

Table 7.7.13 Reinvestment Schedule (Economic)

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011 Residual
Purchase and assembly of gantry crane	12				75000					150000
Transtainer for railway	12				0					30000
Telephone network	12				0					356
Reconstruction of CPN structure	5		4000					4000		0
Equipment										
Fork-lift(30t)	8	18000				13500			18000	10688
Fork-lift(6t)	8	1600				1600			1600	1000
Fork-lift(3t)	8	2220				2960			2220	1480
Tractor	8	8400				14000			8400	5950
Trailer	8	2880				4800			2880	2040
Total		33100	0	4000	0	75000	0	4000	33100	180356
										181425

4) Analysis and Evaluation

Table 7.7.14 shows the results of the economic analysis. The EIRR of the project was 29.8%. The efficiency of the investment is considered extremely high. The project can be justified. The cost saving benefit of land transport was the biggest benefit. The economy can save the expense of the freight to foreign countries by the implementation of the project. It is considered favorable to the Polish economy significantly.

Table 7.7.15 shows the sensitivity test result of the project. The EIRR is still 18.2%, even the estimated cost increases by 20% and the benefit decreases by 20%. The improvement project of the Port of Szczecin is considered viable by this analysis.

However, it should be kept in mind that this conclusion was made based on the estimated future unitized cargo volume and that efforts should be made to obtain the cargo to justify this project.

Table 7.7.15 Result of Sensitivity Analysis

	EIRR (%)	NPV (Million Zł)	B/C
1. Base Case	29.8	487,469	2.01
2. 20 % of Cost Increase	24.0	390,731	1.67
3. 20 % of Benefit Decrease	22.9	293,237	1.61
4. 2 and 3	18.2	193,499	1.37

Note: Assumed social discount rate is 12 % p.a.

**Table 7.7.14 Economic Analysis of General Cargo Terminal
Construction Project as Szczecin**

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
EIRR (%):	29.8										
NPV:	487469										
B/C:	2.01										
Cost:	1.00										
Benefit:	1.00										
	(Million ZL)										
Cost	167894	0	0	0	194043	348867	0	0	37633	0	4000
Initial Investment	167894	0	0	0	194043	348867	0	0	0	0	0
Reinvestment	0	0	0	0	0	0	0	0	37633	0	4000
Residual Value	0	0	0	0	0	0	0	0	0	0	0
Benefit	0	48745	64795	80745	96595	101646	127730	153454	178947	204207	229234
Time Saving	0	-3831	-5307	-6883	-8558	-9348	-12206	-15423	-18871	-22552	-26466
Direct Service	0	132	183	237	295	322	421	532	651	778	913
Feeder Service	0	-3963	-5490	-7120	-8853	-9671	-12627	-15955	-19522	-23330	-27378
Existing Cargo	0	52576	70102	87627	105153	110995	139936	168877	197818	226759	255700
Cost Saving	0	-5771	-7694	-9618	-11542	-12183	-15657	-19131	-22605	-26079	-29553
Cargo Handling at Szczecin	0	58347	77796	97245	116694	123177	155593	188008	220423	252838	285253
Difference of Land Transport Cost	0	0	0	0	0	0	0	0	0	0	0
Net Benefit	-167894	48745	64795	80745	-97448	-247221	127730	153454	141314	204207	225234

Cost	0	86250	41669	0	4000	37633	207400	0	0	0	-315313
Initial Investment	0	0	0	0	0	0	0	0	0	0	0
Reinvestment	0	86250	41669	0	4000	37633	207400	0	0	0	0
Residual Value	0	0	0	0	0	0	0	0	0	0	-315313
Benefit	254030	254030	254030	254030	254030	254030	254030	254030	254030	254030	254030
Time Saving	-30611	-30611	-30611	-30611	-30611	-30611	-30611	-30611	-30611	-30611	-30611
Direct Service	1056	1056	1056	1056	1056	1056	1056	1056	1056	1056	1056
Feeder Service	-31667	-31667	-31667	-31667	-31667	-31667	-31667	-31667	-31667	-31667	-31667
Existing Cargo	0	0	0	0	0	0	0	0	0	0	0
Cost Saving	284641	284641	284641	284641	284641	284641	284641	284641	284641	284641	284641
Cargo Handling at Szczecin	-33027	-33027	-33027	-33027	-33027	-33027	-33027	-33027	-33027	-33027	-33027
Difference of Land Transport Cos	317668	317668	317668	317668	317668	317668	317668	317668	317668	317668	317668
Net Benefit	254030	167780	212361	254030	250030	216597	46630	254030	254030	254030	569343

7.8 Conditions for Implementation

- (1) First of all, there is no Origin-Destination data on cargoes. This type of data serves as basic information for this kind of study. A comprehensive study on cargo flow should be conducted.
- (2) The volume of unitized general cargo for the year 2005 was forecast at one (1) million ton. However, the volume largely depends on the port's efforts to gather cargoes. Therefore the port should, together with the port related entities, make an effort to cut unnecessary costs and shorten times in the transportation for related port users.
- (3) With regard to intra-Baltic trade, in which mother vessels make direct calls at the port, the port of Szczecin is very competitive. It is very possible to gather a large quantity of cargoes to/from the potential hinterland. However, as for the inter-Baltic trade, in which only feeder vessels make calls, competitiveness of the port is rather limited. It seems that there is a room for improvement, especially, in terms of cost, the port should initiate a kind of study to streamline the flow of cargo and cut unnecessary costs in transportation.
- (4) The direction of development of inland access should be changed. The port should respect the importance of road transport for unitized cargo. A reasonable allocation of cargoes should be planned, taking the costs and times into consideration. Accordingly, the development of well-balanced inland access routes should be planned.
- (5) Czechoslovakie quay is assumed to handle 400 thousand tons of unitized general cargoes. However, it should be borne in mind that the areal limitation of the Quay means the cargo handling operation will be very hectic and when the volume of cargo handled at the Quay exceeds the level of 400 thousand tons, the terminal operation should be begun as soon as the cargo volume of the Czechoslovakie Quay approaches 400 thousand tons.
- (6) The new terminal at Ostraw Grabowski can probably accommodate well over one million tons of cargoes. Compared with the other Polish terminal, this number might seem very large. However, the study team intends to stick to this number. If the port wants to be competitive, the target capacity of the terminal should be at least at this level.
- (7) After the full operation of the Ostraw Grabowski terminal commences, the Czechoslovakie Quay should be treated as a supplementary terminal. The efficiency at the Czechoslovakie Quay is much lower because of the areal limitation of the terminal and the resulting layout.

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