PROJECT COMPLETION REPORT

Project Title	:	Traceca: Infrastructure Maintenance 1 - Railways Pre-Investment Study and Pilot Train Baku - Tbilisi - Batumi/Poti		
Project Number	:	TNREG 9307		
Country	:	Azerbaijan/Georgia		
		Local operators		EC Consultant
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Date of report : 28/08/97

Reporting period : project phase 09/96 - 03/97

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Table of contents

PROJECT SYNOPSIS

Project Title	:	**TRACECA: infrastructure maintenance 1, railways pre-investment study (module A)**
Project Number	:	WW03.05/05.01/BO.14
Countries	:	Azerbaijan and Georgia

The project consists of two main parts, Module A and B, which are relatively independent. This project synopsis deals with Module A only.

Wider project objective

- Streamlined and increased commercial through traffic on the Transcaucasian rail line and improvement of the operational and financial situation of the Azerbaijan Railways and Georgia Railways.

Specific objective(s)

- Pre-investment study on the Transcaucasian main line Baku-Tbilisi-Poti/Batumi, in order to determine the scope of reconstruction and the order of priority and chronological order of necessary investments.

Planned outputs

- The overall scope of reconstruction to be necessary on the line, and weighting of individual project parts.
- Bankable documents (business plans) to the final recipients for up to three (3) of the most urgent investment measures at a time, required to apply for the necessary credits.

Project activities

- 1100: determination of the institutional and organisational pre-feasibility:
  - 1110: analysis of the relevant regulations of freight and passenger services;
  - 1120: assessment of the intentions and subsidies planned, including envisaged measures for the roads and pipelines;
  - 1130: assessment of the investment policy, including organisational and managerial structure of the participating railways.
- 1200: determination of the commercial pre-feasibility:
  - 1210: forecast of future traffic levels;
  - 1220: forecast of revenues, including the examination of the current situation regarding rail tariffs and recommendations regarding future tariff structure and levels and the utilisation of through tariffs for international traffic.
- 1300: determination of the technical pre-feasibility regarding rolling stock, track, and signalling and telecommunication:
  - 1310: survey of the existing situation;
  - 1320: identification of bottlenecks;

  - 1330: definition of volume of repair works;
  - 1340: definition of training needs;
  - 1350: recommendations and realisation schedule.
- 1400: determination of financial pre-feasibility:
  - 1410: definition of construction and equipment costs
  - 1420: definition of maintenance costs;
  - 1430: estimation of benefits and disbenefits;
  - 1440: assessment of the economic and financial feasibility;
  - 1450: examination of the financing possibilities.
- 1500: further selection of criteria and ranking:
  - 1510: examination of further selection criteria;
  - 1520: ranking of alternatives and recommendations.

Project starting date: 22 January 1996.

Project duration: 14 months.

PROJECT SYNOPSIS

Project Title	:	**TRACECA: infrastructure maintenance 1, pilot train Baku-Poti/Batumi (module B)**
Project Number	:	WW03.05/05.01/BO14
Countries	:	Azerbaijan and Georgia

The project consists of two main parts, Module A and B, which are relatively independent. This project synopsis deals with Module B only.

Wider project objective

- Streamlined and increased commercial through traffic on the Transcaucasian rail line and improvement of the operational and financial situation of the Azerbaijan Railways and Georgia Railways.

Project objective(s)

- Preparation and putting into operation a high-quality international freight train service, and monitor the service during a period of three months.
- The schedules freight train service aims especially at: (i) reliable and commercial attractivity; (ii) implementation of realistic price levels; (iii) reduction of product losses; (iv) making available sufficient operational capacity; and (v) reducing terminal, transport and border crossing delays.

Planned outputs

- Marketing and sales campaign organised.
- Scheduled freight train (operating between Baku and Poti through Tbilisi) prepared.
- Scheduled freight train operated for a period of three (3) months.
- 10 experts trained of Azerbaijan Railways and 10 of Georgia Railways, in accounting/management and technical procedures and standards. The training will consist of 5/5 days basic training in Azerbaijan/Georgia, 14 days training in Germany and 7/7 days consolidation and application training in Azerbaijan/Georgia.
- Proposals for further development of rail transport produced.

Project activities

- 2100: selection of origins-destinations, commodities and sites for the pilot train.
- 2210: exploration of problems of the current situation:
  - 2211: exploration of political and economic possibilities to streamline commercial traffic on the main Transcaucasian rail line between Azerbaijan and Georgia;
  - 2212: definition of organisational measures in order to run a high quality commercial freight service.

- 2220: assessment of the technical conditions:
  - 2221: assessment of the needs of technical repair of infrastructure;
  - 2222: assessment of the needs of technical repair of rolling stock:
  - 2223: co-ordination and monitoring of the execution of repair works.
- 2230: organisation of sales training:
  - 2231: definition of training needs;
  - 2232: organisation and execution of sales/accountancy/management training;
  - 2233: definition, organisation and execution of training in technical assets management.
- 2240: management and organisation of the pilot train service:
  - 2241: determination of type of service of the pilot train;
  - 2242: advise on terminal infrastructure and handling equipment;
  - 2243: review and advice on terminal organisation and operation;
  - 2244: deign the operation of train service;
  - 2245: determination of market-based tariffs and rail costs;
  - 2246: organisation of a sales campaign with potential clients, freight forwarders and shippers;
  - unnumbered: supply of spare parts, execution of repair of infrastructure and rolling stock, and operation of the pilot trains;
  - 2247: co-ordination and monitoring of the organisations in the running of the train service during three months.
- 2250: make proposals for the future development of rail transport:
  - 2251-3: identify future market volume, geographical aspects and transportation technologies.

Project starting date: 22 January 1996.

Project duration: 14 months.

2 Summary of project progress since the start of the project

In accordance with the main points of the project detailed in the ToR and the revisions contained in the Inception Report, the following complexes have been dealt with and these results have been achieved within the project processing:

Module A

- Analysis of the institutional and organisational conditions of the two railways and of the main Trans-Caucasian railway line
- Forecast of the traffic volume for goods and passenger traffic
- Analysis and forecast of the financial status of the railways and preparation of key features for drawing up documentation on priority investment projects acceptable to banks
- Investigation of technical conditions on the Baku - Tbilisi - Poti/Batumi line with regard to
  - superstructure, bridges
  - rolling stock, repair capacities
  - signal, safety and communication installations
- Development of recommendations and time stages for necessary repair and reconstruction measures in the infrastructure field
- Preparing of bankable documents necessary for the final recipients for applying for loans required

Module B

- Analysis of the conditions and possibilities for freight traffic on the Baku - Tbilisi - Poti line
- Preparation of system characteristics for a Pilot Train under the given technical and technological conditions and
- Coordination of the measures for the start of the Pilot Train in November 1996 with the railways involved
- Realisation of a Management Study Tour to Germany for 10 participants of each railway in order to increase the knowledge and understanding of modern transport, marketing and sales techniques as well as organisational, technical and commercial solutions used by European railways

- Monitoring the Pilot Train's running, beginning from the 11 November 1996 in Baku and the 14 November 1996 in Poti up to February 1997

- Development of proposals for the future expansion of this newly introduced service

- Carrying out a special marketing campaign in order to promote this new service offer as "Trans-Caucasian Logistic Express" (TCLE)

3 Project progress in final project period

Module A

Work during the period of report concentrated on the following complexes:

- Revision and completion of the Traffic Forecast
- Completion of investigations on the reconstruction requirements of the infrastructure
- Forecast of the earnings and cost development of the two railway administrations investigated
- Determination of a ranking and sequence for necessary investments
- Preparation of bankable documents for the loan applications in order to finance the most important infrastructure projects

The investigations for the Traffic Forecast, as the main foundation for all other investigations, showed that one may generally assume a further increase in the freight volume for both of the scenarios studied, however, without achieving anything like the transport volumes of the 80s. With regard to the development of the structure of the type of goods, the following has to be said.

There will only be insignificant changes in the structure of the type of goods for the forecast development of the freight traffic volume in the transport corridor of Baku - Tbilisi - Poti/Batumi.

Petrochemical products will continue to determine transport in the westbound traffic. Their share will decrease to slightly below 90 per cent by the year 2015. On the other hand, the share of other processed products will increase a little.

There are only insignificant differences between the optimistic and the pessimistic scenario with regard to the structure of the type of goods.

The share of cereals will drop considerably in the eastbound traffic, due to the decreasing food aid for the countries of the region. The share of investment goods, consumer goods and other processed goods will grow.

The results of the financial analysis show that even with the optimistic scenario, their own financial funds will not suffice to finance the necessary investments up to the year 2010. This financial dilemma can only be overcome by granting a long-term loan. The repayment should be coupled with conditions to rationalise the entire transport activities and to improve the business results and should not start before a repayment-free period of up to ten years, as only after this time, would there be

sufficient financial means for annual instalments for refinancing from the net profit of the railways.

The investigations on the necessary rehabilitation of infrastructure concentrate on the following complexes:

- repair of tracks, switches and bridges
- repair of signalling and telecommunications installations
- locomotives and cars

The main conclusions are the following:

Track / constructional works

The investigated line is marked by a high backlog of both full scheduled track maintenance and a systematically annual track renewal.

The main evident defects concern the following basic principles as:
- poor condition on track subgrade, irregular profile and slope, insufficient ground base and draining capacity adapted to the existing subsoil quality
- low stability of the ballast bed due to the lack of side paths with the consequence that the sleeper ends are not supported by ballast and led to defective rail fastenings and damages on wooden and concrete sleepers.
- tracks laid in cutting areas are not properly drained.
- the contact wheel/rail has to be regular and continuous to avoid or to reduce dynamic corrosions.

The main improvements to the above mentioned defects are as follows:
1. The construction of the track foundation has to be carried out carefully taking into consideration the slope and side paths imposed by a cross-section type.
2. New prestressed concrete sleepers including new rail fastening elements.
3. Washed broken stones as ballast with high resistance and taking into consideration the prescribed grain size.
4. To introduce the technology of continuous long welded rails in track lines as well as in switch sections. Knowledge of aluminothermic rail welding has to be acquired.
5. Scheduled full maintenance in both track and constructions

Rolling stock

The problems are focused mainly on the old age of locomotives and wagons accompanied by the lack of spares and equipment in the respective depots where regularly maintenance has to be ensured.
The situation concerning the locomotives age can be underlined by the fact that 37% the electric line-locomotives of the VL-8 type are older than 30 years. Consequently,

a proposal was worked out for a scrapping and replacing programme (32 + 53 locomotives).

The non-use of the majority of the wagon stock is caused by the low freight traffic volume. As a result, this non-operating stock is in a bad technical condition.

Nevertheless, in principle the wagon stock is able to cover the future growing transport volume. The only exeption is the stock of tank wagons needed for the transportation of the growing volume of oil products.

Signalling / telecommunication

The reliability and operability of signalling have to be improved. The renewal of signalling is required in the short and medium term. The short-term measures relate to the replacing of important parts of existing plants and because of the conditions existing it is more advantageous to apply the available Russian equipment in future, too, which has proved its reliability and robustness. In this case the demands made on the operating and service staff would not change. Studies have shown that the supply with spare parts is possible at any time provided that the respective financial means from Russia are supplied.

The aim of the measures to be executed in the telecommunication sector is the improvement of the condition of the installations in the short term. It is also necessary to put into use new modern installations to meet the requirements of the increased transport volume. Another important fact with respect to the realisation of the transport volume and the safety of passenger and goods transport is a stable telecommunication network between all those involved in the transport process.

Module B

Work during the period of report concentrated on the further preparation, inauguration and monitoring of the Pilot Train. At a meeting of the project team with both the railway administrations involved, the most important system characteristics of the new service were coordinated. The system characteristics describe

- the fundamentals of the system
- the implementation stages
- the customer range
- the goods potential
- the forwarding and receiving stations
- the operational implementation
- the commercial conditions
- the accompaniment of trains and security
- the logistic information system.

The preparatory measures for introducing the system were agreed with the partners of the project team of the Azerbaijan and Georgian railways in connection with drawing up the characteristics of the system. These measures included

- the tasks for providing staff
- the tasks for securing technical service
- the tasks concerning engines
- the tasks in the commercial field
- the tasks for installing the logistic information system and
- further tasks.

It was especially important to coordinate the commercial conditions with regard to the attractiveness and competitiveness of the new offer. With reference to the quadripartite agreement between Georgia, Azerbaijan, Turkmenistan and Uzbekistan, dated May 1996, a fixing of the tariff level at 50 per cent of the valid tariff was agreed for the introductory phase. As the coordination of these commercial conditions was delayed, the inauguration of the new service had to be postponed from October to November 1996.

The inauguration ceremonies and the first journeys of the 'Trans-Caucasian Logistic-Express' took place on 11th November 1996 from Kishli (Baku) to Poti and on 14th November 1996 from Poti to Kishli (Baku).

The results achieved in the three-month test phase can be assessed as follows:

1. The Logistic-Express has already achieved a high degree of market acceptance within the short test phase of three months.

2. The service offer of the Logistic-Express is competitive as compared with the road transport of containers. This applies especially to

- the transport time of less than 30 hours
- the reliability of the departures
- the guarantee of a high degree of transport security
- the price level at 50 per cent of the valid railway tariffs.

3. The system characteristics of the Logistic-Express (organisation, technology, technique) are proven under realistic operation conditions.

4. The growth rates in container transport volumes along the railway corridor between Baku and Poti, quoted in pertaining economic and traffic forecasts, lead to the expectation of a positive development of the potential for the Logistic-Express in 1997 and the following years.

5. The organisation to market the train concept according to West European standards is the decisive link in the chain of developing the Logistic-Express. This requires the setting up of new efficient national operating companies for the Logistic-Express both in Azerbaijan and Georgia, in the short-term. These companies should take over the previous tasks of the two railway forwarders in marketing the Logistic-Express.

At a meeting with representatives of the Azerbaijani and Georgian railways, measures for stabilising and further developing this new service offer in the Caucasian Transport Corridor were discussed.

Great efforts were undertaken to organise the marketing of the Logistic Express in a professional and targeted manner.

The marketing of the Logistic-Express was supported by an advertising campaign in newspapers of Western Europe as well as Azerbaijan and Georgia, financed by the TRACECA project. Up to May 1997, a total of

- 36 advertisements in Western Europe
- 2 advertisements in Azerbaijan and
- 7 advertisements in Georgia

were published.

Furthermore, a multi-coloured leaflet on the Logistic-Express was produced in English, Russian, French and German for acquisition activities, with altogether 5,600 copies and a four-page presentation brochure on the Logistic-Express, in English, Russian, French and German, with 4,000 copies, was also used for marketing the train from February to May 1997.

During the project work, a number of deficits were identified with regard to the knowledge on

- the market and its mechanisms cost-price-service
- the amount of costs as a criterion of effectiveness for decision making

- the identification and use of advantages of the railways in the competition with other transport modes
- the importance of the human factor for the successful development of a new type of management

In order to improve and overcome these deficits the project team organised during the processing of the project some special measures:

- on the job training during the investigations concerning the pre-investment study (technical matters) and during the preparation of the pilot-train (commercial and cost aspects).

- a Management Study Tour to Germany for 10 Experts of each railway.

- a special management training course using the world-wide approved GRID® technique.

PROJECT PROGRESS REPORT

Project title : Infrastructure maintenance 1. Railways - Caucasus	Project number : TNREG 9307	Country : Azerbaijan / Georgia	Page :1
Planning period : 9/96 - 3/97	Prepared on : 28/08/97	EC Consultant : TEWET Transport East West Expert Team GmbH, Berlin	
Project objectives : Processing of a pre-investment study and realization of a pilot freight train on the main Trans-Caucasian railway line Baku - Tbilisi - Batumi/Poti			

No	ACTIVITIES IMPLEMENTED	TIME FRAME 1996/97 Months							INPUTS							
									PERSONNEL EC CONSULTANT		COUNTERPART		EQUIPMENT AND MATERIAL		OTHER	
		9	10	11	12	1	2	3	Planned[1]	Utilised[2]	Planned[1]	Utilised[2]	Planned	Utilised	Planned[1]	Utilised[2]
001/2	Project management/docum.	X.....	.....	.....	.....	.....	.....	X	1,8 MM	1,8 MM	1,3 MM	0,8 MM	PC's, software, copier	PC's, software, copier	4 flights / 20 DSA	2 flights / 10 DSA
1300	Techn. pre-feasibility	XX							0,3 MM	0,3 MM	1,0 MM	1,5 MM			1 / 8	0 / 4
1400	Financial pre-feasibility	XXXX	XXXX	XXXX	XX				2,1 MM	1,6 MM	3,6 MM	3,1 MM			1 / 16	1 / 12
1500	Further criteria and ranking					XXX	XX		1,5 MM	1,1 MM					- / 15	0 / 10
2220	Technical conditions	XXXX	XXXX						1,8 MM	0,8 MM	4,5 MM	2,5 MM	comp. equipm.	spare parts[1] 10 PC[1]	1 / 10	0 / 6
2230	Training measures	XX		XX					3,6 MM	4,6 MM	0,8 MM	0,8 MM	teaching materials	teaching mat. for 20 train.	2 / 22 20 / 280 p.d.	2 / 18 20 / 280 p.d.
2240	Management / organisation	XX X	XXXX	XXXX	XX	XXX	XXXX	XXXX	4,7 MM	6,1 MM	6,4 MM	9,1 MM		advertising materials[1]	4 / 45	2 / 41
2250	Future development						XXXX		1,0 MM	0,5 MM	0,6 MM	0,4 MM			1 / 14	0 / 8
							TOTAL		**16,8 MM**	**16,8 MM**	**18,2 MM**	**18,2 MM**			**14 / 150 (20/280 p.d.)**	**7 / 109 (20/280p.d.)**

[1] 10 PC sets for the Trans-Caucasian Logistic Express (TCLE) Information system, several spare parts for rolling stock and the TCLE advertising campaign as agreed with the Contracting Authority

RESOURCE UTILISATION REPORT

Project title : Infrastructure maintenance 1. Railways - Caucasus	Project number : TNREG 9307	Country : Azerbaijan / Georgia	Page : 1
Planning period : 9/96 - 3/97	Prepared on : 28/08/97	EC Consultant : TEWET Transport East West Expert Team GmbH, Berlin	
Project objectives : Processing of a pre-investment study and realization of a pilot freight train on the main Trans-Caucasian railway line Baku - Tbilisi - Batumi/Poti			

RESOURCES/INPUTS	TOTAL PLANNED		PERIOD PLANNED		PERIOD REALISED		TOTAL REALISED		AVAILABLE FOR REMAINDER	
PERSONNEL **Short term experts:**	**EC**	**locals**	**EC**	**locals**	**EC**	**locals**	**EC**	**locals**	**EC**	**locals**
001 / 2	6,0	2,0	1,8	1,3	1,8	0,8	6,0	1,5	-	-
1100	1,9	3,0	-	-	-	-	1,9	3,0	-	-
1200	5,0	3,0	-	-	-	-	5,0	3,0	-	-
1300	3,5	6,0	0,3	1,0	0,3	1,5	3,5	6,5	-	-
1400	3,3	6,0	2,1	3,6	1,6	3,1	2,8	5,5	-	-
1500	1,5	-	1,5	-	1,1	-	1,1	-	-	-
2100	4,0	4,0	-	-	-	-	4,0	4,0	-	-
2200	17,5	19,5	11,1	12,3	12,0	12,8	18,4	20,0	-	-
Sub-total	**42,7**	**43,5**	**16,8**	**18,2**	**16,8**	**18,2**	**42,7**	**43,5**	-	-
EQUIPMENT AND MATERIAL										
Sub-total										
OTHER INPUTS										
Sub-total										
TOTAL	**42,7**	**43,5**	**16,8**	**18,2**	**16,8**	**18,2**	**42,7**	**43,5**	-	-

OUTPUT PERFORMANCE REPORT

Project title : Infrastructure maintenance 1. Railways - Caucasus	Project nr : TNREG 9307	Country : Azerbaijan / Georgia	Page : 1
Prepared on : 28/08/97		EC Consultant: TEWET Transport East West Expert Team GmbH, Berlin	

Ouput results	Deviation original plan + or - %	Reason for deviation	Comment on constrains & assumptions
To avoid doubling of reporting the report regarding the output of the reporting period is incorporated into the output performance "summary"			

4 Overall report on the total project

The project as a whole is made up of two relatively independent parts, the Modules A and B:

Module A - Pre-investment study Baku - Tbilisi - Batumi / Poti

Module B - Preparation, realisation of a "Pilot train" and monitoring of the train's running during a three months period

Module A

The pre-investment study deals with the situation of the two railway organisations along the transport corridor in the region from the Black Sea to the Caspian Sea and the situation of both the Georgian Railway (GRZD) and the Azerbaijan State Railway (AGZD). Since the overall work on the project was started in May 1996, all the data being used was from 1995 (in some cases even older) and partly from 1996. Also, the visual impressions of the experts during visits and assessments of railway stations, installations and plants reflect the situation from May 1996 up to the end of 1996.

In order to reach a complete picture the needed investigations were split into the institutional / organisational, the commercial and the different technical pre-feasibilities. Then the financial pre-feasibility was worked out followed by the further criteria and ranking.

The Traffic volume forecast was a main point of the investigations and formed the basis for further analyses and conclusions:

As traditional mathematical and statistical methods of traffic forecasts, normally used under West European conditions, do not apply to the prognosis of traffic flows under the current situation in East European countries, a methodology was applied in drawing up the traffic volume forecast, tailor-made for the conditions of the East European reform states. This special methodology of the Consultant bases on the analysis of the following main elements:

The most important initial item to be analysed for assessing the future traffic volume is the development of the main economic indices, especially the Gross Domestic Product (GDP). The assumption is that there is a close connection between the development of the GDP and the total traffic volume of a country, which has been extensively proved by analogue investigations in various European countries and for different periods of time.

The development of selected branches of the economy as well as the foreign trade relations of all concerned countries, which are of special importance for the traffic volume of the railways, have been assessed in detail to further verify the forecast.

The possible development of the mentioned factors is depicted in two scenarios, an optimistic and a pessimistic one.

On the basis of assessing all these above-mentioned factors and a special inter-linking of them annual growth rates were deducted for the development of the transport volume in the mentioned railway traffic for the period up to 2015, divided according to domestic traffic, export, import, transit and that in the respective two scenarios. The statistical data for 1995 served as reference figures. Separate assumptions on the production and trade volume were made for individual types of goods, which are of particular importance for the total traffic volume.

Based on this total development, the transport volume of the investigated line was assessed according to the same method, divided up into main sections of the line.

Based on the analysis described above, the following total transport volumes and transport performance result for the forecast period:

Transport volume of the Azerbaijan Railways up to the year 2015

	1995	2000		2010		2015	
		opt.	pess.	opt.	pess.	opt.	pess.
transport volume ('000 t)	9,073	20,102	12,992	29,690	20,519	34,825	23,685
transport performance ('000 000 tkm)	2,409	8,805	5,469	13,004	8,638	15,253	9,971

Transport volume of the Georgian Railways up the year 2015

	1995	2000		2010		2015	
		opt.	pess.	opt.	pess.	opt.	pess.
transport volume ('000 t)	4,700	9,525	4,477	15,268	7,611	17,470	9,135
transport performance ('000 000 tkm)	1,246	3,238	1,522	5,191	2,588	5,940	3,106

These forecast volumes show, even in the optimistic scenario, that over the next 20 years only some 38 % (AGZD) or 48 % (GRZD) of the freight volume transported at the end of the 80s may be reached. This leads to respective consequences for the rehabilitation of infrastructure and rolling stock.

The investigations on the technical situation of the Trans-Caucasian main line and the necessary rehabilitation measures concentrate on the following areas

- track, bridges
- signalling / telecommunication
- rolling stock

The focus was on measures to stabilise and develop freight transport, as positive contributions to the balance sheet of the railways may only be expected from freight transport. The rehabilitation requirements of the line are enormous due to the long years of neglect and partial destruction of installations and rolling stock, and they exceed the local and international financing possibilities by far in view of a total volume of US$ 1.15 bn required for investments plus annual costs for maintenance and depreciation of US$ 119m up to the year 2015. Even the most urgent investments up to the year 2000 amount to approx. US$ 244m.

The problem of financing the necessary measures for reconstruction of the Baku - Poti / Batumi line has to be considered in the overall picture of the development of the railways as such.

The Railways are presently operating under severely harsh financial conditions: The collapse of the economies brought about by the political changes has greatly affected the Railways. They are now confined to operate on a much smaller scale in which the maintenance of the systems suffers under the lack of sufficient income from their activities.

The measures recommended in this study to rehabilitate the systems require enormous financial investments, which must be repaid out of future income. It is important therefore that the investments undertaken be sustainable. For this to happen it is essential that the necessary maintenance programmes be followed and the required reserves for replacement of assets be charged against future income. In recent years the Railways have been drawing on their substance to assure continuance of operations, resulting in serious shortcomings in the maintenance of their assets, cannibalisation and depletion of capital. For the recommended measures to be effective it is necessary that these practices be replaced by strict adherence to effective measures aimed at the upkeep of the assets.

Reorganisation of the Railways into newly formed profit centres would provide more financial transparency in the operations. These sectors could include passenger services and the various services offered in the freight sector, such as transit freight, containers, petroleum products etc. Budgets should be drawn up along these lines and the corresponding costs recorded in cost centres within the individual sectors. The results of these sectors would provide the necessary data to determine which services are profitable and those operating at a loss or barely covering their costs.

In the case of the passenger services for example the data provided would form a basis for negotiations at a government level concerning the subsidisation of non-profitable services.

It is therefore recommended that attention be given to these considerations in any negotiations regarding funding of the recommended measures.

Module B

The task of the Module B was:

- to analyse freight transport between Baku and Batumi / Poti with regard to its commercial, technical and technological aspects
- to select the most suitable technology for a new quality of rail freight transport
- to provide the technical and technological, commercial and administrative preparation of a new service
- to ensure the inauguration
- to monitor operation during a 3-month test phase
- to support the local partners in introducing and stabilising the new service, for instance, by organising and implementing respective marketing activities in the Caucasus and Europe
- to derive conclusions and recommendations

Based on the results of the analysis, the suggestion was made and the decision was taken with AGZD and GRZD to implement the Pilot Train in the form of a container train as the so-called

"Trans-Caucasian Logistic Express"

The objective of this decision was to participate more than before in the growing transport volume of high-quality goods, especially container consignments, along the corridor between the Black Sea and the Caspian Sea. With the help of a clear-cut definition of the performance parameters for the express according to European standards and strict observance there of in practical transport operation, trust in the new service offer had to be instilled in the potential customers and a readiness to change existing delivery and transport relations in favour of container traffic by rail should be established.

The task in developing the 'Trans-Caucasian Logistic-Express' system was to establish a

- stable
- regular
- reliable
- safe
- fast and
- inexpensive

railway link between Poti/Batumi and Baku, which was supposed to be competitive with road freight traffic.

Agreement was reached with the railway administrations of Azerbaijan and Georgia, to achieve the overall objective in three stages of implementation. The following was to be secured with the help of this staggered introduction:

- introducing a service offer for the transport customers, starting with a basic offer (weekly departure, three service locations)

- securing an introductory phase for the local railway authorities for becoming familiar with the Logistic-Express and the necessity to follow up quality requirements

gathering experience in the cooperation of the two railways, especially at the border crossing of the consignments at Beyuk-Kyassik/Gardabani.

All preparatory work of technical, technological and commercial nature was conducted in close cooperation with the experts of AGZD and GRZD. On 11 November 1996 (Baku-Kishli) and 14 November 1996 (Poti), the TCLE operation was started. In line with the task, the operation was actively accompanied during a 3-month test phase and the entire system was monitored. The most significant conclusions from this monitoring phase have already been detailed under Point 3.

It was especially with the help of the simultaneously conducted marketing campaign that the container volume could be considerably increased in the following months, so that altogether some 1,900 containers (TEU) were transported at an average capacity use of approx. 30 TEU / train during the period of 11/11/96 to 23/07/1997.

Even though the TCLE has been in operation since November 1996, with slight interruptions and technological problems, there are some conclusions to be drawn on the measures for a long-term stabilisation:

Increasing the competitiveness and efficiency of the 'Trans-Caucasian Logistic-Express' with the aim of winning further market shares in container transport along the Trans-Caucasian corridor, requires both Azerbaijan and Georgia to set up a new national operating company each in preparation of an international joint-venture for

the marketing and operation of the Logistic-Express. Large interested customers and forwarders involved should be shareholders of these national operating companies, alongside the AGZD and their railway forwarder or GRZD and their railway forwarder.

This necessary development to increase competitiveness and efficiency of the Logistic-Express urgently requires supporting activities by the TRACECA programme in

- setting up the national operating companies
- preparing the work of the operators both as regards staff and in the material and technical respect
- continuing the marketing activities towards Western Europe and Central Asia and
- guiding and qualifying the staff in the area of forwarding.

PROJECT COMPLETION REPORT

Project title : Infrastructure maintenance 1. Railways - Caucasus	Project nr : TNREG 9307	Country : Azerbaijan / Georgia	Page :1
Reporting period : 01/96 - 03/97	Prepared on : 28/08/97	EC Consultant : TEWET Transport East West Expert Team GmbH, Berlin	

REPORTING PERIOD	MAIN ACTIVITIES UNDERTAKEN	EC CONSULTANT	INPUTS UTILISED	
			MATERIALS AND EQUIPMENT	OTHER
01/96 - 08/96	• project management, reporting	4.2 man-months		26 flights, 412 DSA
	• analysis of technical, commercial, organisational conditions	12.2 man-months		
	• preparation of a freight pilot train; training measures	9.5 man-months		
09/96 - 03/97	• project management, reporting	1.8 man-months		7 flights, 109 DSA + 20 flights / 280 DSA (trainees study tour)
	• preparation of bankable documents for infrastructure rehabilitation measures	3.0 man-months		
	• realisation of the Pilot train as "TCLE" and monitoring the train's running during three months	5.2 man-months	procurement of spare parts; 10 PC sets for TCLE information system	
	• organisation of a marketing/advertising campaign	2.2 man-months	leaflet, 5600 copies (e,f,r,g) brochure, 4000 copies (e,f,r,g)	
	• training measures	4.6 man-months	teaching materials	
	TOTAL	**42.7 man-months**		**33 + 20 flights** **521 + 280 DSA**

OUTPUT PERFORMANCE SUMMARY

Project title : Infrastructure maintenance 1. Railways - Caucasus	Project nr : TNREG 9307	Country : Azerbaijan / Georgia	Page : 1
Prepared on : 28/08/97		EC Consultant : TEWET Transport East West Expert Team GmbH, Berlin	
Output results	Deviation original plan + or - %	Reason for deviation	Comment on constrains & assumptions
Module A			
• produce an overall scope of reconstruction to be necessary for the line	± 0 %	no deviation	
• weighing/ranking of individual project parts	± 0 %	no deviation	
• bankable documents for up to three (3) of the most urgent investment measures	- 10 %	there was a need to shift some man-power to Module B to secure the preparation of the Pilot train and to organise proper marketing activities	all data needed to apply for credits/loans are incorporated in the different chapters of the Module A report
Module B			
• scheduled freight train prepared	+ 10 %	problems to coordinate some technological and economical principles (e.g. tariff structure) for the train's running and to establish some local preconditions (e.g. office in Poti)	the train's running was only possible on the basis of principles fully agreed between AGZD, GRZD and the project team and local pre-requisites prepared
• scheduled freight train operated for a period of three (3) months	+ 10 %	the project team had to accompany actively the train's running also after the three months monitoring period to secure the further existence of the TCLE	without further assistance from European experts for a longer period up to the establishment and proper functioning of operating companies there will arise problems for the existence of the TCLE very soon
• marketing and sales campaign organised	+ 30 %	during the preparation process the need occurred to strengthen the efforts of the project team in the marketing field. Adequate funds have been made available by the Contracting authority. The marketing campaign started in 10/96 and had to be continued also after the official project's end up to 06/97	without any additional marketing and advertisement, especially in Europe, there was no possibility to stabilise and increase the number of containers to be transported by TCLE
• 10 experts of AGZD and 10 experts of GRZD trained	± 0 %	no deviation	

5 Lessons learnt and recommendations

problems identified/ lessons learnt	conclusions/recommendations
General	
• The final recipients had not been informed about the project contents in advance or expected other main points and results due to the project name	intensive coordination of the ToR with the final recipients before the start of the project tender, this makes a speedier start of the dense project work possible
• the advance financing of dense technical aid (delivery of equipment and spares) by the beneficiaries is only barely feasible or not at all possible due to the tense financial situation	amendments for the procedural regulations concerning the financing of such projects of dense technical aid is required by TACIS, in order to speed up the processing or to make it possible at all
Module A	
• There is the trend among the investigated railways to restore the original condition with regard to the capacities of the 80s in the area of infrastructure.	The scope of the required operational and transport infrastructure is to be determined on the basis of the forecast investigations on the development of the passenger and freight transport and the resulting operational programmes.
• The Traffic Forecast shows that only some 38 to 48 per cent of the original transport volumes can be achieved again within the next 20 years	The line network, stations, organisation and staffing of the railways have to be adjusted to the changed dimensions.
• The financial analysis shows that the railways will not be able to finance the necessary investments, maintenance cost and depreciation, even given a positive development.	The relationship between the state and the railways has to be defined clearly and put on a sustainable legal foundation. Comprehensive reforms are long overdue.
• The railways are burdened with services by the state which are atypical for their normal operation and this without a compensation of the costs.	There has to be a clear delimiting of the railways' tasks and elements of cost reimbursement for societal services provided in the passenger and freight transport have to be introduced.

Module B	
• The ability of the railways to act and react in conformity with the market is little developed.	Continuation and increase of the know-how transfer on commercial issues within the framework of further Traceca projects
• The readiness to cooperate among the railways exists only in partial areas.	Develop an acceptance of the necessity to cooperate, also in the own interest.
• The freight flows in containers are extremely unpaired.	Efforts undertaken to acquire other clients or types of goods on the return direction have to be intensified.
• The overall responsibility for logistic offers in the transport corridor cannot be taken up by the railways or their haulage companies respectively.	There is the necessity of forming independent operating companies, which will ensure access for all potentially interested parties, free of discrimination.
• The choice of the mode of transport in the TRACECA Corridor is determined also by other fringe conditions, apart from the tariffs.	The development of service offers by the railways/operating companies is necessary to change the modal split in favour of the railways.
• The process of stabilising and extending the TCLE is not possible without a further accompaniment by European know-how.	The speediest possible decision is required on the further accompaniment and support by Tacis/TRACECA.
• Without permanent, intensive connections with the European and Extra-European transport market, no genuine stabilisation and establishment of this corridor is achievable.	Extending the TCLE work beyond the Caucasus region to Central Asia and the countries bordering on the Black Sea.
• The results of the introductory phase of the TCLE show that there is a high demand and development potential.	Organisation of the further qualitative and regional development by Tacis / TRACECA.