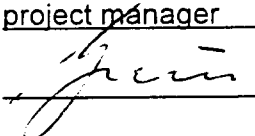


INCEPTION REPORT

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 operator	EC Consultant
Name	:	<u>Azerbaijan Railways</u>	<u>Georgian Transport Coordination Council</u>
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Contact person	:	<u>Mr. M. Panahov</u>	<u>Mr. V. Lomadse</u>
Signatures	:	_____	<u>Dr. Christian Gleue project manager</u> 

Date of report : 18/04/96

Reporting period : project inception phase 2 - 4/96

Author of report : Dr. Christian Gleue

EC M & E team	_____	_____	_____
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EC Delegation	_____	_____	_____
	[name]	[signature]	[date]
TACIS Bureau [task manager]	_____	_____	_____
	[name]	[signature]	[date]

Table of contents

- 1 Project synopsis**
- 2 Analysis of project**
- 3 Project planning**
 - 3.1 Scope of work
 - 3.2 Coordination with the final recipients
 - 3.3 Harmonization with other projects
 - 3.4 Resulting specifications and conclusions

Tables

- Overall plan of operations
- Overall output performance plan
- Plan of operations for the next period (work programme)

Annexes

- 1 Terms of Reference**
- 2 Technical Proposal, Part B.2 "Organisation and Methodology"**
- 3 Country related data**
 - Freight Traffic of Azerbaijan and Georgian Railways
 - Geographical structure of foreign trade of Azerbaijan and Georgia

PROJECT SYNOPSIS

Project Title	:	TRACECA: Infrastructure Maintenance 1 - Railways Pre-Investment Study and Pilot Train Baku - Tbilisi - Batumi/Poti
Project Number	:	TNREG 9307
Country	:	Azerbaijan / Georgia

Project Objective[s] :

The Project consists of two main parts, **Module A and B**, which are relatively independent. In some work packages, however, there is a connection between them.

Module A - 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.

Module B - Creation of an example for safe and reliable goods transport on this line even under the given technical and technological conditions, serving as a reference for its future utilisation in international goods traffic.

Planned Outputs :

Module A - Preparation of material on the overall scope of reconstruction to be necessary on the line, and weighting of individual project parts. Delivery of 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.

Module B - Operation of pilot train for a period of three (3) months, in order to prove the usefulness and attractiveness to potential senders/recipients both at home and abroad, and to acquire new quantities of goods.

Project Activities :

- ⇒ Together with the final recipients, selection of the most urgent investment measures for which bankable documents for the application of credits have to be prepared.
- ⇒ Together with the railways involved and the most important senders/recipients, preparation and control of pilot train operation.
- ⇒ Realisation of a Management Study Tour for ten (10) experts each of both railways, in order to introduce them to West European know-how in goods traffic.
- ⇒ Organisation of a marketing campaign for an enhanced utilisation of the transport corridor.
- ⇒ Preparation and realisation of direct technical aid (repair of vehicles, etc.) for the pilot train within the framework of the means provided for this purpose.

Project Starting Date : 22/01/1996

Project Duration : 14 months

2 Analysis of project

Economic policy conditions

With the transition from the centrally planned economy of the former Soviet Union to market economy structures at the beginning of the 90's, thorough-going changes were initiated in the economies of the Caucasian republics. The disintegration of the Soviet Union and the following reform process was accompanied by strong symptoms of crisis affecting all areas of the economy, just as in all Central and Eastern European countries. The economic slump was especially drastic in the smaller republics of the former Soviet Union. Due to their high degree of dependence on supplies to and from other republics, especially of raw materials and component parts, the already extreme symptoms of crisis were even aggravated by the disintegration of the traditional trade and production relations. In Azerbaijan, the gross domestic product (GDP) had fallen to a third of the 1989 level by 1995. The downward trend of the economy was not stopped at the beginning of 1996 either, but has slowed down as of 1995. There are realistic chances to stop the decrease of the GDP and to turn it into a continuous and stable growth provided by the start of oil production in the newly opened up oil fields around Baku as of 1996/97.

In Georgia, the gross domestic product had fallen to less than 20 per cent of the 1989 level by 1995. A speedy economic upswing requires considerable efforts on behalf of the republic and massive external support. Thanks to the doubtless existing potential resources and the favourable geo-strategic location, there are conditions for overcoming the current crisis situation.

However, the great number of political, ethnic, religious conflicts in the region and the connected military clashes have additionally aggravated the economic situation of the affected states.

A permanent solution of these conflicts (Abkhazia, South-Ossetia, Nagorno Karabakh) is a prerequisite for economic stabilisation and an upward trend.

Trade and transport policies

The disintegration of the former Soviet Union has led to considerable structural and administrative changes in the railways of the Caucasian region. In the past, the Trans-Caucasian Railway (Georgia and Armenia) as well as the Azerbaijani Railway were administrations in the network of Soviet Railways (SZD). Following the dissolution of the Soviet Union, national railways were set up in all three republics. The following table contains important parameters for both railways:

	track length	out of that electrified / 2-track		Rolling stock engines / freight cars ¹	
	km	%			
Azerbaijan	2,125	60	38.0	473	28,650
Georgia	1,569	100	18.5	496	19,184

The newly established railway administrations are not only up against the difficulties resulting from the general economic and political situation. Both the Georgian as well as the Azerbaijani railways are confronted with a number of specific problems, which have their root causes in the historical development as well as in the administrative and organisational structures of the former SZD:

- a great many key positions were held by Russian specialists in the railway administrations, which the national successors do not have available any longer;
- universities and colleges in the area of railways were more or less exclusively to be found in Russia or the Ukraine respectively, and the training facilities in Georgia or Azerbaijan are very limited;
- repair shops for cars and engines are also mostly located on the territories of Russia or the Ukraine, and the repair of rolling stock is only possible to a very limited extent in the Caucasian republics at the moment;

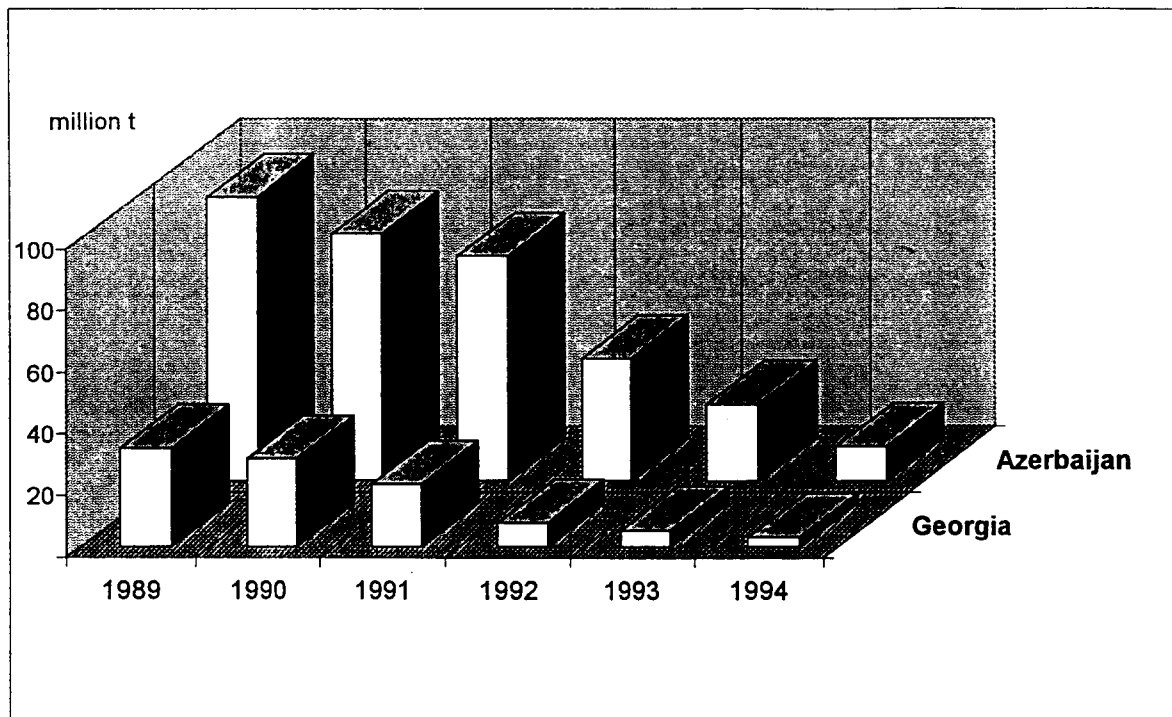
¹taken over from the stocks of the former SZD

- freight cars, which had been allocated to the railways of Georgia and Azerbaijan as a consequence of dissolving SZD, as well as engines in their stock usually were in a desolate technical shape.

At the moment, thoroughgoing changes are under way in the foreign trade relations of the Caucasian republics. The economic difficulties have led to a strong drop in exports and imports. A geographical re-orientation of the trade flows has taken place (see Annex 3). In this process, the share of the former Soviet Union in the foreign trade of the two countries has decreased continuously over the past years. Turkey and the Iran as well as Western European countries have gained in significance as trading partners.

The economic difficulties in Georgia and Azerbaijan, the changes in the foreign trade relations mentioned as well as the continuing political and military tensions in the region have led to a dramatic fall in the transportation volumes of the railways of these countries, both in passenger as well as in freight transport. The following figure highlights the development of freight transport of the Georgian and Azerbaijani railways over the past years.

Freight transport volumes in the railways' national and international traffic:



Azerbaijan and Georgia were important transit countries for rail traffic in the past. In 1990, some 33 million tons of the entire Azerbaijani railway transport volume of 80.2 million tons were made up by transit transports. In 1994, only 1.3 million tons of transit goods were transported. These figures illustrate clearly the negative consequences for railway traffic resulting from the shutting down of important transit relations (Baku - Yalama - Russia; Baku - Dshulfa - Iran; Senaki - Veseloye - Russia) due to political tensions in the region. This is an essential reason for the decline of freight transport in Georgia and Azerbaijan being much stronger than for instance in Russia or other countries of the former Soviet Union.

The steep drop in freight and passenger traffic the railways of Azerbaijan and Georgia experienced has led to considerable income losses of the railways. In connection with the general economic difficulties, this was an essential reason for the fact that there have been more or less no financial means available for the maintenance and extension of the infrastructure and the rolling stock.

The progressing infrastructural and technical difficulties in railway transport, connected with this situation, have led to further losses in the field of freight transport volume.

In order to break through this vicious circle, the highest priority must be attached to short-term effective measures for the rehabilitation of the infrastructure.

Furthermore, an intact railway system is generally one of the most important conditions for the economic upswing both in Georgia as well as Azerbaijan, as rail transport will remain to be of outstanding significance for the region despite the growing competition from road transport.

At present, the route Baku - Tbilisi - Batumi/Poti is by far the most important one for both railways. Under the current political conditions, this railway link forms the backbone for the international freight traffic of both countries. Thus, it carries extraordinary significance for the economic development of the two countries as well as of the region altogether.

In future, this railway link will be an important part of a competitive transit corridor Europe - Central Asia /Far East. For Azerbaijan and several Central Asian regions, the route to Batumi is the shortest railway link by far to conduct overseas transports via the ports of the Black Sea, the Mediterranean or the Persian Gulf.

A speedy overcoming of the infrastructural deficits especially on this route and a stabilisation as well as a targeted expansion of the freight transport is of great importance for the railways involved and in particular for the economies of the two countries. And there is the additional transit function in the transport corridor of Black Sea - Caspian Sea - Middle East / Central Asia - Far East, which adds an international significance to this line.

First ideas and planning for establishing new ferry links across the Black Sea (Constanta/Odessa - Poti), connected with a stronger utilisation of the ferry link Baku - Turkmenbashi (Krasnovodsk) only serve to emphasise the significance of this route.

Thus, there is the objective necessity of introducing measures for the rehabilitation of precisely this route, above all, in order to stabilise the situation of the railways involved.

3 Project planning

3.1 Task

According to the tasks of the project set out in the Terms of Reference (Annex 1) the focus is on:

Module A:

- conducting a pre-investment study for the Trans-Caucasian main railway line, including the determination of the required investment scope and laying down a priority sequence for the reconstruction measures to be implemented
- forecasting the future transport volume

Module B:

- establishing the goods quantities and types, dispatch and receipt relations and technical/technological conditions for an attractive freight transport on the Trans-Caucasian main line
- technical/technological and organisational preparation and implementation/supervision of the Pilot Freight Train run on the route
- deriving measures and conclusions for an extension of this pilot operation

3.2 Coordination with the final recipients

During many stays on location in Azerbaijan and Georgia, talks were held with representatives of

- the national TACIS coordinating units
- the government bodies responsible for the transport sector (Azerbaijan - Department of Transport and Communication at the Economics Ministry; Georgia - Coordinating Council for Transport with the President of Georgia and
- the railway administrations

on the tasks and processing of the project.

The important national partners in these coordinating talks were, for instance:

Azerbaijan

Mr Sadykhov - head of the Department of Transport and
Communication with the Economics Ministry

Mr Nadirli - Director General of the Azerbaijani Railway

Mr Panahov - Commercial Director of the Azerbaijani Railway

Mr Kiazimov - expert of the TACIS-CU

Georgia

Mr Chkaidze - Chairman of the Coordinating Council for Transport with
the President of Georgia; Director General of the
Georgian Railways

Mr Lomadze - 1st Deputy Director General of the Georgian Railway,
Chief Engineer

Mr Zchikvadze - Commercial Director of the Georgian Railway

Mr Ackobyia - Director of TACIS-CU

During these talks with the representatives of the recipient organisations, the main points of the project, contained in the ToR, were discussed intensively.

It emerged that there is no interest in receiving a pure stock taking / description of the current situation and compilation of the necessary scope of reconstruction from the pre-investment study (Module A) in order to apply for the necessary loans, which has to be supplemented and continued by further time and cost-intensive studies. In the interests of the speediest start possible of the indispensably necessary work for stabilising the railway operation of both railways, the drawing up of all documents and statements necessary for the granting of a loan is to be included within the scope of this project (Module A). That is to say that

- a pre-investment study according to the ToR is to be drawn up for the entire route and
- for important main projects, which are to be determined together with the railway administrations, concrete business plans are to be drawn up, including documentation acceptable to the banks, which enable the immediate follow-up application for the necessary means of investment with the potential banks to grant the loan.

It is generally of special importance for the future role of the route

Baku - Tbilisi - Batumi/Poti and vice versa

and especially for the preparation of documents for the bank to determine the volume and structure of the transit transport in this corridor between the Black and the Caspian Sea and the riparian states. The exchange of information and data with the potential dispatch and recipient countries of such transit traffic, particularly when discussing the quantification of future transport volumes, is very difficult for Georgia and Azerbaijan and their railway administrations at the moment.

That is why the railways of Azerbaijan and Georgia are especially interested in all those tasks which deal with the prediction especially of the transit transport and the inclusion of new types of goods, transport clients and country relations either directly or indirectly.

This is the reason why it was agreed that increased focus will be attached to detailing project contents and project sequence in this aspect, within the framework of the Inception Report.

With regard to processing **Module B**, the discussions with the final recipients yielded the following results:

The current technical-organisational handling of freight transport on the Trans-Caucasian route is strongly influenced by the generally difficult situation of the two railway administrations involved. This is apparent especially in the following points:

- a high degree of discontinuity in handling the transport
- a low speed of transport due to the bad condition of the superstructure and building installations
- technical defects in the rolling stock
- susceptibility to failure of the operation due to problems of electricity supply, lacking or damaged cables etc.
- complicated procedures and handling of the cross-border traffic (customs checks)
- insufficient transport safety
- low technological standard of loading and unloading operations
- lack of marketing strategies

It seems to be very difficult, under these conditions, to draw up a model solution for an attractive freight transport with publicity appeal, which would thus promote acquisition. A rectification of the main defects in infrastructure, the rolling stock (cars, engines), loading and unloading installations etc. may not be expected for the duration of the programme, as even with active external support it is impossible because of the vast scope.

In other words, a short-term spectacular leap in the quality of freight transport cannot be expected from the introduction of the Pilot Train.

Thus, the realisation of the Pilot Train is not aimed at a publicity effect limited in time but rather at creating an initial solution for a stable freight transport, in accordance with the geo-strategic significance of the route, also under the present impeded technical and technological conditions.

In close cooperation with the railways involved, their executives and experts, the following improvements seem achievable:

1. drawing up the best possible timetable, under the given technical conditions, consistently limiting traffic and operational stops to the absolutely necessary minimum in order to shorten the transportation times;
2. securing a high degree of continuity and transport safety with the help of special supervision of the train run over the entire distance and the highest possible operational rating (priority train comparable to TEEM [Train Europeen Express Marchandises]);
3. guaranteeing the periodicity of the train, that is to say, it should also be operated even with less than full capacity, to prove the reliability of the offer to the transport clients;
4. implementing technical improvements in the field of rolling stock through using the means allocated to this project for direct technical support;
5. acquiring new transport clients through organising a marketing campaign before the first run of the train and conducting respective PR work among potential users of the transport corridor both inside as well as outside the country during the operation of the Pilot Train, in order to draw attention to the opportunities offered by the transport corridor with the help of this example;

6. harmonising the timetable of the Pilot Train with the conditions of connection at the ports of Baku and Poti;
7. introducing a basic offer for accompanying information, on request by the clients.

Furthermore, possibilities for simplifying and speeding up border formalities should be explored with those bodies responsible for border and customs procedures, in order to achieve a shortening of the running time, and then respective proposals should be drawn up and their implementation be prepared.

Taking into consideration the conditions of the project environment and the limited possibilities for the necessary substantial changes in the operational procedures during the project and for the practical implementation of the Pilot Train, the objective may be better described as the preparation and implementation of a

'Scheduled Freight Train'

The results to be achieved, which have been coordinated with the final recipients, have been compiled in the table

'Overall Output Performance Plan'

3.3 *Harmonisation with other projects*

Within the framework of the work during the inception phase of the project, two main projects were identified, which dealt with the situation and the development of the railways in Azerbaijan and Georgia during the course of 1995 and partly until the beginning of 1996.

They are:

1. 'Azerbaijani Railway' within the framework of the TACIS programme, conducted by the Transurb company (project manager Mrs Françoise Haidebroek)
2. 'Georgian Railway' within the framework of technical aid rendered by the Federal Republic of Germany for the Caucasus logistics advice office of the World Food Programme (WFP-CLAU) in Georgia, conducted by the 'Gesellschaft für Technische Zusammenarbeit' (GTZ) - project manager Mr Michael Strohn

Analyses of the technical condition of the railways were conducted within the framework of both projects, data was collected and compiled, which may be used for individual tasks of this current project, in coordination with the final recipients.

An exact coordination with the already existing data and statements is especially important in order to avoid unnecessary doubling of work and to tap capacity reserves for the processing of the additional main points of the project, coordinated with the representatives of the recipient organisations.

During the processing of the project, further close relations with other projects of the Traceca programme emerge.

Such projects as for instance

- Regional Traffic Forecasting Model and a Review of International Route Capacity
- Legal and Regulatory Framework
- Trade Facilitation, Customs Procedures and Freight Forwarding
- Forwarding-Multi-Modal Transport System (operating freight transport on Traceca route)
- Rolling Stock Maintenance - Railways
- Technical Assistance for the Development of the Port of Baku
- Implementation of a Rail Freight Traffic Management and Information System

That is why increased attention should be attached to a close coordination with regard to time and contents of these projects during the further work on this project.

3.4 Resulting amendments and conclusions

As explained in Point 3.2, some changes in the emphasis have been agreed with the final recipients in the interest of the practical use of the project results. This entails consequences regarding the scope of the work and the contents of some work packages and requires a few amendments in the project sequence.

These are important amendments in the individual work packages:

WP 1310 Survey of existing situation

As statements on the existing situation of the two railways' infrastructure have already been made by the previous projects detailed in Point 3.3, the analysis may be concentrated on establishing those findings which were either not included in these reports or not in sufficient detail, for instance the situation of workshops in Georgia or the condition of the superstructure in Azerbaijan. The work thus saved shall be used for the extended economic and financial investigations for preparing documents acceptable to the banks (business plans).

WP 1320 Identification of bottlenecks

Bottlenecks are not only to be identified within the scope of those WP, but priority projects are to be selected in cooperation with the railway administrations and the responsible government bodies for which bank documents are to be drawn up (business plans).

WP 1450 Financing possibilities

Financing possibilities are not only to be pointed out in a general way but bank documents (business plans) are to be drawn up for the priority investment measures identified in WP 1320.

This means that the following complexes have to be included additionally in the processing:

- criteria for securing (guarantees) the repayment of the capital
- criteria for securing the growth of capital in the process of the utilisation of equipment and vehicles (e.g. securing the capital costs as part of the life-cycle costs through income and maybe subsidies)
- calculation of further specific criteria of efficiency for assessing the capital effectiveness (e.g. duration of return, repayment periods of the loans etc.) within the scope of profitability analyses

WP 2250 *Future development*

First statements on quantifying the future market volume for the route Baku - Tbilisi - Batumi/Poti are already required for drawing up the business plans in Module A. Thus, initial investigations shall be carried out simultaneously with the work on WP 1210 and 2120.

The following conclusions resulted from the talks and coordination during the inception phase for the processing of the project in general:

1. The necessary inclusion of local experts into processing the project is ensured in both countries. The respective agreements have been made and all the required specialist fields have been covered.
2. The technical side of the project has been secured through close cooperation with the involved railway administrations and the opening of project offices in the buildings of the railway administrations in Baku and Tbilisi.
3. The coordinating talks with the final recipients yielded a high degree of accordance with regard to the expectations of project contents and results among the final recipients.

The planned management committee can thus operate on the respective national level, and only in the case of greater bilateral difficulties of understanding shall there be a joint session.

4. According to the current findings, the project budget means earmarked for the delivery of equipment should be used for the technical support of the Pilot Train, e.g. the repair of the required rolling stock or the fitting of a suitable maintenance repair shop. A possible use of the funds for 'redeeming' the engines still kept by Russia would only yield a limited effect for the project. The Task Manager and Traceca Management shall be handed a specification of the planned use of the means, following the conclusion of the necessary more detailed investigations and negotiations.

5. There is a considerable risk for the planned preparation of documents acceptable to banks (business plans) due to the partly insufficient or inadequate data and files for drawing up these documents. This may cause wide-ranging additional inquiries/investigations, which could result in outstripping the time and capacity of the original project scope. As soon as such development can be predicted and estimated, there shall be a negotiation with the Task Manager and the Traceca Management on the resulting consequences.

OVERALL PLAN OF OPERATIONS

Project title :		Project number : TNREG 9307		Country : Azerbaijan / Georgia		Page : 2							
Infrastructure maintenance 1. Railways - Caucasus		Prepared on : 18.04.96		EC Consultant : TEWET Transport East West Expert Team GmbH, Berlin									
Planning period : 2/96 - 6/97		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											
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		INPUTS											
No	MAIN ACTIVITIES	TIME FRAME				PERSONNEL	EQUIPMENT AND MATERIAL	OTHER					
		1996	1997						EC Consultant	Counterpart			
		1	2	3	4	1	2	3	4				
2110	Assessment of initial O/D	XX	X							2,0 MM	2,0 MM	2,0 MM	1 flight 20 days DSA
2120	Evaluation of O/D	X	X							2,0 MM	2,0 MM	2,0 MM	1 flight 20 days DSA
2210	Problems of current situation	XXX								1,5 MM	1,5 MM	1,5 MM	2 flights 20 days DSA
2220	Technical cond./possibilities	XX	XX							3,0 MM	6,5 MM	6,5 MM	3 flights 45 days DSA
2230	Training measures	X	X							4,5 MM	1,5 MM	1,5 MM	2 flights 65 days DSA 280 per diem trainees 20 flights trainees
2240	Management / organisation	X	XXXX	XXXX						7,0 MM	9,0 MM	9,0 MM	6 flights 110 days DSA
2250	Future development	X				XX				1,5 MM	1,0 MM	1,0 MM	1 flight 18 days DSA
						TOTAL				42,7 MM	43,5 MM	43,5 MM	40 flights 559 days DSA 20 flights + 280 per diem trainees in EC

OVERALL OUTPUT PERFORMANCE PLAN

<p>Project title : Infrastructure maintenance 1. Railways - Caucasus Planning period : 2/96 - 6/97</p>	<p>Project number : TNREG 9307</p>	<p>Country : Azerbaijan / Georgia</p>	<p>Page : 1</p>
	<p>Prepared on : 18.04.96</p>	<p>EC Consultant : TEWET Transport East West Expert Team GmbH, Berlin</p>	
<p style="text-align: center;">Outputs</p>	<p style="text-align: center;">Agreed Objective Verifiable Indicators</p>	<p style="text-align: center;">Constraints and Assumptions C/A</p>	
<ul style="list-style-type: none"> • prognosis of freight traffic volumes for the next 20 years with special attention to the development of transit traffic flows (06/96) • definition of investments needed for the reconstruction and rehabilitation of the main Trans-Caucasian railway line Baku - Tbilisi - Batumi / Poti (09/96) • Business plans (bank documentation) for urgent investments in the near future (12/96) 	<p>development of 3 different scenarios basing on the economical, political, socio-demographical development in this area and the countries concerned</p> <p>define the overall volume of reconstruction and repair work, divided into main areas, as</p> <ul style="list-style-type: none"> - rolling stock (locos and wagons) - track and constructional work - signalling / telecommunication <p>development of materials needed for the bank documentation to apply for the loans</p>	<p>there is a risk whether and how to obtain sufficient and enough detailed data on the possible development in all areas of the countries concerned</p> <p>make use of some data / conclusions, findings of preceding projects (see point 3.3 of the Inception report</p> <p>the savings in the technical part of investigations by using some results of preceding projects may be not sufficient to cover all additional work to be undertaken to receive documentation in full conformity with the requirements of the banks</p>	

<p>Project title :</p> <p>Infrastructure maintenance 1. Railways - Caucasus</p> <p>Planning period : 2/96 - 6/97</p>	<p>Project number : TNREG 9307</p> <p>Prepared on : 18.04.96</p>	<p>Country : Azerbaijan / Georgia</p> <p>EC Consultant : TEWET Transport East West Expert Team GmbH, Berlin</p>	<p>Page : 2</p>
<p>Outputs</p> <ul style="list-style-type: none"> • Preparation and realisation of a „Scheduled freight train“ (pilot train) between Baku and Poti through Tbilisi (01/97) • Organisation of a marketing and sales campaign to use this railway line for freight traffic (01/97) • Training of senior railways' representatives in modern management / marketing (sales) accounting techniques and technical procedures and standards (11/96) 	<p>Agreed Objective Verifiable Indicators</p> <p>trains running during a period of about three months</p> <p>collect additional customers and freight in the countries concerned</p> <p>carry out training courses for 20 (10 Azeri / 10 Georgian) trainees in 3 phases:</p> <ul style="list-style-type: none"> - 5/5 days basic training in Azerbaijan / Georgia - 14 days Management Study Tour to Germany - 7/7 days consolidation and application training at home 	<p>Constrains and Assumptions</p> <p>C/A</p> <p>the time planned to prepare all commercial and technical preconditions for the train's running and to collect additional freight for this train could be to short</p> <p>the type of cargo and freight volume can be defined only after completing the technical and technological conditions for this new offer</p> <p>the main areas of deficit will be identified during the execution of preceding tasks of the project</p>	

Annex 1

Terms of Reference

EUROPEAN UNION - TACIS

Technical Assistance to the Southern Republics of the CIS
and Georgia - TRACECA

TRADE AND TRANSPORT SECTORS

Terms of Reference

for

Infrastructure Maintenance 1

-

Railways

Pre-investment study and Pilot train

Baku - Tbilisi - Batumi - Poti

Bridge over Kura river

Final Recipients:

TRACECA Region Ministries of Transport

**Infrastructure Maintenance I
Railways**

**Pre-investment study and Pilot train
Baku - Tbilisi - Batumi - Poti
Bridge over Kura river**

(TRACECA Project No. 14b)

CONTENTS

1. Introduction and Background
2. Project Objectives
3. Module A : Pre-investment Study for the rehabilitation of the main Transcaucasian rail route (Baku - Tbilisi - Batumi - Poti)
- Module Objectives and Scope of Work
4. Module B : Pilot Freight Train Service
- Module Objectives and Scope of Work
5. Module C : Feasibility study and Initial design for the repair and reconstruction of a key bridge on the Transcaucasian rail line : bridge over Kura river (Poyli area) in Azerbaijan
- Module Objectives and Scope of Work
6. Other Related Projects
7. Local Participation
8. Foreign Expertise
9. Logistics
10. Time Table and Reporting

1. Introduction and Background

1.1 During May 1993 a conference was held in Brussels organised by the Commission and attended by authorities of the eight Republics of the south of the former USSR:

- Armenia,
- Azerbaijan,
- Georgia,
- Kazakstan,
- Kyrgyzstan,
- Tadjikistan,
- Turkmenistan,
- Uzbekistan.

They are the Beneficiary States of this programme.

The objectives of the conference were :

- to stimulate cooperation among the participating Republics in all matters pertaining to the development and improvement of trade within the Region
- to promote the Central Asian - Trans Caucasian - Europe Transport Corridor
- to identify problems and deficiencies in the Region's trade and transport systems
- to define, in terms of contents and timing a Technical Assistance Programme to be financed by the European Union (EU).

TRACECA (Transport Corridor Europe Caucasus Asia) was thence created as a component of the TACIS interstate programme.

1.2 The "Brussels Declaration" issued at the conclusion of this conference recommended the European Union to address in the TACIS programme variously expressed needs for feasibility studies and technical assistance projects.

Regional sectoral Working Groups (trade, rail, road, maritime), composed of experts and officials from each TRACECA state and the EU, have been established as part of the TRACECA programme. They meet periodically in the Region. They have inaugurated specific projects including this present one, and will monitor results.

A strategic study for Central Asia has recently been completed by the EBRD under TACIS financing (see 6.).

1.3 National and Regional Technical Assistance projects carried out, approved or prioritised to date, are mostly aimed at halting a deterioration of the existing transport system due to maintenance difficulties, and obsolescence. Few consider reinforcing capacity. In fact transport demand has declined since the break up of the FSU.

Radical Institutional transformations are taking place in the region. The transport system has been particularly affected by these, especially the rail sector which has been fragmented into national entities.

1.4 The splitting up of the FSU and the creation of new independent railways profoundly distorted the organisation of railway transport and the execution of railway maintenance, repair and replacement activities in the TRACECA states.

Tariff structures under the old regime were detached from economic considerations. It is by no means easy for regional authorities to inaugurate a market-based system.

1.5 This project is aimed to provide Technical Assistance and Training to all rail organisations in the region in the following activity areas :

- infrastructure maintenance, repair and upgrading
- rolling stock maintenance, repair, replacement and construction, including procurement and/or local production of spare parts
- operations and commercial performance of railway transport

1.6 After consultation of the TRACECA states, and taking into account the restructuring efforts to be addressed and / or already under way regarding the Transcaucasian railway link, three Modules were identified for execution under the present project (Modules A to C hereafter), budgetted at 1.2 Mecu in total:

MODULE A : Pre-investment study for the rehabilitation of the main Transcaucasian rail route (Baku - Tbilisi - Batumi - Poti) between Azerbaijan and Georgia

MODULE B : Pilot freight train service on the main Transcaucasian rail route

MODULE C : Feasibility study and Initial design for the repair and reconstruction of a key bridge on the Transcaucasian rail route : bridge over Kura river (Poyli area) in Azerbaijan.

2. Project Objectives

2.1 The general objectives of this project are threefold :

- (i) Determine the requirements for rehabilitation of the main Transcaucasian rail route between Azerbaijan and Georgia and the level of reconstruction and investments required to rebuild and re-equip the line to the service level required for the most likely future traffic volumes and revenues.

(ii) Provide technical assistance and spare parts for the organisation of a freight pilot train service, EU to act as a catalyst between Azeri and Georgian authorities and railways to :

- Foster cooperation and revive the economic situation in the Caucasus region
- Streamline and increase commercial through traffic on the Transcaucasian rail line
- Improve the operational and financial situation of both railway networks.

(iii) Provide technical assistance regarding the repair of the existing rail bridge over Kura river, and carry out feasibility study and initial design for the construction of a new rail bridge

2.2 The three modules are interrelated e.g. the findings regarding infrastructure and rolling stock condition (Modules A and C) impact upon the operational and commercial performance targets of the pilot train service (Module B) and vice versa.

2.3 Proportional balance of modules in the total project

The project contains theoretical and practical elements. Emphasis should be directed towards visible and technical issues, in particular towards the tasks of Module B.

2.4 The consultant will clearly specify in his proposal the nature and the cost of equipment and supplies, training aids, hardware and software that he intends to deliver to the beneficiaries to support the implementation. It is suggested that 25% of the total budget of the project will be used to this purpose.

3. MODULE A :

Pre-investment study for the rehabilitation of the main Transcaucasian rail route (Baku - Tbilisi - Batumi - Poti) between Azerbaijan and Georgia
- Module Objectives and Scope of Work

3.1 Introduction

The Caucasus region is hit by several conflicts, and this has had a detrimental effect in the past years on the economies of the countries concerned, and on rail traffic in particular. Practically the only international trains which have been in operation on the Transcaucasian line between Georgia and Azerbaijan in the past years were food aid trains transported under EU or UN sponsorship. Food aid traffic made up more than 80% off all rail freight traffic in Georgia during 1994-1995. Situation was slightly better but comparatively similar in Azerbaijan.

It is no secret that, resulting from the political conflicts and economic downturn in the whole region, the Transcaucasian line is suffering from a state of disrepair of infrastructure (track, signalling, buildings,...), lack of available wagons and locomotives, etc.

Currently, the stability in the region is increasing, and the need for a significant pre-investment study, covering the rehabilitation of Transcaucasian rail lines, is emerging. This module will concentrate on assessing pre-feasibility for the rehabilitation of the main Transcaucasian rail route (Baku - Tbilisi - Batumi - Poti)

3.2 Objectives and Main outputs

Carry out a pre-investment study in order to determine the requirements for rehabilitation of the main Transcaucasian rail route between Azerbaijan and Georgia (Baku - Tbilisi - Batumi - Poti).

As final output, the study will provide the recommended reconstruction tasks and levels of investments required to rebuild and re-equip the line to operate to service standards required for the most likely future traffic volumes and revenues.

3.3 Scope of Work

The pre-investment study will cover the Poti - Batumi - Tbilisi - Baku rail link and will comprise :

3.3.1 Institutional / Organisational pre-feasibility

The railway policies of all concerned governments will be examined, in particular regarding :

- regulation of freight and passenger services, service and tariff levels
- intentions regarding rehabilitation of the line
- subsidies and investments planned
- future railway management structure

The road transport situation and policies in the Transcaucasian region (e.g. regarding road construction and maintenance, evolution of road vehicle usage, road user charges, etc.) have to be examined as well. Evolutions in this area may be complementary and / or in competition with the railway transport policy under consideration. The same holds for the planned rehabilitation and construction of pipelines in the region.

Policy direction recommendations for railway investments will be included in the report.

3.3.2 Commercial pre-feasibility

(a) Traffic volume forecasts.

Traffic volume potential (passengers, tonnage, number of trains, etc.) on the rail line shall be identified per line section, commodity category, and type of transport (for freight : individual wagonload and block train) for 20 years ahead.

This estimate shall be based upon economic analysis, taking into account different hypothesis regarding the localisation of existing and potential customers and industries.

(b) Revenue forecasts.

The current situation regarding rail tariffs shall be examined. Recommendations regarding future tariff structure and -levels and the utilisation of through tariffs for international traffic will be examined.

3.3.3 Technical pre-feasibility

A detailed survey of the existing situation of infrastructure (track, signalling, telecommunication, buildings, etc.) and rolling stock situation, repair and maintenance facilities, spare parts availability, procurements channels, etc. will be established. The weakest elements have to be identified, and prioritised in function of future traffic.

The required technical repair, upgrading and reconstruction work will be assessed for the various traffic volume hypothesis.

Recommendations shall be made regarding :

- the infrastructure rehabilitation (or discarding)
- the rolling stock numbers that have to be made operational (or discarded)
- the workshops that have to be rehabilitated, restructured (or closed)
- the operational and training measures needed

One option shall include the bare minimum of rehabilitation work needed, indicating the geographical and technical priorities.

General layouts and descriptions of the proposed repair works and construction of new fixed installations with their main characteristics will be worked out, as well as a tentative realisation schedule.

A proposal for organisation and staffing of future operations will be included.

3.3.4 Financial pre-feasibility.

The financial pre-feasibility of the different options shall be assessed (costs and revenues). Training costs for maintenance and operations staff should be included, as many qualified staff have left.

(a) Construction and equipment cost

On the basis of the descriptions of the proposed installations, specifications of special equipment, sketches of the special structures, etc., the major construction and equipment cost items have to be identified and quantity and cost estimates for works and supplies have to be prepared. These will take into account local and foreign costs, and will include the necessary reserves for contingencies and price increases.

These estimates have to be prepared in the schedule of expenditure form according to the execution schedule of each of the alternatives.

(b) Maintenance costs

Costs for maintenance and periodical replacements of fixed equipment will be calculated on a year by year basis for a suggested 20 year period.

(c) Estimates of benefits and disbenefits

In a brief study, the consultant will estimate the benefits and disbenefits of each of the alternatives considered. If possible and necessary, this study should include also indirect benefits and disbenefits of the project. The main purpose is to demonstrate the methods used in the West; it is expected that precise evaluations may not be possible.

(d) Economic and financial feasibility

The economic and financial feasibility of the different options will be assessed.

- Economic profitability of each alternative will be calculated from the point of view of the national community, taking into account both the operator, as the users and other economic agents.

This calculation will be in accordance with the rules recommended by the International Union of Railways and the International Finance Organisations

- Financial profitability calculations will be made in a similar way but from the single viewpoint of the operator
Revenue forecasts will be combined with traffic volume forecasts to establish overall financial forecasts, including investments.

- A sensitivity test will examine the effect of alterations to the basic assumptions, such as traffic levels and implementation costs, on the return of the proposed work

(e) Financing possibilities

Financing possibilities shall be examined and considered. It should be examined whether consortia of potential customers are willing to share part of the investment cost in infrastructure, rolling stock or other.

3.3.5 Further selection criteria that impact upon feasibility

The consultant will examine other factors that may impact upon the feasibility of rehabilitation, such as:

- Government policy and regulations
- Supply of materials and equipment
- Possibilities of local contractors
- Local and foreign funding sources
- Proposal for the management of the rehabilitation programme

3.3.6 Ranking of alternatives and recommendations

The proposed solutions will be classified according to economic and financial criteria, and will also include criteria not assessable in monetary terms.

From this classification, recommendations as to the solution to be implemented and its implementation schedule will be drawn up.

The module will then have reached a basic decision point, which should be reviewed by local authorities and TRACECA management.

4. **MODULE B :**

Pilot freight train service on the main Transcaucasian rail route

- **Module Objectives and Scope of Work**

4.1 Introduction

During several years since the breakup of the FSU, conflicts in and around the region have virtually deprived Georgian and Azeri Railways from significant international traffic. As an example, border crossings at the Georgian - Azeri border haven fallen from 1990 levels of 35/35 trains to under 4/4 trains per day. Georgian railways remain isolated from a westwards connection into Russia due to the conflict in Abhazia.

Azeri Railways international connections with Russia have been disrupted several times due to the conflict in Chechnia, and the southern part of the network has lost all traffic due to the conflict with Armenia.

This stresses the economic importance of the main Transcaucasian rail route for the economies in the region.

Currently, the stability in the region is increasing, and there is a prospect for increased economic activity in the region. For example, transport of supplies and equipment from Georgian ports into Azerbaijan and Central Asia, and export of "early" petroleum and refined oil products from Azerbaijan to regional and world markets will have to rely on more performant and frequent transport services than currently available.

The Module B : Pilot freight train service on the main Transcaucasian rail route should therefore be regarded as a EU sponsored catalyst in the region to support the development of a commercially oriented transport service.

4.2 Objectives and Main outputs

Provide technical assistance for the organisation of a pilot train service, the purpose of which is :

- Foster cooperation and revive the economic situation in the Caucasus region
- Streamline and increase commercial through traffic on the Transcaucasian rail line
- Improve the operational and financial situation of both railway networks.
- EU to act as a catalyst between Azeri and Georgian authorities.

More specifically, the project aims at providing technical assistance to Azeri and Georgian railways in preparing and putting into operation a high-quality international freight train service, and monitor the operation of this service during a period of three months.

As side objectives, particular attention should be paid to:

- Reliability and commercial attractivity of the freight train service
- Implementing realistic price levels
- Reduction of product losses
- Making available sufficient operational capacity
- Reduction of terminal, transport and border crossing delays

4.3 Scope of Work

4.3.1 This module is considered a major element of the present project and should involve a maximum of local participation.

4.3.2 Selection of origin-destinations, commodities and sites for the purpose of implementing the freight pilot train service :

(a) The Consultant will indicate an initial origin-destination pair and type of commodities of the transport service at the time of his Proposal.

(b) A number of specific origin-destinations, commodity types and sites that are judged appropriate will be evaluated at the start of the project. At the latest at the time of the Inception Report, the final selection will be confirmed or altered.

The selection will be upon findings from other Modules, and take into account in particular :

- demand
- macro-economic and socio-economic projections
- technical characteristics (infrastructure, vehicles, organisation) of the transport system

The selection is to be developed in consultation with the TRACECA Management and National authorities.

4.3.3 Implementation of the freight pilot train service

During its implementation, the case study will concentrate on :

- solving, at least partially, specific problems related to the current organisation of freight train services
- rehabilitation and maintenance of rolling stock, tracks and infrastructure
- training
- management organisation and procedures
- proposing recommendations for future development

The following topics will be addressed and included:

- Explore the political, economic and technical possibilities to streamline commercial traffic on the main Transcaucasian rail line (Azeri and Georgian territory).
_ Technical possibilities will largely depend on the condition of the track, availability of rolling stock, repair capacity that can be organised, etc. (see also Modules A and C)
- Define, in close cooperation with local authorities, organisational measures and the bare minimum of technical repair work needed on the infrastructure (track, signalling, buildings,...), refurbishing work to rolling stock (freight wagons and locomotives), etc. in order to run a high quality commercial freight train service on the line. Given the catalyst role of this project, a limited number of regular scheduled block trains, operated with adequate safety and security, is considered a realistic target for this project.
- Setting up of a marketing organisation or promotional effort to sell transport products
- Carry out a market survey to indicate where the use of rail will be viable
- Organise sales training

- Organise personal sales campaign with potential industrial clients, freight forwarders and shippers
- Determine market-based tariffs and railroad costs
- Supply essential spares and consumable products to support the implementation of the project, execute repair of infrastructure and rolling stock, and operate the trains
- Coordinate and monitor the execution of the repair and refurbishing works
- Coordinate and monitor the organisations in the running of the train service during three months
- Determine the type, schedule and frequency of service of the selected service
- Review and give advice on terminal organisation and operation
- Give advice on terminal infrastructure and handling equipment
- Design the operation of economic, efficient, safe and reliable train service
- Give advice for the necessary accounting and waybilling systems, covering document flows and forms used in international traffic
- Work out proposals for the operation and management of the transport service
- Proposals for the further development of rail transport, both within the region and in an international perspective. The consultant will concentrate on options that make better use of existing capacity and also identify options for investment and finance

During the implementation phase, progress review and on-the-job training will be executed. The consultant will also assist the counterparts involved with the project to set future objectives and devising the means to achieve them.

5. MODULE C :

Feasibility study and Initial design for the repair and reconstruction of a key bridge on the Transcaucasian rail line : bridge over Kura river (Poyli area) in Azerbaijan

- Module Objectives and Scope of Work

5.1 Introduction

The rail bridge over Kura river is an essential part of the Tbilisi - Baku rail line, and the importance of this bridge for the whole of the Transcaucasian rail line can not be overstressed.

The existing bridge was built by FSU engineers in 1925 (according to a design from 1907). Total length of the bridge is ca. 200 m composed of 1x11.52 + 1x34.0 + 1x87.0 + 1x55.0 + 1x11.52 profile steel and rivet-shear connections resting on 4 piers. The bridge is carrying a single track electrified rail line (double track beyond the bridge heads).

The bridge lacks maintenance on various parts of the structure. The bridge was said to be worn out and would be closed in the future.

A new bridge of similar design was planned to be built nearby. Earthworks were carried out and new steel profiles were brought to site from Moscow some 4 years ago, but no further activities were undertaken since.

5.2 Objectives and Main outputs

- (a) Technical assistance for the repair of the existing rail bridge
- (b) Feasibility study and initial design for the construction of a new rail bridge

The results of this Module will be closely linked to Module A : Pre-investment study for the rehabilitation of the main Transcaucasian rail route (Baku - Tbilisi - Batumi - Poti)

5.3 Scope of Work

- (a) Technical assistance for the repair of the existing rail bridge over Kura river

- Survey and assess the present situation and wear
- Indicate safety, carrying capacity and expected life of various components of the existing bridge.
- Recommend urgent repair work
- Recommend other repair work, if any, to extend the life of the existing bridge
- Indicate the degree of urgency to undertake the construction of a new bridge.

- (b) Feasibility study and initial design for the construction of a new rail bridge over Kura river

- Establish traffic forecasts for future rail traffic. This estimate will be based upon regionwide economic analysis (see also 6.), taking into account different hypothesis, in particular the potential oil and fuel supply from Baku, and possible pipeline alternates.
- Examine the site implantation options from technical viewpoint (land levelling and stability, localisation of approaching rail and road routes)
- Determine construction criteria (maximum admitted axle load and train load, maximum speed) from future rail traffic requirements
- Recommend the construction technology to be used, including, in particular, assessing the possibility to use the profiles already available
- Ranking of alternatives : proposed alternate solutions will be classified according to technical, economic and financial criteria, and criteria not assessable in monetary terms. From this classification, recommendations as to the solution to be implemented and its implementation schedule will be drawn up.
- Draw up initial design proposal(s) for the construction of a new bridge, including foundations, superstructure and approach routes
Layouts and technical descriptions of proposed fixed installations with their main characteristics will be worked out (with alternates if relevant)

- Assessment of construction cost. On the basis of the descriptions of the proposed installations, the major construction and equipment cost items have to be identified and quantity and cost estimates for works and supplies have to be prepared. These will take into account local and foreign costs, and will include the necessary reserves for contingencies and price increases.
- Investigate the organisational measures that will be required to carry out the work
- Assessment of availability and supply of materials, equipment, logistics and labour
- Recommendations regarding project design and construction management, and possible contractors
- Establish financial requirements, and proposals how to cover them
- Draw up tentative project plan

6. Other Related Projects

6.1 Several related reports prepared by Western consultants precede this project.

They include:

Rail Management Restructuring Studies	Armenia, Turkmenistan, Azerbaijan	TACIS
Rail Sector Survey	Russia, Ukraine, Kazakstan & Bielorussia	EBRD
Roads & Road Transport Study	Russia, Ukraine, Kazakstan & Bielorussia	EBRD
Central Asia Outline Transport Strategy	Kazakstan, Kyrgyzstan, Turkmenistan, Uzbekistan	EBRD/TACIS
Caspian and Black sea Port Studies	Georgia, Azerbaijan, Turkmenistan, Kazakstan	EBRD/TACIS/OTHERS
ESCAP studies	Asia	UN

6.2 At the time of writing, the following projects, sharing certain domains of interest with this one, are expected to commence shortly:

Regional Traffic Forecasting Model and Review of Int'l Route Capacity	TRACECA
Forwarding - Multi-modal Transport Systems	TRACECA
Rolling Stock Maintenance - Railways	TRACECA
Inland Terminals - Railways	TRACECA
Transport Legal Reform	TRACECA
Trade Facilitation, Customs Procedures, Freight Forwarding	TRACECA

Other related projects are or may be expected to commence within the timeframe of this present one.

6.3 The Consultants appointed to carry out this project are to coordinate their work closely with all other related activities within the TRACECA region. A full collaboration with such projects will be required.

In particular coordination and exchange of data with the Traffic Forecasting project and the Rolling Stock Maintenance project is to be foreseen.

The preceding listing of related projects must not be considered limitative.

7. Local Participation

7.1 National consultants should be deeply involved in all aspects of the project. The TRACECA countries involved have Institutions specialising in various aspects of transport planning and engineering.

It is a firm requirement that Organisation and Methodologies include local experts and Institutions to:

- make full use of local experience, antecedent projects and data bases
- promote the emergence of a financially viable local consulting sector
- ensure the effective transfer of know-how to the Beneficiary states
- ensure the enduring effect of project output

7.2 Consultants should base their activities largely in the TRACECA region, carrying out the project in collaboration with a local technical organisation(s), and employing both senior and junior professional staff, from several TRACECA states.

The Consultants Methodology should fully explain his training and transfer of know-how programme within the project.

Consultants must make amply clear in their proposal the arrangements they have made to work with local entities.

8. Foreign Expertise

The Consultant is free to compose his expatriate team for this project as he sees fit, but the following domains of expertise should be clearly visible in his proposed staff list:

- rail infrastructure construction and repair experts (track, bridges, signalling, telecom)
- rail infrastructure planning
- rolling stock management
- investment planning
- transport economics
- workshop management, engineering and equipment
- rail operations
- rail transport planning and management
- rail freight marketing

9. Logistics

The Consultant shall be responsible for arranging necessary living accommodation, transportation, telecommunications, equipment, surveys, investigations, document reproduction, printing, secretarial services, office space and all other input required for the purposes of the work.

10. Time Table and Reporting

10.1 The project is to be completed within a period of fourteen months.

10.2 All reports are to be delivered in the numbers, languages and locations as follows:

	Bound		Loose-leaf		Diskette (Eng.+Rus)
	English	Russian	English	Russian	
TACIS Brussels	5	1	1	1	1
TRACECA CU (per state)	1	5	1	1	0

The word processing programme to be used will be agreed with TACIS.

10.3 Reporting is to be in accordance with standard TACIS Guidelines. These foresee:

Project inception report

An Inception Report shall be issued within 3 months of the start of the project. It shall summarise initial findings and propose any modifications to the methodology and work plan. In particular it will adapt the work plan to the needs of each individual TRACECA state taking into account the parallel activities of other Technical Assistance programmes, avoiding duplication of effort, and addressing unfilled needs.

It will also confirm or modify institutes/organisations/consulting bodies to be directly involved in the implementation.

It will firm up or alter, if required, the arrangements planned for the pilot freight train service part of the work (see Module B above)

Project progress report

This report will be submitted at the end of month 7. It will cover technical progress to date

One month will be allowed for TACIS to consider the contents and to orient the further phase of this project.

Final Report

The Draft Final Report will be submitted at the end of month 14.

Any comments on the Draft Final Report will be issued by TACIS Brussels within six weeks of its receipt. The Final Report incorporating any modifications will be issued one month thereafter (2,5 months after issue of the Draft Final)

All Reports must include an Executive Summary.

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STATEMENT OF ENDORSEMENT

TRACECA projects, Rail Working Group and Cross-Sectoral (hereinafter Projects)

Project N° Title

- 5. Human Resources Training
- 8. Forwarding Multi-Modal Transport Systems: Operation of Freight Traffic on Traceca route
- 14 a. Infrastructure Maintenance-Railways: Aktogay-Druzba line upgrade, Bridge Replacement Amu-Darya, Improvement of Schedule Turkmenbashi-Druzba
- 14 b. i. Infrastructure Maintenance-Railways: Pre-Investment Study and Pilot Train Baku-Tbilisi-Batumi
- 15. Rolling Stock Maintenance-Railways
- 17. Inland Terminals-Railways (principally): Facilities for Multi-Modal Transport, Developing and Upgrading Druzhiba and Serakhs Transshipment Yards
- 13, 20, 21, 22 Regional Traffic Forecasting Model, Review of International Route Capacity, and a TRACECA Corridor Feasibility Study

Recipient Institution: Ministries of Trade and Transport of the Republics of: Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan, Tadjikistan, Turkmenistan, Uzbekistan

We the undersigned with principal seat at, hereby declare that we,

- 1. have carefully read the outline Terms of Reference of the Projects (hereinafter outline TORs), which are attached to the present Statement of Endorsement as Annexes
- 2. agree that the outline TORs appended hereto will serve as the basis for the development of the full terms of reference
- 3. accept that this Statement of Endorsement is also applicable to the full Terms of Reference, and that no further endorsement will be necessary for project implementation (e.g. launch of tenders, preparation of contracts etc.) to commence.
- 4. approve the TOR and are prepared to accept the technical assistance therein described;
- 5. accept that the experts in charge of rendering the technical assistance according to the outline TOR be selected according to the procedures of the Commission of the European Communities;
- 6. undertake to exert all our best efforts in order to make the rendering of the experts' technical assistance possible and to extend said experts our fullest co-operation. In particular, we undertake to put at the experts' disposal, ~~also~~ of ~~our~~, our facilities and staff, as they may be necessary;
- 7. undertake to acquire, free of charges, the ownership of the equipment purchased for the implementation of the Projects, if and when the transfer of property of said equipment is provided for under the outline TORs and/or the contract between the Commission of the European Communities and the experts, and to provide said experts with separate official statements certifying the receipt of the equipment;
- 8. shall allow, upon reasonable notice, independent inspectors, appointed by the Commission of the European Communities, and/or the Court of Auditors of the European Communities, to monitor the development of the Project and undertake to give said inspectors and/or the Court of Auditors the necessary assistance

For and on behalf of:

Name:

Date:

Place:

Uzamaev 25

20.05.95

Almati

~~Handwritten signature~~

Annex 2

Technical Proposal

- part B.2 -

„Organisation and Methodology“

B.2 Organisation and Methodology

B.2.1 General remarks

This section contains the methodological and organisational measures the consultant deems necessary to process the parts of the project according to the requirements as laid down in the Terms of Reference.

Contrary to the requirements of the ToR, we have excluded the processing of Module C

- Bridge over Kura River -

from our offer. The reason for doing so is that we have learnt through our contact with the responsible bodies in Azerbaijan in late summer 1995, that work on the repair of the bridge has already started with the help of other EU funds so that the task set in the ToR is outdated and cannot be processed in the planned way. In accordance to this new situation, we have reduced our cost calculation by the amount of the means originally calculated for Module C.

We believe that the initial phase up to the Inception Report is of special importance for successfully processing the total project. It is the preparation and implementation of a 'Pilot Train' in particular, which depends largely on the local conditions (infrastructure, rolling stock, commercial relations, administrative regulations etc.) as well as the active collaboration and the commitment of those involved in transport. Despite all experience and existing knowledge, the consultant can only assess these factors, with the necessary exactness, within the scope of his work on location, following the active coordination with all parties involved and after drawing up a respective analysis of the chances and risks. This work will doubtless yield more precise details for the main points of the work described below.

The consultant regards a number of special measures as necessary, which in part go beyond the requirements of the ToR, in order to guarantee a project processing according to plan.

These measures are:

1. to include local experts into all modules of the project. This cooperation would relate especially to the following areas

Module A

- to establish the current situation in transport policy, the economy and organisation (WP 1100,1220)
- to draw up a prognosis of the traffic flows (WP 1210)
- to register and assess the technical situation (WP 1310, 1320, 1330)
- to quantify cost structures (WP 1410, 1420)

Module B

- to select the relation for the Pilot Train (WP 2120)
- to analyse the initial conditions and necessary organisational measures (WP 2210)
- to determine the repair and maintenance work (WP 2221, 2222)
- to prepare and implement operations for the Pilot Train (WP 2240)

After negotiations with the Coordinating Units for the TACIS Programme and first contacts with possible local partners, there will be experts available for this collaboration representing the railways of Azerbaijan and Georgia, the Ministry of Economics of Azerbaijan and the Centre for Developing the Euro-Asia Transport Corridor in Tbilisi, as mentioned in chapter B.2.4.3.

The required cooperation in the individual work packages, within the framework of the planned budget (compare Financial Proposal), will be conducted at the beginning of the project and will be handed over for approval to the bodies involved with the Inception Report.

2. In order to secure that the project processing is geared towards the real needs of the recipients and in particular to be able to implement Module B, we regard it as necessary to set up an Advising Committee (AC) to accompany the project. This AC is to be established immediately on starting the project, it is to evaluate all phases and consist of representatives of the following institutions:

- transport ministries
- railway administrations
- coordinating units

Representatives of further institutions or of other TRACECA ventures relevant to this project may be included, should this be required and practicable.

As this is a cross-border project, the AC should convene alternating between Baku and Tblisi.

3. In order to maintain the permanent contact with the local sub-contractors and organisations, a project office is to be set up on location for the duration of the project processing. This office will be staffed by the project manager or experts of the Consultant and in their absence by local experts.

4. In order to achieve a closer involvement of the local partners in the preparation and implementation of the Pilot Train, we have divided the planned training measures into two sections.

In the first section, representatives of the railways involved and the senders/receivers on location are introduced to the basics of marketing, sales and accountancy. This knowledge will then be augmented within the framework of a study tour to Germany.

A further extension and practical application of the knowledge is what the second section is geared to in implementing the Pilot Train. All materials used for the courses are made available to the participants also in Russian language in order to provide for an easy passing on of the knowledge thus gained. Based on the requirements of the ToR, one has to say generally that the project involves a few risks which cannot be assessed exactly at the beginning of the project. This applies especially to the prerequisites and conditions for implementing the 'Pilot Train' (Module B). The findings, the Consultant has at his disposal, to date up the scope and structure of freight transport in Georgia / Azerbaijan or between the two states, do not allow definitive statements on the chances for realising such a train yet.

Principally we base our study on the target of a cross-border railway freight transportation. Taking into consideration the general political situation in this area which is temporarily prevailing we alternatively also have to elaborate a solution which allows freight transportation on the national parts of the Transcaucasian railway line for a limited period of time.

That is the reason why the investigation of the local conditions and the development of alternatives or solution options for the problems mentioned is one of the main tasks up to the Inception Report.

According to the stipulations of the ToR, the project is split into three parts, which can be processed relatively independently. However, there are still links between the contents of some areas, as for instance

- traffic prognosis
- repair of wagon stock
- training
- economic evaluation

which are taken into consideration through the alternative use of respective experts and time coordination in processing the respective packages of work.

B.2.2 Project description

The project is to be processed in two modules:

Module A Pre-investment study for the rehabilitation of the main
Trans-Caucasian rail route (Baku-Tblisi-Batumi/Poti)
between Azerbaijan and Georgia

Module B Pilot freight train service on the main Transcaucasian rail route

The processing of the two modules shall be conducted simultaneously, taking into consideration a certain dependence of some tasks between the modules in the working and time schedule.

The initial phase of the project is of decisive significance for the two modules, as this is when fundamental questions are settled within the framework of investigations on transport policies and the transport environment, on traffic flows, as well as organisational and administrative conditions for processing the two modules.

The following descriptions of the individual work packages of the working schedule for the two modules of the project may be detailed more precisely heeding the conclusions contained in the Inception Report.

B.2.3 Approach and Methodology

The contents of the main work packages of the project structure plan are described below.

B.2.3.1 Module A

WP 1100 Institutional and organisational pre-feasibility

On gaining their independence, the states of the CIS also took over the responsibility for their railways. Due to the previous strong centralisation at the Railways Ministry in Moscow (MPS), many functions of administrative, organisational and commercial nature have to be built up newly at the level of the now independent railways. The situation of the railways in Azerbaijan is especially problematic, as in earlier days there was only one office (Baku), whereas the seat of the railway management for the region of Transcaucasia was located in Tbilisi.

The following investigations - also in modules B and C - are thus based on an analysis of the current situation in the transport system and its environment in Georgia and Azerbaijan, including the connections with the neighbouring states. The main emphasis of the analysis shall focus on the development possibilities and prospects of the railways.

WP 1110 Regulation of freight and passenger service

The relevant regulations and instructions for passenger traffic and freight transport are to be analysed

- for the national level
- at the transport companies (railroad and road transport)
- in the economy.

with regard to their range of application, their implementation and effectiveness as well as planned amendments/supplements. The relationship between the rail and road transport among one another is of special significance, that is to say in how far market mechanisms or state intervention affect the modal split.

Existing or planned regulations will be analysed and proposals be made for supplementing or developing them further for the areas of

- transport services
- tariffs
- transport implementation

WP 1120 Assessment of intentions and subsidies planned

Based on an analysis of the general investment policy of the respective states in the area of transport, the measures planned in the field of railway transport shall be investigated and in particular those measures affecting the Baku-Tblisi-Batumi/Poti route. Special attention shall be attached to the difference between wishes and the reality, as the experience from other CIS states shows that time and again there is a large discrepancy between the politically desired development of the infrastructure and the actual possibilities of the national economies especially in those areas. Existing plans should be checked thoroughly with regard to their chances of realisation and time schedule. The problem of providing the necessary equipment and construction services within the country itself should also be taken into consideration, just as the necessity of imports.

Apart from planning typical for the railways, the envisaged measures for the competing modes of transport such as road, pipe and maybe air transport shall be included in the analysis, so as to draw conclusions on the future market position of the railways in general and for the use of the route to be investigated in particular.

WP 1130 Assessment of investment policy

The financial expert will co-operate with the expert(s) for organisation to determine the situation with regard to the investment policies of the railways concerned.

In the analysis of the investment policy attention will be given to:

- definition of the role of the railways in the transport system in general
- share of the railways in the capital investment budget and in restructuring/ rehabilitation programmes
- relationship state - railways in the field of infrastructure development and investment policy
- assessment of existing rail investment programmes and strategic plans relevant to this project
- analysis of methodology used in investment preparation
- development of recommendations with regard to railway investments

The financial impact of the recommendations made for policy changes with regard to investments will be assessed.

WP 1140 Railway management structure

The organisational and managerial structure of the participating railways is important for the future role of the railways in general and especially for the Baku-Tbilisi-Batumi/Poti route.

- The steps and measures for establishing efficient and independent railway administrations produced by the respective transport ministries as well as the own ideas and plans of the railways are to be analysed and conclusions to be drawn on the position of the railway in the process of developing structures of a market economy in the field of transport. The analyses and recommendations from the TACIS project 'Rail Management Restructuring' are to be included in the examination of Azerbaijan's railways.

Attention will focus on answering the question of what conditions exist and what conditions have to be created for enabling the railways to conduct the necessary repair and maintenance work on the lines and to uphold a permanent operation of a high-profile offer in the field of freight transport.

A review will be made of the organisational set-up in the areas of finance and accounting, with the help of the experts for railway management, making recommendations for improvements where necessary. This will include general proposals for an organisation along modern lines using the latest management, accounting and organisation structures.

WP 1210 Traffic volume forecast

It is absolutely essential for the planned scope and standard of development of the Transcaucasian railway route to quantify the future volume of the passenger traffic and freight transport. In doing so, not only the actual route is to be included in the investigations but also the main branching lines such as:

in Azerbaijan

- Aljat-Astara
- Osmanly Novije-Dshulfa
- Mingetsaur - Stepanakert
- Baku-Sumgait-Samur-RF

in Georgia

- Tbilisi - Achurjan
- Tbilisi - Achalkalaki
- Tbilisi - Telavi/Dedoplis - Zkaro
- Senaki - Veseloje -RF

However, there are a few problems involved in prognosticating traffic flows in the area to be investigated, as the use of traditional mathematical and statistical methods of prognosis, tried and tested under West European conditions, such as the gravitation models, is either impossible or they lead to very imprecise results.

The reasons for this situation are above all

- the structural changes in the successor states to the former Soviet Union, starting with the years 1990/91, following grave political and economic upheaval
- the changed destination areas for private and business trips as well as the changed tasks and network relationships for trade and industry, due to the dropping of state restrictions and reorientation of trade and tourism relations
- the fall of state regimentation for the division of tasks between the modes of transport and the thus wanted modal split linked to it, including the determination or subsidising of prices and tariffs etc.
- the very different level and speed of introducing market economy structures, differing transport political strategies and activities within the individual CIS states

Based on our relevant experience from prognosticating traffic flows in Western Europe with the Central and Eastern European states or among the Central and Eastern European states themselves, we would suggest the application of a procedure tailored to these special conditions and already successfully applied in many instances, which consists of the following elements:

1. Analysis of all existing statistical materials and information on the future development of the economy, trade, socio-demography, transport etc. by the Consultant:
 - materials of national institutions (administrative, governmental, statistical organs, scientific and research institutes, companies etc.);
 - materials of international organisations (World Bank, EBRD, EIB, OECD, UNDP, UN-ESCAP etc.)

2. Elaboration of an own forecast by the Consultant, based on the methodology of correlation between main economic indicators, such as the GNP or national income, and the development of foreign trade / freight transport / passenger traffic;
3. Elaboration of independent forecasts by local bodies / organisations, based on existing statistical materials and considering the development of production and trade of different goods / main groups of goods and for the main categories of passengers (tourists, business travelling etc.)

The result of these three will be combined into one final forecast by the Consultant in close cooperation with the local bodies / organisations.

In the next step, these national forecasts are harmonised with the forecasts for the neighbouring countries and finally for the complete transport corridor.

As a result, figures will be available for the following years

- 1993 / 94
- 2000, 2010, 2015

The forecast will be presented in the form of O/D-matrices per line sections with the following structure:

Railway freight transport

wagon load traffic by commodity groups for

- export / import / transit
- domestic traffic

and by type of transport - individual wagon load / block trains -

Railway passenger traffic by

- passengers leaving the country
- passengers entering the country
- transit passengers
- domestic traffic
- main lines of the transport corridors under consideration

The forecast will consist of three different scenarios:

- scenario I best case
- scenario II medium case
- scenario III worst case

The breakdown into commodity groups will be undertaken into 10 groups according to NST/R or by adjustment of other available classifications (SITC, national classifications) to the NST/R-groups.

The O/D-matrices will include all land-land transport flows relevant to the transport corridor under consideration. Transport flows from/to third countries will be taken into account as far as they use the mentioned corridor.

WP 1220 Revenue forecast

The contents of this work package consist of taking stock of costing and income registration/allocation as well as the financing instruments for the freight transport services on the route to be investigated. The following partial areas are to be analysed:

- cost type accounting
(which costs are registered)
- cost centre accounting
(where are the costs registered)
- cost-function structure
(breakdown of costs according to cost complexes, such as travelling distance, operation, vehicles, assets etc.)
- methods of calculation
(unit-of-output costing statement, what cost units or performance units are the costs related to, how are the overhead costs treated)
- forming or applying the cost of capital respectively (creation or application)
- structure of the revenue (proceeds, discharge and connections) in connection with the existing system of tariffs
- registration of revenue and allocation of these to performance and characteristic cost values

- characteristic effectiveness values
(degree of cost coverage, border costs, variable and flexible costs, specific costs etc.)

As a final step of this work package, possible steps are to be drawn up which are necessary for the registration of costs and revenues under the prevailing conditions in cost accounting.

The specific analysis of the current tariff situation and the preparation of proposals for future rises in tariff levels and structure shall be conducted in WP 2245.

WP1300 Technical pre-feasibility

The objective of this part of the study is the determination of the technical requirements for rehabilitation of the main Transcaucasian rail route between Azerbaijan and Georgia.

The work packages in the work stream 1300 will be executed by several technical experts for:

- i) rolling stock and work shops,
- ii) track and constructional
- iii) signalling and telecommunication.

Each of these experts will be responsible for: i) the survey of existing situation, ii) identification of bottlenecks, iii) definition of volume of repair works, iv) definition of training needs v) development of recommendations and realisation schedule.

A precondition for the technical part, especially for the survey of the existing situation is a helpful co-operation with the local railway authorities.

WP 1310 Survey of the existing situation

The technical experts will review actual data on infrastructure and rolling stock used on the investigated railway route. Because of the limited timescale it will obviously not be possible to investigate all assets and facilities directly on the line. Therefore, based upon the advice of the local railway authorities, a punctual inspection of assets and facilities will take place.

Furthermore the technical experts will analyse the suitability of the assets and rolling stock, the situation of repair and maintenance facilities as well as the spare parts situation and possibilities of procurement.

The tasks of the technical experts are as follows:

Rolling stock:

- Review actual data on all kinds of rolling stock for freight and passenger transport along the given line:
 - freight wagons stock broken down in universal and special wagons as closed wagons, open wagons, tanks, refrigerators, flat wagons and others
 - overall volume of the wagons stock in terms of the different kinds and the ownership
 - available volume of the wagons stock especially in terms of tanks, refrigerators, wagons for container and combined unit load traffic
 - passenger coaches stock for long-haul and suburban traffic
 - tractive stock
- Analyse the suitability of the wagon stock and the tractive stock for the normal operation on the given line in terms of
 - age structure
 - weight of loads of the wagons (carrying capability of the passenger coaches)
 - condition
 - how many no-operational units (technical reserve, operational reserve and damaged units) are accumulated and places where they are waiting to be repaired
- Analyse repair and maintenance facilities
 - the allocation of repair plants, repair shops, depots, etc. and their scope of works
 - the existing equipment inside the facilities
 - the capability of the facilities (level of covering of the maintenance demand)
- Assess the spare parts situation and possibilities of procurement
 - spare parts storing
 - spare parts production by the railways
 - spare parts procurement inside the country and needs of import

Track and constructional work:

- Review actual data on the situation of the permanent way and constructional works on the given route:
 - technical layout data (clearance, gradients, maximum load per axle)
 - permissible speed limits
 - condition of the track elements (rails, sleepers, ballast, switches)
 - arrears of maintenance and damaging/destruction of assets
- Analyse track and constructional work maintenance organisation and facilities
 - methodology and organisation of maintenance
 - the allocation of permanent way districts and track and constructional work maintenance facilities
 - the existing equipment for maintenance and construction
 - the capability of the facilities and the equipment
- Assess the material situation and possibilities of procurement
 - material storing
 - production of track material by the railways
 - procurement inside the country and needs of import

Signalling and telecommunication:

- Review actual data on the situation of the signalling and telecommunication equipment on the given route:
 - technical data of the most important systems
 - condition of the systems
 - arrears of maintenance
- Analyse maintenance organisation and facilities
 - methodology and organisation of maintenance
 - the allocation of maintenance districts and facilities
 - the capability of the facilities (covering of demand)
- Assess the spare parts situation and possibilities of procurement
 - spare parts storing
 - production of spare parts by the railways
 - spare parts procurement inside the country and needs of import

WP 1320 Identification of bottlenecks

The base of the identification of bottlenecks are i) the results of the survey of the present state of the investigated railway route (WP 1310) and ii) the future traffic demand (and quality level of transport services) on the route using the outputs from work stream 1200 - commercial pre-feasibility).

Rolling stock

- Assess the needed volume of rolling stock types concerning the future traffic
- Estimate the future need of additional rolling stock in terms of kinds and volume
- Estimate the discarding of surplus rolling stock
- Assess the weakest elements regarding the main components of the stock (which are the operational and technical reasons for the bad condition?)

Track and constructional work:

- Assess the needed level of the permanent way and the constructional work to cover the future traffic
- Compare the needed level with the present state
- Assess the weakest elements of the track (track materials) and constructional work

Signalling/telecommunication

- Assess the needed level of signalling and telecommunication equipment to cover the future traffic
- Compare the needed level with the present state
- Assess the weakest elements regarding the main components of the stock (which are the operational and technical reasons for the bad condition?)

WP 1330 Definition of volume of repair works

The definition of the volume of repair works depends on the estimated future traffic volume (see work stream 1200).

The experts will take into consideration necessary volumes of repair works to cover the urgent deficits (backlog demand) in case it is necessary to cover this demand from the point of view of railway operation and safety.

The output will include priority lists of i) facilities which have to be rehabilitated, restructured or closed ii) rolling stock which has to be made operational (or discarded) as well as iii) certain important equipment which has to be procured.

Rolling stock

- Define the volume of the future needed regular yearly revision and the volume of the future needed repair (main and heavy repair)
- Define the needs of technical inspections on special wagons in the future
- Assess the repair facilities for regular checking (revision, inspection), for unregular necessary repair and for heavy repair including an analyse of their equipment demand
- Develop proposals for the sharing of work between the repair facilities

Track, constructional work and Signalling/telecommunication

- Assess the needed volume of maintenance work and the necessary capability to cover it
- Define priorities of repair works

WP 1340 Definition of training needs

The experts will summarize the needs to instruct and to train the technical and operational railway staff in two directions: i) the upper staff to be able to reorganize the technical and operational processes and ii) the technical workers to be able to handle new technologies, equipment, etc. (e.g. wagon inspectors and repairing staff about the wagons to be procured).

WP 1350 Recommendations and realisation schedule

Finally the technical experts will summarize their assessments into recommendations regarding the rehabilitation or discarding of assets and rolling stock, the procurement of necessary equipment as well as the restructuring of maintenance processes, facilities, workshops, etc. Therefore the consultants will set up priorities (urgent, medium and long term measures).

A tentative realisation time schedule will be worked out.

WP 1400 Financial pre-feasibility

For each of the options proposed an assessment will be made showing revenues and expenses. Where appropriate a separation will be made between local costs and expenditures in hard currencies.

Attention will be given to assessing the real costs of the current services and the extent to which these services are subsidised under the present policies and tariff structures.

In assessing the costs for training, consideration will likewise be given to separating the costs of training locally and possible training outside of the countries concerned. Where this concerns alternatives on which decisions will have to be made the alternative costs will be calculated.

WP 1410 Definition of construction and equipment costs

Based on the recommendations regarding the requirements for investments in construction and equipment, which will be put forward by the experts responsible for the technical aspects, schedules will be prepared showing the individual cost elements and the timing of their expenditure. The individual cost elements include identified and quantified major construction and equipment items as well as costs (estimated) for works and supplies.

Locally incurred costs will be separated from expenditures in hard currency, and the effects of inflation and currency variations will be taken into account.

For each appropriation separate schedules will be made, which will indicate the financial period in which the funds will need to be available. If possible infrastructure items will be separated from those investments relating to operations, in an effort to determine the costs which should be born from revenues and those for which some form of subsidy may be required.

WP 1420 Definition of maintenance costs

The maintenance costs will be estimated for the suggested 20 year period based on input from the technical experts.

An estimate will be made, based on input from the technical experts, of the periodic requirements for replacement of equipment. This will take into account the estimated useful lives of the assets in question and their replacement costs at the time of their anticipated replacement. Here again inflation and currency exchange factors will be included in arriving at the estimates.

WP 1430 Estimates of benefits and disbenefits

For the recommendations put forward by the technical experts (with alternatives considered) the benefits will be illustrated and on the other hand the negative aspects (disbenefits) outlined. Where feasible an attempt will be made to assess the financial impact of the intended investments on other sectors. Latest analytical techniques such as cost/benefit analyses will be used. The level of precision of these evaluations depends on the availability of input data.

- importation of materials the effect on the landed price of duties and import taxes etc.
- local contractors the cost advantages thereby obtained and any disadvantages
- funding the existing alternatives and their advantages and disadvantages
- rehabilitation management the necessary financial management requirements for the rehabilitation programme

WP 1520 Ranking of alternatives and recommendations

In conjunction with the findings of the technical experts and the economist and in co-operation with the remaining team members the proposals will be ranked according to the predetermined economic and financial criteria. Hereby the consultants will take into consideration defined further selection criteria too, which are not assessable in monetary terms.

The financial expert will then participate in drawing up schedules for the solution recommended and any possible alternatives, for review by the appropriate authorities and representatives.

B.2.3.2 Module B

WP 2100 Selection of O/D

WP 2110 Assessment of initial O/D

Based on the results of the investigations in WP 1210 on freight levels of the entire corridor, the relations and types of freight are to be identified for a Pilot Train. Special attention is attached to settling the requirements for the transport technology, i.e. the freight levels for transport in individual wagons, groups of wagons or block trains. Furthermore other forms of freight transport, such as combined transport or part-load transport, are to be investigated.

WP 2120 Evaluation of O/D

The relations existing in principle will be checked with regard to the aspect of a practical implementation of a Pilot Train. Macro- and micro-economic factors, issues of the future economic, social, demographic and political development are to be included in this investigation, just as technical aspects, too, for instance the infrastructure of the terminal, the wagon stock as well as the loading and unloading. The analysis should also look into questions of approach to and exit from the railway with the aim of organising a multi-modal type of transport.

The final determination of the pilot relation shall follow the coordination with the TRACECA management and the respective national authorities within the framework of a consultation of the Advising Committee.

WP 2210 Problems of the current situation

WP 2211 Political and economic conditions

The political and economic conditions are of special importance especially for the organisation of the freight transport offer in the cross-border traffic between Azerbaijan and Georgia and in the future for the use of the route for transit transports Europe-Black Sea-Caspian Sea-Central Asia. That is why the current situation is to be analysed in general and especially with reference to the selected relation. The stability and the potential for development of the freight flow / the types of goods are to be investigated from an economic point of view, in particular. The results from other TRACECA/TACIS projects or studies of the World Bank/EBRD on the possible emergence of competition in parallel corridors or with other modes of transport, e.g. the construction of pipelines or the increased use of the Novorossisk-Machatchkala rail route, are to be taken into consideration as well.

Besides these future aspects of freight transportation in the Caucasian area the present importance of the Transcaucasian railway line is incomparably high. Not least because of its capacity for transportation of huge quantities of goods which is widely used by the European Commission for the Food Aid Programme in this area. The EC authorities carried more than 600 000 tons of food between 11/1994 and 4/1995 by means of Transcaucasian railway. And they again started forwarding by train in May 1995 for the newly launched Food Aid Programme.

This creates a special role and responsibility of the European Commission to keep this railway line in proper operation. It is a matter of fact, that the European Commission should look for a coordination of all financial and other efforts of the various institutions involved, such as World Bank and for instance German Ministry for Economic Cooperation.

It is one of the thoughts of our group to assist the European Commission authorities in getting accordance in the upgrading measures for the Transcaucasian railway line with the other institutions involved.

WP 2212 Organisational measures

The organisational measures are to be studied in four directions:

- organisation of the relations between the railways and the customer (sender and recipient)
- organisation of cooperation at the intersections of transport (rail/road, rail/sea ports)
- organisation of cooperation between the railways involved
- organisation of the internal commercial and operational procedures of the two railways concerned

The weak points are to be defined from the analysis of the existing organisational conditions, whose elimination is a condition for an efficient pilot run.

There will be a classification of the weak points so that the weak points can be addressed exactly and the solutions for their elimination can be identified.

WP 2220 Technical conditions

WP 2221 Needs of technical repair work - infrastructure

Based on the investigations in Module A, especially in the work packages 1310, 1320 and 1330 the technical experts, responsible for the track and signalling/telecommunication, will define urgent needs of technical repair work. In difference to Module A only such repair works will be assessed which are absolutely necessary for the operation of the pilot train. The demand on essential spare parts, etc. will be estimated as well as the demand on necessary repair works.

The financial expert will assist the technical experts in determining the costs of the repair work to be performed.

Criteria to be examined in this context will include capitalisation vs. expense, useful life of the repairs, annual charges against income etc.

WP 2222 Needs of technical repair work - rolling stock

Based on the outputs from work package 2110/2120 as well as work stream 2210 which have to give an information which kinds and volumes of goods will be carried by the pilot train (general cargo, petrol and oil products, containers, etc.) the rolling stock expert will define the needs of rolling stock and repair works to operate the pilot train.

For it it is necessary to:

- Review the actual data on those kinds of rolling stock needed for organising the pilot train along the given line
- Assess the needed volume of certain wagon types for future traffic for the pilot train
- Analyse the suitability of the goods wagon stock (condition of the wagons stock) for the urgent operation on the given line (how many damaged wagons have to be repaired ?)
- Define the need of spare parts (e.g. axles, axle-boxes, couplers, brakes, doors, roofs, etc.) in order to organise the repair of the volume of wagons needed for urgent transports along the given line
- Analyse the urgently needed repair facilities/equipment (needs of procurement)

In like manner to work package 2221 above, the value of the repair work to be performed will be assessed in terms of its durability and against established criteria for determining the annual charge against income.

WP 2223 Co-ordination and monitoring

Together with the whole project team and the final recipients based on the results of the work packages 2221 and 2222 it is to be discussed:

- What is the priority of the repair works or procurements of spare parts?
- What can be done urgently (during the project mission)?
- What can be financed by the project budget?

Based on these decisions schedules for realisation of the urgent repair works etc. will be prepared and co-ordinated.

WP 2230 Training measures

WP 2231 Definition of training needs

Based on the conclusions from the analysis of the current situation of the railways of the two countries (WP 1340, 2210), the main areas of deficit will be identified and the emphasis of the training measures will be determined. In selecting the main points in training and the participants for the practical courses, consideration shall be given to imparting practically applicable knowledge in the short-term. Applying the principle of 'train the trainer', the participants are to be put into a position whereby they can pass on the acquired knowledge in their field of work and authority. In determining the emphasis, the schedule of the following measures is to be taken into consideration:

Phase Ia - 10 days basic training in Georgia/Azerbaijan

Phase Ib - 14 days further training in Germany

Phase II - 3 weeks consolidation and application training in Georgia/Azerbaijan

WP 2232 Sales / accounting / management training

The requirements on costing described in AP 2245 and the methodology of implementation shall be transferred to the staff of distribution, sales and accounting. This part of training could comprise the following partial tasks, among others:

- the market and its mechanisms cost - price - service
- the amount of costs as a criterion of effectiveness for decisions in business administration
- designing cost accounting (principles and mechanisms)
- the role of cost dynamics in the process of transport planning
- identifying potentials for rationalisation from cost accounting
- designing tariffs and the effectiveness of tariffs (principles of price making and variations thereof)

WP 2233 Training in technical assets management

This task will be a specification of the general definition of training needs on the investigated line (see work package 1340). Which training measures are necessary to support the pilot train service along the line?

The experts will i) review the actual knowledge of the personal to be involved in the training, ii) define the training needs for the technical assets management and iii) prepare a training programme/schedule.

Based on these programmes the experts will execute needed training measures depending on the budget available.

WP 2240 Management / organisation

WP 2241 Determination of the type of service

The services offered for the Pilot Train are developed from the results of AP 2100. The following services are included in the investigation:

- conventional loading transport with time priorities and a high degree of security. The system times (Day A - Day B - ... - Day X) are determined depending on the distance.
- Block train transport usually from siding track to siding track. Two sub-forms may be considered. On the one hand, logistics trains which secure a delivery on time and in the required quality within the framework of distribution and procurement logistics of companies. And on the other hand, the so-called programme transports, i.e. tailor-made transport links for mass goods (e.g. mineral oil products).
- combined transport with direct trains between the container loading terminals with short transport times and narrow time slots of delivery or as regular trains servicing several larger loading points with short handling times.
- part-load transport for freight which is smaller than one wagon load. Freight centres are established for this purpose which secure the acceptance of the freight from and the handing over of it to the transport customer and a guaranteed transport time.

The requirements resulting from the services for the selected destinations, according to the needs of loaders and considering the local conditions of terminal infrastructure, will be defined.

WP 2242 Terminal infrastructure / handling equipment

The functions of the terminal for the individual destinations of the Pilot Train will be determined in accordance with the services to be installed (loading transport, block train traffic, combined transport, part-load).

The infrastructure and equipment will be dimensioned according the levels of freight identified on this basis.

- number of operational tracks (entry and exit of trains)
- number of switch tracks (according to destination)
- siding service track
- approach for trucks (side-loading platform and head ramps)
- track-bound container cranes or mobile handling equipment

The project management for installing the necessary infrastructure and equipment for the Pilot Train will be conducted using the existing installations and local resources.

WP 2243 Terminal organisation / operation

The procedural and structural organisation of the terminal will be drawn up. The functions of the terminal in their necessary organisational individual operations will be systematically identified and then joined to form activity chains. This is based on the flow of information from the commercial and operational activities.

The development of recommendations for the possible installation of a terminal information system, with intersections linking up with the loading companies and other terminals, is a special task. The information is registered, processed and evaluated by computer, using the software and hardware applied for this task in Europe. Following an investigation of the local conditions, communication networks will be either networked or installed. As it may be assumed that the necessary hard- and software does not exist, the procurement and installation is envisaged within the framework of the project. The exact technical specifications, including the precise calculation of the probable costs and the determination of the sources of supply, will be established after the start of the project and will be filed with the TRACECA management together with the Inception Report for decision-making.

The work places to be set up shall be determined under consideration of the organisational links and hierarchy of tasks and authority.

WP 2244 Train / transportation service

An operator guiding concept will be drawn up for conducting train operations and handling of the trains at the terminals. The main components are the time tables (book and picture time tables) and the terminal operation plans. This also includes the employment of locomotives and staff. These plans will be drawn up with the help of computers.

The selection of the wagons is conducted depending on the kind of freight to be transported and the available types of wagons. Different options for making up the trains will be investigated and the coupling of the locomotive is determined.

The necessary transit stops will be differentiated according to traffic and operational requirements. This is accomplished by taking into consideration the existing traffic installations and the respective technologies of handling the goods at the transit stations. If need be, the transit handling will be described.

The conditions for minimising the border stops of international trains will be analysed and suggestions for necessary changes of existing regulations or the introduction of new operational or commercial procedures will be developed. The necessary information accompanying the transport will be defined and the conditions and possible solutions for their provision will be shown up, in order to be able to draw up a high profile logistical offer (compare also WP 2247).

WP 2245 Costs / tariffs

The requirements on the amount of costs, cost structure and revenues for a Pilot Train will be drawn up using the findings from WP 1220. The following partial tasks are envisaged:

- drawing up an economic objective for the financing concept, considering the situation of competition
- financing concept of the Pilot Train
- demands on amount and structure of costs
- demands on amount and structure of revenues
- tariff structure, using the example of the Pilot Train
- simulation models for the influencing effects of costs and service
- methodological implementation

The question of tariff formation in international traffic is of particular importance in this context. That is the reason why suggestions will be prepared for designing through tariffs and the mutual authorisation among the railways administrations for guaranteeing an active customer acquisition by using the tariffs in a purposeful manner.

WP 2246 Organisation of sales campaign

An efficient marketing strategy and sales campaign will be drawn up and implemented in practice for marketing the offer of the Pilot Train.

Advice and guiding principles (or guidelines if need be) will be developed for designing a comprehensive sales campaign for freight transport services from the total range of decision-making areas in business administration (costs, revenue, price, tariff, result), including the main points of training under WP 2232.

The focal points are:

- analysis of the market potential, identifying the market position of the existing customer potential, making out the companies which might be future customers due to their production growth
- product-related marketing strategies, e.g. preparation of logistics trains or for winning customers in the combined transport area
- application of differentiated price offers for winning new market potentials
- use of forwarding agents on the one hand and establishment of an own distribution organisation for starting up business with new customers
- classification of the customers according to the ABC analysis, drawing up a 'Customer check-up'
- application of advertising and sales promoting measures (advertising brochures on the customer's advantages of the Pilot Train, customer conferences)

WP 2247 Coordination / monitoring trains running

A system for monitoring the Pilot Train running is necessary in order to secure a high quality and reliability of the services to be provided by the Pilot Train for the customers (sender and recipient). The technical solution is to be developed depending on the local requirements, the number of trains and the number of terminals involved. Communication can be organised either with the help of conventional systems (telephone, telex) but also with terrestrial or satellite radio systems. The logistical quality depends on the definition of the customer's interfaces. The contents of the information will be defined.

Apart from the short-term solution of the Pilot Train, suggestions will be drawn up for the future design of the train running monitoring system.

The running of the Pilot Train during the test phase (3 months) will be monitored in close cooperation with the railway administrations involved. Should there be a problem of coordination between those parties involved in the test run, the project team with its local experts will act as a catalyst and table suggestions for solutions. Issues of principle in preparing or implementing the Pilot Train will be filed with the Advising Committee for discussion and decision.

WP 2250 Future development

WP 2251 Definition of market volume

The future market volume for the Pilot Train is determined in three ways:

- Firstly, the potential senders/recipients are interviewed about the levels of freight and the logistical requirements, with the help of interviewers (in part) and by means of a questionnaire.
- Secondly, a model prognosis will be calculated on the basis of the investigations from WP 1210, 2110 and 2120 on the development of the goods transport levels, considering also the development of the regional economy and population.

In order to identify a realistic development of the market volume, all three ways shall be taken into consideration, resulting in a pessimistic and an optimistic development scenario.

WP 2252 Geographical aspects (international extension)

The political, economic and socio-demographical as well as the technological aspects of a territorial extension of the new logistical offer are to be analysed.

This possible extension comprises:

- the extension to other routes in Azerbaijan/Georgia
- the extension to other states, e.g. Armenia, the Russian Federation, Turkmenistan (including the rail-ferry link Baku-Krasnovodsk).

Special attention in this connection shall be attached to the possible use of the Baku-Tbilisi-Batumi/Poti line or of sections as a transit route between the Black Sea adjacent states and the Iran, Afghanistan, the Central Asian CIS republics and China as well as in the reverse direction. Such possibilities as well as the inherent risks will form part of the conclusions on the future market volume and the further development.

In addition, the possibilities and chances for a closer organisational cooperation with other railway administrations interested in developing the corridor will be analysed and respective proposals will be made. The aim in this case is to form future offerer and marketing communities for high-profile offers in the international freight traffic and to guarantee a permanent know-how transfer between the UIC railways and the railways of Georgia and Azerbaijan.

WP 2253 Transportation technologies

Depending on the market volume to be expected for the future, concepts for the further development (qualitative and quantitative) of the services implemented with the Pilot Train and for new transportation technologies will be drawn up.

This refers to:

- cutting down transportation times
- using a modern wagon stock
- improving the terminal services and
- increasing the reliability of the services

WP 2254 Technical / financial preconditions and consequences

In this work package, conclusions are to be drawn which are desirable for a generalisation of the results produced by the Pilot Train. This includes conclusions on

- designing the access points / terminals
- extending and diversifying the wagon stock to be used
- other technical prerequisites for extending the logistical offer through other transportation and handling technologies
- designing marketing strategies and marketing work
- designing tariffs and tariff policies
- designing cost accounting
- cost analysis and cost control
- advice on designing a data model 'Controlling'

The suggestions for extending the logistical offer are to be assessed with regard to the expense they involve and what the conditions of their realisation are and then they are compared to the expected income.

Pre- investment study and
Pilot train Baku- Tbilisi- Batumi/Poti;
Bridge over Kura river
(Projekt- N° TNREG 9307)

Work Breakdown Structure

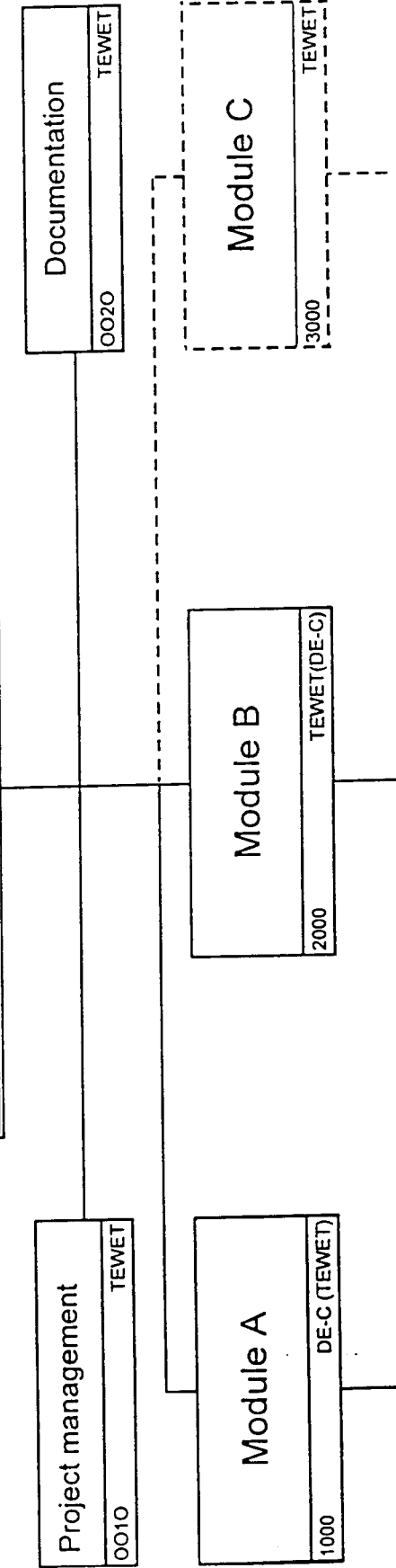
Project management
0010 TEWET

Module A
1000 DE-C (TEWET)

Module B
2000 TEWET(DE-C)

Documentation
0020 TEWET

Module C
3000 TEWET



Module A

1000

DE-C (TEWET)

Institutional and organizational pre-feasibility	TEWET
1100	

Regulation of freight and passenger service	TEWET
1110	

Assessment of intentions and subsidies planned	TEWET
1120	

Assessment of investment policy	DE-C
1130	

Railway management structure	TEWET
1140	

Commercial pre-feasibility	TEWET
1200	

Traffic volume forecast	TEWET
1210	

Revenue forecast	TEWET
1220	

Technical pre-feasibility	DE-C
1300	

Survey of existing situation	DE-C (TEWET)
1310	

Identification of bottlenecks	DE-C (TEWET)
1320	

Definition of volume of repair works	DE-C (TEWET)
1330	

Definition of training needs	DE-C (TEWET)
1340	

Recommendations and realisation schedule	DE-C (TEWET)
1350	

Financial pre-feasibility	DE-C
1400	

Definition of construction and equipment costs	DE-C (TEWET)
1410	

Definition of maintenance costs	DE-C
1420	

Estimates of benefits and disbenefits	DE-C (TEWET)
1430	

Economic and financial profitability	DE-C
1440	

Financing possibilities	DE-C
1450	

Further Criteria and Ranking	DE-C (TEWET)
1500	

Examination of further selection criteria	DE-C (TEWET)
1510	

Ranking of alternatives and recommendations	DE-C (TEWET)
1520	

Module B

2000	TEWET (DE-C)
2100	TEWET
2110	TEWET
2120	TEWET
2200	DE-C
2210	TEWET
2211	TEWET
2212	TEWET
2230	TEWET/DE-C
2231	TEWET/DE-C
2232	TEWET
2233	DE-C
2240	TEWET
2241	TEWET
2242	TEWET
2243	TEWET
2244	TEWET
2245	TEWET
2246	TEWET
2247	TEWET
2250	TEWET
2251	TEWET
2252	TEWET
2253	TEWET
2254	TEWET

Selection of O/D

Assessment of initial O/D

Evaluation of O/D

Implementation of pilot train

Problems of current situation

Political/economical/conditions

Organisational measures

Technical conditions

Needs of technical repair work-infrastructure

Needs of technical repair work-rolling stock

Coordination and monitoring

Training measures

Definition of Training needs

Sales/accounting/Management training

Training in technical assets management

Management/organisation

Determination of type of service

Terminal infrastructure/handling equipment

Terminal organisation/operation

Train/Transportation service

Costs/Tariffs

Organisation of sales campaign

Coordination/monitoring trains running

Future development

Definition of market volume

Geographical aspects/ international extension

Transportation technologies

Technical/financial preconditions and consequences

Annex 3

Country related data

Freight Traffic of Azerbaijan and Georgian Railways

Freight Transport of Azerbaijan Railways

	1989	1990	1991	1992	1993	1994
Volume (1.000 t)	91.562	80.205	73.021	39.793	24.992	11.145
Performance (Mtkm)	41.895	37.076	30.479	13.782	7.301	3.020

Border crossing freight railway traffic Azerbaijan - Georgia

	1994		1995	
	Wagons ¹	1000 t	Wagons ¹	1000 t
Azerbaijan - Georgia	15903	892,8	19036	1068,7
Georgia - Azerbaijan	11043	500,1	11925	550,1

¹ loaded

Commodity structure of border crossing railway traffic Azerbaijan - Georgia (January 1996)

	Azerbaijan - Georgia		Georgia - Azerbaijan	
	t	%	t	%
Total	83034	100,0	30296	100,0
Coal	815	1,0		
Oil products	81369	98,0	291	1,0
Metals			1264	4,2
Metal constructions			1004	3,3
Fertilizers			675	2,2
Grain			20584	67,9
Flour			6331	20,9
Non-ferrous metals			65	0,2
Colours			9	0,0
Acid	810	1,0		
Salt			69	0,2
Glass	40	0,0		

Source: Azerbaijan Railways

Freight Traffic of Georgian Railways

- 1,000 tons -

	1985	1989	1990	1991	1992	1993	1994	1995
Total	52.691	31.870	28.291	20.074	7.695	5.321	3.056	3.239
of which								
Coal	2.843	1.998	1.790	1.000	254	86	23	41
Oil products	2.737	811	947	1.283	293	478	435	271
Iron ore	4.479	3.527	2.734	1.372	627	189	135	30
Non-iron ore	1.187	1.459	1.485	1.381	108	13	12	50
Metals	1.995	1.836	1.616	1.361	484	327	202	161
Wood	394	283	121	51	15	18	9	9
Cereals	4.066	2.624	2.158	1.604	191	68	93	157
Cement	1.045	1.005	886	713	360	233	63	20
other building materials	11.008	9.463	8.665	6.078	2.139	753	200	218

Source: Georgian Transport Coordination Council

Geographical structure of foreign trade

Azerbaijan

1. Exports

(% of total value)

	1989	1990	1991	1992	1993	1994	1995*
FSU	93,7	94,9	93,3	40,8	50,7	43,6	29,4
Russia			56,1			22,2	10,1
Ukraine			12,3			9,2	6,8
Belarus			4,7			1,2	0,4
Kazakhstan			3,9			2,6	2,4
Turkmenistan			4,2			2,8	1,9
Uzbekistan			2,4			0,4	0,5
Georgia			5,7			2,6	6,7
Armenia			...			-	-
Non-FSU	6,3	5,1	6,1	59,2	49,3	56,4	70,6
Europe						14,1	20,4
Turkey						2,6	6,1
Iran						31,9	41,9

2. Imports

(% of total value)

	1989	1990	1991	1992	1993	1994	1995*
FSU	73,1	73,8	80,3	56,0	54,2	64,0	35,5
Russia			45,0			15,5	9,7
Ukraine			22,7			11,4	3,1
Belarus			2,3			1,0	0,4
Kazakhstan			4,2			6,8	2,4
Turkmenistan			0,2			25,8	15,6
Uzbekistan			1,7			0,3	1,1
Georgia			1,6			1,0	2,3
Armenia			...			-	-
Non-FSU	26,9	26,2	19,7	44,0	45,8	36,0	64,5
Europe						9,3	19,6
Turkey						10,1	16,6
Iran						8,8	16,8

*) Jan. - Jul.

Geographical structure of foreign trade

Georgia

1. Exports

(% of total value)

	1989	1990	1991	1992	1994 ¹	1995 ¹
FSU	94,0	95,7	99,1	96,3
Russia			66,6	54,7	15,4	14,2
Ukraine			10,3	12,4	2,1	...
Belarus			2,0	3,2
Kazakhstan			6,2	3,6	2,0	...
Turkmenistan			1,5	10,2	48,3	10,9
Uzbekistan			2,9	2,4
Azerbaijan			1,7	6,4	7,6	10,9
Armenia			2,3	0,6	2,9	5,3
Non-FSU	6,0	4,3	0,9	3,7
Europe			0,4	3,3	...	17,2
Turkey			0,0	0,2	...	22,3
Iran			-	-	1,1	...

2. Imports

(% of total value)

	1989	1990	1991	1992	1994	1995
FSU	75,6	72,3	84,5	96,8		
Russia			50,7	10,3		
Ukraine			16,9	10,1		
Belarus			2,4	1,8		
Kazakhstan			1,4	0,9		
Turkmenistan			0,0	64,9		
Uzbekistan			1,2	1,1		
Azerbaijan			6,0	1,2		
Armenia			1,5	0,6		
Non-FSU	24,4	27,7	15,5	3,2		
Europe			4,1	0,5		
Turkey			6,8	0,4		
Iran			-			

¹ Exports and Imports

