

TRACECA Programme
Traffic and Feasibility
Studies

Inception Report

January 2000

REPORT COVER PAGE

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TRACECA Project: Traffic and Feasibility Studies TNREG9803

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PROJECT SYNOPSIS

Logical Framework

<p>Wider Objective:</p> <p>To assist in identifying, prioritising and supporting transport investment projects at the satisfaction of the <u>International Financing Institutions (IFIs)</u> through the introduction and operation of a quantitative planning tool</p>
<p>Specific Project Objectives:</p> <ul style="list-style-type: none"> ◆ Setting up a simple and operational computer-based planning tool in the <u>11 TRACECA States</u> including: <ul style="list-style-type: none"> - A common regional database of transport and trade flows, transport infrastructure and transport costs through an integrated communications network - A simple, transparent and consistent multi-modal traffic forecasting model to locally and regionally test economic development scenarios and to identify by the Beneficiaries transport investment projects for external financing. ◆ Application of the planning instrument to <ul style="list-style-type: none"> - Create comprehensive multi-modal synoptics of existing and forecast future flows - Highlight transport bottlenecks of all types, especially connections with Europe - Perform specific feasibility/opportunity studies: <ul style="list-style-type: none"> * Module A: Chardzev bridge, * Module C: Aktau ferry terminal, * Module D: Turkmenbashi Navigation Channel, * Module E: Dubendi Oil Port Terminal, * Module B: Caspian new shipping services ◆ Institutionalise for permanent system operations <ul style="list-style-type: none"> - Beneficiaries to introducing and supporting Investment Projects close to the IFIs - System operators to providing the beneficiaries with documentation - Information and data providers
<p>Activities:</p> <ul style="list-style-type: none"> ◆ Inception and setting up the network of local Correspondents (month 2+3) ◆ Phase 1: Data collection and database design. Progress Report 1 (month 2+8) ◆ Phase 2: Development of forecasting models followed by training and Documentation Feasibility Studies. Progress Report 2 (month 2+14) ◆ Phase 3: Active system dissemination. Draft Final Report (month 2+19) ◆ Phase 4: Instrument Use. Final Report (month 2+22)
<p>Inputs:</p> <ul style="list-style-type: none"> ◆ Technical Assistance for database, population and maintenance, Training ◆ Computers and software models ◆ Internet network system and computer connections

PREAMBLE

The proposal to implement the present Project has been endorsed in May 1998 by the following Officials:

Mr. Zakaryan	Minister of Transport	for Armenia
Mr. Sharifov	Vice-Premier Minister	for Azerbaijan
Mr. Adeishvili	Minister of Transport	for Georgia
Mr. Kaliyev	Minister of Transport	for Kazakhstan
Mr. Zakhirof	Prime Minister Machinery	for Kyrgyzstan
Mr. Nyamdama	Minister of Infrastructure Development	for Mongolia
Mr. Mirsoalimov	President Office	for Tadjikistan
Mr. Berdyev	Deputy Head of Railway Department	for Turkmenistan
Mr. Dankevich	Minister of Transport	for Ukraine
Mr. Shavakhabov	Cabinet of Ministers	for Uzbekistan

After an analysis (Chapter 1) of the overall Project, of which the objectives and outputs are described in the Terms of Reference, thus confirming the Consultant appropriate and right understanding of it, the Consultant preliminary findings and activities during the inception phase are developed in Chapter 2.

In Chapter 3, the project main issues, expected results and even limits are inventoried.

Then within the resources requested in the Consultant's Technical Proposal, but with the necessity to successfully achieve on time, the various components of the Project, Chapter 4 proposes to update the project staffing, organisation and planning for its rational implementation.

Appendices, which are part of the present Report, are provided to support, to develop and to clarify the content of the above chapters.

Since the present Inception Report concentrates on the main Module "A" but must also cover the Project as a whole for rational and organisational reasons, certain specifics, especially in matters regarding concept, methodology and general approach, are not developed deeply, within a short and very limited period of time, for some feasibility studies. Relevant papers, to complete the content of this report, will be prepared at the time of starting practically Modules B and E: "New Caspian Sea Shipping Services" and "Oil Transport on the Caspian Sea" respectively.

1. Project Analysis

1.1. Project Background

TRACECA was created during a conference, held in May 1993 in Brussels and attended by Authorities of the transport sector in eight Republics of the South of the former USSR. Regional working groups have been established as part of the TRACECA programme. They have inaugurated specific projects, including this present one.

At a conference in Athens in October 1996, Mongolia and Ukraine were admitted to the TRACECA programme.

TRACECA States have entered into a series of agreements to regulate transit traffic between and across their territories: (a) mainly bi-lateral and some multi-lateral agreements such as the Sarakhs agreement of May 1996 but also (b) international conventions such as the TIR.

More recently, a Basic Agreement was signed at a conference in Baku, Azerbaijan, on 8th September 1998, by the TRACECA founder States (except Turkmenistan) and other States located along the Black Sea: Bulgaria, Moldova, Romania, Turkey, Ukraine. To implement such an agreement, a Permanent Secretariat, with a representative of every country, will be soon established in Baku with the assistance of TACIS programme.

1.2. Overall Project Rationale and Understanding

The present Project is part of the general TRACECA Programme and covers eleven countries: eight of which from the former Soviet Union of Caucasus and Central Asia refereed as the TRACECA founder states (TFS), and more recently, Moldova, Ukraine and Mongolia. The TRACECA Programme objectives are essentially:

- To support the political and economic independence of the republics by enhancing their capacity to access European and World markets;
- To encourage further regional co-operation among the republics;
- To increasingly use TACIS/TRACECA as a catalyst to attract the support of the International Financial Institutions (IFIs) and private investors.

The present Project directly deserves the last two wider objectives and especially the third one. Here-below is a short recall of the major tasks required in the TOR

- Design, develop and institutionalise data collection methodologies and management system on a regional basis;
- Design, develop and apply traffic forecasting methodologies on a regional basis;
- Identify and train personnel to be able to apply these methodologies autonomously (in each beneficiary state);

- Reveal the investment merits of the redevelopment of the Aktau (Kazakhstan) Ferry Terminal for road and rail traffic;
- Ensuring the continued accessibility of navigation to the Port of Turkmenbashi (Turkmenistan);
- Feasibility study for construction of a replacement bridge for road and rail traffic at Chardzev (Turkmenistan);
- Ensuring the adequate and safe transport of crude oil and oil products on the Caspian Sea and performing the feasibility study for the rehabilitation of the oil terminal (Berth N°3) at Dubendi (Azerbaijan);
- Defining the conditions under which new shipping services (or lines) could be inaugurated on the Caspian Sea.

From the above list, the Consultant work approach develops from two sets of activities that lead to a third one (out of the project itself). The latter is left under the responsibility of the project's beneficiaries after appropriate assistance and training. These sets are:

- The first set is the design and development of a transport planning tool, based on the availability of a regional transport database regularly updated, and maintained in a sustainable manner, together with the design of forecasting models.
- The second set is the undertaking of various specific feasibility and investment opportunity studies strongly linked to the first set.
- The third set is the institutionalisation of the project inputs and outputs, thus allowing the project beneficiary states to support and to document themselves their transport investment projects close to the IFIs.

The links between the basic activities are illustrated in the diagram next page. The project rationale is thus to deliver to the beneficiary states a practical planning instrument, operationally tested through various already identified transport projects, and that the beneficiaries can use, permanently and as necessary, to further attracting external financing. The Consultant's main issues are:

- to design and to develop the planning instrument in a simple, easy to use and flexible manner; and,
- to initiate and to develop the institutional structure that will ensure its permanent operational use, in the future and without anymore-external assistance.

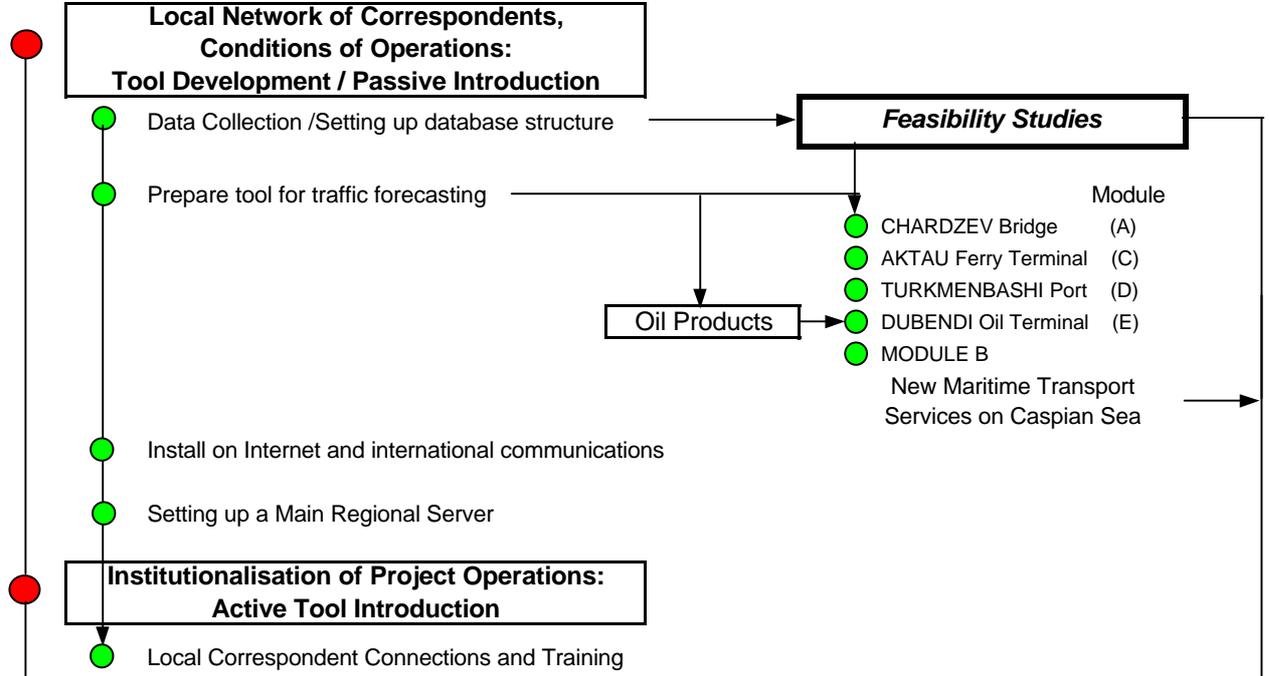
For practical reasons and easier follow-up, the project is subdivided into five interdependent modules containing various specific tasks. The main upstream module (A) addresses precisely the above mentioned issues, while the other downstream and tributary modules (B to E) cover a certain number of feasibility and investment opportunity studies ¹. For easy reference, the title of each module is given here-below:

¹ The feasibility study of "Chardzev bridge" in Turkmenistan is incorporated in Module A: task A8.

RATIONALE of the TRACECA PROJECT: TRAFFIC and FEASIBILITY STUDIES

EXTERNAL TECHNICAL ASSISTANCE for the PROJECT

MODULE A



END of TRACECA PROJECT 9803

MINISTRY OF TRANSPORT INITIATIVE in BENEFICIARY STATES



● Major Step ● Practical Task

Module A:	Traffic database and forecasts	11 tasks
Module B	New Caspian Sea shipping services	7 tasks
Module C	Aktau ferry terminal redevelopment	6 tasks
Module D	Navigation channel for Turkmenbashi port	2 tasks
Module E	Transport of crude oil and oil products on the Caspian Sea	6 tasks

1.3. Relation/Co-ordination with Other Projects

1.3.1 TACIS - TRACECA Programmes

The Project has many links with other projects either (a) through the information accumulated by previous TRACECA projects, or (b) by share of information with other on-going projects, or (c) as potential source of information and data to the donors.

As far as the former TRACECA studies are concerned, the list is available on the TRACECA Web site, together with the relevant reports. The latter have been downloaded and carefully scrutinised. The following studies of particular importance can be noticed:

- "Regional Traffic Forecasting Model" (1996-97) for which the present Project is basically similar in the general methodology (regional database and forecasting model), if not in the procedures;
- "Forwarding Multi-modal Transport System", (1996) prepared by the Consultant itself;
- "Ferry Terminals Baku and Turkmenbashi" (1996-98);
- "Railways Tariffs and Timetable" (1996--97), useful for the feasibility studies especially for Chardzev bridge;
- "TRACECA Trade Facilitation" (1996-97) for availability of major border crossing flows, even though the Russian border is neglected;
- "Internal Russian Waterways and River-Sea Transport Project" (1998) can provide insights in the legal environment for Module B;
- TRACECA Intermodal Services (1999 -ongoing)
- Also for Module B: "Joint Study on Caspian Oil Shipping, National Iranian Tanker Company and Shell International Trading and Shipping Co., SWAP Project (1999)

Three former projects are of interest for the port and maritime component of the Project as they have also been prepared by the sub-contractor for Module B

- "Development of the Caspian Shipping Company" (TACIS) prepared by the sub-contractor for Module B of this Project;
- "Maritime Training in Baku" (1996-97);
- "Feasibility Study of New Terminal Facilities in the Georgian Ports of Poti and Batumi;

On-going and incoming projects:

- "Restructuring the Transport Sector in Azerbaijan and Technical Assistance to the Ministry of Transport" (TACIS) for which analyses can overlap in certain transport sectors, particularly in shipping and maritime affairs in the Caspian Sea (Module B);
- "Inter-Governmental Joint Commission for the implementation of the Multi-Lateral Agreement on Transport". The existence of the Joint Commission can be fundamental for the continuation and permanency of the Project (see below in the Report).

TRACECA investment projects for infrastructure rehabilitation must also be mentioned as they modify the transport infrastructure network characteristics to be taken into account in the database, especially those in the ports of Baku, Poti, Turkmenbashi and Ilyichevsk. In direct connection with Module C of the Project, EURO 2 million are budgeted for the rehabilitation of the road/rail ferry terminal at Aktau.

1.3.2. International Financing Institutions (IFIs)

Contacts have been made with representatives of EBRD, directly or by e.mail, regarding various modules, especially A, C and E. They confirm the Bank activity and sponsoring mainly in the oil and port sectors, and also deep interests in the Project outputs.

1.3.3. Specificity of MODULE E

Projects related to oil and gas -particularly transport- were reviewed. Most of them are part of the INOGATE Programme ("Interstate Oil and Gas Transport to Europe"). Out of the seven projects carried out under Programme 1996, two are directly related with Module E:

- INO 96-01 Feasibility Studies for Oil & Gas Pipeline through the Caspian Sea; (Contractor: Snamprogetti, Milano).
- INO 96-02 Audit of Oil and Oil Products Transmission Network; (Contractor: Preussag AG. Hanover).

A single project under Programme 1997 started in September 1999: INO 97-02 Hydrocarbon Potential Assessment (Contractor: Gaffney, Cline and Associates, UK). This project is potentially interesting for Module E. However it seems that the Kazak government has reservation on project objectives. Moreover resources are not sufficient to make a global assessment of potentials

Two planned projects would be most valuable for Module E but have not yet started and may not started early enough to be of interest:

- Under Programme 1997: complementary feasibility studies to assess alternative oil and gas transport routes down stream of the proposed crossings of the Caspian Sea.
- Under Programme 1998: preliminary engineering studies for oil and gas transport across the Caspian Sea (the project scope of work does not make any reference to

ports and seems rather to refer to transport by pipeline although this is not explicitly mentioned.)

The Consultant has already undertaken searches through e.mail.

1.3.4. International Organisations

Among the international organisations working on matters related to the Europe-Asia transport network, UN/ESCAP, in Bangkok, has endorsed in 1992 the "Integrated Asian Land Transport Infrastructure Development" project (ALTID) which comprises the "Asian Highway" (AH) and the Trans-Asian Railway projects, as well as facilitation of land transport. The AH network is composed of five international routes (40,000 km) and about 37 sub-regional routes (50,000 km) and covers 25 countries. Current studies emphasise on improvement of the operational efficiency of AH routes through the establishing of AH database and upgrading AH routes. However, the AH network is quite Southward oriented: only one international route crosses three countries of Central Asia (Northern section of the "Old Silk Road). Investigations will be made in due time about structure and content of the AH database but without the greatest expectations concerning a major impact on the present Project outputs.

2. Preliminary Findings and Project Development

2.1 Introduction to the Conditions of Operations for MODULE A

To meet the objectives of MODULE A, the work will be divided into two major steps/phases.

The first one concerns the design and development of the planning tool which calls for: (a) the collection of data in each of the 11 countries, (b) the setting up of the database structure and contents and (c) the design and implementation of the forecasting models. In the TOR, these activities are covered mainly by the sub-tasks: A4 and A5. The participation and involvement of local experts in executing these activities with the Consultant, especially the first and the second ones, allow a preliminary or 'passive introduction' of the tool concept and technical characteristics in the mind of the future users in every country.

The second step/phase takes place after the planning instrument has been tested in various feasibility studies by providing traffic forecasts. It is the time for the 'active introduction' of the planning instrument among the future users. This step/phase calls for: (a) provision of a comprehensive documentation, (b) adequate training both through conferences/seminars and on-the-job, and (c) instrument regional dissemination and finalisation of the system communications network through the Web. In the TOR, these activities are covered by the sub-tasks: A2-A6-A9-A11. Furthermore, this time period will be also devoted to check the procedures for data collection that must ensure the instrument permanent availability, operations and use.

From the latter point, it is therefore clear that every data provider in any country from now, during Phase 1, and in the future when the project is over, must:

- be a permanent Official in transport state agencies/administrations/authorities and having easy, permanent and direct access to their own respective transport/economic data;
- be connected to the main regional computer server of the system through the Web for regular and systematic data provision and exchange of information.

In return, every data provider has access to the regional database for use of its subsequent forecasting models.

The economic and transport sectors to be covered by the LCs in their respective country are (as the case may be):

- Roads Infrastructure
- Road traffic-transport data
- Railways Infrastructure and Transport Flows
- Port Infrastructure and Transport Flows
- Pipeline
- Shipping
- Airport

- Customs
- Economy & Statistics
- Computer scientist, as necessary

This operational approach to conduct Module A leads to identify in each country a set of permanent data providers or "Local Correspondents" (LCs) representing various transport modes and economic sectors (the latter includes foreign trade). In the future, after the completion of the Project, they will report directly to their respective Project beneficiary, in principle the Ministry of Transport. It is the reason why the identification of the "Local Correspondents" to be involved in the implementation of the Project must be agreed and/or recommended by the Beneficiary.

For the present time, the TOR do not foresee the presence of a Consultant representative in every country for a sufficient period of time to supervise the 'Local Correspondents', to monitor the collection of data, to check their relevancy and accuracy, to control the permanency of their origin and provision, etc. This specific task must be temporarily (during the Project duration) left under the responsibility of a local organisation/consulting firm/institute, but having close links with the Project beneficiary. This organisation can be refereed as the "Project Leading Unit" (PLU). But, at the end of the Project, the PLU has no more functions and the Beneficiary will re-establish his direct links with the "Correspondents".

Furthermore, it has been checked, during the implementation of sub-task A1 by visiting the potential LCs and contacting the PLUs, that, in most of the cases, both entities are computer equipped, if not already connected to Internet. A possible drawback to conducting the implementation of Module A, as described and on time, is the state of under-computerised equipment in some other countries and therefore a limited number of potential system connections in that case. Before these countries can be assisted in that direction under the Project, the activities under the first phase of Module A can be initiated and developed from two or three "pilot" countries such as: Kazakhstan, Azerbaijan and Georgia, which appear more advanced in data provision and in level of computerisation.

The Consultant activity to identifying the local network for present and institutional data collection is the subject of sub-task A1 that takes place during the Inception period.

2.2. Current Situation about MODULE A

2.2.1 Situation about the Local Network of Correspondents for Data Collection (Task A1)

During the Inception Phase, between November 1999 to mid-January 2000, nine countries over the eleven under review (except Mongolia, Tadjikistan) were visited by the Consultant to set up the network of local correspondents who will be involved in the Project to assisting in data collection, both phases 1 and 2 (task A1). Summary of the preliminary list of local organisations and experts is provided in the table, next pages. This task is not yet achieved, about seventy percent. It is expected to finalise this task, in a formal manner, in February 2000.

LOCAL NETWORK of CORRESPONDENTS (Task A1)

TRACECA COUNTRIES	Moldova	Ukraine	Georgia	Armenia	Azerbaijan
Beneficiary	MOT&C	MOT	MOT	MOT	MOE (Transport)
National Co-ordinator	Mr. Boris GHERASIM Vice Minister	Department of Transport Policy Mr. G. LEGENKY	Mr. Vakhtang LOMADZE First Deputy Minister	Dpt of Foreign Relations Mr. Gagig GRIGORYAN	MOE (Transport) Mr. Ikram SADIKOV
LEADING UNIT					
Data Collection Supervision/Co-ordination	EUC/Moldova	Euro-Ukraina Consulting Mr. Yakov NEBOZHATKO	Not yet established at the time of the Report	Not yet established at the time of the Report	BCEOM Project Team
CORRESPONDENTS					
Roads Infrastructure	Mr. Nicolae CIOBANU	Mr. Vladimir ERMOLENKO	State Department of Roads Mr George TSERETELI		
Road traffic/transport data	Mr. Eugen DATCO	Mr. Leonid ZAENCHIK and Mrs Tatiana PODOBENKO	State Department of Roads Mr George TSERETELI	Road Transport Department Mr. MKRTCHYAN	Azerautonagliyyat State Concern Mr. Akif H. MUSTAFAYEV
Railways Infrastructure and Transport	Alina DIACENCO	Mrs. Tatiana TARATAIKO	Georgian Railways Ltd Mr. Venedikt KURTSADZE	Programming and Investment Division Railways Department	Railways Computer Center Mr. Adil ASAFOV
Port Infrastructure and Transport Flows		Mr. Nicolai MELNIK	Maritime Transport Dpt Mr. Dursun TSINTSADZE		Baku Sea Trade Port Economic Department Mrs Raya GASIMOVA
Pipeline			Georgian International Oil Corporation Mr. Dimitri NADIRADZE		
Shipping		Mr. Nicolai MELNIK			CSC Mr. Elshad KHALYKOV Mr. GADZHINSKY
Airport		Mr. Yakov NEBORHATKO	Air Transport Department Mr. Mevlud MUDJIR		
Customs		Mr. Yakov NEBORHATKO	Export-Import Information Mr. T. MAGLATELIDZE		
Economy & Statistics	Diana RUSU	Mr. Yakov NEBORHATKO	State Department of Statistics Mrs Lia ISAKADZE		

LOCAL NETWORK of CORRESPONDENTS (Task A1)

TRACECA COUNTRIES	Uzbekistan	Kazakhstan	Kyrgyzstan	Tadjikistan	Turkmenistan
Beneficiary	MOT	MOT	MOT	MOE	Cabinet of Ministers
National Co-ordinator	"Uzavtotrans" (Mr. SADIKNAZAROV)				
LEADING UNIT					
Data Collection Supervision/Co-ordination	Uzinfotechtranssystema Pr. Kamal ULDZABAEV	NIIT Mr. Murat BEKMAGAMBETOV	Kyrgyzdortransproekt Mr. Levan ALIBEGASHVILI	Tadjikgiprotranstroj Mr. Timur MIRZOEV	National Institute of Statistics and Forecasting Turkmenstatprognoz Mr. J.D. BAIRAMOV
CORRESPONDENTS					
Roads Infrastructure					
Road traffic/transport data	International Forwarding Agents (Mr. MATCHANOV)	NIIT			
Railways Infrastructure and Transport	Uzbekistan Temir Yullari (Mr. ZAHIDOV) Mr. Yusupov VAKHIDOVICH	NIIT Mrs. Svetlana SMIRNOVA			
Port Infrastructure and Transport Flows		NIIT			
Pipeline		NIIT			
Shipping		NIIT			
Airport		NIIT			
Customs		NIIT			
Economy & Statistics		NIIT	National Statistics Committee Mr. Zarylbek KUDABAEV		

During the visits and investigations, in the eight beneficiary countries under the former project, it could be assessed that the forecasting model was not used and that the computer equipment delivered for this purpose got new assignments. In few cases: Kazakhstan, Azerbaijan, Georgia, the computer equipment can be made available for the present Project.

2.2.2. Site Data Collection: Traffic Surveys

A/. As mentioned in the TOR, origin-destination surveys are unavoidable for the purpose of some feasibility studies. They are:

- Baku-Turkmenbashi and Baku-Aktau ferry traffic
- Chardzev bridge in Turkmenistan.

Both ferry traffic surveys constitute, de facto, a screen line over the Caspian Sea for East-West traffic flows (road-rail modes). Determination of other screen lines is subject to the following additional information.

B/. In Kazakhstan, O-D surveys were carried out by NIIT along four itineraries, involving about 24 control check points. They are:

1. Khorgoz - Almaty - Chymkent
2. Chymkent - Kyzyl Orda - Novokazalinsk - Karabutaj - Aktyubinsk - Uralsk
3. Almaty - Karaganda - Akmola - Kustanaj
4. Maikachigu - Semei - Pavlodar - (Omsk-Russia)

It has been agreed with NIIT that the Consultant will have the availability of both raw inputs and outputs and that he will supervise complementary surveys to achieve the work in order to cover the overall country. Thus, all E-W and N-S transport flows can be assessed within the huge area of the Northern Traceca region that is also the border with Russia.

C/. It is expected to carry out complementary surveys if and only if resources and local administrations allow and assist for them. In such a case, three additional possible sites have been identified in order to complete the set of screen lines through the area under study (depending on co-operation from the local side):

1. North of Tashkent on the former Silk Road
2. Road liaison between Turkmenistan and Iran
3. Caucasus: between Baku and Tbilisi

2.2.3 Equipment (tasks A3 -A11)

It is too early at this stage of the Project, to fix in details the technical characteristics of the computer equipment to be supplied in each TRACECA State (refer also below: parag. 3.3.). The overall system configuration and architecture must be first assessed according to (a) the system requirements, (b) every country actual needs, that is by taking into account the existing level and availability of such an equipment, together with the use made by former

TACIS equipment already supplied, (c) the budget allocated for this purpose. However, regarding this latter aspect, it is intended that provision of equipment be made locally for easier and faster delivery, assistance for maintenance and other services.

Thus, official request will be done to EC to use the TACIS "Direct Agreement" procedure for equipment supply, since expenditures are not expected to be over EURO 5,000 per country.

2.2.4 About Data base Design (Task A4)

The database starting point will be the existing database² built up during the former TRACECA Project: "Regional Traffic Forecasting Model". In a first step, basic data (when available) will be (a) updated to the year 1998. Then, later on, the database will be (b) adapted towards simplified content, overall construction and architecture, (c) extended with new sets of data (in situ O-D surveys and data collection) and (d) developed with the addition of new countries (infrastructure networks, customs data, etc.).

Very preliminary reflections are provided in Appendix regarding the recent software supports to be possibly used for database and modelling.

2.3. Feasibility Studies: Preliminary Investigations and Development

2.3.1. MODULE A: Task A8: Feasibility of Chardzev Bridge (Turkmenistan)

The Consultant has obtained a copy of the Draft Final Report module C: "Feasibility Study for Chardzev Bridge" which was produced as part of the TRACECA Project TNREG 9310, Rail Maintenance Central Asia, Infrastructure Maintenance 2. In a meeting with the TRACECA Co-ordinating Unit, the Consultant was able to discuss the requirements of this feasibility study in more detail and was also provided with copies of additional correspondence and information relating to the project.

2.3.2. MODULE B: Caspian New Shipping Services

Since Module B is highly depending on input from other modules of the present study, the main work is scheduled to start around the midst of 2000. So far, activities of the Consultant have been restricted to meet Officials of the "Caspian Shipping Company" (CSC). During the discussions, it was made clear how shipping development on the Caspian Sea was a political matter with a strong Russian share. However, negotiations still continue between CSC and Kazakhstan for oil transport from Aktau, and with Astrakan for new services with Baku.

However, towards the end of April 2000 the Consultant responsible for module B, represented by the Module Team Leader and the Senior Shipping Expert will visit representatives of the full beneficiary states, i.e. Azerbaijan, Kazakhstan and Turkmenistan, and representatives of major transport operators active in the Caspian Sea region as

² Content and structure of the existing database is available on TRACECA Webb site including the related technical papers.

identified with the help of the local partners. Talks and Meetings will be initiated to inform the full beneficiaries on the content and current state of the project and get more detailed information on inter alia:

- investors, who had expressed (preliminary) interest in a new shipping service on the Caspian Sea (as was indicated in the Terms of Reference),
- the present state of establishment of the national Kazakh shipping line Kazmortransflot, the creation being announced in the beginning of 1999, which was to be equipped with river-maritime tankers for the transport of oil from Aktau via the Volga-Don Channel to the Black Sea,
- qualitative expert views on the current situation and expected future development of freight transport in the Caspian Sea region.

Furthermore, the Consultant will meet representatives from consulting companies and consortia contracted by donor institutions to elaborate studies including aspects possibly related to some of the Consultant's tasks. The consulting company contracted by TACIS to elaborate proposals for the "Reorganisation of the Transport Sector Administration in Azerbaijan", has already been contacted. The propositions expectedly laid out in this study will also concern the establishment of a new "Maritime Authority for Azerbaijan", thus, the output from this study can be considered valuable information for the investigation on the legal, regulatory and political environment affecting shipping on the Caspian Sea as requested in Task B6.

Last but not least, the Consultant will meet the local partners for this module in Azerbaijan, Kazakhstan and Turkmenistan respectively to brief them on the scope of work, allocation of work and planned time schedule. The local partners will also provide assistance in settling organisational questions concerning accommodation for EU experts, office space, locations for a liaison office, and additional services necessary to guarantee a smooth and efficient fulfilment of tasks.

2.3.3. MODULE C: Aktau Ferry Terminal

This Module has started in September 1999 and was subject to a specific Inception Report in November 1999. It is not the purpose of the present Report to repeat it. At the time of editing and delivering this Report, all tasks related to this Module should be close to completion and the Draft Final Report under preparation.

2.3.4. MODULE D: Turkmenbashi Navigation Channel

No investigations and approaches for this specific module have been made yet during the Inception period.

2.3.5. MODULE E: Oil transport on the Caspian Sea and Dubendi Oil Terminal

A/ Traffic Forecast Issues

The Caspian Sea region is an area of major strategic importance for countries importing primary energetic products:

- The region disposes of non-negligible reserves of oil and natural gas
- Important quantities of oil and gas are transferred through the area
- The region is divided into several independent states with different political orientation, that may incur risk of supplies for importing countries.

The geo-political environment of the area does not make it easy the preparation of forecasts of international exchange of oil and gas, because many decisions still depend more upon political than economical reasons. For instance, the agreement between Turkey, Georgia and Azerbaijan regarding the construction of a new pipeline for oil transport from the Caspian Sea to the Mediterranean Sea through Turkey, avoiding Russia and Iran, even if the project is financially fragile.

This context contains important factors of uncertainty for the traffic forecast and the modes of transport from production site to the consumers. They have to be respected in form of various scenarios. The tasks concerning traffic would have to take into consideration various influences on the policy in the region. Their definition includes great incertitude. Going out from the fact that the area will remain oil exporter, these tasks will consider the following items:

- Demand from the importing countries and its location (development of the consumption of energetic products)
- Prices on world level
- Confirmed and potential reserves of the Caspian region
- Production capacity corresponding to the demand and production costs
- Mode of transport of this production to importing countries
- Traffic of ports
- Need of ports equipment and installations

The appraisal of the traffic of ports, which represents a major objective for the module, will be largely determined by the existing network of pipelines or of new pipelines to be constructed. Numerous projects are under study to develop the actual network and it is obvious that the choice of solutions could be function of political factors. These factors have to be identified as well as their impact on practice of the traffic organisation in the Caspian region.

From an operational point of view, the practical implementation of the traffic tasks will be preceded by sets of data to be collected from the region, for instance:

- Condition of production capacities and reserves of oil and gas, statistics of activity from the last years, composition of social capital and review of various development projects

- Routing of pipelines, transport capacity, statistics of activity: transported quantity, origin and destination, condition of installations, review of port extension projects: traffic, origin and destination, type of vessels, performance, condition of ports

The required information will be collected on special forms (presently under preparation) that will be completed and filled step by step during the collection of basic data.

During this phase, discussion/meeting will be organised with corresponding groups of oil and gas industry in Western Europe in order to analyse all problems of the region and to identify the strategy of the international groups. The first discussion will be held in Paris. According to the results of this first discussion other meetings could be organised in Western Europe.

B/ Preliminary Site Investigations in Kazakhstan

In order to prepare the ground for tasks E1 and E2, as mentioned above, preliminary investigations were carried out, in Kazakhstan, close to Association and Company dealing with oil. Also Aktau port (within the framework of Module C) and Dubendi oil port terminal, subject to feasibility study and engineering design for Berth N°3, were visited.

Kazakhstan Petroleum Association (KPA)

The chairman of the KPA is presently Managing Director for Texaco. He is of the opinion that the construction of an oil pipeline across the Caspian Sea is unlikely for ecological as well as political reasons: Russia and Iran will never let that happen. On the other hand, as an executive with responsibility in the oil sector, he thinks that it is important to have several alternative routes including transport by tankers across the Caspian Sea. Improving oil terminal facilities in ports is therefore perfectly actual.

The main client for an improved oil terminal at Aktau would be TengisChevronoil, Manaigas, Kazakoil, Chevron, Arman, Central Asia Petroleum as well as Texaco (that is involved in a joint-venture concerning the Kachanganan oil field in the Mengistau Peninsula). Moreover in any case KazTransOil would be involved since it operates the oil terminal at the Aktau port and own pipelines and storage facilities there.

In case the financial feasibility of port rehabilitation is established, a possible investor could be the Silk Road Fund of the American Insurance Group (AIG).

KazTransOil

The vice-president of KazTransOil thought that the present TRACECA Project is actual because the possibility of transporting oil by tanker gives a much needed flexibility. It allows to send oil not only to Baku but also to Iran, or to Makachkala in Dagestan.

After reviewing the summarised project TORs, the vice-president indicated that the data required for the study could be provided but only as answer to an officially sent list of specific questions. He confirmed that in Aktau KazTransOil owns the pipelines, the oil storage facilities and the oil loading facilities but not the berths that belong to the commercial port.

He confirmed that the focus is, for the time being, on the rehabilitation of berths 9 and 10 and on the strengthening of the breakwater. Rehabilitated berths 9 and 10 could allow to export 6 million tonnes per year. The capacity could be brought to 9 million tonnes if berth 8 is added. Adding other berths could even further increase the potential throughput. According to a preliminary estimate, the upgrading of the oil loading facilities and the rehabilitation of berths 9 and 10 and of the breakwater would cost about US\$ 17 to 20 million.

Presently small tankers of between 4,000 and 8,000 tons are used. It would be desirable to make use of larger tankers. Turkmenistan is building, in a Turkish shipyard, its first oil tanker (about 5,000 tonnes dw).

Oil Terminal Facilities in Baku Area

Details of the preliminary investigations undertaken about oil terminal facilities in Baku area (mainly Dubendi Terminal) are provided in a specific Appendix.

3. Project Expectations and Limits

3.1. TOR Appreciation

3.1.1. Dubendi Oil Terminal

In the introduction to MODULE E of the TOR (parag. 1.2.9), it is indicated that this MODULE concerns -among other things- specific feasibility studies for the oil terminals at:

- Dubendi (near Baku, Azerbaijan)
- Aktau berths 4, 5 and 8
- Turkmenbashi

In the detailed description of work (MODULE E: parag. 2.2 and 2.3), references are made only to Dubendi, Berth N°3 (parag. 4.1.4 and 4.1.5). Also, the Consultant's Technical Proposal takes into consideration this latter project only. It is therefore confirmed that issues related to feasibility studies concerning Dubendi only will be addressed in the Project.

3.1.2. Passenger Flows (MODULE A)

The only reference in the TOR, regarding Passenger transport, is in MODULE A (parag. 4.1): "*Passenger transport is not an overall concern of this module but should be taken into account in so far as it uses the same infrastructure and equipment as freight.*" It is understood that passenger flow forecasting will be subject to a more traditional and simplified approach than for freight regarding: generation, distribution, modal split and network assignment. Air transport will be separated from the traffic forecast model for the other modes.

3.2. Project Main Issues

3.2.1. MODULE A

There will be a strong motivation to maintain the database in the long-term if it contains information of interest both at the level of a country and at the level of the TRACECA Corridor. However the information will also have to be collected at different levels.

In soviet times, and for some years after the demise of the Soviet Union, data for the whole former USSR was compiled in Moscow, particularly for the railways. As it is no more the case, it may be significantly more difficult to collect data in a unified format than it was until 1995. In such cases as railways or ports, reliable information is generally recorded although not necessarily in the desirable format. But for road transport, little accurate data is available on a regular basis. It may therefore be needed to carry out surveys to update the data base.

Forecasting traffic in the TRACECA geographic area is in essence difficult because many competing routes exist particularly east-west routes. The choice of route may depend to a

large extent on non-economic considerations: administrative regulations, closure of borders, level of illegal payments, etc. Sudden large-scale changes in traffic flows may result from administrative measures difficult to foresee. For instance until 1997, a large proportion - probably no less than ninety percent- of trucks using the Baku-Turkmenbashi ferry were heading north particularly to Siberia. When the border between Azerbaijan and Russia reopened, the trucks stopped suddenly using the ferry. Afterwards an important source of revenue for the ferry was light vehicles whose owners used the Caspian Sea to bypass Russian regions or unsafe road sections in Kazakstan. Now that Turkmenistan requires visas from all foreigners the flows of passengers and light vehicles markedly decreased.

During project life, the forecasting team will be able to calibrate the model so that it will take into consideration the wide range of changes in flow patterns. Doing the same after the project ends may require to keep some kind of forecasting team and to set up a co-ordination mechanism for the teams maintaining and using the model in each country.

3.2.2. MODULE B

In soviet times, all shipping activities on the Caspian Sea were managed from Baku. And the Caspian Shipping Line based in Azerbaijan enjoyed a monopoly for shipping services. In practice such a monopoly practically still exists. It is understandable that other CIS countries bordering the Caspian Sea, particularly Kazakstan and Turkmenistan would be keen on having their own shipping line.

It is not easy however for those countries to operate shipping line profitably because the market is rather small and not growing fast for the time being. To compete with the existing shipping line they would have to offer attractive rates that the existing company could probably match due its present excess of capacity. Much caution is therefore required when launching a new shipping line and/or services.

It must be stressed that a "Business Plan" can be elaborated only if it comes out that there are market segments or lines of business that justify the establishment of new shipping services on the Caspian Sea from a financial point of view. This also includes that there should be sufficient freight volumes attractable to sea transportation.

3.2.3. MODULE C

Aktau port is the gate of Kazakstan on the Caspian Sea and more generally on the West. Improving the conditions at that port is considered as a national priority. The dry cargo facilities were recently rehabilitated with EBRD financing. Improving the oil terminal is under consideration. And ferry services suspended since 1992 reopened in mid 1999. For Kazakstan keeping them open certainly makes sense from the national security point of view. The long term prospects for the ferry are however difficult to assess. On the other hand the commercial port has already borrowed heavily to finance the rehabilitation of the dry cargo terminal

For those reasons, it makes sense to start with the rehabilitation works of the ferry terminal which are justified on the basis of a minimal basic service of say one trip per week. Further rehabilitation could be undertaken when increased traffic justifies it.

3.2.4. MODULE D

Presently ships can enter or leave the port of Turkmenbashi only with daylight because of the unsatisfactory conditions of the port channel and particularly the inadequacy of navigational aids. Such circumstances lead to delays and hence higher costs particularly for ferry services. It is therefore needed to find ways to improve the navigation on the port channel.

3.2.5. MODULE E

In soviet times large quantities of crude oil or refined petroleum products were transported across the Caspian Sea. Crude oil was mostly brought from Kazakstan to Baku where it was refined. The refined products were shipped Eastward, generally to Krasnovodsk -presently Turkmenbashi- from where they were forwarded as far as East Siberia or even Kamchatka. When formerly soviet land around the Caspian Sea happened to be divided between four different States, the volume of oil shipped markedly declined.

Prospects are now that larger volume of crude oil might be again shipped from Kazakstan and Turkmenistan to ports on the Western coast particularly Baku, en route to Western markets. Which volume will transit through Baku will depend on overall export level and also on alternative export routes. In the case of Kazakstan, if that country sticks to its recent commitment to impose export quotas and if the Caspian pipeline linking the Western Kazakstan oil fields to Novorossisk on the Black Sea opens as planned in 2002, therefore not much will be left for shipping by tanker across the Caspian Sea. All the more because the marginal cost of transport by tankers is higher than by pipeline.

However using tankers gives much flexibility since, unlike pipelines, ships can be routed according to current circumstances. It is therefore important to maintain sufficient loading/unloading capacities in ports. On the other hand over-investing in oil terminals will increase costs and hence reduce the competitiveness of water transport. A difficult trade-off is therefore the basis for determining the optimal level of investment in Caspian ports.

All four last modules require traffic forecasts that are supposed to be provided by Module A. Module E cannot however expects too much from Module A since crude oil and petroleum products use transport networks mostly distinct from networks used by other commodities.

3.3. Expected Project Outputs

There is a clear evidence that every TRACECA State prepares its transport infrastructure planning and development in its own, whatever internal or external financing may be. The local expectations and interests for the Project rely upon:

- The Regional aspect of the traffic forecasting system but taking into account local specificities
- A reliable traffic forecast instrument easy to use
- A permanent structure with unconstraining procedures to update and maintain the information
- Appropriate computer equipment and further resources to satisfy the needs of such a system operations

To fulfil all these requirements that will ensure an expectation that the left instrument will be permanently available and used for long-term transport planning studies from the beneficiary side, it is necessary to have a highly efficient and quality communications network between all potential users. This will be done by fixing a maximum computer connections between them through a main regional Server (called in the TOR: "Virtual Institution"). Thus, the "VI", in charge of maintaining in the future (when the project is over) the regional database, is the key-element of the whole system. It should have an administrative or legal authority with minimum resources to operate since it guarantees the system permanency.

Identification and agreement on the two latter aspects: authority and resources determine the system legal position and therefore its location. It is too early, at this stage of the Project, to having any decision in that matter although it should be done early enough to avoid further delay. It seems, for the time being, that the most suitable environment to fixing the system is within the framework of the TRACECA Intergovernmental Joint-Commission. The decision should be taken as soon as possible in that direction.

Then, within this context, the Project intended outputs fit those sought in the TOR which are:

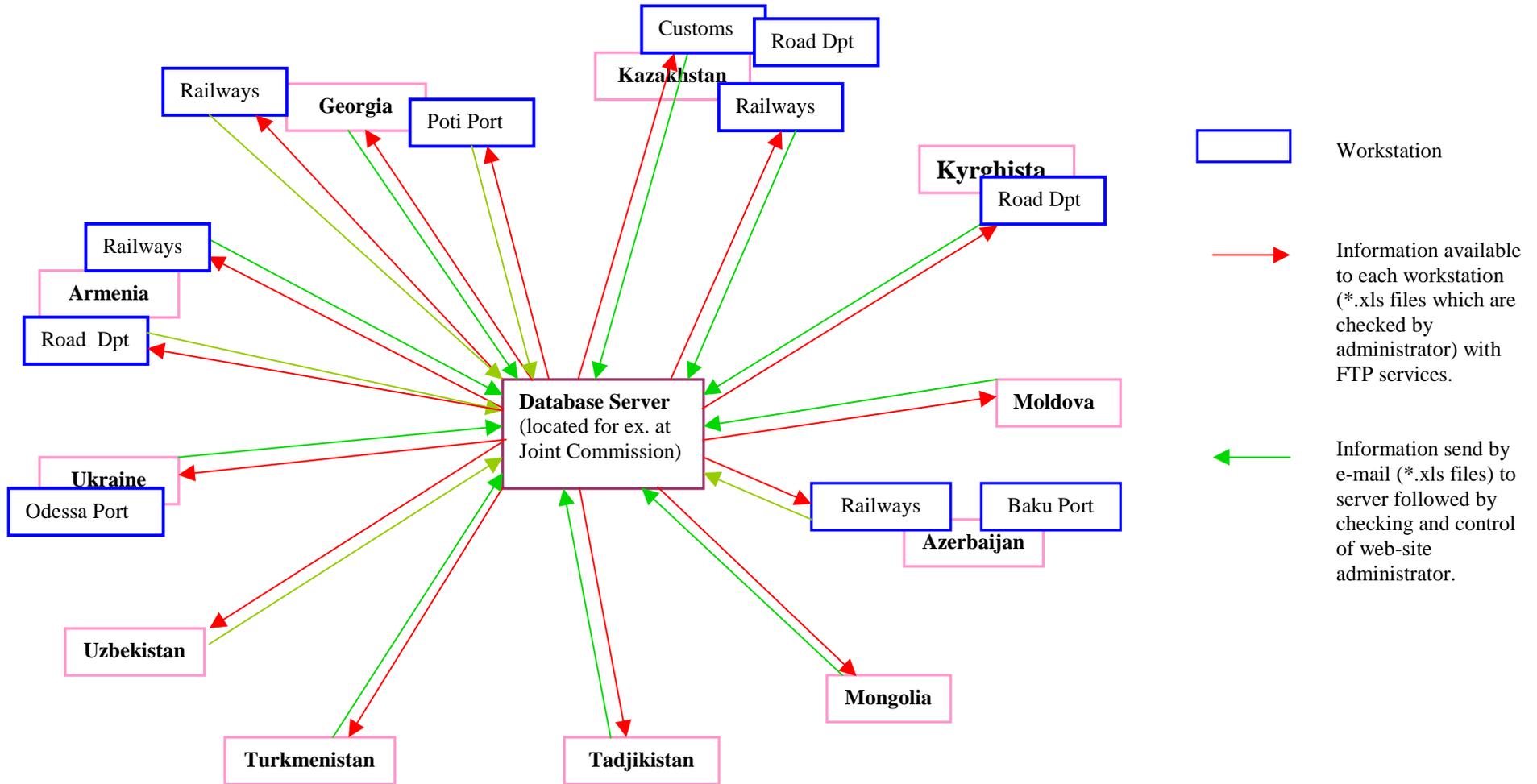
- to establish an autonomous TRACECA data collection centre and forecasting capability, with interfaces across the region
- to provide traffic and other data to the accompanying modules (B to E)
- to document transport infrastructure and service projects for investment solicitation close to the IFIs and to provide traffic data to other donors
- to transfer know-how in database design and modelling to local partners

3.4. Risks and Assumptions

3.4.1. MODULE A

The emphasis placed in the TORs on the need of having a simple and transparent forecasting model is quite understandable given the difficulty found by the local experts to properly understand the former model used in the TRACECA Regional Traffic Forecasting Project. However excessive insistence on simplicity carries itself its own risk: overlooking the complexity of the problem can result in forecast invalidated by facts.

Draft Functioning Scheme for TRACECA database



The main risk seems related to the period after completion of the project. The same situation can happen as it did with the former TRACECA Regional Traffic Forecasting Project. In that case, work on model and database left to local specialists stopped almost immediately in all eight recipient countries because of a lack of interest to continue the work due particularly to the lack of financial incentive. If no financing mechanism is set up to incite country teams to keep the ball rolling, the risk is high that it will stop soon after project completion.

Even if the work continue, it will be a real challenge for experts of 11 countries to find ways of adapting the forecasting model to a changing environment by modifying the base network, re-calibrating parameters and possibly introducing additional factors.

3.4.2. MODULE B

A risk is related to an excessively optimistic view of the future of shipping services in the Caspian Sea. If new companies or services are created and do not find the expected conditions for development, they may fail and leave a situation worst than what it would have been without the creation of new entities.

3.4.3. MODULE C

A significant risk is to over-estimate rehabilitation requirements and therefore to increase port indebtedness and operation costs by over-investing in the ferry terminal. Such a risk is however reduced by the staged approach to the problem. The minimal rehabilitation works required for safe ferry operation will be done first very quickly with funds provided by TACIS. Additional works will be undertaken only when justified by future traffic volume increases.

3.4.4. MODULE D

No significant risk is associated with this module. In all cases, improvement in navigation conditions in the channel of access to the Turkmenbashi port is required. The level of dredging applied can be adjusted over time.

3.4.5. MODULE E

The main recommendations are expected to concern the port of Dubendi, near Baku. The main risk results from the difficulty to produce reliable forecast for future oil flows. Since the present oil terminal facilities, in spite of significant deterioration, can handle several times the volume of oil presently unloaded, the risk is rather that, possibly under the pressure of local management, the study concludes to the need of significantly increasing loading/unloading capacity although handled volumes will not rise much or may even decline.

4. Project Staffing, Organisation and Planning

4.1. Project Organisation and Staffing

4.1.1. Mobilisation and Staffing

The present Project has become effective (TACIS Service Contract Number 99.0130) on the 30th August 1999 for an overall duration of 24 months, that is to say until the 29th August 2001. Two external events have modified the task time-schedule included in the Consultant's Technical Proposal:

1. In June 1999, during contract negotiation with EC, the Consultant was requested to launch Module C, at the very beginning of the Project period (instead from month 9) since the "Caspian Shipping Company" of Azerbaijan (CSC) had just re-opened the ferry services between Baku and Aktau, and the Aktau Ferry Terminal (AFT) was in very bad condition.
2. At the time of launching Module A, at the beginning of the Project, the Team Leader, Mr François Marc Turpin, became unavailable for medical reason, as a result of a traffic accident. The Consultant then proposed to EC his replacement by Mr. Philippe Delaporte in order to start Module A and the other Modules related to it. Agreement for this substitution was given by EC on the 10th November 1999, for, quote: "*Mr. Delaporte to temporarily replace Mr. Turpin, until Mr. Turpin is able to assume his responsibilities in the project. All other conditions of the contract remain unchanged*". unquote

The impact of these events on the Project organisation has been taken into account in its various components: task and expert time-schedules, staff mobilisation and inputs, functional adjustments, reporting, etc. in order to recover the starting delay within the contractual period.

4.1.2. Structure Meetings

TRACECA Co-ordination Unit Team

A meeting was held at the TRACECA CU, Head Office in Brussels, on the 27th October 1999, for general introduction to the Project, collect of the database of the former project and of other relevant information useful for the Project. The information provided by the CU were forwarded to the relevant experts or sub-contractors.

Attendants to this meeting were

Mr. B. Beddegennots	Co-ordinator at the central office
Mr. M. Sims:	Regional Co-ordinator for Central Asia

and for the Consultant:

Mr. P. Davidson:	Database specialist
Mr. J. Worthington	Economist

Mr. Ph. Delaporte, not yet agreed as acting TL by EC was also attending the meeting.

Other meetings took place in Kiev and Baku, between the acting TL and Mr. M. Graille, Regional Co-ordinator for Caucasus during the former site visit in the Traceca countries.

Many meetings were also held within the framework of Module C between Mr. M. Sims and Mr. A. Merrien, TL for this Module (see Inception Report for Module C - November 1999).

TACIS Monitoring Unit Team

Meetings were held with Mr. P. Melissen, in charge of monitoring the Modules B to E, and Mr. A. Merrien regarding the proceeding of Module C, since the latter started at the beginning of the Project time period (September 1999).

At last, closely to the end of the Inception phase, Mr; H. Maters, in charge of monitoring Module A, and Mr. Ph. Delaporte, acting TL, met in Tbilisi on the 25th January 2000 to introduce the draft of the present Report and the proceedings of MODULE A..

4.1.3. Project Organisation

Since (a) the Project is geographically oriented around the Caspian Sea (all modules), and (b) the Consultant activities, during the first phase of Module A, will develop from the inputs prepared from a limited number of "pilot" countries, it is proposed for both reasons together to have a permanent regional office in:

- Baku (Azerbaijan) at the Government House (Room 447) - 370016 Baku, and
- Almaty (Kazakhstan) at the Research Institute for Transport: NIIT

Only the first office will be permanently staffed. However, since the links with the Intergovernmental Joint-Commission are very close, investigations will be carried out, in the near future, to move in the latter Authority premises.

MODULE A

Module A is on the critical path and it is crucial to deliver the necessary demand forecasts on time for the other modules. However, the start of the project has been delayed by two months and it will not be possible to continue with the proposal workplan and deliver on time. We have devised a new workplan to meet these objectives. The project and the database and model designers need more assistance and parallel working and so we have had to introduce a new member to the team, someone who is already up to speed with the tools and modelling techniques to be resident in TRACECA. Mr. Christopher MILLS was a core member of the MYSTIC research team developing a transport database for the EU 15 member States and has wide experience in Database management and modelling, including much overseas experience in these fields in Eastern Europe and the Far East. (CV enclosed in the Appendix).

Data collection, within a limited time period in Module A, requires strong control and monitoring. Supervision will be carried out by expatriate staff, in addition to their own duty in the Project, selected for their experience and particular knowledge of the site. They are:

- Co-ordinator for the Eastern part of Central Asia: Mr. Paul Pezant
- Co-ordinator for Ukraine/Moldova: Mr. John Worthington

Inputs in terms of man month are adjusted accordingly. The acting Team Leader, based in Baku, will directly supervise the Caucasus countries.

MODULE E

While implementing the preliminary investigations on this Module, it appeared that slight adjustments were necessary in the organisation.

Mr. P. Durel, petroleum port economist, proposed as Team Leader for this Module, has not the full and sufficient mobility to spend the necessary time in TRACECA countries at the disposal of the beneficiaries and also enough availability for monitoring purposes. It is proposed that Mr. A. MERRIEN takes over this responsibility being already Team Leader for two other Modules C and D. To carry out successfully his task, he will be supported on site by Mr. P. Pezant, macro-economist having an excellent knowledge of oil matters in Central Asia. Mr P. Durel will also back him up, but with a reduced amount of man.month.

Since the submission of the Consultant's Technical Proposal, Mr. M. Lussier, proposed "Oil Traffic Analyst" has left "Marseille Port Authority". It is hereby proposed for him to be replaced by Mr. C. MONTFORT, who were for more than ten years in charge of managing the oil terminals at Marseille Port (CV enclosed in the Appendix).

Meanwhile Mr. M. Peronnet "Oil Port Terminal Expert", who has been recently promoted to a higher management position within the "Port of Marseille Authority", can have less opportunity and availability to travel in TRACECA area. It is the reason why, it is proposed for him to be supported in his task by Mr. M. IMMELE who has a long experience to work with him (CV enclosed in the Appendix).

4.2. Overall Project Planning

4.2.1. Task Schedule

Due to the circumstances mentioned above, the overall programme schedule has been adjusted accordingly. As MODULE A is the common Module to providing input to the others, its rationale and task time schedule are the basis from which the overall programme has been built up. Planning for the whole Project is given in the table next pages. Planning tables in the required format are also given in the Appendix.

The working schedule for MODULES D, E and B takes into account the expected progress of MODULE A since traffic forecast is the backbone of any quantitative elements (economic and financial) for these modules.

The investigations already carried out on site have demonstrated that a minimum of four months will be necessary to collect the first set of data (1998) for MODULE A by the local experts and specialists.

PROJECT TASKS TIME-SCHEDULE

TRACECA - Traffic and Feasibility Studies

1999				2000												2001							
Sep	Oct	Nov	Dec	Jan	Fev	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Fev	Mar	Apr	May	Jun	Jul	Aug
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24

D1-D2 *Turkmenbashi Port - Navigation Channel*
 A8 *Chardzev Bridge Feasibility - Module A*

Module E Oil Transport and Dubendi Feasibility Study

TASK	Sep	Oct	Nov	Dec	Jan	Fev	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Fev	Mar	Apr	May	Jun	Jul	Aug	
E2-Ph1 <i>Oil Infrastructure transport, Storage, Transfer</i>							-----	-----																	
E1-Ph1+2 <i>Traffic Forecast</i>							-----	-----																	
E1-Ph3 <i>Traffic Forecast</i>									-----	-----															
E2-Ph2 <i>Supply / Demand Appraisal</i>										-----	-----	-----	-----												
E3-E4 <i>Dubendi Berth 3- Feasibility & Tender Document</i>														-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
E5-E6 <i>Solicitation for Investment and Follow up activities</i>																					-----	-----	-----	-----	-----

● E2-Ph1
● E1
● E2-Ph2
● Draft Final Report
● Final

Module B New Caspian Sea Shipping Services

TASK	Sep	Oct	Nov	Dec	Jan	Fev	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Fev	Mar	Apr	May	Jun	Jul	Aug	
B2 <i>Availability and Operating Cost of Vessels</i>							-----	-----	-----	-----	-----	-----													
B3 <i>Navigation & Operating Shipping Services</i>							-----	-----	-----	-----	-----	-----													
B1 <i>Traffic Forecast-Demand Analysis</i>												-----	-----	-----											
B6 <i>Legal, Regulatory and Political Environment</i>														-----	-----	-----									
B5-B4 <i>Management Structure and Personnel Training</i>														-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
B7 <i>Business Plan</i>																					-----	-----	-----	-----	-----

● Inception
● Interim
● Draft Final Report
● Final

4.2.2. Reporting

Since MODULES A and C were launched respectively at times that do not correspond to those mentioned in the TOR, the Reporting system has also been reviewed. The report summary table provides the comparison of the reporting schedules in the TOR and as proposed.

TOR/TECHNICAL PROPOSAL and ACTUAL REPORTING TIME SCHEDULE

End Month	End Date	TOR Reporting	Project Actual Reporting	Module A		Module B		Module C	Module D		Module E	
				TOR NO REPORT DEADLINE		TOR NO REPORT DEADLINE		Report +2 m.	TOR NO REPORT DEADLINE		TOR NO REPORT DEADLINE	
				TOR	ACTUAL	Tech. Proposal	ACTUAL	ACTUAL	Tech. Proposal	ACTUAL	Tech. Proposal	ACTUAL
1	30-sept-99			TOR Start				START				
2	31-oct-99											
3	30-nov-99	Incep. Report						Inception Rpt.			Proposal Start	
4	31-dec-99											
5	31-jan-00		Inception Report					Tender Doc.				
6	29-feb-00	Progr. Report 1		CD delivery								START
7	31-mar-00											
8	30-apr-00						START	Final Report				
9	31-may-00			CD delivery		Start	Inception Rpt.				Tech. Prop END	Specific Report
10	30-jun-00		Progress Report 1		CD delivery							Specific Report
11	31-jul-00											Specific Report
12	31-aug-00	Progr. Report 2		CD delivery					TOR End	START		
13	30-sept-00											
14	31-oct-00						Interim Report					
15	30-nov-00			CD delivery								
16	31-dec-00		Progress Report 2		CD delivery				Tech. Prop Start	Final Report		
17	31-jan-01					Tech. Prop. END						
18	29-feb-01	Progr. Report 3		CD delivery			Draft Final				TOR End	Draft Final
19	31-mar-01											
20	30-apr-01								Tech. Prop END			
21	31-may-01	TOR Draft Final	TOR Draft Final	CD delivery	CD delivery	TOR End	Final Report					Final Report
22	30-jun-01											
23	31-jul-01											
24	31-aug-01	TOR Final	TOR Final	CD delivery	CD delivery							

4.3. Next Reporting Period

The next reporting period will cover the Consultant activities during the months of February to June 2000. These activities will concentrate mainly on

MODULE A

TASK	ACTIVITY
A1	<ul style="list-style-type: none"> ▪ Finalisation on a formal manner of the local expert assistance network
A4	<ul style="list-style-type: none"> ▪ Implementation of the 1998 data collection from the local side
A4	<ul style="list-style-type: none"> ▪ Site survey undertakings (as much as possible and necessary) ▪ Pre-design in EU of the database structure and contents ▪ Continuation of the database design and design preparation of forecasting models in TRACECA site with assistance of experts from the pilot countries.
A2	<ul style="list-style-type: none"> ▪ Two first workshops/seminars will be organised to acquaint the Local Correspondents with the preliminary designs of the database and forecasting models: data, formats, structure, etc. tentatively: <ul style="list-style-type: none"> * in Bishkek for the five countries of Central Asia plus Mongolia (middle of March 2000) * in Kiev for Caucasus countries plus those of the Black Sea (end of March 2000)
A6	<ul style="list-style-type: none"> ▪ Starting preparation of basic documentation
A3 A11	<ul style="list-style-type: none"> ▪ Design of communications system and supply of the first equipment, as necessary

MODULE B

TASK	ACTIVITY
B2 B3	<ul style="list-style-type: none"> ▪ Starting the appraisal for new shipping services on Caspian Sea: Tasks B2 and B3

MODULE C

TASK	ACTIVITY
C6	<ul style="list-style-type: none"> ▪ Completion of the Module with production of the Final Report

MODULE D

- No specific activities are foreseen during this time-period

MODULE E

TASK	ACTIVITY
E1	<ul style="list-style-type: none">▪ Preliminary traffic forecast: Phases 1 and 2
E2 Phase 1	<ul style="list-style-type: none">▪ Implementation on site of task E2-Phase 1: inventory of oil infrastructure, storage and transfer
E2 Phase 2	<ul style="list-style-type: none">▪ Preliminary synthesis for oil supply/demand appraisal: task E2-Phase 2

APPENDIX A

PRELIMINARY REFLECTIONS on SOFTWARE SUPPORTS

Database and Model software environment

Data Base

Access could be used as well as Excel for the database. With MSoffice 2000, data on Excel and Access have permanent links. Data are now stored on one single base. They may be modified either through Excel or Access, which are used as interface. This makes reading and writing data easier and transmission from one software to the other easier to implement.

Availability of data is one of the major difficulties in freight transportation planning in general and in the TRACECA context in particular. Missing information will have to be reconstructed through a comprehensive and well-defined procedure into a form that is meaningful for analysis.

Model computation

The model itself can be built on excel and also with Visual Basic for Application (VBA). It will be possible to process matrices (for the trip generation, distribution and mode choice) and to assign it on a network. It is assumed that the network characteristics and the matrices to be processed will not be too large and the model characteristics will not be too complex since the run time would be too important. Model should be user-friendly although it is not build on a dedicated modelling package

Graphic interface

A graphic interface is necessary to build and modify the infrastructure network, in particular:

- to automatically associate graphic objects to records of the database,
- to adjust length and characteristics of the lines or polylines which represent arcs of the network and connectors to the zones,
- to add, modify node characteristics.
- to visualise model results.

It is now possible to use a basic GIS on Excel (which has been developed with Mapinfo corp.) or the software MapPoint developed by Microsoft. One should determine if the functionality of this GIS is sufficient for the applications required. MapPoint is easy to use but have limited features. For example, MapPoint cannot import new maps, nor can let the user create new map features on which to attach data.

If Excel does not provide this kind of functionality, an external complementary software could be necessary.

MAPINFO may be rather complex to use. In addition, transfer of data from the database and the model support to an external GIS may constitute a long and error generating process. It would be better to manage the database, the model and the GIS with the same software.

Two other solutions may be adopted:

- Use our own software called TAEGIS, which is a GIS dedicated to transport planning. A Russian version could easily be provided.
- Use viper, which is a full windows graphic interface dedicated to transport model processing. The advantage is that it includes all the functions necessary for managing not only networks but also matrices and illustrates results. It is a sustainable software since it is a part of a new generation of full window compatible modelling software in the continuation of the famous MinuTP and Tranplan modelling software widely use among the world. At term, the full model could be transferred easily on this new platform. However, it is doubtful that it could be translated into Russian at a reasonable price.

Outputs

- Produce base reference present database and forecast model for the TRACECA region
- Data format and examples
- Model parameters
- Traffic forecast for Project Modules B to E, and specific cases
- Comprehensive manual for the database and model (list of instruction and text explanation)
- Tool box: spreadsheets + graphic interface + macro-command. This tool box will permit to adjust model parameters according to new data available, to modify the network with new links or by modifying characteristics of the existing links, to test specific transport demand scenarios

APPENDIX B

INSIGHTS in SOME COUNTRIES

MOLDOVA

In terms of Road Infrastructure, there is a Highway Information System (HIS) already created in Moldova, which is in ACCESS format and uses graphics under MAPINFO. For the national road network, most of the necessary information exists and it is simply a matter of data transfer from the HIS to the TRACECA database. The network is digitised, links (with lengths) and nodes defined etc.

With respect to rail infrastructure, the Tacis Rail Transport Feasibility Study (Ukraine, Russia, Belarus, Moldova) TNREG 9301 will be a valuable source of information, although the model for that project did not work well for Moldova. There is no OD data available for railways by sub-division, only for Moldova as a whole. Network data is available, but has changed in recent years.

UKRAINE

The Deputy Minister of Transport has officially appointed the Head of the Transport Policy Department as the nominated representative of the Beneficiary. In his letter, dated 15 December 1999, he also expressed the MOT's commitment to the project which is consistent with the "Multilateral Agreement on International Transport to develop the Europe-Caucasus-Asia Corridor", signed in Baku in September 1998.

The database and supporting documentation prepared as part of the previous TACIS project TNUK 9302 "National Road Network Study of Ukraine" will provide a valuable starting point for traffic and road network inputs into the traffic model. The Consultant will also make use of more recent data collected as part of the on-going TACIS project EDUR 9701 "Technical assistance to Ukravtodor and civil works private firms" and TACIS project TNREG 9703 "Improvement of traffic flows on TEN Corridors II and IX". Information on both the road and rail networks within the TEN Corridors in Ukraine that was developed as part of the TACIS project TNUK 9601 "Institutional support to the Ministry of Transport" will be also of some relevant use.

GEORGIA

There exists some concern about the expected results from the traffic forecasting. Considering the country as mainly a transit one for goods movements, the transport officials are anxious to know what could make competitive the route through Caucasus for the transport flows that presently avoid it. Addressing this issue has multiple entries, which is not only to watch the exchanges between Europe and China. One of the multiple keys is to have, first of all, a regional approach (to be extended later on) to the transport flows and routes with co-ordination of actions between the relevant Authorities themselves in order to create competitive routes within the area. One objective of the present Project is to provide such a key.

Georgia: Level and nature of information which can be received from various sources of information:

Ports and maritime transport:

Complete information can be obtained about ports, their equipment, capacities, regulations, passenger transport, good transport, movement of shipping lines etc. There is a Centre in Batumi with about 55 persons working on statistics, economic evaluation etc. Any type of information needed for TRACECA programme can be obtained.

Road transport flows.

Statistics that have been published, since 1992 until now, have no sound basis. The department of road transport started only in 1999 to collect transport documents from the regions, but many problems still exist to deal with these data. The information coming from border crossings is not accurate, and some border areas are out of control.

Road Traffic counts:

The road maintenance has been transferred to concessionaires for 11 regions. In the contract for routine maintenance, the concessionaires are obliged to do four times in the year traffic counts on all international and internal state roads, in the mean each 40 km, so that the State Department of Roads gets all traffic data from about 110 points of the whole road network.

It is possible for the State Department to carry out two-day traffic counts with commodity origin-destination. This possibility would provide a more reliable than the present evaluation

Railway transport:

There is a complete statistical department of railways in Tbilisi that can supply any information concerning the railway transport operations.

Aviation:

Complete information about airport, aircraft of various air-companies, passenger transport, transport of luggage and of goods can be obtained according to international regulations, which are released each year and sent to an international Centre in Canada. All forms are presented in appendix.

Oil transport:

The transport of oil by pipelines is managed by the Georgian International Oil Corporation. The oil transport by railways does not fall under their responsibility. The transport of refined oil products goes only by rail, and an eventual pipeline for diesel in the very long range, will be under the responsibility of the Ministry of Energy

ARMENIA

Staff of the Ministry of Transport has been drastically reduced because of financial issues, and the computer equipment is either obsolete or out of order. In that situation, absolutely nothing remains from the former TRACECA Project on regional traffic forecasting.

Road traffic counts are carried out twice a month but with no direct use. About transport information, the situation appears better in the railway sector. But it seems, on the contrary, that the data to be provided by the Ministry of Statistics are still considered as confidential matters.

AZERBAIJAN

If the instrument left during the former TRACECA Project was not used, it however can be put under operations at the "Railway Computer Centre". The local network of correspondents is well aware about the Project and the nature of data to be collected. The only drawback is the absence of a Ministry of Transport. This issue may be addressed by the technical assistance under implementation through various TACIS/TRACECA programmes.

TURKMENISTAN

It is the major beneficiary of the present Project. However, the Cabinet of Ministers could not yet be met, and the Ministry of Sea Transport, located in Turkmenbashi, was also not yet visited. The absence of representatives at the Baku Conference of September 1998 has brought certain confusion among former active participants in TRACECA projects.

For MODULE A, the Consultant is expecting the active assistance of the "National Institute on Statistics and Forecasting" (Turkmenstatpronoz) which participated in the former project. Its invaluable services will be highly appreciated for populating the database. However, no remaining of the former Project could be found.

UZBEKISTAN

The Deputy Prime Minister has already made decisions and taken actions regarding the organisations and administrations to be involved in the Project and to assist the Consultant in implementing his tasks. Visits have already been made to the Leading Unit and various Correspondents. A formal agreement should take place in the near future with Uzavtotrans.

KAZAKHSTAN

The Research Institute for Transport (NIIT) has already actively participated in the work for MODULE C. Its sound knowledge of Kazak transportation situation makes it an ideal partner to "pilot" the Project in close co-operation with the EU experts. The database and equipment delivered during the former Project is available at the Institute.

TADJIKISTAN

No visit on site has still been made. However, the State Design and Research Institute "Tadjikiprotranstroi, has been contacted. The Institute, although depending on the Ministry of Road Construction and Economy, has easy access to the official data to fill the transport database, thus making it an indispensable and reliable partner for the Project.

KYRGYZSTAN

There should be no major problems in Kyrgyzstan. "Kyrghyzdortransproekt", having a leading position in the former TRACECA Project, will continue a similar task, with the support of the National Statistics Committee, for the present Project. The first workshop/seminar on the database content and structure will take place in Bishkek.

MONGOLIA

Not yet visited nor approached at this stage of the Project.

APPENDIX C

MODULE E

OIL TERMINAL FACILITIES in BAKU AREA

OIL TERMINAL FACILITIES IN BAKU AREA

SITE VISIT REPORT

In Soviet times, the Baku area was a major centre for oil processing. Refineries had a capacity of up to 25 million tonnes of crude oil per year. They were processing not only oil extracted in the area but also significant volumes brought from other parts of the Soviet Union particularly Kazakstan and Turkmenistan. On the other hand large volumes of petroleum products were exported in direction of those two countries with destinations as far as Siberia or even Kamchatka.

The terminal facilities of the Baku port were at one time handling inflows and outflows, particularly at pier 20. However to cope with increasing flows, in the seventies it was decided to build a dedicated oil terminal on the Apsheron Peninsula in a site called Dubendi that is naturally well protected by a near-by island. Dubendi is at a distance of 47 km from Baku by land and 92 nautical miles by sea.

The Dubendi oil terminal consists of four full-size piers (No 1, 2, 3 and 5). Pier 3 was assigned to the handling of refined petroleum products in both directions and the other piers to the import of crude oil. Each pier has two symmetrical berths, each one with a design capacity of 2.8 million tonnes of oil per year. The total capacity was therefore of over 20 m tonnes per year.

Available draft without dredging is over 8 m. It allows the use of tankers of up to 8,000 DWT. For larger ships alighting is required but it is reported that light dredging would make it possible for ships of 12,000 DWT to use the facilities. A space with a radius of 350 m allows the tankers to turn. Presently tankers in use have typically a capacity of 5,000 tonnes of refined petroleum products or 7,000 tonnes of crude oil.

Over time the facilities suffered progressive degradation. In 1990, "the Caspmorniiproekt", the project Institute, author of the initial design, prepared a project for the rehabilitation of the facilities. The estimated cost was about USD 13.5 m at the exchange rate of the Ruble at that time.

After independence, the Dubendi oil terminal was divided into two lots:

- The Baku International Sea Trade Port received Pier 1 and Pier 3 as well as the seawall protecting Pier 3 and,
- The National Oil Company took possession of Pier 2 and Pier 5 and of the jetty that leads to piers 1, 2 and 5, as well as the storage facilities and the pipes leading to them.

Presently Piers 2 and 5 are no more used and have reached an advanced stage of deterioration. Rehabilitating them might be nearly as costly as building new facilities.

On the other hand, **Pier 1** can still operate at nearly full capacity. It is said to be able to receive 90 to 100 ships a month and to unload 600,000 to 700,000 tonnes and even up to 850,000 tonnes per month. The basic structure still seems strong and sound. It is reported that the major problem is with the fenders and amortization devices that need complete reconstruction. The unloading devices and pipe system that belong to SOCAR would also require major repair and modernisation. Unloaded oil is pumped through a set of four pipes into six 20,000 tonnes tanks with a total storage capacity of 120,000 tonnes.

For the time being, Pier 1 is far from being used at full capacity. It is said that only 1,650,000 ton of crude oil was unloaded in 1999. In a recent typical month, about 38 to 45 ships were unloaded. However some peaks occur such as in November and December 1998 when unloading reached 450,000 tonnes.

Until 1990 during the soviet times, **Pier 3** was used to export refined petroleum products. Up to 4 or 5 tankers a day could be loaded and sent to Krasnovodsk (presently Turkmenbashi) after a mere 45 minutes paperwork. Since 1990, one of the two berths stands completely idle. The other berth was shifted to another use some years ago. It is presently used to unload tanker bringing aviation fuel from the Baku refinery. The fuel is pumped into a storage facility consisting of 30 tanks of 5,000 tonnes. From there it is sent to the airport by pipeline. The pipes belong to the "Akneftiak" company.

Two kinds of flows are presently transiting by Dubendi:

- Crude oil extracted in the region of the Apsheron Peninsula reaches Dubendi by underwater pipelines. It is shipped by rail to the SOCAR storage facilities in Sangachal before being sent by pipeline to the Supsa port on the Black Sea.
- Crude oil imported by tanker either (the bulk of it) from Aktau (Kazakstan from where it is shipped by Tengizchevronoil) or from Akaren or Araja (Turkmenistan where it is produced by Mobil or Total). The oil is sent to Batumi port on the Black Sea by the Caspian Tranco Inc Company through one of two routes:
 - ~ by wagon all the way from port to port
 - ~ by pipeline through Baku area to the Ali Bayramle rail terminal and from there forwarded by wagons to the Batumi port (this way is used only if the all-rail way is congested as it was for instance in late 1998).

APPENDIX D
PLANNING TABLES

TABLE 1

OVERALL PLAN OF OPERATIONS

Project Title: Traffic and Feasibility Studies - TNREG9803		Contract Nb: 99.0130								Countries: 11 TRACECA States				
Planning Period: September 1999 - August 2001		Prepared: January 2000								EU Lead Consultant: BCEOM				
Project Objectives: Design and institutionalisation of a transport planning tool for the 11 TRACECA States														
No	MAIN ACTIVITIES	TIME FRAME									INPUTS			
		1999		2000				2001			PERSONNEL (weeks)		PERDIEM	
		Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	EU Experts	Local Experts		
		SS	OONNDD	JJFFMM	AAMMJJ	JJAASS	OONNDD	JJFFMM	AAMMJJ	JJAA	Weeks	Weeks	days	
Module A														
1	Inception		XXX	XX							9	0	54	
2	Local Network of Correspondents		XXX	XXXX							11	0	77	
3	Data Collection			XXXXX	XXXXXXXX	XXXXXXXX	XX		XXXXXX		10	300	60	
4	Database Development and documentation			XXX	XXXXXXXX	XXX	X	XXXX			42	35	248	
5	Forecats modelling development and documentation			XXX	XXXXXXXX	XXX	X	XXXX			56	40	331	
6	System Active Introduction and Instrument Use					XX		XXXX	XXXXXXXX	XXXXXX	XXXX	40	100	237
7	Chardzev Bridge Feasibility						X	XXX			8	10	51	
	TOTAL										176	485	1 058	
Module B														
8	Appraisal for New Caspian Sea Shipping Services				XXXXXXXX	XXXXXXXX	XX				19	18	110	
9	Management Structure and Business Plan						XXXXXX	XXXX			24	15	92	
	TOTAL										43	33	202	
Module C														
10	Acktau Ferry Terminal - Tender Documents		X	XXXXXXXX	X						24	16	120	
11	Recommendations			XX	XXXX						11	2	30	
	TOTAL										35	18	150	
Module D														
12	Turkmenbashi Navigation Channel						XXXX	XXXX			21	12	105	
Module E														
13	Oil supply/demand Appraisal			XXX	XXXXXXXX	XX					31	20	100	
14	Dubendi berth 3 - Feasibility -Tender Doc. - Follow up							XXXXXXXX	XXXXXXXX	XXXXXX	XXXX	57	20	185
	TOTAL										88	40	285	
	OVERALL TOTAL										363	588	1 800	

TABLE 2

OVERALL OUTPUT PERFORMANCE PLAN

Project Title: Traffic and Feasibility Studies - TNREG9803	Contract Nb: 99.0130	Countries: 11 TRACECA States
Planning Period: September 1999 - August 2001	Prepared: January 2000	EU Lead Consultant: BCEOM
Project Objectives: Design and institutionalisation of a transport planning tool for the 11 TRACECA States		
Output/Target Dates	Agreed Objectives: Verifiable Indicators	Constraints and Assumptions
<p>Inception and setting up the network of local Correspondents - Inception Report (month 2+3)</p> <p><i>MODULE A: Traffic Database and Forecasts</i> Phase 1: Local data collection and database design. Progress Report 1 (month 2+8)</p> <p>Phase 2: Development of forecasting models followed by training and Documentation Feasibility Studies. Progress Report 2 (month 2+14)</p> <p>Phase 3: Active system introduction/dissemination. Draft Final Report (month 2+19)</p> <p>Phase 4: Instrument Use. Final Report (month 24)</p> <p><i>MODULE B: New Caspian Sea Shipping Services</i> Demand Analysis and Business Plan Draft Final Report (month 2+16)</p> <p><i>MODULE C: Aktau Ferry Terminal Redevelopment</i> Tender Documents (month 4) and Recommendations Final Report (month 8)</p> <p><i>MODULE D: Navigation Channel for Turkmenbashi Port</i> Feasibility Study Final Report (month 2+14)</p> <p><i>MODULE E: Transport: oil/products on the Caspian Sea</i> Supply/Demand Analysis and Solicitation for Investment Draft Final Report (month 2+16)</p>	<p>For all Reports</p> <ul style="list-style-type: none"> * successful achievement of all sub-tasks * participation of local partners and/or Correspondents <p>For Database and Forecasts</p> <ul style="list-style-type: none"> * model flexibility and easy use by local counterparts * system sustainability after Project completion * high quality of communications system <p>For Feasibility Studies</p> <ul style="list-style-type: none"> * relevant traffic forecasts and cost accuracy * co-operation of local Authorities 	<p>Main Constraints</p> <ul style="list-style-type: none"> * data availability, accuracy with no confidentiality * involvement of local experts during and after Project * unpredictable administrative and/or political decisions <p>Main Assumptions</p> <ul style="list-style-type: none"> * appropriate administrative framework for the sustainability and development of project outputs * incentives for local participation post-Project

TABLE 3

PLAN OF OPERATIONS FOR THE NEXT PERIOD

Project Title: Traffic and Feasibility Studies - TNREG9803		Contract Nb: 99.0130					Countries: 11 TRACECA States			
Planning Period: February 2000 - June 2000		Prepared: January 2000					EU Lead Consultant: BCEOM			
Project Objectives: Design and institutionalisation of a transport planning tool for the 11 TRACECA States										
No	MAIN ACTIVITIES	TIME FRAME						INPUTS		
		2000						PERSONNEL (weeks)		PERDIEM
		FEB	MAR	APR	MAY	JUN		EU Experts Weeks	Local Experts Weeks	days
Module A										
2	Local Network of Correspondents	XX		X				2	0	14
3	Data Collection		XXXX	XXXX	XXXX	XXXX		5	145	32
4	Database Development and documentation	XX	XX	XXXX	XXXX	XXXX		26	10	140
5	Forecats modelling development and documentation	XXXX		XXXX	XXXX	XXXX		24	12	133
	TOTAL							57	167	319
Module B										
8	Appraisal for New Caspian Sea Shipping Services			XXXX	XXXX	XXXX		6	3	36
	TOTAL							6	3	36
Module C										
11	Recommendations	XXXX						6	2	10
	TOTAL							35	18	10
Module D										
Module E										
13	Oil supply/demand Appraisal	XX	XXXX	XXXX	XXXX	XXXX		24	6	36
	TOTAL							24	6	36
	OVERALL TOTAL							122	194	401

APPENDIX E

CVs of EXPERTS

MODULE A

Mr. CHRIS MILLS to support the Database Designer

MODULE E

Mr. C MONTFORT to replace the Oil Traffic Analyst

Mr. M IMMELE to support the Oil Port Terminal Expert