



Development of the Port of Baku
Port Master Plan
Executive Summary
Phase II Report, Vol. I
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Volume I

Executive Summary

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Executive Summary

1. Introduction

This is one of 6 volumes which are forming the phase two report on the "Management Assistance and Training Project" addendum for the rehabilitation of the Port of Baku. The phase two report covers on one side the parts of phase one report, updated with the comments of Baku Port, and on the other the additional tasks of phase two of the project according to the terms of reference. The report is structured into six volumes with the following content:

Volume 1	Executive Summary
Volume 2	Traffic Forecast and Economic Assessment
Volume 3	Port Development Plan
Volume 4	Civil Engineering Assessment
Volume 5	Environmental Assessment
Volume 6	Financial and Economic Impact Analysis

Volume 2 presents on detailed traffic forecast by commodity and by country for the period 1996 - 2015, a macro-economic assessment and an assessment of the modal split of the future cargo transportation.

Volume 3 is the Port Development Plan. Additionally to the assessment of the current port operations, the cargo handling equipment and the existing port marine crafts, this volume contains recommendations for the future port development including a phased development concept.

Volume 4 contains the civil engineering assessment and recommendations. It deals also with the sea level rise and the ongoing topographical survey.

Volume 5 contains an outline for the environmental assessment based on the "Scoping" exercise and preliminary data collection.

Volume 6 contains the feasibility calculations of the projected investments for the high growth, the low growth and the most likely forecasts, as well as an economic impact analysis.

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 bottlenecks or increase considerably the capacity of the TRACECA Transport link. As the Port of Baku is one of the important parts of this transport link, several studies have been undertaken during the last

years, aiming to arrange investments for the improvement of the port's infrastructures.

One of the main concerns is the rise of the sea level. Due to this, part of the Port facilities have been either abandoned or are threatened seriously if the trend continues. However, the sea level measurements of the last year seem to indicate that the trend of rising is slowing down, if not reversing. Two studies aiming at the preparation of tender documents for improvement works are ongoing at the moment. These studies are financed by TACIS within the TRACECA programme:

- The redesign of the Ferry Terminals in Baku and Turkmenbashi.
- The renovation of the general cargo facilities in Baku (the present addendum to the HPTI management assistance and training project).

3. Traffic Forecast and Economic Assessment

The economic output of Azerbaijan as measured by the gross domestic product (GDP) has been in continuous decline since 1990. Measured on an index with 1990 equal to 100 the output in 1995 is 39.2. The decline is expected to abate in coming years. From around the turn of the century increases in the oil production as a result of a resurgence of the oil industry spurred by new investments by international oil companies is expected to ensure economic growth above the average compared to the other countries in the region. The political uncertainty in Azerbaijan concerning the conflict with Armenia over Nagorno Karabakh and the political unrest in Georgia and Chetchnya may tend to cloud the economic outlook.

The cargo volumes handled in the port have dropped dramatically until 1995, while the preliminary cargo statistics for 1996 indicate a moderate recovery. This is illustrated in Table 1-1 below:

Table 1-1 Cargo Handling Volume of the Port of Baku

Types of Cargoes/Year	1987	1991	1992	1993	1994	1995	1996 *)	Estim. 1996
Total Dry Cargo	1,238.1	897.4	688.5	518.1	407.3	142.0	192.5	299.0
Total Ferry Traffic	5,850.0	1,920.1	1,094.8	638.5	553.7	781.5	565.0	800.0
Total Liquid Cargo **)	n.a.	8,671.5	3,556.0	3,370.7	869.4	91.0	104.0	100.0
Total Turnover	n.a.	11,489.0	5,339.3	4,527.3	1,840.4	1,014.5	861.5	1,199.0

Notes: *) = estimate on 9 month basis

**) = data of Caspian Shipping Company (Port of Absheron)

Source: Port of Baku

From a review of the expected economic development and transportation infrastructure in the hinterland of the Port of Baku, comprising the Central Asian republics in addition to the republics of Georgia and Armenia, it can be concluded that the port of Baku could be developed and re-emerge as a gateway for the transportation requirements of the region.

A mainstay of the position of Baku as a transportation gateway has been the ferry services operated by the Caspian Shipping Company. In the future the establishment of the TRACECA rail and road links between the Georgian ports of Poti and Batumi and Baku with further links to the Central Asian republics will again not only revive the ferry link across the Caspian Sea, but will also have the potential of attracting transit cargoes to the Port of Baku, primarily in the form of containers to be transhipped to and from the other Central Asian republics. The re-emergence of the oil industry and the substantial investments expected to be made by the international oil companies will create new cargo opportunities, particularly in the form of containerised cargoes, for the Port.

Several shipping companies in addition to the Caspian Shipping Company are providing water transportation services to and from the port of Baku and in the Caspian Sea and on the Russian waterway system. Given that Azerbaijan authorities and the Port of Baku will allow foreign flag operators to serve the transportation requirements of the country, more than adequate transportation capacity is expected to be available.

"Bottlenecks" in the form of the limited navigation season (approximately six months of the year) and draft restrictions on the Russian waterways combined with the Russian government policy of limiting access to the waterways to Azerbaijan flag vessels as a means of putting political pressure on the Azerbaijan government, are limiting the market opportunities for waterborne transport to and from the Port of Baku. Competition from the alternative railroutes via Chechnya when and if reopened could also present competition for the Port.

Other institutional and invisible or intangible barriers that may act as barriers to the development of the business of the port are in the main:

- Lack of a commercial, professional attitude among port management and operational personnel, which is a heritage of the former Soviet system where no competition existed.
- insufficient co-operation between the various institutions of the transport chain along the TRACECA route, such as the port, railways, shipping lines, customs, police, forwarding companies and black sea ports

A review has been made of the transportation cost of alternative routes. Due to the constant rate changes and the fact that the rates at present do not necessarily reflect the actual cost of transportation, it was concluded that this analysis should be based on estimates of the actual transportation costs rather than on existing tariffs. The observations and conclusions that can be drawn from this analysis for bulk cargoes are in the main:

- Water transportation is the competitive alternative for cargoes to and from the Southern European region represented by the North Adriatic and Northern Europe/Baltic region represented by St. Petersburg.
- The rail corridor through Tchetchnia is the lowest cost alternative for bulk cargoes to and from Western Europe represented by Frankfurt and is also a serious competitor to water transportation to and from St. Petersburg. Cargoes on this route to and from the Central Asian republics will use the ferry service between Baku and Turkmenbashi.
- The TRACECA route is the lowest cost transportation alternative for bulk cargoes to

and from the Black Sea region and the United States, and will represent the best alternative transportation route for bulk cargoes to and from Southern Europe when the waterways are closed during the winter.

- Elimination of the draft restrictions will change the competitive position for bulk cargoes to and from Western Europe represented by Frankfurt and will make water transportation the low cost alternative for this region. Furthermore, it will make water transportation to and from Northern Europe represented by St. Petersburg even more competitive.

For general cargoes the following observations and conclusions can be drawn:

- The TRACECA route is the lowest cost alternative for the Black Sea region and the United States. Like for bulk cargoes, the TRACECA route will be the alternative route to water transportation to and from Southern Europe.
- The Tchetchnia corridor is the lowest cost alternative for general cargoes to and from Northern Europe (St. Petersburg) and Western Europe (Frankfurt). In both cases the Baku - Turkmenbashi ferry will be used to and from the Central Asian republics.
- Water transportation is the most cost effective mode of transportation for general cargoes to and from Southern Europe represented by the North Adriatic region. The TRACECA route will represent a competitive alternative when the inland waterways are closed during the winter.
- The elimination of the draft restrictions on the inland waterways will shift the competitive position of general cargoes to and from the Northern Europe/Baltic route in favour of water transportation and further increase the existing competitive advantage for general cargoes to and from Southern Europe. For the other regions the elimination of draft restrictions will not change the competitive situation.

From a review of the general development trends in the world transportation industry that may influence the future development of the Port of Baku, it is concluded that the opening of the TRACECA route, the developments of the oil industry in the region and the general recovery of economic activity both in Azerbaijan and the other Central Asian republics, the overall volume of general cargoes, most of which will be containerised in the relatively near future, will create the need for the establishment of a Multi Modal Container Terminal in the Baku area. The establishment of such a terminal in the Port of Baku will represent a significant business opportunity for the International Sea Port of Baku, which will also greatly enhance the port's marketability as a multi modal cargo handling centre and thus create new business opportunities. The time frame, for which this business opportunity will be available to the port, will be relatively short, and immediate action should therefore be taken by the port management to establish a Container Terminal in the port

Other business opportunities and a challenge for the port will be to attract new operators to establish both bulk and regular liner services between Baku and the other ports in the Caspian Sea and on the Russian waterway system.

Based on a review of economic and cargo statistics combined with interviews with shippers and

cannot be handled by rail or truck and consequently have to be handled on ships via the Russian waterways and on the Caspian Sea.

- The main volume of cargoes handled will be transit cargoes coming on or destined for transshipment on the TRACECA route and the Chetchnya rail corridor. This traffic will be railcars in addition to increasing volumes of trucks and containers, most of which will be shipped onwards on the ferry connection between Baku and Turkmenbashi.

The forecasted cargo volume has been examined in respect of the various modes of transport and a model for containerised cargo has been assessed (See Figure 5 and 6, Volume II). The detailed modal split for the three scenarios is shown in the tables 5-12 to 5-13 of Volume II.

The modal distribution of containerised cargo for the most likely scenario is shown in the table below:

Mode of Container Transport	Import	Export
Railway Transport - traditional	2,900 TEU	2,900 TEU
Railway Transport - Block Train (Poti - Baku - Poti)	11,200 TEU	11,200 TEU
Railway - Trans-Siberian Land-Bridge (Ferry)	500 TEU	500 TEU
Caspian Sea / River vessels	2,100 TEU	2,100 TEU
Total Container Handling	17,100 TEU	17,100 TEU
for local Consignees / Shippers in Baku	13,600 TEU	13,600 TEU
for transfer to the Ferry	3,500 TEU	3,500 TEU

This distribution shows the significant share of the future multi modal container handling for cargo using the block train between Baku and the sea port Poti.

If the Port of Baku is successful in establishing the port as a multi modal container terminal in co-operation with the railways, with the seaport of Poti and with the major container operators, the port will also handle substantial volumes of containerised cargoes destined for or originating in Baku and its hinterland.

The commercial attitude of the port management to conduct business is a key prerequisites for the future success of the Port to attract cargoes that are available for handling through the port. In this respect it will be necessary for the Port to:

- Market and sell its services to the shippers and consignees both as an independent operation and in close co-operation with ship operators and other transportation companies, their representatives and intermediaries, serving both the shippers and consignees and the transportation companies.
- Market and sell the services of the port to attract shipping companies and other transportation companies to use the port as part of their services to serve the needs of the transportation users. In this connection it is important for the port to recognise its that its primary business is cargo handling and not enter into competition with its

customers/user and their representative. For example, it would be detrimental to the interests of the port to establish freight forwarding, shipping agency or other services in competition with other commercial entities.

- Ensure operation and productivity according to normal world standards. The transportation industry is an international business, and as such the user of the port services will expect that the productivity, the operating standards and the port and cargo handling charges of the port are maintained according to international norms and standards.

For the further development of the Port as a cargo centre, serving the industrial area of Baku, supporting trading and handling transit cargo to central Asia, the following steps for the Port are important:

- Establishment of a multi modal container terminal at the Port of Baku in conjunction with the Ferry Terminal and the General Cargo Complex
- Establishment of a Freeport at the Port of Baku in order to support trade and transit cargo handling for the Central Asian States (a framework study for a free port at Baku Port is attached to the Annex of Volume II of the Report).

5. Port Development Concept - Feasibility

Based on the traffic forecasts, the economic evaluation and the operations and engineering assessments the Consultants recommend a rehabilitation and development programme that is based on the following premise:

- The Main Terminal ("main complex") of the port will be rehabilitated and used as a "Multi Purpose" / "Multi Mode" common user terminal. The necessary facilities and equipment items will be made available.
- The container traffic operations at the Ferry Terminal will be executed jointly with the container operations of the Main Terminal.
- The Timber Terminal will be included in the rehabilitation programme at a later stage (Stage 2), when the necessity for additional facilities arises
- The rehabilitation of the Apsheron Oil Terminal is not included in this proposal. The necessary works should be done with the participation of the main users and part-owners.

The investments to be made under this development programme include rehabilitation and construction of the basic infrastructure of the port as well as rehabilitation, replacement and acquisition of new cargo handling equipment. The total investments envisaged can be summarised as follows (figures in million USD):

Type of Asset	Phase I Stage 1	→ 2002 Stage 2	Phase II → 2007	Phase III after 2015
Berths and quay wall infrastructure, Type I	11.8	-	15.0	14.2
Berths and quay wall infrastructure, Type II	1.2	-	1.7	0.4
Rehabilitation of cranes	3.6	-	2.4	-
Rubber tired gantry crane	2.0	2.0	-	N.A.
Forklifts	1.4	2.3	1.2	N.A.
Reach stackers	0.6	0.6	-	N.A.
Yard tractors, tug masters, MAFI -trailers, etc.	0.7	0.3	0.2	N.A.
Total	21.3	5.2	20.5	N.A.

The investments in container handling equipment are scheduled to be acquired in two stages. Stage 1 will be in the year 2000 coinciding with the completion of the Phase I construction work of the berths and other infrastructure, while Stage 2 will be made in the year 2002, to cope with the expected increase in container traffic requiring additional equipment.

The investments are expected to be financed by a loan of the European Bank. For the purpose of the financial and economic evaluations it has been assumed that provides financing for 100% of the total cost on the following terms:

- Grace period: 3 years
- Term of repayment: 12 years
- Type of loan: Annuity with annual payment of interest and instalments
- Interest: LIBOR + 1%. LIBOR to be based on 6 months interest period
- Front end fee: 1% of loan amount

- Commitment fee: 0.5% of unused portion of loan amount granted.

It is assumed that the port will finance 100% of the project cost on the above terms.

In order to arrive at a realistic appreciation of the port's ability to serve the loan, the cost and revenue structure of the port was investigated and projected up to the end of the planning period, the year 2015.

The current accounting system is such that it is difficult to allocate the various cost items between the various activities of the port. However, some major costs and input factors were available and, therefore, where possible, the costs were based on the current cost level and adjusted for expected developments. But when appropriate data has not been available, cost factors based on those in similar ports and situations world wide have been used.

The present manpower costs, both for operational employees and for management staff, could not be used, as the present wages and salaries are at an unrealistically low level. The average port employee today needs to make up the difference between the wages received from his main place of employment and the cost to support a family from other sources or employment outside the port. At the same time it cannot be expected that the current low level of pay can persist in a future environment, where skilled port personnel can be expected to be recruited by international transport organisations establishing themselves with services competing with those of the port. As a consequence, the port will have to increase the wage and salary levels to that of the competitive local labour market. By the year 2000 they, therefore, should be brought up to this competitive level. In the following years up to the year 2015 it is assumed that the wage and salary levels will be increased to a level similar to that of other East European transition countries.

Concerning the influence of taxes the financial evaluation, it is assumed that the current tax scheme will continue into the future. Thus, the calculation of the taxation has been made on the currently levied taxes and tax basis

The method of depreciation used by the port today is straight line depreciation based on a percentage rate of the original cost of the asset and the rates stem from the former Soviet Union with times for depreciation considerably longer than the expected economic or technical life of the object to be depreciated. For the new investments to be made, an assessment has been made as to the technical and economic life span of the assets in order to depreciate these at a realistic level.

Other cost items like maintenance, utility and electricity costs, fuel costs and consumption, corporate overheads as well as other costs were evaluated and conservatively forecasted.

Based on the above, an analysis has been performed towards the feasibility of the investments proposed in the rehabilitation and development programme. The purpose of this analysis was to evaluate and assess, if the investments projects are feasible and viable, independent of the method of financing selected and the tax regime, in which the port will have to operate. The methodology used for this purpose was to make an assessment of the total revenues and costs on a pre-tax basis, excluding the depreciation and interest costs of the new investments, to find the net cash flow from port operations. The viability and feasibility of these investments were then evaluated, based on the expected internal rate of return (IRR) and the discounted net present value (NPV) of the cash flow expected to be generated from these projects.

Using the cargo flows from the Most Likely Scenario and the assumptions with respect to revenues and costs described in the main body of Volume VI, an assessment has been made of the overall viability and feasibility of the proposed investments in the cargo terminals of the port. The assessment showed that overall cargo operations are expected to be highly profitable:

The NPV is as follows:	The IRR is
With a 10% discount rate: USD 31.3 million With a 15% discount rate: USD 17.0 million	33%.

An analysis was also made under this scenario of the two different operations on this terminal, i.e. the General Cargo Terminal and the Container Terminal. For this purpose, investments, revenues and costs were distributed among both activities

The results for the Container Terminal are:

The NPV is as follows:	The IRR is
With a 10% discount rate: USD 27.1million With a 15% discount rate: USD 17.9million	78%.

The overall conclusion is that the Container Terminal operations are expected to be exceptionally profitable under the Most Likely Scenario.

The results for the General Cargo Terminal are:

The NPV is as follows:	The IRR is
With a 10% discount rate: USD 0.5million With a 15% discount rate: USD (-3.3) million	10%.

The overall conclusion is that the General Cargo Terminal operations are expected to be profitable, albeit not at the rate of the Container Terminal

The two terminals are, however, mutually dependent, and any investments that will be made will benefit both operations. This analysis underscores, however, the importance that the International Seaport of Baku secures the right to operate the container terminal in the Baku area.

Using the cargo flows from the Low Growth/Pessimistic Scenario and the assumptions with respect to revenues and costs described in the main body of Volume VI, an assessment an assessment as above has been made. The expected results can be summarised as follows:

The NPV is as follows:	The IRR is
With a 10% discount rate: USD (-7.3)million With a 15% discount rate: USD (-9.1)million	<2% (marginal).

The overall conclusion is that the investment will be marginal, in the event the Pessimistic/Low Growth Scenario should become a reality.

In the event this scenario should appear likely to occur, reduction of the overall investment in infrastructure, especially by postponing the rehabilitation of part of the infrastructure, will improve the profitability. The expected impact of this action is:

The NPV is as follows:	The IRR is
With a 10% discount rate: USD (-5.9)million With a 15% discount rate: USD (-7.3)million	3%.

The cumulative cash flow will turn positive in the year 2015, indicating that the investment will be repaid over the planning period.

Additionally to the feasibility analysis of the rehabilitation and development programme a financial analysis of the proposed investment project was also been conducted. The purpose of this analysis is to evaluate the overall financial viability of the operations of the port.

The analysis of the Most Likely Scenario has been made with the same basic inputs as described above. In this analysis the expected income statement of cargo operations of the port has been evaluated, based on the financing terms proposed by the EBRD and the tax regime currently in effect in Azerbaijan. The result of this analysis can be summarised as follows:

- With the exception of the year 2007, during which the Phase II investments will become operational with significant increases in manpower, depreciation and maintenance costs, the cargo operations will achieve solid net profit margins of up to 20%.
- The port will experience positive net annual cash flows of between USD 1.5 million up to USD 8.6 million (2015). The exception is the period from 2007 up to the year 2015. In 2007 and 2008, the increased manpower, operational and maintenance costs, the interest expenses as a result of the commissioning of the Phase II investment in the renovated timber terminal, plus the renewal of equipment will place a heavy burden on the overall cash flow. In spite of these investments, the net cash flow for these years will be at a level of plus minus zero. In the year 2010 the first instalment on the EBRD loan for Phase II will fall due

at the same time as reinvestments will be required for equipment acquired as part of the Stage 2 development of the container terminal.

- The cumulative cash position of the cargo operations of the port will continually be increased and at the end of the planning period the cargo terminals is expected to have generated an accumulated cash surplus of USD 42.6 million.

Under this scenario the International Seaport of Baku will have no difficulties in servicing the loans with the EBRD.

For the financial analysis of the Pessimistic/Low Growth Scenario the changes to the investments and costs are the same as those used for the economic evaluation. The difference with the investment analysis is that the interest expenses for the loans and potential profit taxes have been added to present the expected income statement and the cash position. The results of this analysis are as follows:

- With the interest payments on the loan to be taken from EBRD, the cargo operations of the port will operate at a net loss in the period up to and including the year 2013.
- During the first three years, i.e. during the grace period, the net cash flow per year will be positive. After that time, the loan instalments combined with net losses cause a negative cash flow, which only turns positive in the year 2015 after the last instalment on the initial loan will be paid in the year 2014.
- The accumulated cash flow will develop positively for the first three years. By the end of the year 2015, however, the accumulated cash deficit will have reached an amount in excess of USD 20 mill.

When implementing the potential actions and remedies described above to counteract the low growth situation, the expected results are as follows:

- The reduction of the initial investment in infrastructure of USD 1.5 million will reduce the annual losses. The cargo operations will still operate at a loss until and including the year 2013, after which it will be profitable.
- The accumulated cash deficit will reach its highest level in the year 2014 and is expected to reach USD 19.4 mill. From 2014 onwards, the cash position will gradually improve.

The effect of a five percent increase in vessel dues and cargo handling charges will have the effect of significantly reducing the losses, and ensure that cargo operations operate at a profit from the year 2013, even under the Pessimistic/Low Growth Scenario. The maximum cash deficit will be reached in the year 2014 and will at that time be USD 12.3 mill. Thereafter, it will gradually improve.

After analysing the economic and financial effects of the proposed investments, the overall expected economic impact of the cargoes envisaged to be handled in and through the port of Baku have been established.

The economic impact of the cargo flows of the Most Likely Scenario is an expected increase in the overall added value from USD 149 million in the year 2000 to an estimated USD 339 million in 2015. The discounted value of the future economic impacts in the year 2000, at a discount rate of 10%, will be USD 1.6 billion, while at a discount rate of 15%, it will be USD 1.1 billion.

The number of jobs that will be supported as a direct result of the activities in the port is expected to increase from approximately 2,000 in the year 2000 to close to 4,700 in the year 2015.

Although the cargo flows are dramatically reduced in the pessimistic scenario, the expected impact on the Azerbaijan economy is still significant. The annual contributions that will be made by the cargo flows through the port will increase from USD 96 mill. in the year 2000 to USD 131 million in 2015. The NPV of the future economic impacts in the year 2000 will be USD 816 million with a discount rate of 10%, while at 15% it will be USD 610 million

The number of new employment created by the cargo flows through the port will also be significant under this scenario. The total number of jobs created and supported by the cargo flows through the port is expected to increase from 1,250 in 2000 to 1,800 in the year 2015.

Based in the analyses presented above it can be concluded on a preliminary basis that the port has the potential to attract sufficient traffic volumes to warrant investments for rehabilitation and development works and for the purchase of cargo handling equipment.

Further planning will be required in order to develop a more detailed port development plan, including a schedule of the necessary investment and their financial feasibility.

In the following sections the findings of the other investigations conducted within this study and used extensively as base material for the analyses presented above are briefly summarised.

Equipment

Cranes

Out of the 18 cranes existing in the port, 12 should be repaired to meet the future operational requirements, six need to be scrapped. To establish the detailed spare part requirements, each crane has to be reassessed in detail upon approval of a budget.

Forklifts

Out of the total number of forklifts, eleven forklifts are still useable for further cargo operation. In addition, five forklifts may be transferred to the workshops for use of internal transportation. The remaining lift trucks should be scrapped or used as spare part carriers. As there is a high demand for forklifts, eight additional units need to be purchased.

Terminal trucks and Terminal Trailers

Out of the four existing terminal trucks (two of which are not operational), three units should be rehabilitated, while the fourth one should be used as spare parts carrier. In addition, two agricultural trucks are available, one of them is almost new. If regular maintenance is carried out in future, both units could be kept operational.

Container Handling Equipment

As mentioned in Chapter 2, there is no container handling equipment available in the port. Due to the initial demand for container handling equipment, two reach-stackers and one 36-t forklift truck need to be procured.

Workshops/Stores

Workshops

In general, similar conditions were found in all port workshops, these are:

- poor equipment with basic hand tools only
- old and partly insufficient machinery
- lack of spare parts
- no special tools available

In order to improve the workshop situation, the following measures should be taken:

- acquisition of basic tools,
- acquisition of the necessary machinery,
- improvement of the supply of spare parts,
- incentives to improve workers' motivation.

These measures are of vital importance to ensure a professional execution of the rehabilitation programme and to carry out future maintenance within an improved environment.

The entire stores complex is poorly organised, and goods are inadequately stored. In order to improve the situation within the various facilities, a suitable shelving system should be purchased.

The existing EDP-system in the stores should be replaced by a modern system which meets the latest technical requirements and provides data interfaces to other departments.

To facilitate spare parts procurement, the procurement function should be subordinate to the technical department.

Marine Craft

The major part of the marine craft should have dry docking, painting and general repairs. Some vessels should be taken out of service. Once the finance situation of the port has improved, some new marine craft should be purchased.

8. Civil Engineering

At the main complex, some old steel structures protrude at the waterfront. The surface consists partly of tarmac area, of covers of the culverts, of concrete pavement and of unpaved sections. In general, the pavement is not in a good condition. The drainage system and the waterside culvert for power distribution and water supply are poor, too. The fendering system is also not adequate any more.

The inspection of building has been limited to the warehouses. They are fit for cargo storage.

The timber terminal consists of three different construction phases. Due to high water level, the terminal was flooded until very recently. The water level had fallen a bit so that the apron is just above the water now. However, the water did some serious damage to the apron and pavement.

The Absheron Oil Terminal needs rehabilitation of some parts of the construction. However, only jetties #1 and #3 belong to Baku Sea Port. It is not yet clear who owns the breakwater and who is responsible for its maintenance. The jetties #2 and #5 are presently abandoned.

In general, emphasis should be put on the renovation of the main complex, i.e. the quay walls, the surface and some other facilities.

The port is served with water, steam heat, electrical and waste water services. All these utility services are provided from municipal sources (the municipality of Baku) and are fairly reliable. During the 2nd phase planning, the utilities and other services will be highlighted in detail.

9. Environmental Assessment

As the project is still in an early stage, some of the recommendations mentioned below may need to be revised, based on the final engineering design that is selected.

Conclusions

With respect to the present environmental situation in the Port of Baku, in the city itself and Baku Bay, which has been described as "disastrous" by nearly all institutions concerned,

negative impacts of the planned rehabilitation project of the multi purpose terminal can be considered as negligible, if the construction is carried out correctly, taking all environmental precautions into account.

Recommendations

As stated before, the main negative environmental impacts are not directly related to port construction and port operations.

The sound disposal of ship's waste is only possible in connection with a municipal waste management. At present this is not the fact. The municipal sewage is obviously discharged untreated into the sea and the garbage of Baku seems to be just partly collected and disposed. A proper municipal waste management is an absolute necessity.

The Port of Baku should be prepared to respond to an oil spill, with updated equipment and training.

