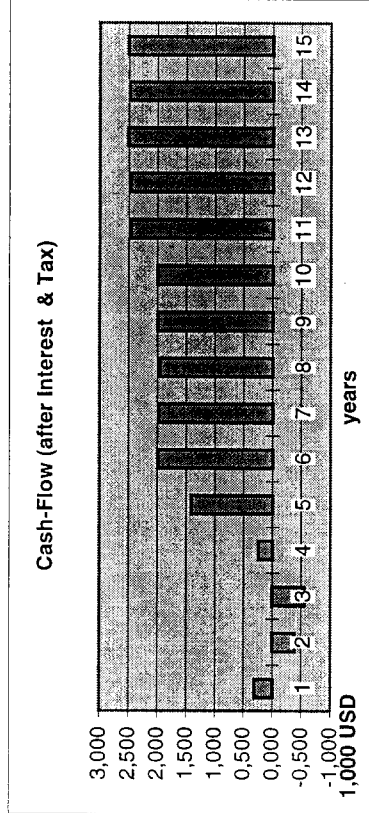
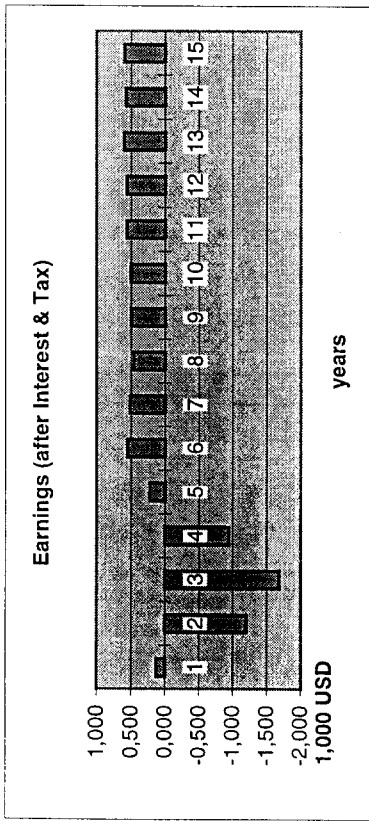
Table 4 (4 pages)

Year	1998	1999	2000	2001	2002	2003	2004	2005
<b>Batumi multi purpose terminal: Cash flow analysis, real case, interest 10%, proceeds 110%</b>								
	approx.							
<b>Investment</b>	<b>10,843</b>	<b>13,307</b>	<b>1,800</b>	<b>1,304</b>	<b>0</b>	<b>886</b>	<b>110</b>	<b>360</b>
Site Preparation	2,398	161						
Environmental	5,400							
Civil Works		7,261						
Buildings		1,250						
Utilities		867						
Equipment	1,875	1,976	1,800	1,304		886	110	360
Other Equipment		361						
Incidental Expenses	1,170	1,431						
<b>Investments total (per year)</b>	<b>10,843</b>	<b>13,307</b>	<b>1,800</b>	<b>1,304</b>	<b>0</b>	<b>886</b>	<b>110</b>	<b>360</b>
<b>net total accumulated</b>	<b>10,843</b>	<b>24,150</b>	<b>25,637</b>	<b>27,321</b>	<b>27,878</b>	<b>28,523</b>	<b>27,230</b>	<b>25,598</b>
<b>financed per Earnings incl. Deprec.</b>	<b>0</b>	<b>-313</b>	<b>381</b>	<b>556</b>	<b>-241</b>	<b>-1,403</b>	<b>-1,992</b>	<b>-1,977</b>
<b>total accumulated</b>	<b>10,843</b>	<b>23,837</b>	<b>26,017</b>	<b>27,878</b>	<b>27,637</b>	<b>26,120</b>	<b>25,238</b>	<b>23,620</b>
<b>Proceeds</b>	<b>1,602</b>	<b>2,313</b>	<b>3,337</b>	<b>4,578</b>	<b>6,068</b>	<b>6,747</b>	<b>6,969</b>	<b>7,208</b>
<b>Proceeds total</b>	<b>1,762</b>	<b>2,545</b>	<b>3,670</b>	<b>5,036</b>	<b>6,675</b>	<b>7,422</b>	<b>7,666</b>	<b>7,929</b>
<b>Total costs (with depreciation)</b>	<b>1,063</b>	<b>1,621</b>	<b>1,936</b>	<b>2,261</b>	<b>2,488</b>	<b>2,826</b>	<b>3,116</b>	<b>3,452</b>
<b>Costs (without depreciation)</b>	<b>875</b>	<b>804</b>	<b>817</b>	<b>1,081</b>	<b>1,308</b>	<b>1,384</b>	<b>1,653</b>	<b>1,952</b>
<b>EBITDA (Cash Flow)</b>	<b>887</b>	<b>1,741</b>	<b>2,854</b>	<b>3,955</b>	<b>5,367</b>	<b>6,037</b>	<b>6,014</b>	<b>5,977</b>
<b>Depreciation</b>	<b>188</b>	<b>818</b>	<b>1,119</b>	<b>1,180</b>	<b>1,180</b>	<b>1,442</b>	<b>1,464</b>	<b>1,500</b>
<b>EBIT</b>	<b>699</b>	<b>923</b>	<b>1,735</b>	<b>2,775</b>	<b>4,187</b>	<b>4,596</b>	<b>4,550</b>	<b>4,477</b>
<b>Accumulated Capital Requirements</b>	<b>542</b>	<b>2,122</b>	<b>3,410</b>	<b>3,714</b>	<b>3,908</b>	<b>3,908</b>	<b>3,908</b>	<b>3,908</b>
<b>Earnings before Tax</b>	<b>157</b>	<b>-1,198</b>	<b>-1,675</b>	<b>-939</b>	<b>279</b>	<b>688</b>	<b>642</b>	<b>570</b>
<b>Tax</b>	<b>31</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>56</b>	<b>138</b>	<b>128</b>	<b>114</b>
<b>Earnings after Interest &amp; Tax</b>	<b>126</b>	<b>-1,198</b>	<b>-1,675</b>	<b>-939</b>	<b>223</b>	<b>551</b>	<b>514</b>	<b>456</b>
<b>Cash-Flow (after Interest &amp; Tax)</b>	<b>313</b>	<b>-381</b>	<b>-556</b>	<b>241</b>	<b>1,403</b>	<b>1,992</b>	<b>1,977</b>	<b>1,956</b>
<b>Loan status</b>	<b>0</b>	<b>10,843</b>	<b>23,449</b>	<b>24,673</b>	<b>25,380</b>	<b>24,011</b>	<b>22,504</b>	<b>20,847</b>

**Table 4 (4 pages)**

Year	2006	2007	2008	2009	2010	2011	2012
<b>Investment</b>	0	0	1,821	116	0	0	0
Site Preparation							
Environmental							
Civil Works							
Buildings							
Utilities							
Equipment			1,821	116			
Other Equipment							
Incidental Expenses							
<b>Investments total (per year)</b>	0	0	1,821	116	0	0	0
<b>net total accumulated</b>	23,620	21,665	21,495	19,614	17,158	14,686	12,177
<b>financed per Earnings incl. Deprec.</b>	-1,956	-1,991	-1,997	-2,456	-2,471	-2,509	-2,480
<b>total accumulated</b>	21,665	19,674	19,498	17,158	14,686	12,177	9,697
<b>Proceeds</b>	7,500	7,853	8,390	8,735	9,095	9,474	9,867
<b>Proceeds total</b>	8,250	8,638	9,229	9,608	10,005	10,422	10,853
<b>Total costs (with depreciation)</b>	3,728	4,109	4,625	5,003	5,352	5,806	6,207
<b>Costs (with depreciation)</b>	2,228	2,610	2,726	3,090	3,439	3,892	4,294
<b>EBITDA (Cash flow)</b>	6,022	6,029	6,503	6,519	6,566	6,530	6,559
<b>Depreciation</b>	1,500	1,500	1,899	1,913	1,913	1,913	1,913
<b>EBIT</b>	4,522	4,529	4,604	4,605	4,653	4,616	4,646
<b>Accumulated Capital Requirements</b>	3,908	3,908	3,908	3,908	3,908	3,908	3,908
<b>Earnings before tax</b>	614	621	697	698	745	709	738
<b>Tax</b>	123	124	139	140	149	142	148
<b>Earnings (after interest &amp; tax)</b>	491	497	557	558	596	567	591
<b>Cash-Flow (after interest &amp; Tax)</b>	1,991	1,997	2,456	2,471	2,509	2,480	2,504
<b>Loan status</b>	19,024	17,019	14,813	12,387	9,718	6,782	3,552

Table 4 (4 pages)



## 2. Poti

The phased development of the Poti container terminal is shown above in table 1 and described in Vol.III and Vol. IV.

Presently, container handling is mainly executed at berth N° 7 with a handling area of about 20,000 sqm. The physical condition is poor and the rail/road entrance too small. To handle and store the expected container volumes in the next 2 - 3 years (see traffic forecast: in the year 2000 about 65,000 containers, in 2001 about 80,000 containers) it will be necessary to extend the available area. The purpose is to rehabilitate the site behind the berths 6 and 5. It is proposed to prepare an area of about 60,000 sqm including the reconstruction of the quay wall on a length of 500 m, so that 2 - 3 feeder container ships can be handled at the same time. The handling is proposed to be executed by the rehabilitated equipment and reachstackers as described in Vol. III, section 6.

A completely new container terminal is being planned and it is intended to be realised until the year 2003/2004 - according to the traffic forecast. In the meantime container operation will also be made at the rehabilitated berths 12 – 14 on an handling area of about 20,000 sqm.

For the planned new container terminal two possibilities are identified:

Terminal South (in the area berths 14/15)

Terminal North (in the area berth 24)

In the current analysis the northern terminal is calculated because of better extension possibilities, though with the necessity to built a new breakwater and a very long rail connection of about 16 km and a road connection of about 2 km. (For details please see Volume 3 - Port Master Planning, and Volume 4 - Civil Engineering considerations for the planned development.)

In the figures in Vol. IV Annex 4.1 a cost estimation is given :

Extension Container Terminal  
New Container Terminal North and South  
Infrastructure Connections and Breakwater

These cost estimations are the basis for the cash-flow-analysis. All figures are based on western standards, that means that in some positions may be possibilities for cutting down the investment by using regional procurement.

### 2.1 Cash Flow Analysis

#### 2.1.1 General Assumptions and Inputs

In this chapter the assumptions made with respect to the inputs for the cash flow analysis will be described. The detailed input figures are listed in annex 3. For the planning period of 15 years (1998 till 2012, resp. year 1 till year 15) the forecast for the main factors of the calculation model

- investment
- proceeds
- costs
- general assumptions



will be considered. These cash flow analysis were made for the priority investments for the Poti container terminal, the Poti general cargo and bulk areas and the multipurpose terminal in Batumi. The model was developed for the Poti container terminal, therefore the following explanations are orientated on this model. It is negotiable without endorsement to the other commodities. The explanatory notes are made for the Poti container terminal and the Batumi multipurpose terminal.

The **investment** is divided into the parts

- Infrastructure, site preparation and environmental
- Civil works, utilities and buildings
- Cargo handling and other equipment
- Incidental expenses.

The **proceeds** are divided into **handling proceeds** and **storage proceeds**.

The **costs** are divided into the parts

- Real estate
- Depreciations
- Operating costs

The **profit/loss** is turn out **before tax** and **financing**.

The **financing costs** provide information about interest and repayment.

Corresponding to the time schedule the business and financing plan contains the investments for the extension of the existing container terminal, the area of berth 12-14 and the new terminal north, which is planned to begin its operation in the year 2002. After this time the area of the „old terminal“ is free for other activities of the port. It is to be discussed if the net book value of the not transferable investments has to be calculated as special depreciation or if the container terminal company has the possibility to receive income by leasing the area and the buildings to another operator. An estimated calculation of the yearly saved depreciation sums up to about 260,000 USD.

### 2.1.2 Quantity framework

The investments and the operations depend on the forecasted container moves. The figures are:

Year	Container (TEU)	
	full	Empty (1/3 of full ct.)
1998	48 000	16 000
1999	52 940	17 500
2000	64 960	21 650
2001	79 730	26 580
2002	98 050	32 680
2003	106 880	35 630
2004	116 490	38 830
2005	126 980	42 330
2006	138 410	46 140
2007	151 320	50 440
2008	171 750	57 250
2009	194 930	64 980
2010	221 250	73 750
2011	251 120	83 710
2012	287 930	95 980

(rounded numbers)

Beside the income from the container handling in these calculations another part of income are the storage fees. Therefore, it is necessary to define the proposed development of the part of container in storage. The share of container which will be stored is supposed with 10% of the total containers for an average storage time of 20 days. All other storage activities will be included in the total container handling prices.

### 2.1.3 Investments

The investments for the extension container terminal, the container terminal berths 12-14 and the new container terminal north with breakwater and infrastructure connections are listed in annex 3.1, summarised for the years 1998 till 2012 (in annex 3.2 without breakwater).

The investments (total, with incidental expensis) are shown sum accumulated until the regarded year such as

		with breakwater	without breakwater
for the year	1998	9,961,614 USD	9,961,614 USD
	2002	119,859,164 USD	77,309,164 USD
	2012	158,268,363 USD	115,718,363 USD

In these investment sums all replacement costs according to the depreciation time of the equipment are included.

Poti-Container-Terminal REPLACEMENT					
Description		US-\$	US-\$	US-\$	US-\$
	Lifespan	2004	2007	2009	2010
		420.000	3.953.950	3.258.500	152.749
<b>I. Extension Container Terminal</b>					
<b>6. Cargo handling equipment</b>					
Reachstackers	8	0	0	2.127.500	0
Spreaders	8	0	0	460.000	0
Terminal tractor	5	420.000	0	441.000	0
Containerchassis	10	0	0	230.000	0
<b>II. Container Terminal bearth 12-14</b>					
<b>4. Cargo handling equipment</b>					
Reachstackers	8	0	1.221.000	0	0
<b>III. New Container Terminal North</b>					
EDP hardware and software	5	0	550.000	0	0
<b>6. Cargo handling equipment</b>					
Terminal tractor (1st delivery)	5	0	1.732.500	0	0
Terminal tractor (2nd delivery)	5	0	0	0	0
Terminal tractor (3rd delivery)	5	0	0	0	0
Workshop equipment	5	0	288.750	0	0
Stevedoring gear	8	0	0	0	152.749
Containerstuffer	5	0	161.700	0	0
<b>Replacement of I. and II. will be used in the new container terminal north.</b>					

These figures are the basis for the above showed tables 1 and 2, where the time distribution of the investments are scheduled. The figures for the separate years are reproduced in annex 3.3 for the variant without breakwater and infrastructure connections.

#### 2.1.4 Income

The proceeds are orientated at the list of tariffs of the Georgian ports (dated of 30. August 1995, see annex 4) and discussed with the experts. It is proposed to calculate with the following rates of comparable ports.

Handling proceeds:

Full container (TEU)	140 USD per TEU
Empty container (TEU)	70 USD per TEU

In these rates all handling costs as well as the documentation are included.

Storage proceeds (as per tariff) :

Tariff	USD per day
20 ft container during 15days	5.00
20 ft container 16-30 days	6.25
20 ft container more then 30 days	7.25
40 ft container during 15days	6.00
40 ft container 16-30 days	7,50
40 ft container more then 30 days	9.00

We propose some modifications of the tariff rates, e.g. raising of the 40 ft container rate and only one average storage time.

In the calculations the storage rate will be fixed to 5,00 (9,00) USD per day for the 20 (40) ft container for 20 days average storage time.

The rates remain unchanged during the calculation period, that means that the calculations have a sound basis.

### 2.1.5 Costs

Real estate:

It is proposed to calculate a leasing rate for the required terminal area. A realistic rate as applied e.g. in Hamburg and Rotterdam and now proposed for this terminal is 4 USD per sqm and year. The rate is calculated unchanged during the period.

It is to be discussed, whether the quay walls can be regarded as an infrastructure investment financed by the port authority and leased by the terminal company. At present, the quay walls are regarded as investment of the terminal company.

Depreciations:

In Georgia the depreciation rates are on a low level. In a market orientated economy the depreciation strategy of the companies are a very effective financing instrument. Therefore, it is proposed to use the depreciation rates of the western countries. The table gives an view of the used depreciation rates (European standard and Georgian rates).

<b>Depreciation rates</b>	<b>European standard p.a., %</b>	<b>Georgian rates p.a., %</b>
Breakwater	2,0	1,5
Sewage/water/electricity/gas-pipe/cable etc.	5,0	3,0
Paved areas and roads	5,0	4,0
Rail tracks and switches	5,0	3,5
Lighting	5,0	2,5
Office- and sanitary building	5,0	7,0
Transit sheds	10,0	5,0
Workshops	5,0	6,0
Workshop equipment	20,0	
Reefer Points	10,0	8,0
Transformation Building	5,0	2,5
Container cranes	10,0	4,0
Mobile harbour cranes	10,0	7,2
Transtainers	5,0	8,8
Forklifts	12,5	25,0
Reachstackers	12,5	5,0
Container stuffer	20,0	
Stevedoring gear (e.g. spreader)	12,5	15,0
Trucks/Tractors	20,0	12,5
Trailers/Rolltrailers	10,0	10,0
Security equipment	10,0	8,0
Security equipment-fence/perimeter wall	4,0	8,0
EDP	20,0	8,0
Rehabilitation equipment	10,0	

Operating cost:

The development of the operating costs shows the following table ( see annex 5)

The personnel costs are divided in 3 categories:

- Interchange/guard
- cargo handling/repair
- administration

The present wages for the category guards/interchange are about 70 USD (92 Lari) and for the category cargo handling about 130 USD (170 Lari). The increase of rates for the next 5 years was quoted with about 20 %. It is assumed that the wages of the operational employees will have to be brought to a similar level to that of other countries in transition. There are three increasing rates for

the years 1998-2002: 20% p.a.,  
the years 2003-2007: 15% p.a.,  
the years 2008-2112: 10% p.a.

The surcharge for social insurance is given with 31%.

It is to remark, that no costs for experts (national or international) are calculated.

The other costs as office material, office equipment, partial repair material and so on was given with 225,000 USD as the share (17%) of the container terminal of the whole sum of the port.

Energy costs and electric power especially for the equipment and lighting are checked with current information of other ports.

The annual increasing rate of these costs are 5%. The costs for communication and water/sewage are estimated and show an increase of 10%.

The administration assessment is in accordance with present share of the container transshipments of the whole port (17%), the increase is calculated with 1%.

### 2.1.6 Taxes

An important assumption for the calculation is, that the present tax system will continue. The main tax which is calculated in the cash flow analysis is the corporation tax with 20% of the earnings.

## 2.2 Calculation of the cash flow

With the above mentioned assumptions the investment projects are evaluated by several calculation runs.

### **Summary of the project finance conception of the Poti Container Terminal**

The datas refer to the container terminal without breakwater and infrastructure connections.

- The finance model calculates investments and the operating of the terminal for a period of fifteen years. Within this period the investments shall be reduced by operational earnings.
- Present calculations predict a total investment of 116 million USD, the main investment will take place in the first period (five years) and in the 9th till 13th year of operation. The investment in the 15th year (11,5 million USD) can be financed by the actual cash flow.
- The operational turnover will increase from 8.550 million USD (1st year) to 51.290 million USD (15th year).

- Operational costs will increase from 2.282 million USD (1st year) to 13.266 million USD (15th year).
- The annual depreciation figures were taken into the finance model as mentioned above.
- As far as possible costs of new investments were reduced by earnings including depreciation of the year before.
- The calculation of the „real case“ predicts a 100 percent debt finance with an annual interest rate of 10 percent. Intermediary financing was calculated for the new financial need in the middle of the year of new investments, after this year a reduction of the loan was calculated by an annuity loan which runs till the end of the project period.
- Earnings after interest were submitted to a 20 percent (benefit-) tax. Special tax effects by a forwarded loss declaration („Verlustvortrag“) were not taken into account.

### 2.2.1 Calculation of the „real case“

100 percent debt finance with an annual interest rate of 10 percent serves as the real case. The investor has to pay 15.102 million USD tax within the period of the project round about 50% in the last six years. As the earnings before tax will be reduced by the investment in the 15th year of operation (11,5 million USD), the total benefit tax will be reduced by 2,2 million USD.

***See chapter 1, table 2, pages 2 and 3***

### 2.2.2 Modified Calculation of the „best case“

100 percent debt finance with an annual interest rate of 8 percent serves as the best case. The investor has to pay 16.926 million USD tax within the period of the project - mostly within the last years. As the earnings before tax will be reduced by the investment in the 15th year of operation (11,5 million USD), the total benefit tax will be reduced by 2,2 million USD.

***See following table 2.2.2.-1***

**Table 2.2.2-1 (3 pages)**

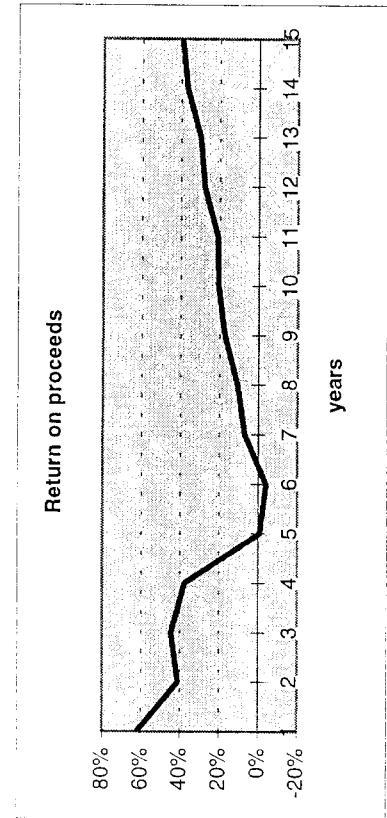
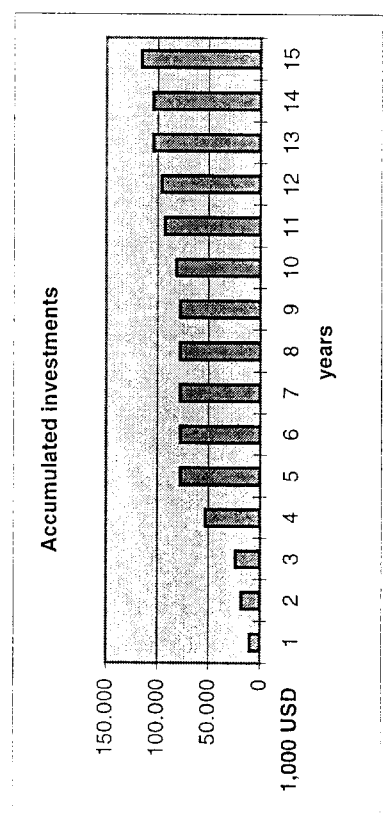
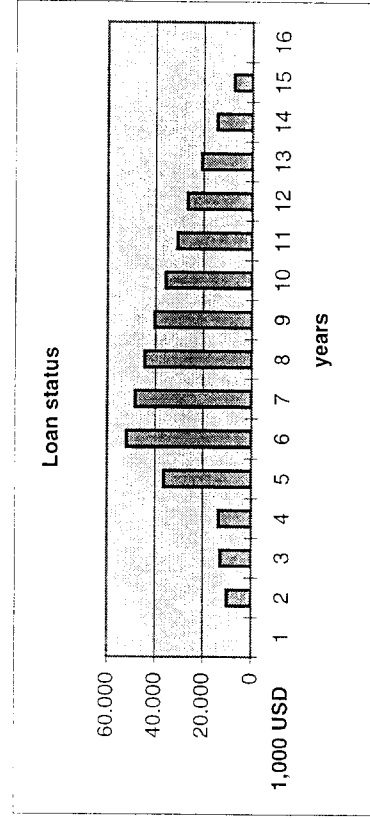
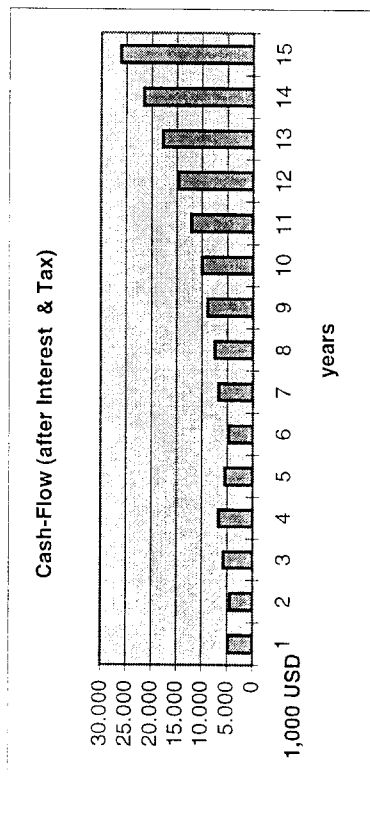
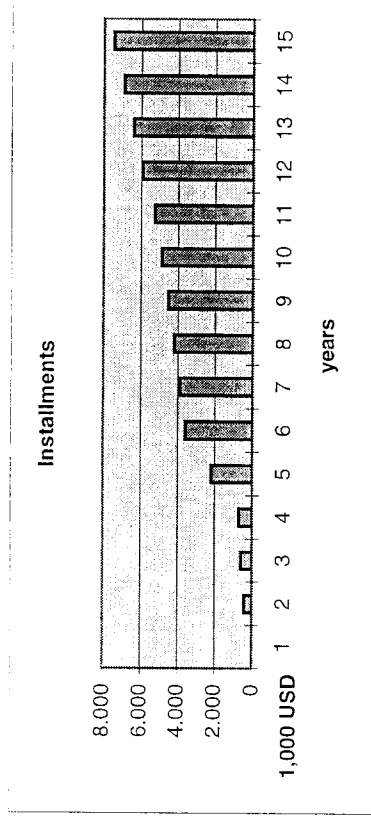
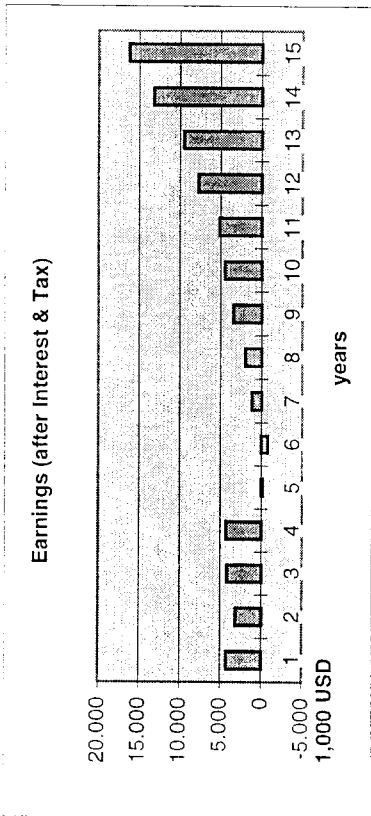
Year	2	3	4	5	6	7	8
	1999	2000	2001	2002	2003	2004	2005
<b>Poti container terminal (without breakwater): Cash flow analysis, best case, interest 8%</b>							
	1998						
Investment	approx.						
Investment berth 6+7	9.962	5.697	29.346	24.369	0	420	0
Investment berth 12-14							
Investment New CT-Term.							
Incidental expenses							
Investments total (per year)	9.962	5.697	29.346	24.369	0	420	0
net total accumulated	9.962	18.785	43.701	62.391	55.729	50.804	46.085
financed per Earnings incl. Deprec.	0	-4.430	-5.680	-6.661	-5.346	-4.719	-6.631
total accumulated	9.962	14.355	38.022	55.729	50.384	46.085	39.453
Proceeds	8.550	11.572	14.203	17.466	19.039	20.751	22.619
Proceeds total	8.550	11.572	14.203	17.466	19.039	20.751	22.619
Total costs (with depreciation)	2.847	4.759	6.131	11.811	12.080	11.593	12.458
Costs (without depreciation)	2.282	3.206	3.752	6.325	6.594	6.107	6.972
EBITDA (Cash Flow)	6.268	8.366	10.451	11.141	12.445	14.644	15.648
Depreciation	564	1.553	2.379	5.486	5.486	5.486	5.486
EBIT	5.704	6.813	8.071	5.655	6.959	9.158	10.162
Accumulated Capital Requirements	398	1.655	2.719	5.795	7.726	7.726	7.726
Earnings before tax	5.305	5.158	5.353	-140	-767	1.432	2.436
Tax	1.061	1.032	1.071	0	0	286	487
Earnings (after Interest & Tax)	4.244	4.127	4.282	-140	-767	1.145	1.948
Cash-Flow (after Interest & Tax)	4.809	5.680	6.661	5.346	4.719	6.631	7.434
Loan status	0	9.962	12.677	13.354	36.317	51.843	44.399



Table 2.2.2-1 (3 pages)

	Year	9	10	11	12	13	14	15
		2006	2007	2008	2009	2010	2011	2012
	approx.							
Investment	in 1,000 US\$	0	3.954	11.044	3.258	8.233	0	11.500
Investment berth 6+7	in 1,000 US\$							
Investment berth 12-14	in 1,000 US\$							
Investment New CT-Term.	in 1,000 US\$							
Incidental expenses	in 1,000 US\$							
Investments total (per year)	in 1,000 US\$	0	3.954	11.044	3.258	8.233	0	11.500
net total accumulated	in 1,000 US\$	39.453	35.973	38.115	31.426	27.622	13.013	6.776
financed per Earnings incl. Deprec.	in 1,000 US\$	-7.434	-8.902	-9.947	-12.036	-14.610	-17.737	-21.488
total accumulated	in 1,000 US\$	32.019	27.071	28.168	19.389	13.013	-4.724	-14.712
Proceeds	in 1,000 US\$	24.655	26.955	30.594	34.724	39.412	44.733	51.290
Proceeds total	in 1,000 US\$	24.655	26.955	30.594	34.724	39.412	44.733	51.290
Total costs (with depreciation)		12.659	13.653	16.394	17.020	19.531	20.162	22.954
Costs (without depreciation)	in 1,000 US\$	7.173	8.167	9.502	10.127	11.253	11.885	13.062
EBITDA (Cash Flow)	in 1,000 US\$	17.483	18.788	21.092	24.596	28.159	32.848	38.228
Depreciation	in 1,000 US\$	5.486	5.486	6.892	6.892	8.277	8.277	9.892
EBIT	in 1,000 US\$	11.997	13.302	14.200	17.704	19.881	24.571	28.336
Accumulated Capital Requirements	in 1,000 US\$	7.726	7.726	7.770	8.057	8.057	8.057	8.057
Earnings before Tax	in 1,000 US\$	4.271	5.576	6.430	9.647	11.624	16.513	20.278
Tax	in 1,000 US\$	854	1.115	1.286	1.929	2.365	3.303	4.056
Earnings (after Interest & Tax)	in 1,000 US\$	3.416	4.461	5.144	7.717	9.459	13.211	16.223
Cash-Flow (after Interest & Tax)	in 1,000 US\$	8902	9947	12036	14610	17737	21488	26115
Loan status	in 1,000 US\$	40.225	35.717	30.848	26.687	20.764	14.368	7.460

Table 2.2.2-1 (3 pages)



### 2.2.3 Modified Calculation of the „worst case“

100 percent debt finance with an annual interest rate of 12 percent serves as the worst case. The investor has to pay 13.271 million USD tax within the period of the project - mostly within the last years. As the earnings before tax will be reduced by the investment in the 15th year of operation (11.5 million USD), the total benefit tax will be reduced by 2.2 million USD.

***See following table 2.2.3-1***

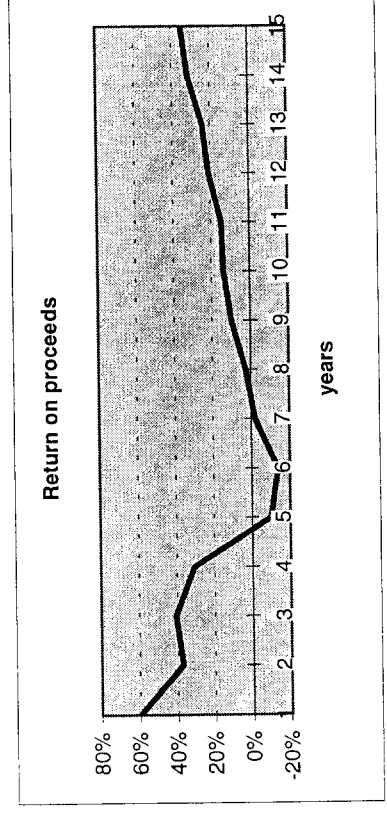
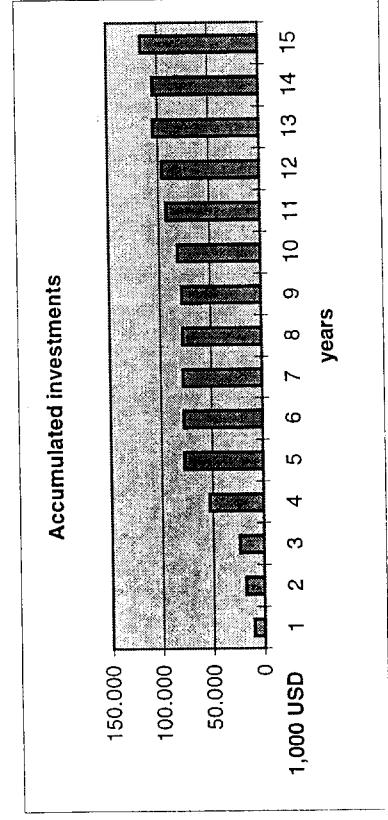
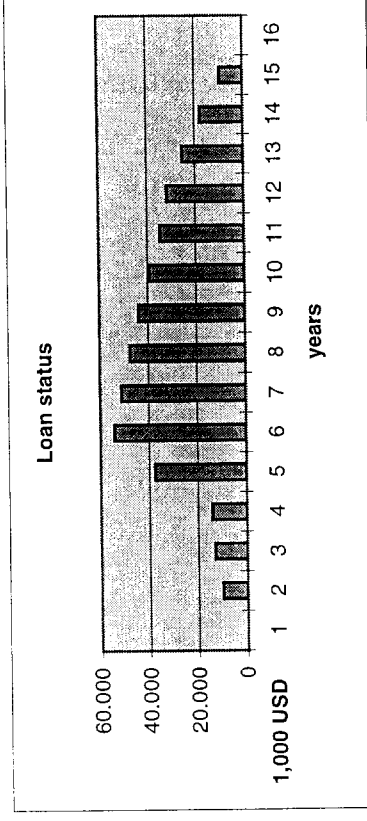
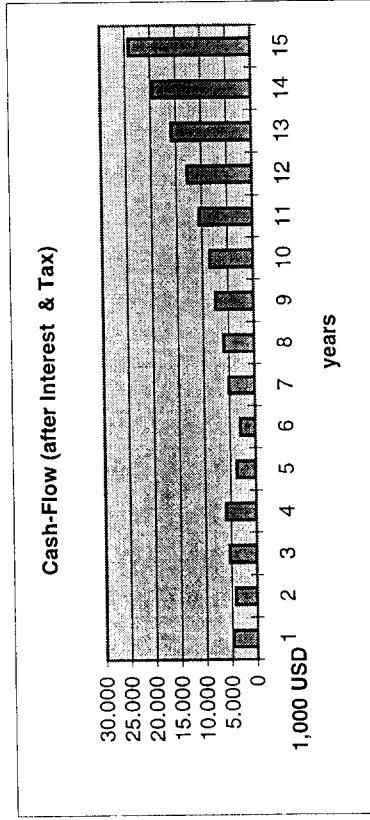
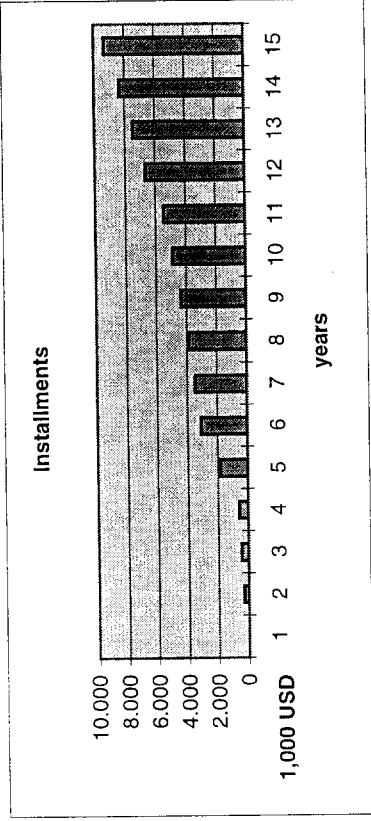
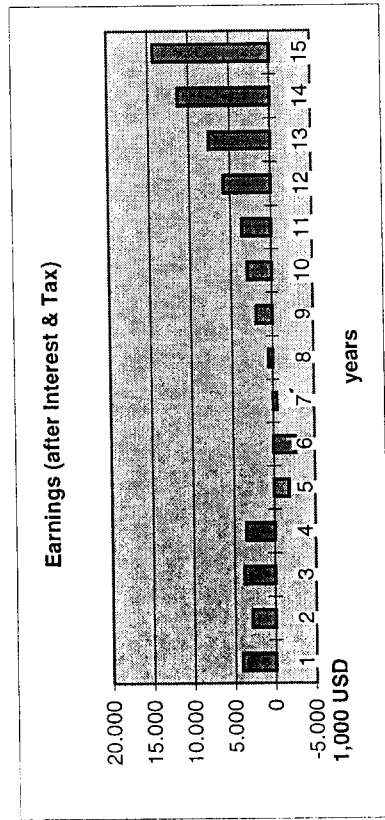
Table 2.2.3-1 (3 pages)

Year	1998	1999	2000	2001	2002	2003	2004	2005
<b>Poti container terminal (without breakwater): Cash flow analysis, worst case, interest 12%</b>								
Investment	9.962	7.935	5.697	29.346	24.369	0	420	0
Investment berth 6+7								
Investment berth 12-14								
Investment New CT-Term.								
Incidental expenses								
Investments total (per year)	9.962	7.935	5.697	29.346	24.369	0	420	0
net total accumulated	9.962	17.897	18.945	44.154	63.206	57.336	54.039	51.181
financed per Earnings incl. Deprec.	0	-4.649	-4.136	-5.317	-5.870	-3.718	-2.858	-5.056
total accumulated	9.962	13.248	14.808	38.837	57.336	53.619	51.181	46.125
Proceeds	8.550	9.430	11.572	14.203	17.466	19.039	20.751	22.619
Proceeds total	8.550	9.430	11.572	14.203	17.466	19.039	20.751	22.619
Total costs (with depreciation)	2.847	4.231	4.759	6.131	11.811	12.080	11.593	12.458
Costs without depreciation	2.292	2.894	3.206	3.752	6.325	6.594	6.107	6.972
EBITDA (Cash Flow)	6.268	6.536	8.366	10.451	11.141	12.445	14.644	15.648
Depreciation	564	1.337	1.553	2.379	5.486	5.486	5.486	5.486
EBIT	5.704	5.199	6.813	8.071	5.655	6.959	9.158	10.162
Accumulated Capital Requirements	598	1.700	2.108	3.708	7.423	9.587	9.587	9.587
Earnings before tax	5.106	3.499	4.705	4.363	-1.768	-2.628	-430	574
Tax	1.021	700	941	873	0	0	0	115
Earnings (after interest & tax)	4.085	2.799	3.764	3.490	-1.768	-2.628	-430	459
Cash-Flow (after Interest & Tax)	4649	4136	5317	5870	3718	2858	5056	5945
Loan status	0	9.962	12.940	14.039	37.486	54.171	51.084	47.626

**Table 2.2.3-1 (3 pages)**

	2006	2007	2008	2009	2010	2011	2012	2015
	approx.							
<b>Investment</b>	in 1,000 US\$	0	3.954	11.044	8.233	0	11.500	
Investment berth 6+7	in 1,000 US\$							
Investment berth 12-14	in 1,000 US\$							
Investment New CT-Term.	in 1,000 US\$							
Incidental expenses	in 1,000 US\$							
<b>Investments total (per year)</b>	in 1,000 US\$	0	3.954	11.044	8.233	0	11.500	
<b>net total accumulated</b>	in 1,000 US\$	46.125	44.133	47.764	42.564	27.634	23.303	
<b>financed per Earnings incl. Deprec.</b>	in 1,000 US\$	-5.945	-7.413	-8.458	-10.458	-12.704	-15.831	-19.583
<b>total accumulated</b>	in 1,000 US\$	40.179	36.720	39.306	32.106	17.803	3.720	
<b>Proceeds</b>	in 1,000 US\$	24.655	26.955	30.594	34.724	44.733	51.290	
<b>Proceeds total</b>	in 1,000 US\$	24.655	26.955	30.594	34.724	44.733	51.290	
<b>Total costs (with depreciation)</b>	in 1,000 US\$	12.659	13.653	16.394	17.020	20.162	22.954	
<b>Costs (with depreciation)</b>	in 1,000 US\$	7.173	8.167	9.502	10.127	11.886	13.062	
<b>EBITDA (Cash Flow)</b>	in 1,000 US\$	17.483	18.788	21.092	24.596	28.159	32.848	
<b>Depreciation</b>	in 1,000 US\$	5.486	5.486	6.892	6.892	8.277	9.892	
<b>EBIT</b>	in 1,000 US\$	11.997	13.302	14.200	17.704	19.881	24.571	
<b>Accumulated Capital Requirements</b>	in 1,000 US\$	9.587	9.587	9.742	10.439	10.439	10.439	
<b>Earnings before Tax</b>	in 1,000 US\$	2.409	3.715	4.457	7.265	9.443	14.132	
<b>Tax</b>	in 1,000 US\$	482	743	891	1.453	1.889	2.826	
<b>Earnings (after interest &amp; Tax)</b>	in 1,000 US\$	1.927	2.972	3.566	5.812	7.554	11.305	
<b>Cash-Flow (after interest &amp; Tax)</b>	in 1,000 US\$	7413	8458	10458	12704	15831	19583	24210
<b>Loan status</b>	in 1,000 US\$	43.754	39.417	34.560	31.706	25.072	17.642	9.320

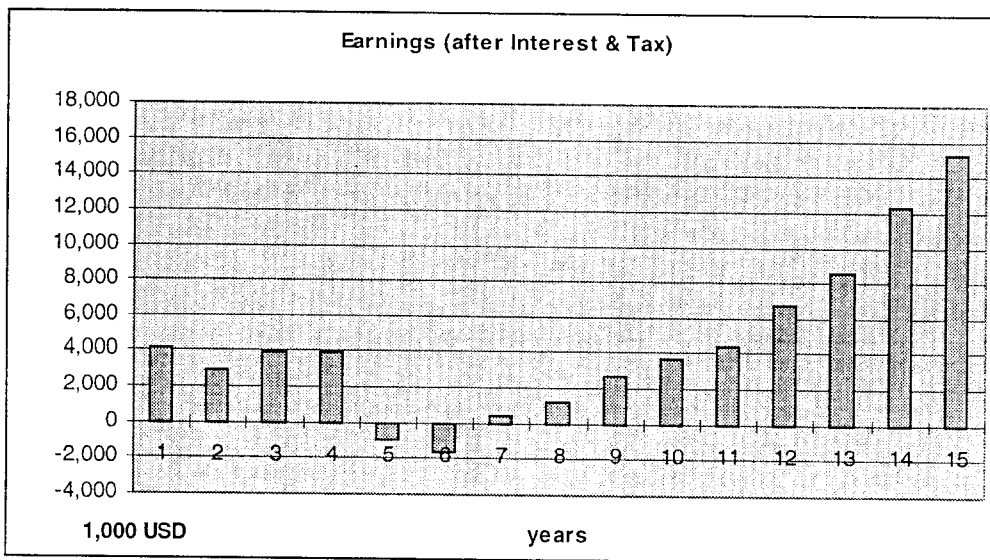
**Table 2.2.3-1 (3 pages)**



### 2.2.4 Conclusions and recommendations (real case)

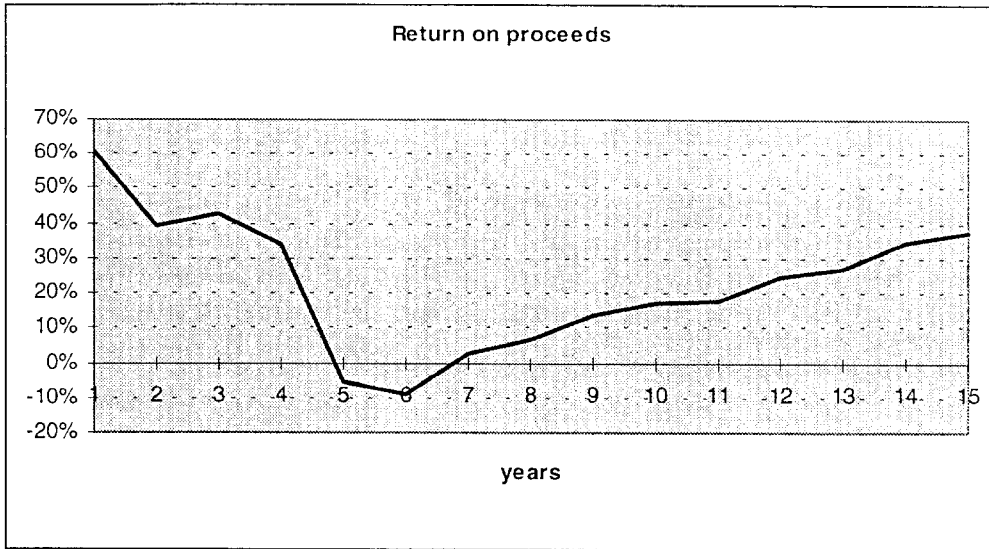
- Data provided by the HPTI/DSC/RMG-team show a reasonable project finance model.
- The conception should further calculate the possibility of being partly financed by equity capital. Equity capital usually expects an average of an annual interest of at least 15 percent after tax.
- The loan status will grow up to a peak of 52.591 million USD in the 6th year of operation.
- The total of tax payment shows the possibility of an improvement of the investment plan.
- Investments in the first period should be calculated carefully. The possible sale of the extension terminal after the North Terminal has been finished has not been taken into account up to this point.

### Earnings (after interest and tax, container terminal without breakwater)



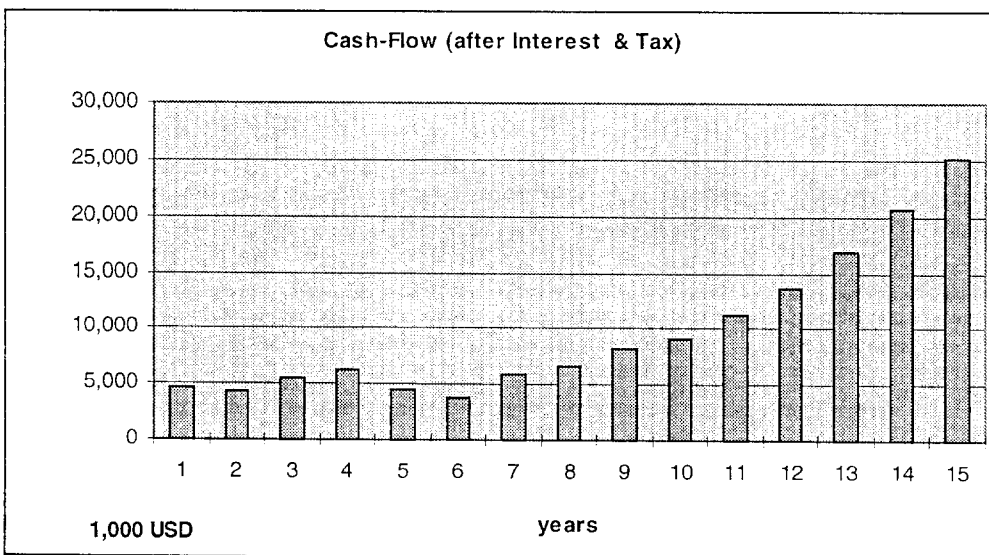
- In the first years the project will achieve almost constantly positive earnings after interest and taxes.
- The accumulated earnings after interest and taxes equal 53.932 million USD over the project period.
- In the last years the project will have increasing earnings, which are partly used for the financing of new investment.
- Please take into account that in the last year 11.5 million USD will be used for the last investment in year 15.

### Return on Proceeds



- The Return on Proceeds refers to the relation between the earnings before tax and the proceeds.
- Due to poor earnings in the years after the beginning of the operating in the new container terminal the Return of Proceeds is negative in the years 5 till 8
- The accumulated Return on Proceeds over the 15 years equals 18,3%

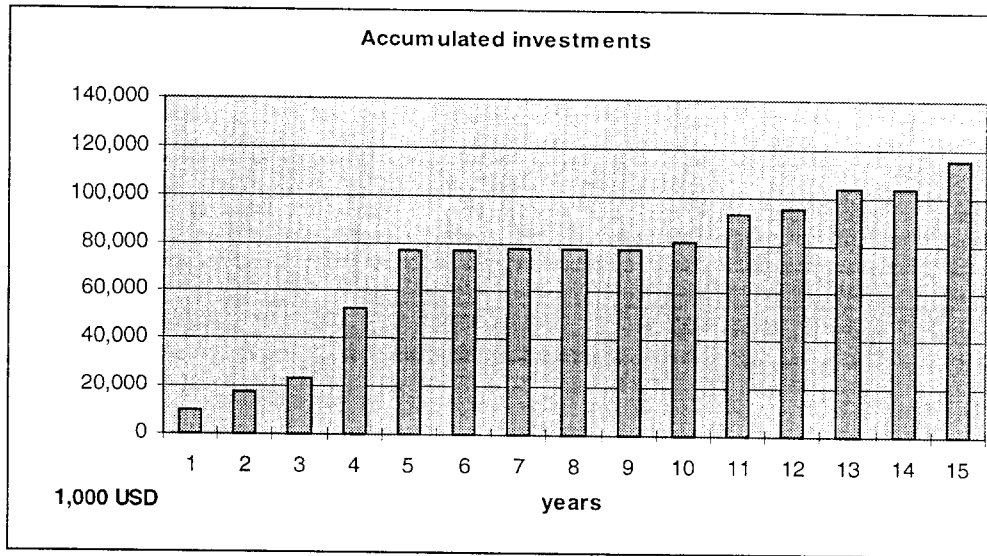
### Cash-Flow (after interest and tax)



- The cash-flow after interest and tax is used to finance a part of the investments.
- The cash-flow is rather constant during the project, with a strong increase after the 8th year.

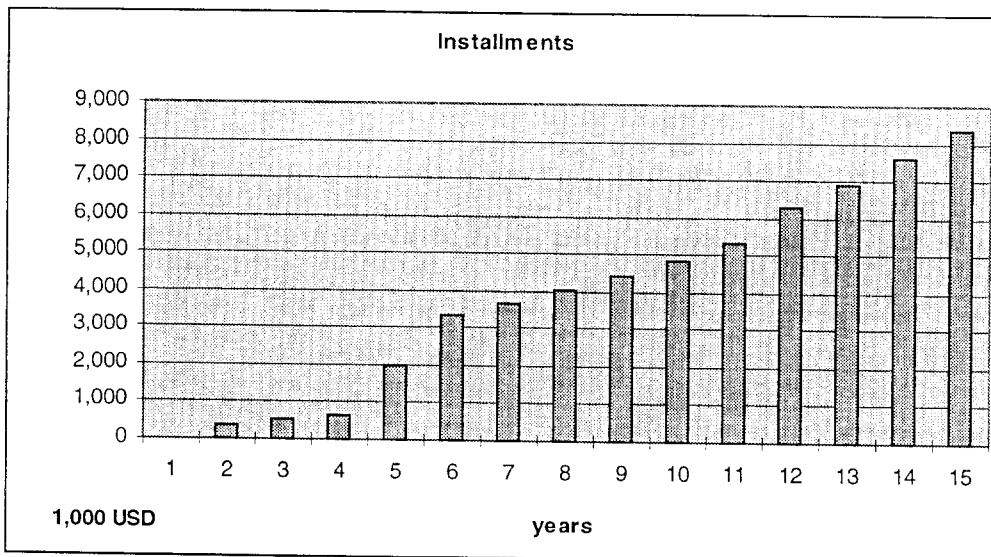


## Accumulated Investments



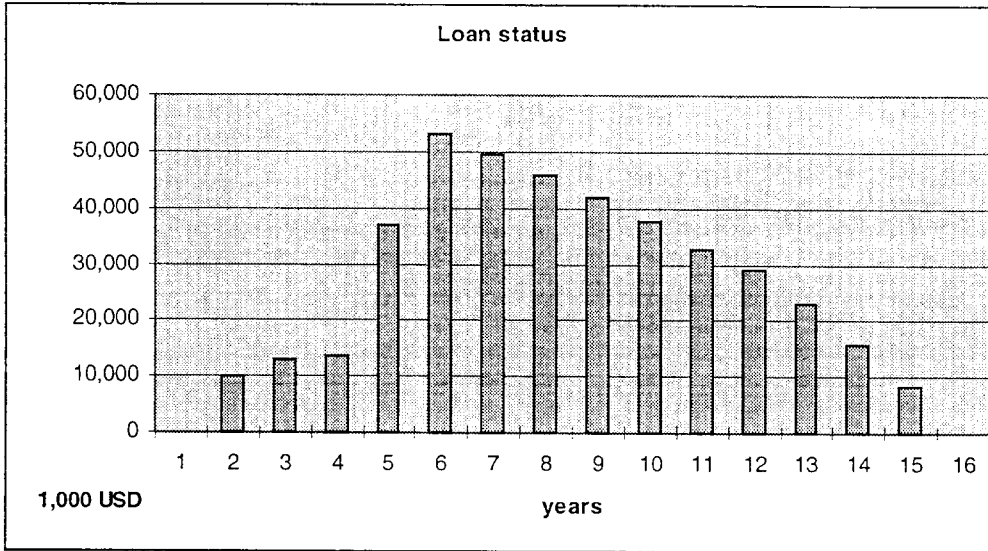
- The accumulated investments form the project's fixed assets.
- In this diagramm the effects of depreciations have not taken into account.
- The strongest increase in investments is within the first years due to the need of high initial investments.

## Annual Installments



- The annual installments form with the annual interest payments the annuity.
- The installments show a rather regular trend during the project period. At the end the repayments increase clearly, as the interest payment decreases.
- The investment in the last year is not financed by annuity loan but directly reduced by the present earnings

### Loan status



- The maximum loan status in the year 6 indicates the project's maximum loan need of 89,197 million USD.
- The whole loan amount can be paid back until the year 16 with own cash-flow.

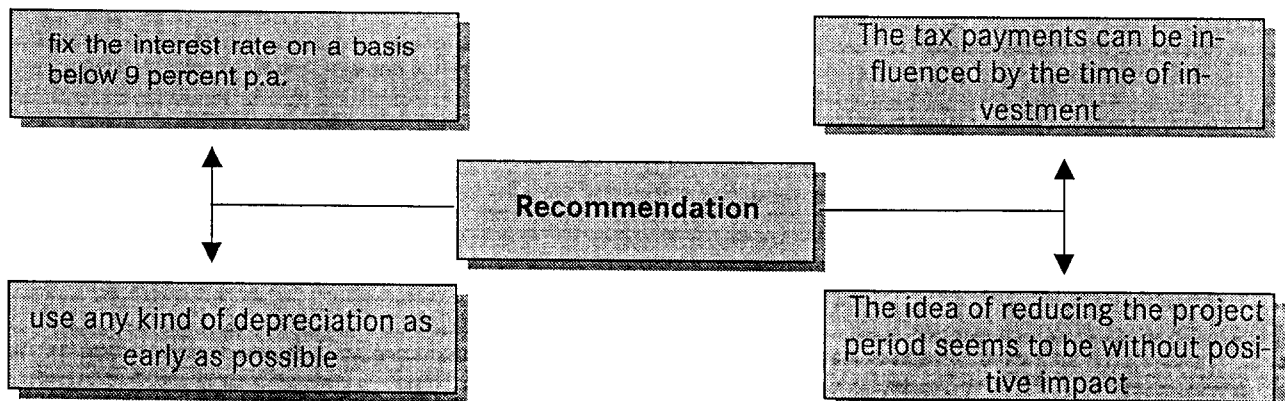
### Reduction of project period:

The investor might think of a project period of ten years instead of fifteen years. The finance model can hardly recommend this shortening.

Arguments are as follows:

- The annuity rate would sharply rise because of a shorter repayment period; meanwhile the effect from a lower interest rate (ten years instead of fifteen years) is only a little.
- The investor plans 10 percent of the investment in the last four years; meanwhile the investor sees 49 percent of the total earnings before interest and tax in the last five years.
- 48 percent of the total depreciation within the period is obtained in the last five years.

As a financial advise we would give the following recommendation:



## Conclusion:

- A financing under conditions which usually are offered by the European Bank for Reconstruction and Development (EBRD) seems to be reasonable.
- A partly financing under conditions of equity capital (an interest rate after tax of at least 15 percent per annum would be expected) can be discussed.
- The project should take into regard that the investment plan should try to avoid tax payment.
- The high investment in the 15th year of operation causes a high capital requirement till the very end of the project period.
- At a later point the investor should check whether a loan in USD will be the optimum finance possibility. Long-term interest rates in other currencies might be lower. On the other hand the proceeds are gained in USD, this makes a financing on a USD-basis reasonable.
- The investment of the breakwater (and the infrastructure connections) should not be involved in the financing of the container terminal project.

**The calculation runs for the Poti general cargo and bulk areas are listed in annex 2.**

## 3. Batumi

The phased development of the Batumi Multi Purpose Terminal is shown above in table 4 and described in Vol.III and Vol.IV.

The concept of the multi purpose terminal provides to handle about 70% of the general cargo volume, all container and the RoRo - volume. A quay wall of 250m will be reconstructed between the present berth 4 and 5; the RoRo-ramp will be integrated. The planned area of the multi purpose terminal has about 31,250 sqm, the multi purpose terminal **extra** version will have about 47,750 sqm. This version is the basis for the calculation runs. The equipment planning assumes that above all self-sustaining ships are to be handled - that means no expensive mobil cranes will be needed.

In Vol.IV, annex 2 a cost estimation for the multi purpose terminal extra is given.

Again it is to mention that all figures are based on western standards. Therefore in some positions may be possibilities for cutting down the investment by using regional procurements.

### 3.1 Cash Flow Analysis

#### 3.1.1 General Assumptions and Inputs

The same remarks as in chapter 2.1 are valid. The detailed input figures are listed in annex 6. The break-down of the investment is divided into the parts

- site preparation - esp. demolition of buildings and preparation of the ground
- environmental - cleaning of the soil is a significant cost position
- civil works - esp. construction of the quay wall
- utilities and equipment

The proceeds are divided into general cargo and container handling proceeds and in storage proceeds. The other positions are the same as mentioned above.

### 3.1.2 Quantity framework

The investments and the operations depend on the forecasted handling volume. The figures are:

***See following table 3.1.2.-1***

Table 3.1.2-1 (2 pages)

Timetable for the Development of the Multi Purpose Terminal of the Port of Batumi

	Unit	Unit costs (USD / unit)	1998	1999	2000	2001	2002	2003	2004	2005	2006
General cargo, total	t		342.400	387.700	463.400	553.800	660.900	659.600	658.300	657.000	655.700
General cargo, MP-Terminal	%		25%	30%	40%	50%	60%	70%	70%	70%	70%
	t		85.600	116.310	185.360	276.900	396.540	461.720	460.810	459.900	458.990
of it: storage	%		0%	5%	10%	15%	20%	20%	20%	20%	20%
	t		0	5.816	18.536	41.535	79.308	92.344	92.162	91.980	91.798
Bulk, total	t		646.200	681.500	718.700	757.900	798.600	860.900	928.100	1.000.500	1.078.600
Bulk, MP-Terminal	%		30%	40%	50%	60%	70%	70%	70%	70%	70%
	t		193.860	272.600	359.350	454.740	559.020	602.630	649.670	700.350	755.020
Container, total	TEU		494	988	1.482	1.976	2.470	2.814	3.158	3.502	3.846
of it: storage	%		0%	5%	10%	15%	20%	20%	20%	20%	20%
	TEU		0	49	148	296	494	563	632	700	769
<b>HANDLING PROCEEDS; total</b>			<b>1.602.107</b>	<b>2.274.573</b>	<b>3.234.382</b>	<b>4.382.452</b>	<b>5.756.216</b>	<b>6.450.864</b>	<b>6.736.381</b>	<b>7.040.098</b>	<b>7.363.766</b>
General cargo handling			552.120	750.200	1.195.572	1.786.005	2.557.683	2.978.094	2.972.225	2.966.355	2.960.486
of it: 50-kg-bags (40%)	t		34.240	46.524	74.144	110.760	158.616	184.688	184.324	183.960	183.596
	USD/t	6,00	205.440	279.144	444.864	664.560	951.696	1.108.128	1.103.760	1.101.576	1.101.576
of it: 100-kg-barrels (15%)	t		12.840	17.447	27.804	41.535	59.481	69.258	69.122	68.985	68.849
	USD/t	9,00	115.560	157.019	250.236	373.815	535.329	623.322	622.094	620.865	619.637
of it: 50-kg-boxes (45 %)	t		38.520	52.340	83.412	124.605	178.443	207.774	207.365	206.955	206.546
	USD/t	6,00	231.120	314.037	500.472	747.630	1.070.658	1.246.644	1.244.187	1.241.730	1.239.273
Kontrollziffer			0	0	0	0	0	0	0	0	0
Bulk handling	USD	5,00	969.300	1.363.000	1.796.750	2.273.700	2.795.100	3.013.150	3.248.350	3.501.750	3.775.100
	t		193.860	272.600	359.350	454.740	559.020	602.630	649.670	700.350	755.020
Container handling	TEU		80.687	161.373	242.060	322.747	403.433	459.620	515.807	571.993	628.180
Container per move (all included), full	TEU		494	988	1.482	1.976	2.470	2.814	3.158	3.502	3.846
	USD	140,00	69.160	138.320	207.480	276.640	345.800	393.960	442.120	490.280	538.440
Container per move (all included), 1/3 empty	TEU		165	329	494	659	823	938	1.053	1.167	1.282
	USD	70,00	11.527	23.053	34.580	46.107	57.633	65.660	73.687	81.713	89.740
<b>STORAGE PROCEEDS; total</b>			<b>0</b>	<b>38.832</b>	<b>102.311</b>	<b>195.905</b>	<b>311.768</b>	<b>296.342</b>	<b>232.970</b>	<b>168.180</b>	<b>135.962</b>
Storage of general cargo (20d)			0	33.497	88.973	172.786	279.164	265.951	206.443	147.168	117.501
in open areas (40%)	%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%
	t		0	2.326	7.414	16.614	31.723	36.938	36.865	36.792	36.719
	days	20	20	18	15	13	11	9	7	5	4
	USD	0,20	0	8.374	22.243	43.196	69.791	66.488	51.611	36.792	29.375
in covered areas (60%)	%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%
	t		0	3.489	11.122	24.921	47.585	55.406	55.297	55.188	55.079
	days	20	20	18	15	13	11	9	7	5	4
	USD	0,40	0	25.123	66.790	129.589	209.373	199.463	154.832	110.376	88.126
Container Storage			0	5.335	13.338	23.119	32.604	30.391	25.527	21.012	18.461
	piece		0	49	148	296	494	563	632	700	769
	days	20	20	18	15	13	11	9	7	5	4
	USD	6,00	0	5.335	13.338	23.119	32.604	30.391	25.527	21.012	18.461

**Table 3.1.2-1 (2 pages)**

**Timetable for the Development of the Proceeds of the Multi Purpose Terminal of the Port of Batumi**

	Unit	2007	2008	2009	2010	2011	2012
<b>General cargo, total</b>	t	654.900	655.700	656.500	657.300	658.100	659.300
<b>General cargo, MP-Terminal</b>	%	70%	70%	70%	70%	70%	70%
of it: storage	t	458.430	458.990	459.550	460.110	460.670	461.510
	%	20%	50%	50%	50%	50%	50%
<b>Bulk, total</b>	t	91.686	229.495	229.775	230.055	230.335	230.755
<b>Bulk, MP-Terminal</b>	%	1.164.100	1.233.400	1.306.800	1.384.600	1.467.700	1.554.000
	%	70%	70%	70%	70%	70%	70%
<b>Container, total</b>	TEU	814.870	863.380	914.760	969.220	1.027.390	1.087.800
of it: storage	%	4.190	4.670	5.150	5.630	6.110	6.590
	%	20%	50%	50%	50%	50%	50%
	TEU	838	2.335	2.575	2.815	3.055	3.295
<b>HANDLING PROCEEDS, total</b>		<b>7.715.590</b>	<b>8.040.152</b>	<b>8.379.064</b>	<b>8.733.376</b>	<b>9.106.238</b>	<b>9.492.106</b>
<b>General cargo handling</b>		<b>2.956.874</b>	<b>2.960.486</b>	<b>2.964.098</b>	<b>2.967.710</b>	<b>2.971.322</b>	<b>2.976.740</b>
of it: 50-kg-bags (40%)	t	183.372	183.596	183.820	184.044	184.268	184.604
	USD/t	1.100.232	1.101.576	1.102.920	1.104.264	1.105.608	1.107.624
of it: 100-kg-barrels (15%)	t	68.765	68.849	68.933	69.017	69.101	69.227
	USD/t	618.881	619.637	620.393	621.149	621.905	623.039
of it: 50-kg-boxes (45 %)	t	206.294	206.546	206.798	207.050	207.302	207.680
	USD/t	1.237.761	1.239.273	1.240.785	1.242.297	1.243.809	1.246.077
Kontrollziffer		0	0	0	0	0	0
<b>Bulk handling</b>	USD	<b>4.074.350</b>	<b>4.316.900</b>	<b>4.573.800</b>	<b>4.846.100</b>	<b>5.136.950</b>	<b>5.439.000</b>
	t	814.870	863.380	914.760	969.220	1.027.390	1.087.800
<b>Container handling</b>		<b>684.367</b>	<b>762.767</b>	<b>841.167</b>	<b>919.567</b>	<b>997.967</b>	<b>1.076.367</b>
Container per move (all included), full	TEU	4.190	4.670	5.150	5.630	6.110	6.590
	USD	586.600	653.800	721.000	788.200	855.400	922.600
Container per move (all included), 1/3 empty	TEU	1.397	1.557	1.717	1.877	2.037	2.197
	USD	97.767	108.967	120.167	131.367	142.567	153.767
<b>STORAGE PROCEEDS, total</b>		<b>137.470</b>	<b>349.794</b>	<b>355.912</b>	<b>362.030</b>	<b>368.149</b>	<b>374.446</b>
<b>Storage of general cargo (20d)</b>		<b>117.358</b>	<b>293.754</b>	<b>294.112</b>	<b>294.470</b>	<b>294.829</b>	<b>295.366</b>
in open areas (40%)	%	40%	40%	40%	40%	40%	40%
	t	36.674	91.798	91.910	92.022	92.134	92.302
	days	4	4	4	4	4	4
	USD	29.340	73.438	73.528	73.618	73.707	73.842
in covered areas (60%)	%	60%	60%	60%	60%	60%	60%
	t	55.012	137.697	137.865	138.033	138.201	138.453
	days	4	4	4	4	4	4
	USD	88.019	220.315	220.584	220.863	221.122	221.525
<b>Container Storage</b>		<b>20.112</b>	<b>56.040</b>	<b>61.800</b>	<b>67.560</b>	<b>73.320</b>	<b>79.080</b>
	piece	838	2.335	2.575	2.815	3.055	3.295
	days	4	4	4	4	4	4
	USD	20.112	56.040	61.800	67.560	73.320	79.080

### 3.1.3 Proposed Investments

The investments for the Batumi multi purpose terminal are listed in annex 8 summarized for the years 1998 till 2012. The investments are shown sum accumulated until the regarded year such as for the year 1998: 10,843,218 USD or for the year 2000 (expected beginning of operation): 25,951,445 USD. The total investment sum until the year 2012 amounts to 30,547,445 USD.

### 3.1.4 Proceeds

The proceeds are orientated at the list of tariffs of the Georgian ports (dated of 30 th of august,1995), see annex 4). The rates remain unchanged during the calculation period, that means that they have a sound basis.

### 3.1.5 Costs

Real estate:

As in Poti it is proposed to calculate a leasing rate for the required terminal area of USD 4,00 per sqm and year. There is calculated no change during the calculation period.

Depreciations and operating costs:

The same assumptions are made as for the Poti terminal. You can see the development of the operating costs in annex 7. The basis of the figures are the present values. The increasing rates are given in the table. The interviews with the port administration are the sources of the data.

### 3.1.6 Taxes

The relevant tax is the benefit tax with 20% of the earnings.

## 3.2 Calculation of the cash flow

With the above mentioned assumptions the investment project is evaluated by several calculation runs. The calculation runs show a principle problem in the definition of the activities, proceeds and costs of the multi-purpose terminal. In the first calculation run of the real case with the calculated proceeds, based on a certain part of the general cargo and bulk operation the earnings get to low. The cash flow analysis has a very bad result (see table 3.2.2-1, calculation of the worst case). The financial team thus decided to increase the proceeds by 10%. The result is documented in the tables of the real case (table 4 in the chapter 1.3). After the powerful investment in the first 4 years earnings and cash flow get a good result, the return on proceeds reaches nearly 10% and the loan (the maximum loan sum is about 25 million USD) can be repaid in the project period.

The results are shown in the following chapters.

### 3.2.1 Basis of the conception

The finance model calculates investments and the operating of the terminal for a period of fifteen years. Within this period the investments shall be reduced by operational earnings. Present calculations predict a total investment of 30.547 million USD, the main investment will take place in the first period (four years).

The operational turnover will increase from 1.602 million USD (1 st year) to 9.867 million USD (15 th year). As mentioned the finance model has taken into account 110% of all proceeds, which are forecasted.

Operational costs will increase from 875,000 USD (1st year) to 4.294 million USD (15th year). The annual depreciations as mentioned above were taken into the finance model.

Earnings after interest were submitted to a 20 percent (benefit-)tax. Special tax effects by a forwarded loss declaration ("Verlustvortrag") or by a taxation of the annual dividend payments were not taken into account.

### 3.2.2 Calculations of different cases

#### **1. Calculation of the "real case"**

See chapter 1, table 4, pages 2 and 3

#### **2. Calculation of the "best case"**

*See following table 3.2.2-1*



Table 3.2.2-1

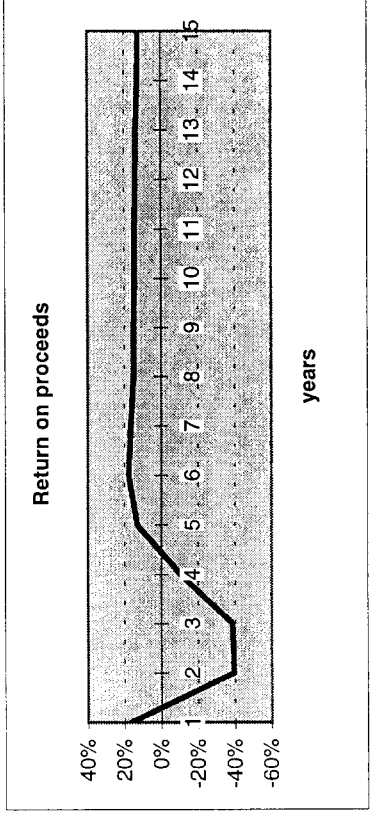
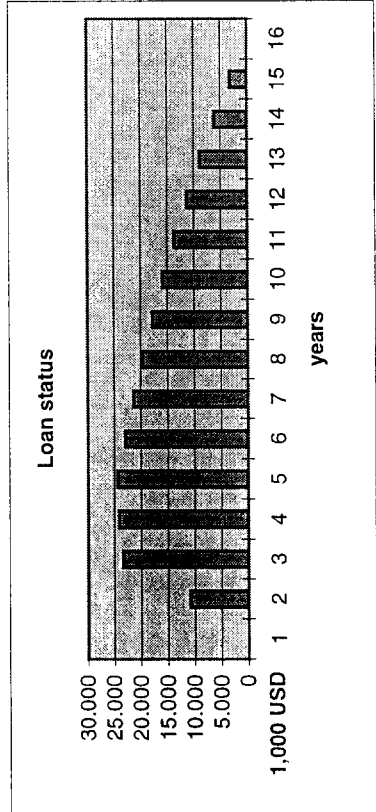
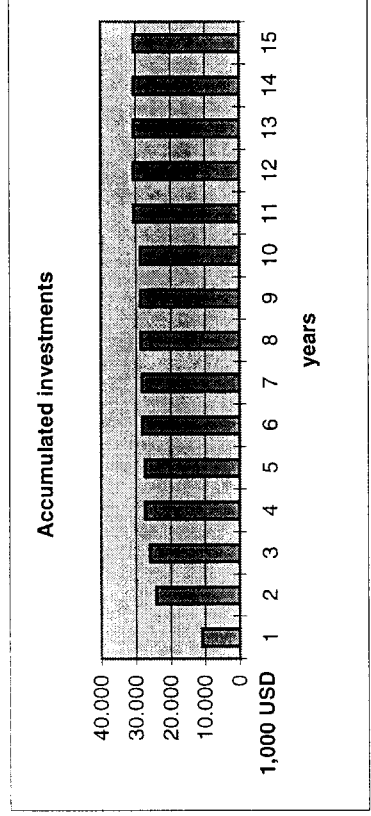
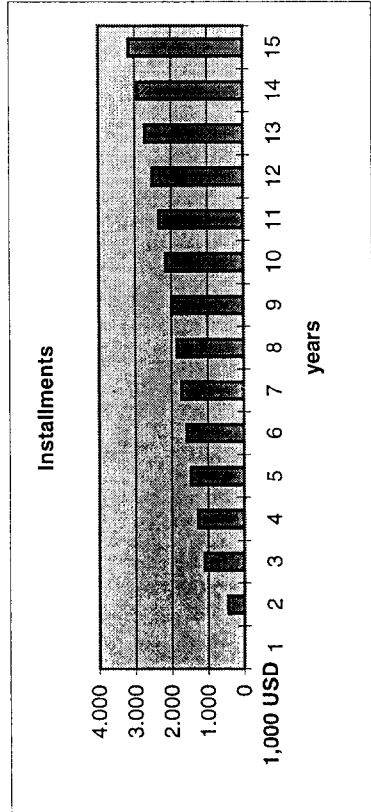
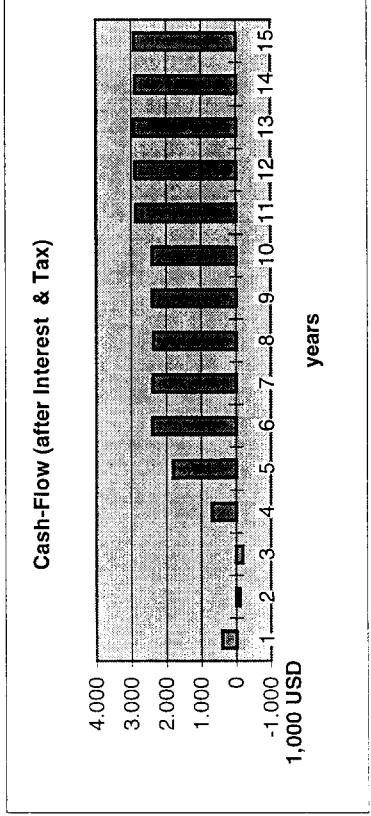
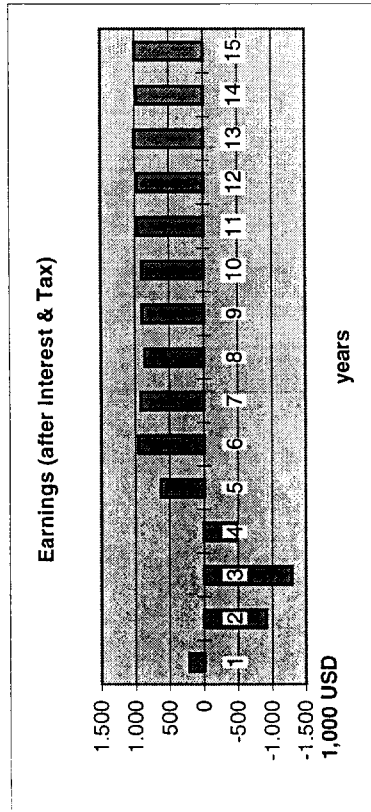
**Batumi multi purpose terminal: Cash flow analysis, best case, interest 8%, proceeds 110%**

	1998	1999	2000	2001	2002	2003	2004	2005
Investment			1.800	1.304	0	886	110	360
Site Preparation		13.307						
Environmental	10.843	161						
Civil Works	2.398	7.261						
Buildings	5.400	1.250						
Utilities		867						
Equipment		1.976	1.800	1.304		886	110	360
Other Equipment	1.875	361						
Incidental Expenses	1.170	1.431						
<b>Investments total (per year)</b>	<b>10.843</b>	<b>13.307</b>	<b>1.800</b>	<b>1.304</b>	<b>0</b>	<b>886</b>	<b>110</b>	<b>360</b>
net total accumulated	10.843	24.150	25.550	26.944	27.115	27.304	25.609	23.575
financed per Earnings incl. Deprec.	0	-400	90	170	-697	-1.805	-2.394	-2.379
<b>total accumulated</b>	<b>10.843</b>	<b>23.750</b>	<b>25.640</b>	<b>27.115</b>	<b>26.418</b>	<b>25.399</b>	<b>23.215</b>	<b>21.196</b>
Proceeds		2.313	3.337	4.578	6.068	6.747	6.969	7.208
Proceeds total	1.602	2.545	3.670	5.036	6.675	7.422	7.666	7.929
Total costs (with depreciation)	1.063	1.621	1.936	2.261	2.488	2.826	3.116	3.452
Gross Annual Depreciation	875	804	817	1.081	1.308	1.364	1.553	1.952
EBITDA (Cash Flow)	887	1.741	2.854	3.955	5.367	6.037	6.014	5.977
Depreciation	188	818	1.119	1.180	1.180	1.442	1.464	1.500
EBIT	699	923	1.735	2.775	4.187	4.596	4.550	4.477
Accumulated Capital Requirements	434	1.832	3.024	3.258	3.406	3.406	3.406	3.406
Earnings before Tax	266	908	-1.289	-483	781	1.190	1.144	1.072
Tax	53	0	0	0	156	238	229	214
Earnings (after interest & tax)	212	908	-1.289	-483	625	952	915	857
Cash-Flow (after Interest & Tax)	400	-90	-170	697	1805	2394	2379	2357
Loan status	in 1,000 US\$	0	10.843	23.302	24.109	22.852	21.274	19.571

Table 3.2.2-1

	2006	2007	2008	2009	2010	2011	2012
	approx.						
<b>Investment</b>	<b>0</b>	<b>0</b>	<b>1.821</b>	<b>116</b>	<b>0</b>	<b>0</b>	<b>0</b>
Site Preparation							
Environmental							
Civil Works							
Buildings							
Utilities							
Equipment			1.821	116			
Other Equipment							
Incidental Expenses							
<b>Investments total (per year)</b>	<b>0</b>	<b>0</b>	<b>1.821</b>	<b>116</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>net total accumulated</b>	<b>21.196</b>	<b>18.839</b>	<b>18.267</b>	<b>15.985</b>	<b>13.127</b>	<b>10.254</b>	<b>7.343</b>
<b>financed per Earnings incl. Deprec.</b>	<b>-2.357</b>	<b>-2.393</b>	<b>-2.398</b>	<b>-2.858</b>	<b>-2.873</b>	<b>-2.911</b>	<b>-2.882</b>
<b>total cash requirement</b>	<b>18.839</b>	<b>16.446</b>	<b>15.869</b>	<b>13.127</b>	<b>10.254</b>	<b>7.343</b>	<b>4.461</b>
<b>Proceeds</b>	<b>7.500</b>	<b>7.853</b>	<b>8.390</b>	<b>8.735</b>	<b>9.095</b>	<b>9.474</b>	<b>9.867</b>
<b>Proceeds total</b>	<b>6.250</b>	<b>8.638</b>	<b>9.229</b>	<b>9.608</b>	<b>10.005</b>	<b>10.422</b>	<b>10.853</b>
<b>Total costs (with depreciation)</b>	<b>3.728</b>	<b>4.109</b>	<b>4.625</b>	<b>5.003</b>	<b>5.352</b>	<b>5.806</b>	<b>6.207</b>
<b>Costs without depreciation</b>	<b>2.228</b>	<b>2.610</b>	<b>2.726</b>	<b>3.090</b>	<b>3.439</b>	<b>3.892</b>	<b>4.294</b>
<b>EBITDA (before Deprec.)</b>	<b>6.022</b>	<b>6.029</b>	<b>6.503</b>	<b>6.516</b>	<b>6.565</b>	<b>6.530</b>	<b>6.559</b>
<b>Depreciation</b>	<b>1.500</b>	<b>1.500</b>	<b>1.899</b>	<b>1.913</b>	<b>1.913</b>	<b>1.913</b>	<b>1.913</b>
<b>EBIT</b>	<b>4.522</b>	<b>4.529</b>	<b>4.604</b>	<b>4.605</b>	<b>4.653</b>	<b>4.616</b>	<b>4.646</b>
<b>Accumulated Capital Requirements</b>	<b>3.406</b>	<b>3.406</b>	<b>3.406</b>	<b>3.406</b>	<b>3.406</b>	<b>3.406</b>	<b>3.406</b>
<b>Earnings before Tax</b>	<b>1.116</b>	<b>1.123</b>	<b>1.199</b>	<b>1.200</b>	<b>1.247</b>	<b>1.211</b>	<b>1.240</b>
<b>Tax</b>	<b>223</b>	<b>225</b>	<b>240</b>	<b>240</b>	<b>249</b>	<b>242</b>	<b>248</b>
<b>Earnings (after Interest &amp; Tax)</b>	<b>893</b>	<b>899</b>	<b>959</b>	<b>960</b>	<b>998</b>	<b>969</b>	<b>992</b>
<b>Cash-Flow (after Interest &amp; Tax)</b>	<b>2393</b>	<b>2398</b>	<b>2858</b>	<b>2873</b>	<b>2911</b>	<b>2882</b>	<b>2906</b>
<b>Loan status</b>	<b>17.731</b>	<b>15.744</b>	<b>13.598</b>	<b>11.280</b>	<b>8.777</b>	<b>6.073</b>	<b>3.153</b>

**Table 3.2.2-1**



### **3. Calculation of the "worst-case"**

*See following table 3.2.2-2*

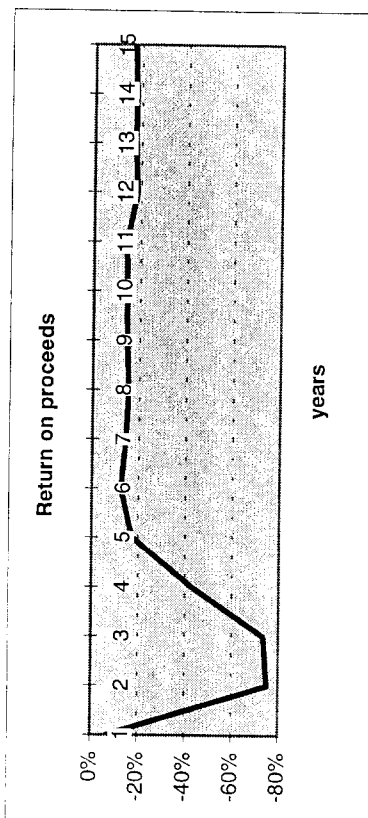
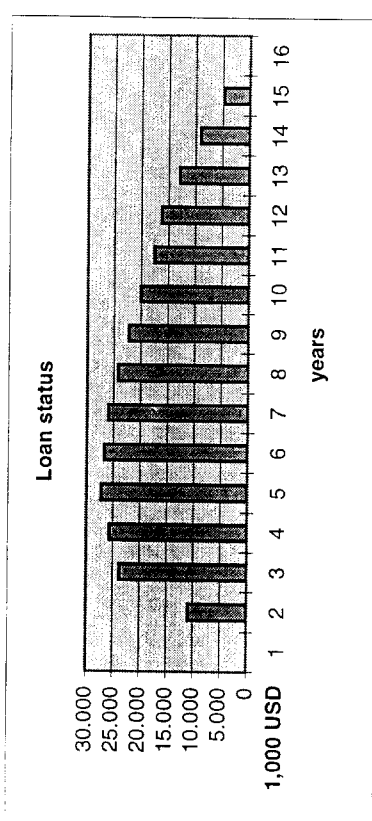
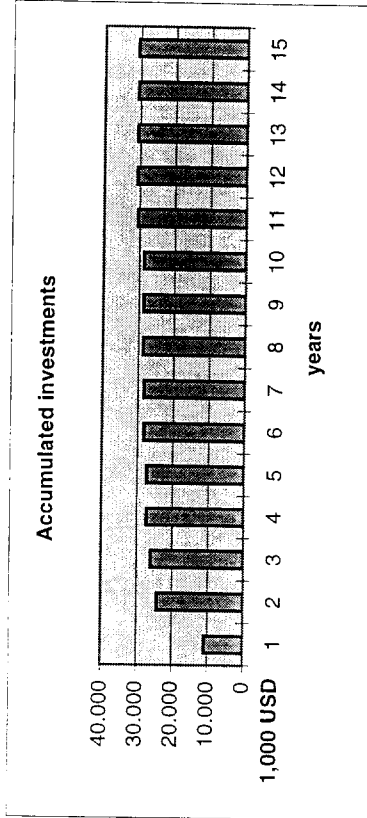
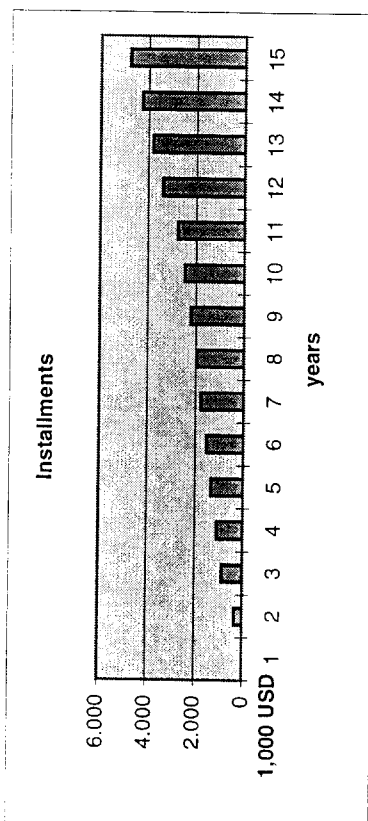
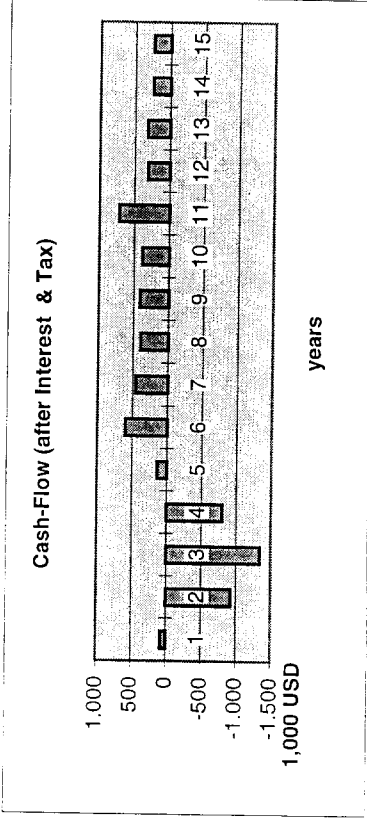
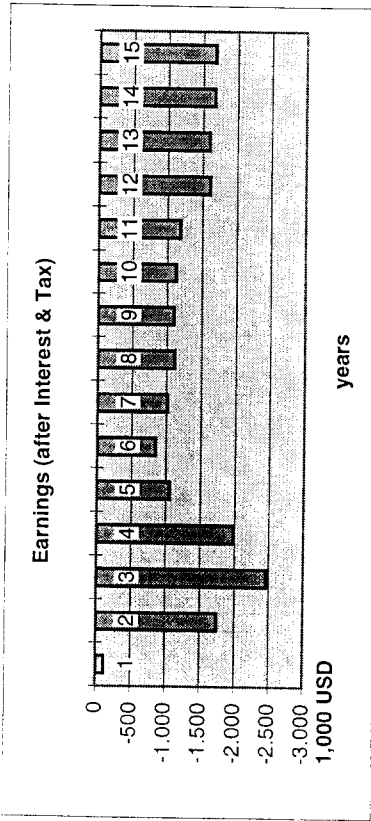
**Table 3.2.2-2**

<b>Batumi multi purpose terminal: Cash flow analysis, worst case, interest 12%, proceeds 100%</b>									
	1998	1999	2000	2001	2002	2003	2004	2005	
Investment									
Site Preparation	10.843	13.307	1.800	1.304	0	886	110	360	
Environmental	2.398	161							
Civil Works	5.400								
Buildings		7.261							
Utilities		1.250							
Equipment		867							
Other Equipment	1.875	1.976	1.800	1.304		886	110	360	
Incidental Expenses	1.170	361							
Investments total (per year)	10.843	13.307	1.800	1.304	0	886	110	360	
net total accumulated	10.843	24.150	25.874	28.098	29.437	31.119	31.097	30.960	
financed per Earnings incl. Deprec.	0	-76	920	1.339	796	-132	-597	-454	
total accumulated	10.843	24.074	26.794	29.437	30.233	30.987	30.500	30.406	
Proceeds									
Proceeds total	1.602	2.313	3.337	4.578	6.068	6.747	6.969	7.208	
Total costs (with depreciation)	1.602	2.313	3.337	4.578	6.068	6.747	6.969	7.208	
Costs (without depreciation)	1.063	1.621	1.936	2.261	2.488	2.826	3.116	3.452	
EBITDA (Cash Flow)	875	804	817	1.081	1.308	1.384	1.653	1.952	
Depreciation	727	1.510	2.620	3.497	4.760	5.363	5.317	5.256	
EBIT	188	818	1.119	1.180	1.180	1.442	1.464	1.500	
Accumulated Capital Requirements	539	692	1.401	2.317	3.580	3.923	3.853	3.757	
Earnings before tax	651	2.430	3.859	4.293	4.628	4.766	4.862	4.862	
Tax	-111	-1.738	-2.458	-1.976	-1.048	-845	-1.009	-1.106	
Earnings (after interest & tax)	0	0	0	0	0	0	0	0	
Cash-Flow (after interest & tax)	-111	-1.738	-2.458	-1.976	-1.048	-845	-1.009	-1.106	
Loan status	76	-920	-1.339	-796	132	597	454	394	
	0	10.843	23.739	25.612	27.194	26.673	25.907	24.154	

**Table 3.2.2-2**

	2006	2007	2008	2009	2010	2011	2012
<b>Batumi multi purpose terminal: Cash flow analysis, worst case, interest 12%, proceeds 100%</b>							
Investment	0	0	1.821	116	0	0	0
Site Preparation							
Environmental							
Civil Works							
Buildings							
Utilities							
Equipment			1.821	116			
Other Equipment							
Incidental Expenses							
<b>Investments total (per year)</b>	<b>0</b>	<b>0</b>	<b>1.821</b>	<b>116</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>net total accumulated</b>	<b>30.406</b>	<b>30.012</b>	<b>31.423</b>	<b>31.158</b>	<b>30.443</b>	<b>30.134</b>	<b>29.814</b>
<b>financed per Earnings incl. Deprec.</b>	<b>-394</b>	<b>-409</b>	<b>-381</b>	<b>-715</b>	<b>-309</b>	<b>-320</b>	<b>-246</b>
<b>total accumulated</b>	<b>30.012</b>	<b>29.602</b>	<b>31.042</b>	<b>30.443</b>	<b>30.134</b>	<b>29.814</b>	<b>29.569</b>
<b>Proceeds</b>	<b>7.500</b>	<b>7.853</b>	<b>8.390</b>	<b>8.735</b>	<b>9.095</b>	<b>9.474</b>	<b>9.867</b>
<b>Proceeds total</b>	<b>7.500</b>	<b>7.853</b>	<b>8.390</b>	<b>8.735</b>	<b>9.095</b>	<b>9.474</b>	<b>9.867</b>
<b>Total costs (with depreciation)</b>	<b>3.728</b>	<b>4.109</b>	<b>4.625</b>	<b>5.003</b>	<b>5.352</b>	<b>5.806</b>	<b>6.207</b>
<b>Costs (with depreciation)</b>	<b>2.228</b>	<b>2.610</b>	<b>2.726</b>	<b>3.090</b>	<b>3.439</b>	<b>3.892</b>	<b>4.294</b>
<b>EBIT (before Deprec.)</b>	<b>5.272</b>	<b>5.243</b>	<b>5.664</b>	<b>5.645</b>	<b>5.656</b>	<b>5.682</b>	<b>5.573</b>
<b>Depreciation</b>	<b>1.500</b>	<b>1.500</b>	<b>1.899</b>	<b>1.913</b>	<b>1.913</b>	<b>1.913</b>	<b>1.913</b>
<b>EBIT</b>	<b>3.772</b>	<b>3.744</b>	<b>3.765</b>	<b>3.732</b>	<b>3.743</b>	<b>3.669</b>	<b>3.659</b>
<b>Accumulated Capital Requirements</b>	<b>4.862</b>	<b>4.862</b>	<b>4.949</b>	<b>5.336</b>	<b>5.336</b>	<b>5.336</b>	<b>5.336</b>
<b>Earnings before Tax</b>	<b>1.090</b>	<b>-1.119</b>	<b>-1.183</b>	<b>-1.605</b>	<b>-1.593</b>	<b>-1.668</b>	<b>-1.677</b>
<b>Tax</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Earnings (after interest &amp; tax)</b>	<b>1.090</b>	<b>-1.119</b>	<b>-1.183</b>	<b>-1.605</b>	<b>-1.593</b>	<b>-1.668</b>	<b>-1.677</b>
<b>Cash-Flow (after Interest &amp; Tax)</b>	<b>409</b>	<b>381</b>	<b>715</b>	<b>309</b>	<b>320</b>	<b>246</b>	<b>236</b>
<b>Loan status</b>	<b>22.190</b>	<b>19.991</b>	<b>17.527</b>	<b>16.208</b>	<b>12.817</b>	<b>9.019</b>	<b>4.765</b>

**Table 3.2.2-2**



### 3.2.3 Analysis of Calculations (real case)

Data provided by the HPTI/DSC/RMG team show a reasonable project finance model.

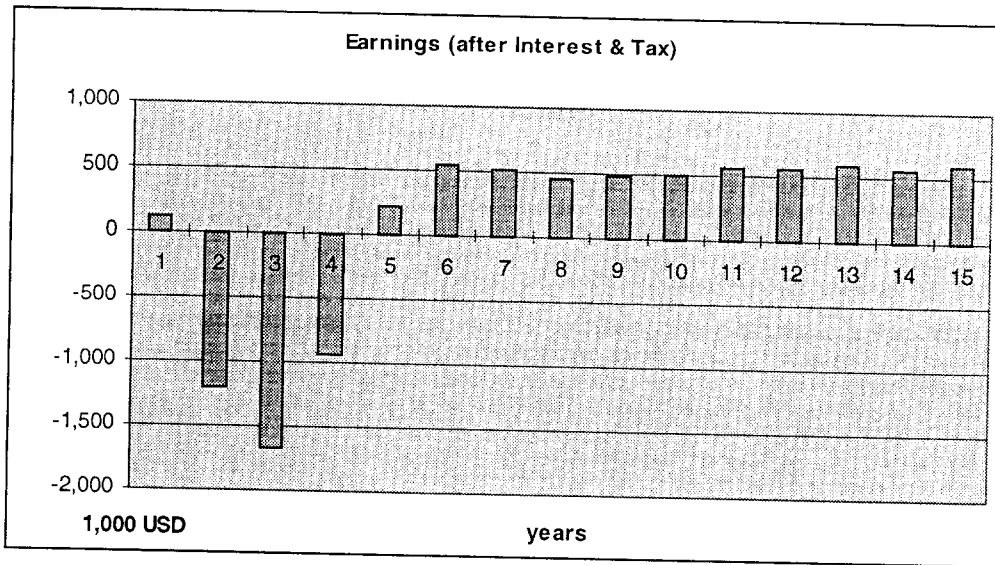
The conception should furtheron calculate the possibility of being partly financed by equity capital. Equity capital usually expects an average of an annual interest of at least 15 percent after tax in Western Europe.

The loan status will grow up to a peak of 25.380 million USD (real case) in the 5th year of operation.

The total of tax payment sums up to 1.432 million USD.

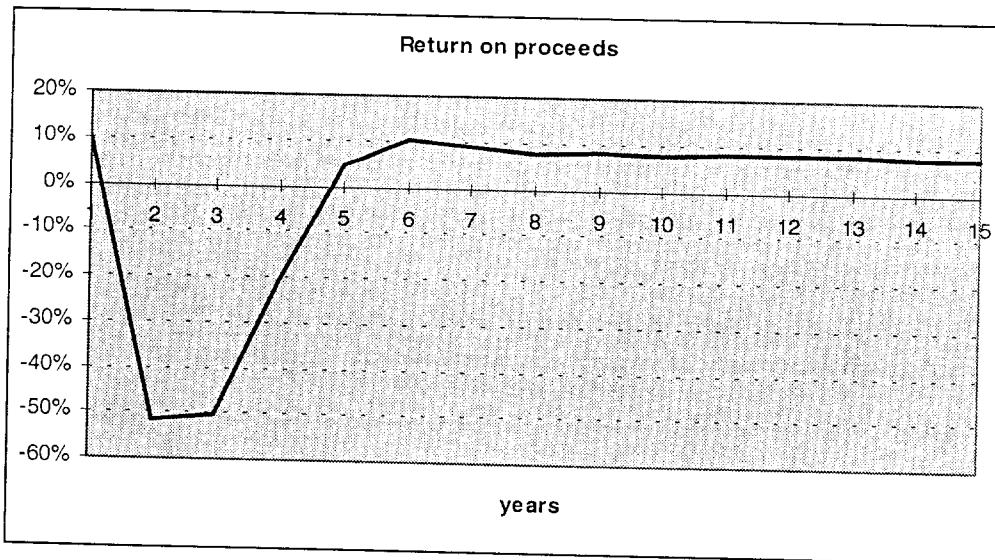


### Earnings after Interest and Tax



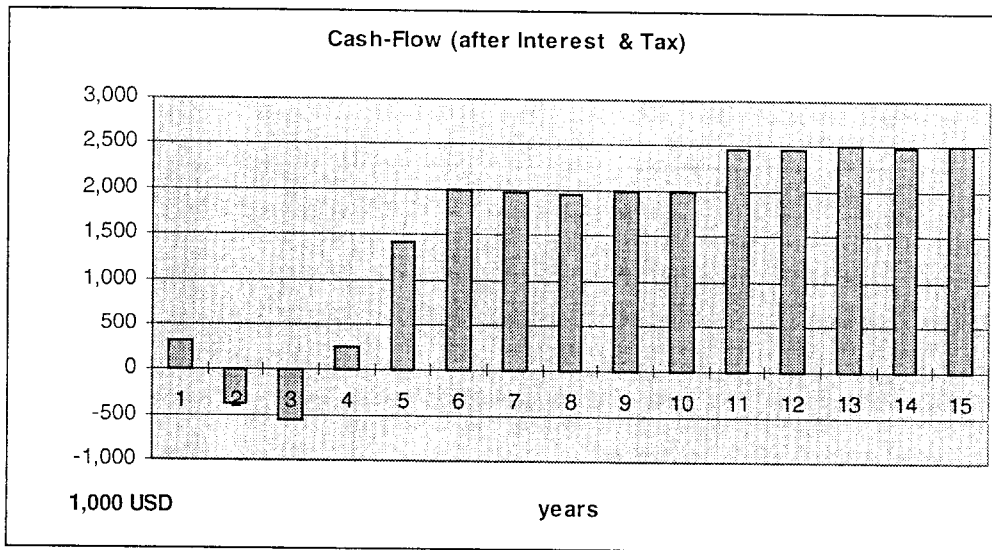
- After 4 years the project produces earnings after interest and tax, which are nearly constant.
- The accumulated earnings after interest and tax equal show a typical line as usual in the project financing cases.

### Return on Proceeds



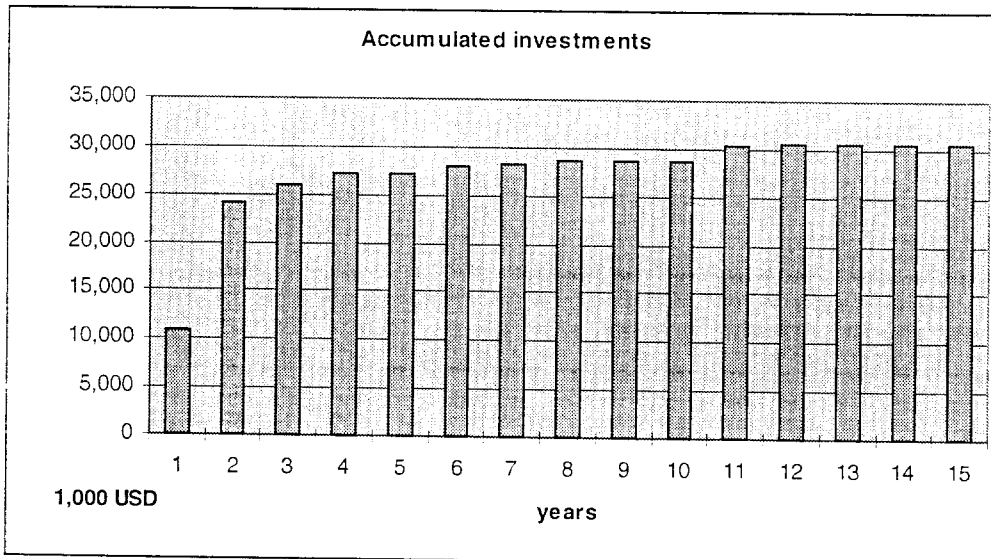
- The return on proceeds refers to the relation between the earnings before tax and the proceeds.
- After the negative figures in the first five years it becomes a nearly constant value of about 10%.

### Cash-Flow (after interest and tax)



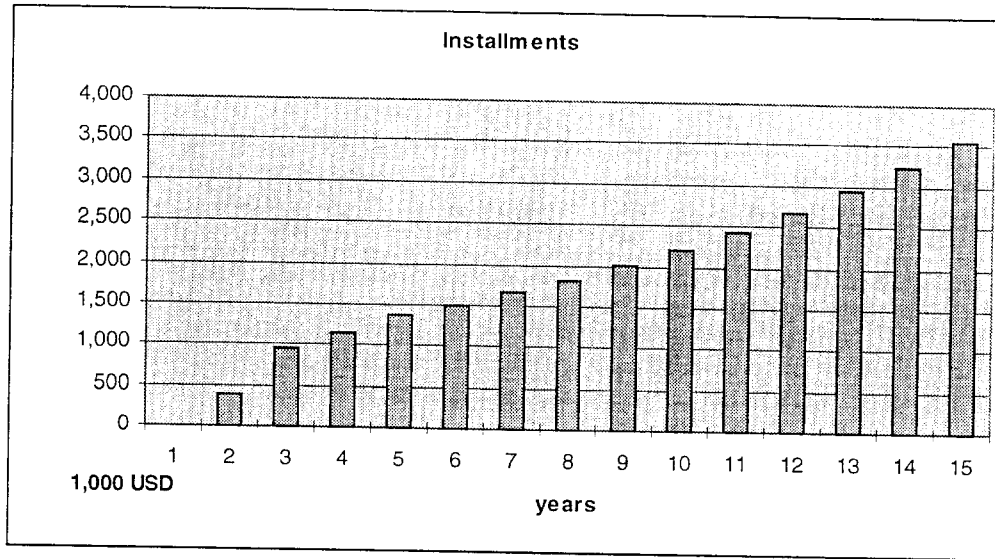
- The cash-flow after interest and tax is used to finance a part of the investments.
- After the first 4 years the cash-flow is rather constant during the project.
- The increase of the cash flow in the 11th year depends on lighter depreciations.

### Investments



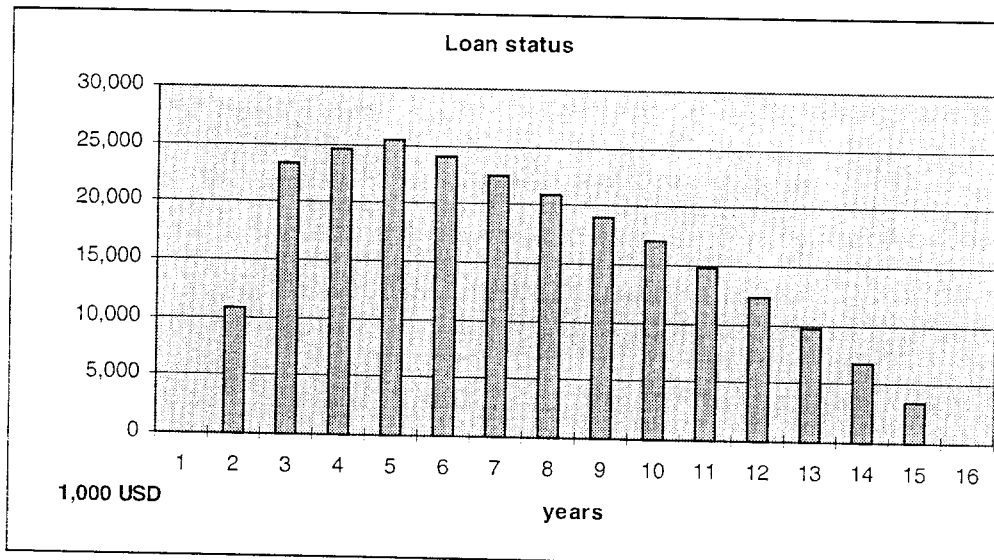
- The accumulated investments (shown in the chart) form the project's fixed assets without depreciation.
- The strong increase in the first years is caused by the fact, that most of the project's investments are made in the initial period.

## Annual Installments



- The annual installments form with the annual interest payments the annuity.
- The installments show a rather regular trend during the project period. The repayments increase clearly as the interest payment decreases.

## Loan Status



- The project reaches the maximum loan status in the 5th year, when the loan status equals 25,380 Mio. USD.
- In the beginning of the 16th year the loan is completely paid back.

### 3.2.4 Recommendations and conclusions

#### Reduction of the project period

The investor might think of a project period of ten years instead of fifteen years.

The finance model can hardly recommend this shortening.

- The annuity rate would sharply rise because of a short repayment period; meanwhile the effect from a lower interest rate is only a little.
- Nearly 50% of the total depreciation within the period is attained in the last 6 years.
- The same situation is given for the earnings (before interest and tax).
- In this context we want to outline that a part of the costs are calculated as overhead costs for non port expenses. At present this seems to be reasonable, in future a change might be recommendable.

#### Conclusion

A financing under conditions which usually are offered by the European Bank for Reconstruction and Development (EBRD) seems to be reasonable.

A financing under conditions of equity capital is not possible, because an interest rate of at least 15% p.a. would be expected.

At a later point the investor should check whether a loan in USD will be the optimum finance possibility. Long-term interest rates in other currencies might be lower. On the other hand the proceeds are mostly gained in USD, this makes a financing on a USD-basis reasonable.

As mentioned above we can recommend this project only under the condition of an increase of the forecasted proceeds by 10% at least.

