

Feasibility Study of New Terminal
Facilities in the Georgian Ports

Phase 3 Report

Vol. I - Executive Summary

May 1998

REPORT COVER PAGE

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Volume I

Executive Summary

Feasibility Study of New Terminal Facilities in the Georgian Ports

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1 Introduction

The total Phase III report “Feasibility Study of New Terminal Facilities in the Georgian Ports” consists of the following parts:

Volume I

Executive Summary

Volume II

Traffic Forecast (See Phase 2 Report)

Transport Simulation

Volume III

Section 1 Organisation, Marketing (See Phase 2 Report)

Section 2 Finance and accounting

Section 3 Rail and Road connection (See Phase 2 Report)

Section 4 Port Performance (See Phase 2 Report)

Section 5 Port Master Plan (See Phase 2 Report)

Volume III

Section 6 Planned Handling Equipment and Technical Specifications of Port Handling Equipment for the Ports of Poti and Batumi

Volume IV

Civil Engineering

Section 1: Civil Engineering Assessment of Existing Port Facilities (from Phase 1 Report)

Section 2: Investment Projects for the Ports of Poti and Batumi (from Phase 2 Report)

Section 3: Extension of the Container Terminal of the Port of Pot

Development of Multi-Purpose Terminal of the Port of Batumi

Volume V (See Phase 2 Report)

Environmental Assessment

Volume VI

Financial and Economic Impact Analysis

Section 1:

Section 2: Cash Flow Analyses and the Financial Analysis of the Recommended Development for the proposed priority investments (from Phase 2 Report)

Section 3: Preliminary Cost-Benefit Analysis

Privatisation Concept

Furthermore, an electronic version of the report, containing a full set of all volumes, including the volumes and sections published in Phase 2 Report, as well as all input data used for the cash flow analysis, exists.

The executive summary points out the main issues described in each of the other volumes.

Volume 2 presents a detailed Traffic Forecast, and the Most Viable Route Connections between Traceca and the TEN, including a simulation model.

Volume 3, published in Phase 2 Report, presents a description of the

- Organisational structure of the ports
- The Marketing function,
- the Finance and Accounting
- the Rail and Road connection to the both ports.

Furthermore, it includes the evaluation of Port Performance from the Phase I Report in order to achieve better readability. It contains also the Port Master Plan, including a Phased Development Plan and the Required Cargo Handling Equipment.

Volume 4 presents the Civil Engineering including drawings of the existing facilities and of the planned port development measures

Volume 5, published in Phase 2 Report, presents the Environmental Impact Analysis.

Volume 6 presents an update of the Cash Flow Forecasts for the proposed Priority Investments and a Cost-Benefit Analysis of the planned port development.

2 Background

In order to secure sustainability of the efforts the EU is putting into the TRACECA programme, the EU expressed its intention to foster projects that eliminate physical and organisational bottlenecks or increase considerably the capacity of the TRACECA Transport link. As the Ports of Poti and Batumi are the entrances for the TRACECA route and therefore of highest importance various studies have been undertaken during the last years, aiming to arrange investments for the improvement of the port's infrastructure.

2.1 Project Information

Further to the information given to the public and the involved parties during the first two phases, special attention was given to the Tacis TRACECA project within the phase III. An American USAID team has published a privatisation concept and informed about their proposals the public by television and mass media, with studies and personal presentations the ministries involved, the city mayor and the city council, members of the parliament and committees of the parliament and via the American Embassy the President of Georgia. The World Bank in Washington and Tbilisi also received detailed information of the USAID proposal. In addition, a privatisation project was launched by the SeaLand group. Also, the Japan International Co-operation Agency (JICA) together with Japanese Companies is active in the Poti Port Project.

The Tacis TRACECA team was several times requested to report and to publish their results even prior to the time schedule of the terms of references. Various on spot interviews were given to international newspapers on request of the beneficiary and various recommendations had been made to proposals the port management had received.

The Tacis TRACECA team had organised a workshop meeting in Kobuleti on March 18th and 19th and presented the status of the project as well as the Port Master Plans and the Phased Development Plans for the two ports. The interest in this workshop was extremely high. All Georgian TV-Station were present and the

Minister of Transport of Georgia with his Deputies, the President of the Parliament of Adjara, the City Mayor of Batumi and General Manager of Batumi Port as well as the General Manager of Poti Port were present.

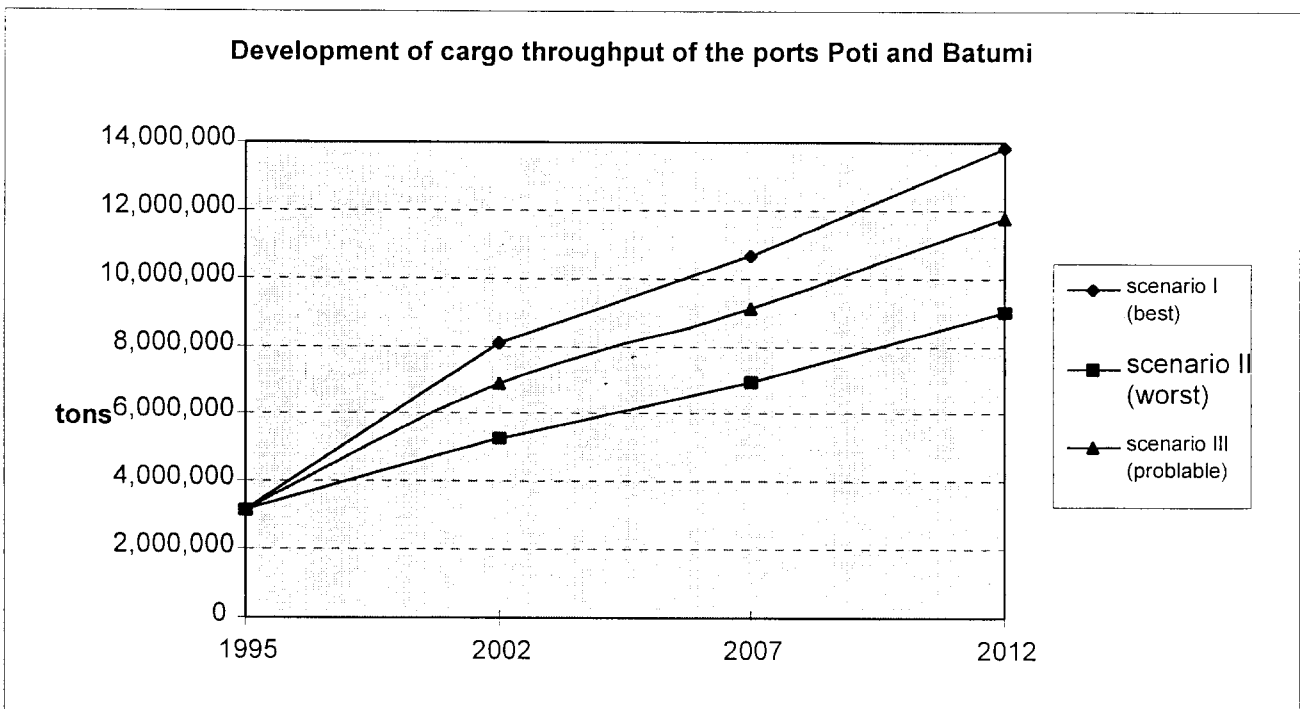
Further to this, the following activities in regard of public or official information had been carried out:

- Presentation of the Project Status in a Parliament Committee in Tbilisi
- Participation in an information meeting in the European Commission's Delegation office together with the Ambassadors of the European Member States.
- Participation in a meeting with the Georgian Ministers of Transport, Finance, State Property, Economy and the Personal Adviser of the President together with the First Secretary of the European Commission's Delegation and the Ambassadors of the European Union's Member States.
- Personal introduction of the project to the City Mayor of Poti
- Personal introduction of the privatisation concept (preliminary form) to the President of Georgia

3 Traffic Forecast

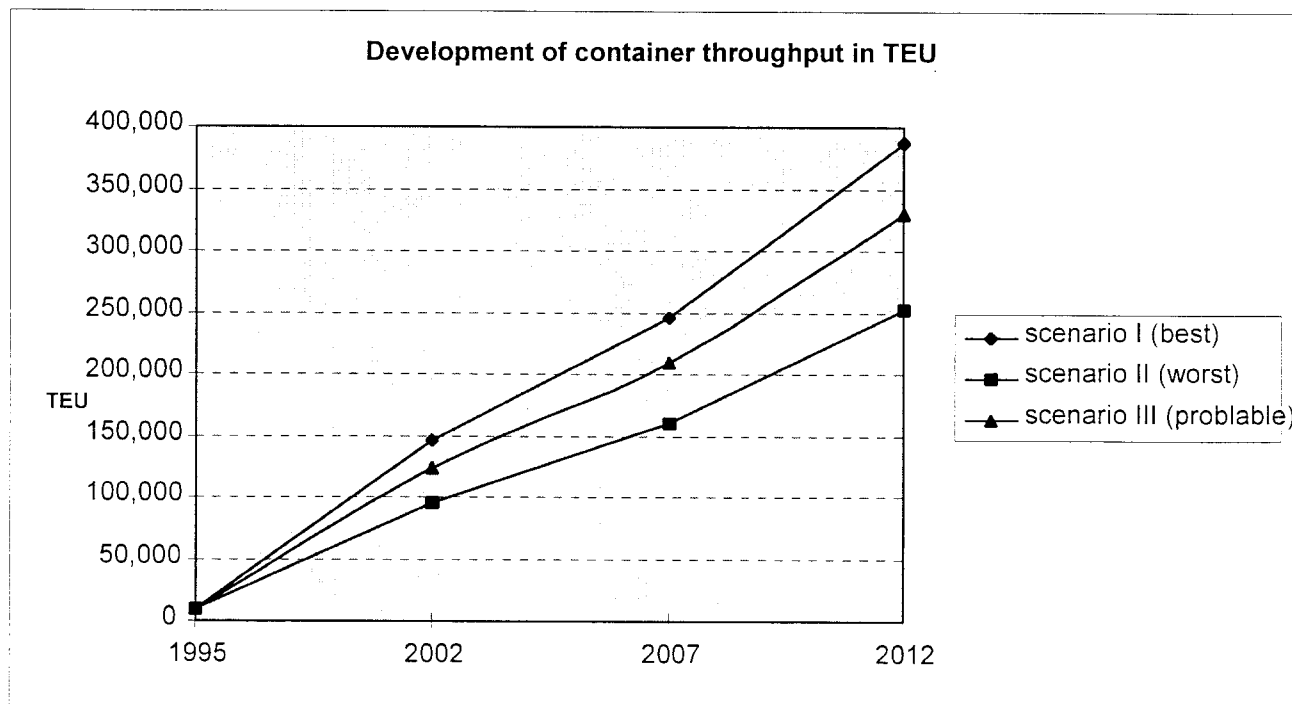
3.1 Traffic Forecast

The traffic forecast is based on three scenarios. Scenario I may be described in short as the "best case" based on a favourable political and economical development of the TRACECA region. Whereas, scenario II may be stated as the "worst case". A retarded economic development and political problems are the underlying assumptions. Between these two scenarios a third scenario (scenario III) describes an economic and political development, that is characterised as the "probable case".



The results of the traffic forecast indicate a total throughput of the port of Poti and Batumi of 8.1 mil tons in the year 2002, 10.7 mil tons in 2007 and 13.8 mil tons in scenario I. In the scenario II the throughput over the

year 2012 amounts 9.0 mil tons and in scenario III to 11.7 mil. It is assumed that the portions of the commodities develop in all scenarios the same way. Therefore, the share of bulk in total throughput decreases from 44 % in 1995 to 33 % in 2012. Oil products share decreases also slightly from 40 % to 25 %. The general cargo's share (except container) is increasing between 1995 and 2002 but decreasing in the following period. The reason for the up and down has to be seen in the increase of container traffic, since the container load consists mainly of general cargo. In scenario III the container throughput in the year 2002 amounts 1.2 mil tons (share of 18 % of total throughput). In the year 2012 the throughput is 3.3 mil tons (share of 28 %).



The ports of Poti and Batumi are exchangeable to a high degree concerning the international traffic flow. The question whether the cargo runs through Poti or Batumi will depend on various circumstances as there are the companies involved, the specialised offer and vacancies of the ports for commodities and the in between competition of the ports.

In scenario III the throughput of the year 2012 in Batumi is 3.9 mil tons and for Poti 9.3 mil tons. The transport modes for the hinterland traffic are to a share of about 80 % railroad and 20 % road. Bulk and oil products are transported mainly by rail (80 % and 98 % respectively). General cargo and containers are transported within a range of 30 to 35 % by truck. These figures are based on the assumption, that the railways system will also in future be the backbone of the transport sector.

3.2 The most viable Route

As result can be stated that there is strong competition between the classical north routes (via St. Petersburg) and the south TRACECA routes (via Poti or Batumi). But the Black Sea routes between the ports of Poti and Batumi and the ports of Constanta and Varna/Burgas with the direct link from the TEN to the TRACECA corridors will have an important role in the future with the economic development between Europe and the TRACECA regions. Three major routes extend from Europe to the TRACECA regions:

- One travels from central Europe via Poland, Ukraine and Russia using TEN corridors II, III, V and IX to Baku.
- The second travels from middle and south Europe to Hungary and along the Danube to Constanta (TEN corridor IV and VII) and further to the ports of Georgia.

- The third route is the sea link from the ports of Georgia through the Bosphorus and the Mediterranean Sea to the ports of Europe.

4 Organisation

In Phase I report reference was made to the organisational structures described in detail in the GTZ Project "Optimising and Reorganisation Study of Poti and Batumi elaborated by HPC Hamburg Port Consulting GmbH., Hamburg, dated April 4th, 1996.

Meanwhile the GTZ- Team is preparing and executing training programmes based on the above mentioned study and the additional evaluation were made in the past 4 month.

4.1 Batumi

The Port of Batumi has recently declared his status as a Municipality Port. Privatisation or other changes in regard to the structure of the Port are not visible and if, they are to be expected it mainly concerns the persons involved in.

Therefor the proposed management structure as per Phase I report will remain unchanged.

4.2 Port of Poti

The Port of Poti is in a real change process. In respect of the forthcoming investments and the discussions with regard to privatisation the legal status of the port has to be established and a profit centre structure has to be developed. The legal status of the port should be a limited company owned by the Ministry of Transport as a 100 % shareholder.

The management structure and system itself has to be implemented by the General Manager of the Port. This can be only done as a top to down approach and has to go hand in hand with the improvement of the information flow and the delegation of responsibilities. Problems are in the details. To change the attitude towards work or rather to make persons in charge feel responsible is the key to success. Consequently, the organisational structure has to be built in a way, that real responsibility for the port and its commercial results are given to the General Manager of the port and as to down approach result responsibility must be delegated from the General Manager to the Department Leaders.

The Department Leaders of the different areas, on which the Port is producing services(production areas) should also be responsible for the commercial results. Departments which are not directly generating services to customers of the port should be transformed into service centres with budget responsible manager on top.

5 Marketing

After the political and economical changes in Georgia, Georgian Ports have to identify their role in whole country's economy. During the Soviet period the main customers were the organisations and institutions of the Former Soviet Union (FSU) and all Port activities were planned and regulated by the government. Now-

days Ports should look for new customers itself, should establish the organisational structure that meets the requirements of market economy.

To meet the requirements of the future, the marketing of the two ports should be respectively strengthened. On this subject the GTZ project is as well working. They elaborated the report about "Reorganisation of the Georgian Ports Sector", which includes the proposals to establish a Marketing Department. This version has been studied and in principle agreed upon. The given remarks are based on the GTZ project papers with some additions e.g. customer evaluation system and customer equity.

5.1 Batumi

Batumi has a marketing department with 10 employees. It is not clear, what this marketing department is really doing in respect of port marketing. In a discussion with the responsible managers it occurred that more or less the care is taken of shipping agency respectively, forwarding marketing but not of port marketing. The clients of the port are identified as shipping agencies or forwarding companies. These companies are offering their services, including the port services, to cargo or ship owners.

5.2 Poti

The marketing department is currently under development. Therefore, presently no real marketing is existing.

6 Finance and Accounting

Financial and accounting report is based on the report of HPC Hamburg Port Consultants GmbH to GTZ Gesellschaft fuer Technologische Zusammenarbeit mbh dated February 13th, 1997 and the evaluation made by the GTZ Team during the last month. Remarks are made in regard to the organisational conditions especially to the financial reporting procedures. The difference with the western economies and the specific problems to analyse figures of previous years are outlined. The analyses of the financial results and the expenses of the main activities and the frequency of this reports for both ports are described.

The processing of data into the main ledger, the source for the completion of financial reports are made by hand in Poti and in Batumi it is supported by EDP to a considerable extent.

The input procedures in the financial reporting system is a monthly recapitulation of the transaction journals. In general the value of the controls applied are doubtful.

The Ports traffic statistics are limited to the handling of cargo volumes and the production of this statistics is performed manually in both forms. The problems out of the subject "General Planning Data" in regard to the changes from the 5 year cycle into shorter cycles and the differences between central government requirements and ports ability are addressed.

The planning and control requirements are specified and a week point analyses with necessary changes are outlined. Improved procedures are suggested and the changes are proposed.

The general remarks are based on profit and service centres, involvement of employees, EDP and invoicing.

7 Rail and Road Connections

For the two Ports the connection to the Georgian Railway and the Georgian Roads are described. Used rail cars and the locomotives, the rail logistics, the shunting yards inside and outside the ports are specified and the possibilities for inbound and outbound cargo dependence on rail facilities are evaluated. The Rail ferry project, the estimated rail car volume and the impact to the Port of Poti are investigated. In this part of the Phase II Report are given the Road transportation and its specific regulations as well as the used trucks. In addition estimated road cargo volumes and the results of cargo handling are described. The specific differences between the Ports of Batumi and Poti are visible especially with reference to the railway engineering report out of the Phase I Report.

Furthermore, the distance, conditions and problems on the route to Tbilisi and to Armenia and Azerbaijan are described .

The principle requirements for modern logistics on rail and road are outlined and the need of sufficient electronic communication tools are pointed out.

8 Customs Procedures and Public Participation

Neither the customs procedures nor the Public Participation are described in the Phase II report. Explanations are given below. The open points are to be delivered in the Phase III report.

8.1 Customs procedures

The customs procedures are described in the Tacis project "Trade facilitation, Customs Procedures & Freight Forwarding Project - Uzbekistan Cotton Extension" They are not describing the detailed methods of custom clearance in the two port for import, export and transit goods. The official statements received from custom officers are very general and it is obvious, that the real procedure are differing from the day to day praxis.

There is no doubt, that modern ports needs adequate custom facilities and custom procedures. This is only possible, if the custom offices are computerised and linked via Electronic Data Interchanges (EDI) based on standard UN-EDI fact messages. This would allow a pre-clearance system and will eliminate deviations from the standard custom procedures.

For the time being, the custom office in Poti is equipped with PC's and customs clearance software from Microsoft. The computers are not linked to each other, external links are not available.

The situation in Batumi is the same but standard software is not available so far

8.2 Advise on Public participation

At the meeting, scheduled on March 18th to 19th, 1998 the whole project and the outcome of the Phase II will be presented to the Management of the two ports, the Mayors of the two cities and the Minister of Transport of Georgia. In addition the Monitors of Tacis and the TRACECA Co-ordinator will be invited.

For the Port of Batumi the public participation is automatically given, because the city mayor is the General Manager of the Port. The change into a Municipality Port of Batumi needs no more activities.

The public has already got the information about the Port of Poti because of the various Projects (USA ID, Sealand, GTZ and Tacis) which are regularly discussed up at the highest levels in Georgia. Even European Unions Delegation and the Ambassadors of the Member States are involved and informed. Various proposals, drafts, commentaries and documentation's in regard to the other projects have been worked out by the Tacis team besides the tasks out of the terms of references.

See also chapter 2.1 of this volume.

9 Port Master Plan and Port Development Plan

The background and the reasons for establishing both plans have been described already in depth in the report.

The report, which is documenting the proposals of Port Development- and other Experts is actually merging the conclusions reached by producing a Port Master Plan and a Port Development Plan.

Master- and Port Plans for Poti and Batumi had already been drawn up in the recent years. They do not reflect any resemblance of reality and possible future scenarios, which is also documented by the proposed sizes of the extensions. The outdated philosophy of cargo handling procedures, which had been applied to draw up these plans, do not reflect modern cargo handling techniques.

The proposed design of the wharf's does not consider operations in a modern three-line general cargo handling mode.

In terms of the general national arrangements, the Experts are proposing changes from being subordinate ports, following instructions of a central government, which was the system used in the FSU. This change would entail to transform the Georgian ports into independent economic entities.

The Port Master Plan elements provide general information about the future development of the Georgian ports and how to cope with the forecasted traffic volumes. These elements do not deal with detailed plans for new facilities but do provide the general framework. Hereby national and regional aspects have been considered. It has been observed, that all factors, which might have an impact on the general development of a national port-scheme have been incorporated into the planning process.

After the elements which would govern the Port Master Plan had been identified, the decisions for new facilities had been made in turn. These decisions were based on a comprehensive traffic forecast for the period under planning. The proposed development projects were reached in close co-operation and with the agreement of the port management's of both ports.

9.1 Overall principles applied

9.1.1 Port of Poti

The current and forecasted developments of the cargo throughput do reveal, that the main priority in terms of development of facilities has to be placed on the development of dedicated container handling facilities.

Due to certain procedures like obtaining of financing, and construction periods it became abundantly clear, that a container terminal could be available by the end of 2002 at the earliest. As a consequence an intermediate solution would have to be found, if the port wanted to stay in business in the forthcoming years.

The Experts had, in numerous sessions with those concerned of the port management, developed an intermediate solution to cope with the forecasted container-traffic volume, until a new facility would be ready. This has been done under consideration of the anticipated needs for the handling of the other cargoes. All investments, which will have to be carried out, to accommodate the container operations, have also been planned under the aspect, that they would not be wasted after the start of the operation of the new container terminal, and could still be used for the existing port.

Another priority subject, the construction of a handling facility for ro-ro traffic, had already been tackled and the preparations are well under way, to build a terminal which would be able to handle the rail ferries and the conventional ro-ro-traffic. The necessary back-up facilities, like parking areas and shunting-, and marshalling rail tracks for the necessary railway operations have been considered.

The upgrading of the existing facilities including the rehabilitation of the port's railway-system, the pavement and the levelling of the areas as well as the construction of modern transit-sheds and warehouses has been proposed.

In order to facilitate a smooth flow of traffic, a new traffic scheme separating the traffic generated by the southern and northern parts of the port has been proposed.

9.1.2 Port of Batumi

Batumi by its geographical location inherits some problems, which can only be overcome to a limited extent.

This is firstly the difficult road connection to the Georgian Hinterland and thus also to neighbouring countries, which is a result of the fact, that Batumi is surrounded by a mountainous area of the Small Caucasus'. The manoeuvres, which have to be carried out by the truckers transporting 40 feet containers are in the range of artist's displays at some bends of the serpentine crossing the mountains.

The second obstacle is the weather. In Batumi it rains between 150-160 days a year on the average. Peaks are said to exceed even this level. The planning of the design of new sheds has taken that fact into consideration, by foreseeing sheltered areas for the cargo transfer to and from rail wagons.

The third area of disadvantage is the limited space of the port premises. Areas which could be used for port extensions in the real estate surrounding the port are very limited, and would already be consumed by the construction of the multi-purpose terminal. This is one of the facts, which had a dominating effect in the planning of the further development of the port. This resulted in the bottom line to rearrange port installations, with the objective, to secure as much as possible space for operational and other revenue earning parts of the port.

The fourth disadvantage of importance is the lack of container handling facilities. Considering the continuing trend to more containerisation of cargo. A port, which deserves this name, has to offer container handling facilities. These facilities had to be incorporated into the port development of Batumi.

The non existence of container-handling facilities has added to the necessity to construct the multi-purpose terminal, where self-sustaining feeder vessels would be able to operate, albeit on a low level.

Due to the topographical environment, which had been described earlier, it can be expected, that the modal split will be dominated by on- or pre transport by railway.

The fifth subject, which deserved attention was the lack of dedicated roro facilities. Roro vessels were presently moored and dispatched at Pier No. 11. this interferes with the passenger terminal and the yacht club, which is under construction, and which will be one of main tourist attractions at Batumi. On the long run this important source of income for Batumi cannot be endangered by roro ferry activities. This apart from the fact, that no areas for parking of waiting trucks and other rolling units can be provided.

The Experts and the port management agreed to integrate a roro-landing facility into the planning of the multipurpose terminal. This project would alleviate this bottleneck.

Apart from these projects the Experts suggested to rehabilitate the port's railway-system, level it with the apron and open storage areas and to pave all these areas.

In line with transforming the direct mode of cargo transfer into the indirect transfer system, the erection of modern sheds with increased storage capacity has been suggested.

Although the shift of the cargo transfer operations from direct to indirect operations has been proposed, the construction of additional railway tracks has been proposed. This is not contradicting the basic philosophy, which favours the indirect cargo transfer, but is meant to ease shunting purposes for grain and other bulk cargoes, which will still have to be handled in the direct mode. This will lead to increased productivity in this sector and guarantee a fairly uninterrupted cargo operation during the rehabilitation works.

10 Planned Handling Equipment

Based on the evaluation of the existing equipment in both ports a summary of the rehabilitation cost have been made. The rehabilitation measures are specified by the port handling equipment according the phases and measures for individual berth for both ports. In addition, required handling equipment for the different phases of the development for the two ports are specified. Also for the two ports separately the rehabilitation measures are specified by type of equipment. The rehabilitation costs and the investment cost for the new cargo handling equipment are also outlined for the two ports separately.

The equipment considered to be necessary to fulfil the future needs of the ports in accordance with the port development plans is specified in technical specifications. The equipment required for the first development phase as well as for the future development plans have been specified for both ports separately. Additionally, the requirements for the rehabilitation of port handling equipment have been defined.

11 Civil Engineering Summary Civil Engineering Aspects

11.1 Port of Poti

The Consultants propose under mentioned investment projects for the Port of Poti (see also Drawing 1.1 and 1.2):

- Extension of the Existing Container Terminal.
- Reconstruction of Handling and Storage Facilities at Berth 9 - 11.
- Reconstruction of Aprons and Storage Areas.
- Viability Study for Grain Handling Facilities
- Development of a New Container Terminal.

11.2 Extension of the Existing Container Terminal

At the present containers are mainly handled at Berth no. 7. However, the available storage area is not sufficient. Therefore, Consultants advise to extend the container handling facilities as much as possible on short notice. To extend the existing container terminal the area of Berth 5 and 6, the area behind Berth 7 and Berth 12 to 14 has to be used for container handling (see also Drawing 2.1.2).

A detailed cost estimate is presented in Annex IV 2.1 and IV 3.1.

11.3 Reconstruction of Handling and Storage Facilities at Berth 9 - 11

Consultants advise to create operational handling area and a new warehouse to enable indirect cargo handling. Therefore the existing warehouses, buildings and the loading apron, which do not meet nowadays handling requirements, should be demolished and replaced by paved open storage areas and one warehouse (see also Drawing 1.1.1).

The Port of Poti does not agree with Consultants' proposal to demolish the existing warehouses and intend to complete construction of the warehouse at Berth 10. Nevertheless, within proposed investment project the demolition of the existing warehouse is included.

A detailed cost estimate is presented in Annex IV 2.1 and IV 3.1. The main results are presented in Table 1.

11.4 Reconstruction of Aprons and Storage Areas

Consultants advise to level the entire terminal area, especially at the quay aprons, the operational areas and storage areas. The space between railway tracks have to be paved in to enable access to rolling equipment.

A detailed cost estimate is presented in Annex IV 2.1 and IV 3.1. The main results are presented in Table 1.

11.5 Viability Study Grain Handling Facilities

Consultants recommend to undertake a feasibility study to construct a new silo buffer at Berth 8 or alternatively renovate the existing grain silo at Berth 15 including a new quay construction and a conveyor belt.

11.6 Development New Container Terminal

The Port of Poti will not be able to handle the forecast container throughput around 2002 just by realisation of proposed extension of the present facilities. Considering the forecast of 2007 (150.000 TEU/yr) and 2012 (290.000 TEU/yr) it is clear that a new container terminal is required.

Within the present port perimeters, the only location to accommodate a container terminal with a capacity of 200.000 to 300.000 TEU is at the Southern Basin (Berth 14 and 15). However, further extension will not be possible. Furthermore, this area would be the approach to the grain silo at Berth 15. Therefore, a new container terminal at this location can not be combined with reconstruction of the grain facilities at Berth 15.

The second option is North of the existing port outside the breakwater. This area is allocated for future port development and offers sufficient space (400 ha). However, development of this area involves substantial investment costs to construct infrastructure connections (approximately 8 km rail and road connections) and a breakwater of approximately 2 km (see also Drawing 1.1.2).

Considering long term development, Consultants advise the terminal development at the northern side, under the condition that it is feasible. The investments for both terminal options have been worked out.

For both alternatives and the required infrastructure, a detailed cost estimate is presented in Annex IV 2.1 and IV 3.1. The main results are presented in Table 1.

Table 1 Investment Costs Port of Poti

Description	Total Investment Costs (in 1000 USD)
Extension Container Terminal	9.912
of which:	
– Extension Berth 5 - 7	7.374
– Extension Berth 12 - 14	2.538
Reconstruction Facilities Berth 9 - 11	6.585
Reconstruction Aprons and Storage Areas	7.297
New Container Terminal	
– Variant South	37.435
– Variant North	31.649
– Infrastructure and breakwater	37.000

11.7 Port of Batumi

Consultants propose under mentioned investment projects for the Port of Batumi (see also Drawing 2.2.1):

- Reconstruction of handling facilities at berth 9.
- Reconstruction aprons and storage areas.
- Construction of Multi Purpose Terminal.
- Construction of new bridge.

11.8 Reconstruction of Handling and Storage Facilities at Berth 9

Consultants advise to create operational handling area and a new warehouse to enable indirect cargo handling. Therefore the warehouse and railway tracks should be located as much to the South as possible (see also Drawing 2.2).

A detailed cost estimate is presented in Annex IV 2.2 and IV 3.1. The main results are presented in Table 2.

11.9 Reconstruction of Aprons and Storage Areas

Consultants advise to level the entire terminal area, especially at the quay aprons, the operational areas and storage areas. The space between railway tracks have to be paved in to enable access to rolling equipment.

A detailed cost estimate is presented in Annex IV 2.2 and IV 3.1.. The main results are presented in Table 2.

11.10 Construction of Multi Purpose Terminal

The Port of Batumi is not facilitated to handle containers, which is recommended by the Consultants. However, the cargo throughput forecast does not justify the development of a dedicated container terminal. Considering the potential Ro-Ro developments at the Black Sea, Consultants advise to develop a Multi Purpose Terminal. The best location is considered to be at the existing berth no. 5 (see also Drawing 3.2.3).

Considering the potential cargo throughput for rail ferries, Consultants advise not to develop a rail ferry in Batumi, which is not in line with the development plans of the port.

The available port owned area at berth no 5 is not sufficient to accommodate all required facilities. To maximise the area Consultants advise to:

- Construct the new quay wall up to 30 m farther to the West, which result in an additional area of 5000 m2.
- To use not port owned areas at the eastern side of the perimeter wall. These areas encloses approximately 10.000 m2.

At the allocated area, old oil pipelines are situated in the ground. These pipelines are not being used anymore and are replaced by a new system farther to the North. Because of the bad condition of the pipelines oil has been leaking in the ground (see also Volume 5: Environmental Assessment). This oil pollution is an area of concern.

The oil company, who has caused the oil pollution in the ground, is officially responsible for the consequences. However, it will be difficult to get the cleaning of the soil be financed by the oil company. A very rough estimate to clean this area is taken into account. However, a comprehensive cleaning will result in substantial higher costs. To present a realistic cost estimate to clean the contaminated soil, more information about the level of pollution is required.

A detailed cost estimate of both options (excluding and including use of adjacent areas) is presented in Annex IV 2.2 and IV 3.1. The main results of both options are presented in Table 2.

11.11 Construction of New Bridge.

Out of a railway shunting operational point of view it is required to double the railway line at the railway gate. However, the columns supporting the bridge above the railway gate makes extension of the railway tracks impossible. Furthermore, the bridge is in a technical bad condition and has a maximum allowed axle load of 3 tonnes.

Consultants recommend to undertake a feasibility study to renew this bridge.

A detailed cost estimate is presented in Annex IV 2.2 and IV 3.1. The main results are presented in Table 2.

Table 2 Investment Costs Port of Batumi

Description	Total Investment Costs (in 1000 USD)
Reconstruction Facilities Berth 9	4.839
Reconstruction Aprons and Storage Areas	2.848
Construction Multi Purpose Terminal	
– Variant excluding adjacent areas	25.253
– Variant including adjacent areas	17.458
– Construction New Bridge	678

11.12 Outline specifications for the development of both ports

The Consultants have prepared outline designs for the Extension of the existing container terminal at Poti and for the development of the Multi-purpose terminal in Batumi. These designs are illustrated in drawings to section 3 of Volume IV of this report. Also, the scope of work to be carried out for the planned port development has been outlined in section 3 of the report.

12 Environmental Assessment

This report as a component of the "Feasibility Study of New Terminal Facilities in the Georgian Ports" presents the Environmental Assessment of options for the development of the two Georgian ports Poti and Batumi.

Since this project merely concerns construction works to rehabilitate existing terminals, the environmental impacts are not expected to be significant. The planned operations can be classified as "C" level operations according to the environmental screening categories given in the "Environmental procedures" of the European Bank for Reconstruction and Development (EBRD) Because of some areas of ecological concern, however, the port rehabilitation projects have been considered and treated as "A" level operations. It was decided to follow Annex 2 of the "Environmental procedures" of the EBR, which provides a sample report format for a full Environmental Impact Assessment will be used for such a comparatively small project.

The final lay-out of the terminals is given in Vol. IV (Civil Engineering Assessment) of the Phase II Report. According to the engineering decision the following projects are recommended:

Port of Batumi:

- a) Reconstruction of handling facilities at berth No. 9
 - warehouses and the bunker are to be demolished
 - relocation of the railway lines
 - construction of new warehouses
- b) Reconstruction of aprons and storage areas
 - pavement of the area from berth No. 9 to berth No. 5

- c) Construction of a multi purpose terminal at berth No. 5
- replacement of broken parts of the quay walls
 - construction of new storage facilities
 - enlargement of the area

Port of Poti:

- a) Extension of the existing container terminal
- b) Reconstruction and upgrading of handling and storage facilities at berths No. 9 to 11
- demolishing of old buildings
 - reconstruction of aprons and storage areas
 - building of new warehouses
- c) Reconstruction of shunting yard at berths No. 4 to 6

After gaining independence, Georgia established a new set of modern Environmental Laws in accordance with *Agenda 21* principles. Since January 1st 1997 the "Law of Georgia on Environmental Permits" and the "Law of Georgia on State Ecological Expertise" are in force. They regulate the procedure of the conduction of an Environmental Impact Assessment (EIA). The preparation of an EIA is required for the implementation of any construction activity on the territory of Georgia since this year.

An analysis of the present environmental situation of the ports of Poti and Batumi, however, shows that there has only been limited success in the implementation of these new laws. The provisions which are laid down in the relevant national laws and international binding conventions as MARPOL 73/78 can not be executed due to the lack of technical equipment and the lack of adequate treatment facilities for oily waste, sewage and garbage. As a consequence, a proper management of vessel generated or operational wastes is not possible for the time being.

A range of areas of environmental concern has been examined. The oil terminals have been found to be the region of highest environmental concern in both ports. Especially in Batumi, the level of oil pollution of the ground filling of the pier is extremely high. This pollution, which is dating back to the 1920ies, generates a permanent flow off of oil to the water body.

Following the requirements of the national Georgian law, two scoping meetings have been conducted, one in Poti and the other one in Batumi. Representatives from the ports, from public authorities and Non Governmental Organisations (NGOs) have been invited, in order to be informed about the nature of this project. The scoping meetings have been undertaken to enable the invited parties to raise issues and to propose alternatives which should be addressed in the EIA.

13 Cash Flow Analyses and Financial Analysis of the Recommended Development.

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 in 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.

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 US-\$. All increases in costs and revenues in this report are therefore real increases.

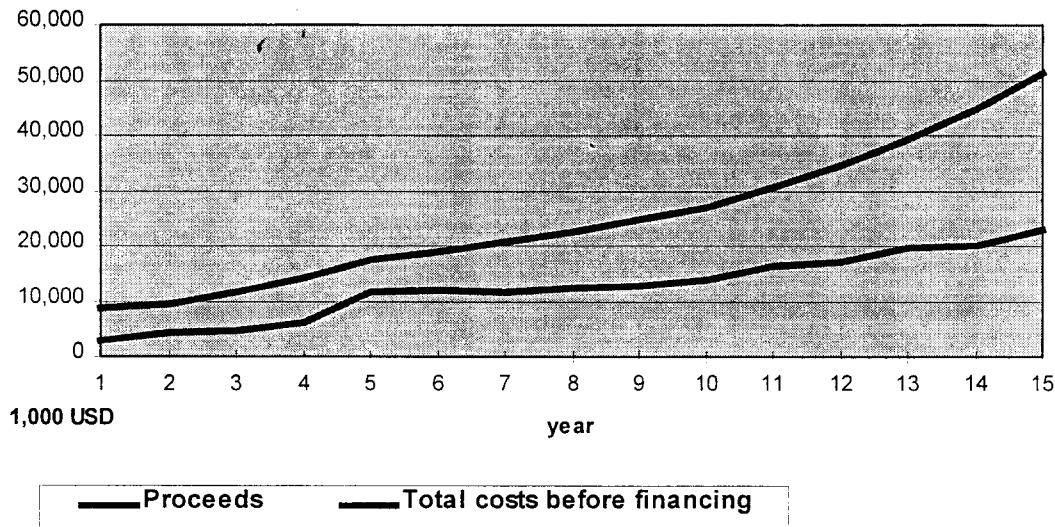
The cash flow and financial analysis are based on the evaluation of the proceeds and costs.

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 are divided into

- real estate
- depreciations
 - equipment related based on the port handling equipment report Volume 3 Section 6 divided into new equipment and rehabilitation of equipment.
 - Constructions based on the civil engineering report Volume 4
- operating cost based on the port performance Volume 3 Section 4 and the Port Master Plan Volume 3 Section 5 including
 - personnel including surcharges for social insurance and equipment cost other than depreciations(fuel, repair, maintenance)other energy cost
- communication cost
- office cost
- taxes
- financing (in the different models)

The cash flow calculation with the above described proceeds and cost 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.

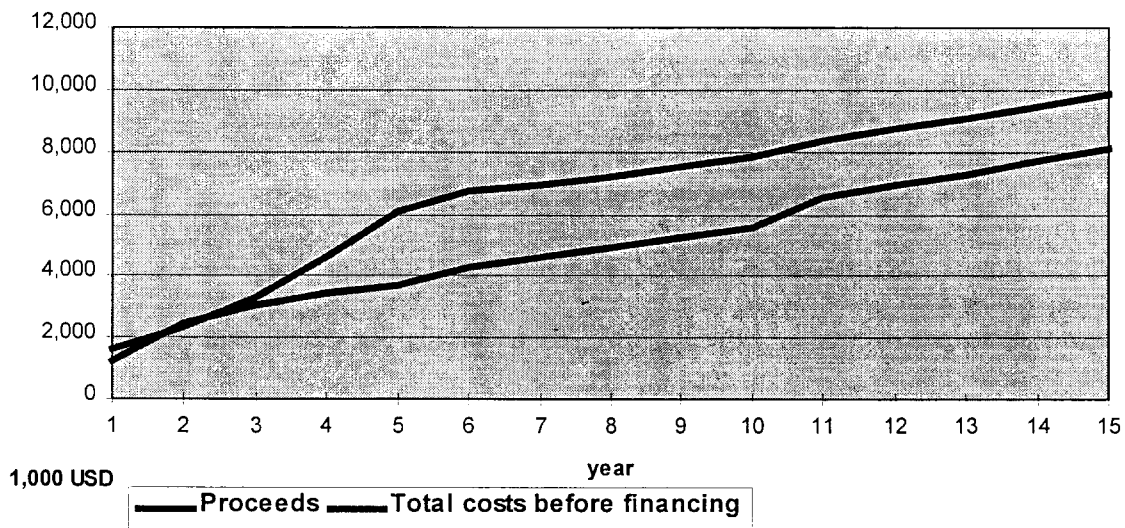
The following graph illustrate the relationship between costs and proceeds in the most probable case, if the port is released from the costs for construction of new infrastructure:



The results for Poti show, that the new container terminal can not finance the necessary infrastructure (breakwater, rail and road connection). Without this investment the project has a good line of both, earnings and cash flow. It has to be considered, that the project can not be realised without the infrastructure and it has to be investigated, in which way the infrastructure can be financed. The general cargo and bulk terminal in Poti has showing good results and it seems to be possible, to get the Poti projects to be financed. The actual figures and detailed assumptions are described in the Volume 6 of this.

For Batumi the multi purpose terminal has been calculated.

The following graph describes the development of costs and proceeds in the most probable case in Batumi:



The scenarios for Batumi are showing as well reasonable earnings and good cash flow. Also here it seems to be possible, to get the project financed. The used figures and the assumptions are described as well in the Volume 6 of this report.

14 Cost Benefit Analysis

A preliminary cost benefit analysis for the planned port development has been carried out and is presented as section 3 of the volume 6 of this report.

The overall economic assessment of the planned projects (referring to the realistic case of the previous cash flow analysis), demands the comparison of all relevant project related advantages and disadvantages. The qualification, quantification and evaluation of effects is performed with the comparison of the planned cases and corresponding comparative cases. In view of the diversity of project effects, concerning the direction (positive and negative) as well as the extent, it is desirable to interpret them in a coherent manner (assessed in US\$) and not in different scales. Otherwise advantages and disadvantages of infrastructure projects may not be weighted.

In order to assess the costs and benefits, different points of view can be taken. The first can be named as the regional point of view on a small scale area i.e. the ports and the cities of Poti and Batumi. The second is the national point of view expanded by the effects to the national economy e.g. of the railways and road network. The third and most complex is the European point of view depicting the European networks of all transport modes. Undoubtedly, the last is the most interesting for the European Union as contractor of this study. This aspect is considered in the calculation of the benefits resulting of changes in the transport volume in seven routes connecting the TEN with the TRACECA-Routes.

The following aspects have been taken into consideration

Costs

- Costs of the planned investments

Benefits:

Direct benefits:

- proceeds earned of the port activities

Indirect benefits:

- transportation costs
- Environmental effects
- Regional effects

Non-assessable benefits

- Industrial Site Effects and Structural Effects of Demand for Areas
- Town Planing Effects
- Effects for Nature and Landscape
- Port Economies
- Industry and Trade
- Private Households

As a result of the above analysed fields of costs and benefits of the ports development a complete compilation of all quantified effects is necessary. The following table shows the compiled data.

Effects	present value US-\$
Costs	
Costs of additional investment and operation	275,052,502
Benefits	
proceeds	263,129,811
reduction in internal costs of traffic	1,306,277,842
reduction in external costs of traffic	880,437,284
additional income of personnel	6,286,460
income multiplier effect	2,357,423
Total benefits	2,458,488,820
Cost/Benefit Ratio	1 : 8.9

As a result of the cost/benefit analysis an amount of cost of about 275 mil US-\$ induce benefits of an amount of 2,458 mil US-\$. The cost/benefit ratio of 1 : 8.9 could be qualified as very good. The investment in the Georgian ports is highly „profitable“.

The main beneficiaries are the forwarding companies, integrators and other companies of the transport sector engaged in the freight transport between Eastern Europe, Asia, TRACECA and the Western European countries. Further more the relief of the environment of freight traffic counts on the second place of the row of benefits. But also the Georgian ports, the ports personnel and the region are beneficiaries of the investments.

As a conclusion the rehabilitation and extension of the Ports of Poti and Batumi result in remarkable benefits. On the basis of the cost/benefit analysis the realisation of the masterplans could be recommended

15 Privatisation Concept

Within the presentation to the President of Georgia, the status of the Project was explained and it was outlined, that the European Union Tacis TRACECA team is in line with the terms of references and the time schedule. The finalised privatisation concept will be available by end of June 1998, the entire study by mid of July 1998.

The statements given have a preliminary character, but the philosophy to privatise step by step to have feasible and potentially profitable projects, which are easier to privatise and better to co-ordinate than the privatisation of the port as a whole, will stay. As principle remarks it was stated that:

The Georgian Ports have to be restructured and privatised to meet the requirements of the future. International Development Banks are not financing projects in Georgia if the majority shares are in the hands of state owned organisations. (Source: World Bank ,EBRD). Privatisation projects have to be profitable and in the position to return the investments and to generate the interests. From the 100 largest Ports in the World, 80 Ports are operated in a combination of the Public as Landowners and Private Companies as Operators.

The extreme high growing rate in containerised and RoRo traffics (the most modern transport forms) makes it necessary to rehabilitate and to restructure the necessary port handling facilities. Therefore, it is intended to reconstruct 6 berth's (2,6,7,12,13,14) and to invest in the necessary equipment.

An operation company should be established with the participation of the port, a qualified management and International Transport Companies (Forwarder, Ship owner ,Container Operators)

The remaining part of the Port has to be restructured into Profit and service centres until the operation company of the first project is working. Directly after this, the next privatisation project should start.

In the future the Port of Poti will have two major functions:

Land owner of quay walls and areas as well as infrastructure within the port
Active shareholder in the future joint venture companies, which are Operating Companies.

Special attention was given to the European Union Tacis TRACA Concept in comparison to the American USAID Proposals. The basic differences are shown in the table below:

European Tacis TRACECA Concept	American USAID Proposal
<p>Units to be privatised</p> <p>To privatise logical units (units with same type of operation) of the port with the priority of most urgent needs.</p> <p>To generate feasible and profitable privatisation projects.</p> <p>First the Container and RoRo unit.</p>	<p>Units to be privatised</p> <p>The whole Port in one</p>
<p>Value</p> <p>for 6 berthes US\$ 18 Million</p>	<p>Value</p> <p>For the whole Port US\$ 26 Million</p>
<p>Shareholder</p> <p>51 % of the Operation Company should be in Georgian hands (private and state)</p> <p>49 % in the hands of Foreigners</p>	<p>Shareholder</p> <p>51 % in the hands of Foreigners</p> <p>49 % in Georgian hands</p>
<p>Sharecapital US\$ 37.5 Million</p> <p>US\$ 19.5 Million own capital</p> <p>US\$ 18 Million equity for 6 berths</p> <p>Remark: The EBRD had announced, that they are interested to take part</p>	<p>Sharecapital</p> <p>US\$ 26 Million in equity (for the whole port)</p> <p>no own capital for investment</p>
<p>Investment volume</p> <p>US\$ 116 Million within 15 Years and return of investment in same period of time.</p> <p>Plus a part out of appr. 40 Million for necessary new infrastructure (breakwater, rail, road)</p>	<p>Investment volume</p> <p>US\$ 140 Million within 30 Years without new infrastructure (breakwater, rail, road) with unspecified return of investment</p>
<p>Employment</p> <p>The joint stock operational companies have to take over the required personnel from the port. A special fund has to be established to ensure, that living wages are available for pensioners of the port</p>	<p>Employment</p> <p>Almost same position</p>

