



Project name : Technical  
Assistance to the Southern  
Republics of the CIS and  
Georgia - TRACECA : Roads  
Maintenance. Project No  
TNREG 9601

## Final Summary Report

### Field Management Module

Date of submission  
17 December 1999



**Technical Assistance to the Southern Republics of CIS and  
Georgia – TRACECA**

**TRADE AND TRANSPORT SECTORS**

**FINAL SUMMARY REPORT**

**FOR**

**FIELD MANAGEMENT MODULE**

**OF**

**PROJECT NO. TNREG 9601,ROADS MAINTENANCE**

**December 1999**

**Finnroad Oy  
Helsinki  
Finland**

**in association with**

**Parkman Ltd  
Ellesmere Port  
U.K.**

**Roughton Int.  
Southampton  
U.K.**

**and**

**Phønix  
Veijen  
Denmark**

COVER PAGE 1

FIELD MANAGEMENT UNIT

**REPORT COVER PAGE**

Project Title	:	TRACECA: Roads Maintenance
Project Number	:	TNREG 9601
Country	:	Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan, Mongolia, Tadjikistan, Turkmenistan and Uzbekistan

	Local Operator	EC Consultant
--	----------------	---------------

Name	:	Armenian Road Directorate	Finnroad Oy
Address	:	Acharian St. 54 B, Yerevan 375040, Armeniaa	Opastinsilta 12 A, 00520 Helsinki, Finland
Tel. number	:	+3742-582 712	+358-9-8689 880
Fax number	:	+3742-151 830	+358-9-8689 8820
Telex number	:		
E-mail	:		<u>Matti.mannonen@finnro</u> <u>ad.fi</u>
Contact person	:	Nikolai Elarian, Director	Matti Mannonen
Signatures	:		

COVER PAGE 2

FIELD MANAGEMENT UNIT

**REPORT COVER PAGE**

Project Title	:	TRACECA: Roads Maintenance
Project Number	:	TNREG 9601
Country	:	Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan, Mongolia, Tadjikistan, Turkmenistan and Uzbekistan

Local Operator	EC Consultant
----------------	---------------

Name	:	Azeravtoyol	Finnroad Oy
Address	:	72 A, Hadjihekov St.,370010 Baku, Azerbaijan	Opastinsilta 12 A, 00520 Helsinki, Finland
Tel. number	:	+994-12-933 536	+358-9-8689 880
Fax number	:	+994-12-985 586	+358-9-8689 8820
Telex number	:		
E-mail	:		<a href="mailto:Matti.mannonen@finnroad.fi">Matti.mannonen@finnroad.fi</a>
Contact person	:	S. A. Hasanov, Vice President	Matti Mannonen
Signatures	:		

COVER PAGE 3

Field Management Module

	Local Operator	EC Consultant
Name	: State Department of Motor Roads of Georgia	Finnroad Oy
Address	: 29 Gagarin St., Tbilisi 380060, Georgia	Opastinsilta 12 H, 00520 Helsinki, Finland
Tel. Number	: +995-32-376 601	+358-9-8689 880
Fax number	: +995-32-342 618	+358-9-86898820
Telex number	:	
E-mail	:	<u>Matti.mannonen@finnr oad.fi</u>
Contact person	: Tamaz A. Shilakadze, Vice chairman	Matti Mannonen
Signatures	:	

COVER PAGE 4

Field Management Module

	Local Operator	EC Consultant
Name	: Ministry of Transport and Communications, Department of Roads	Finnroad Oy
Address	: 86 Gogol St., Almaty 480091, Kazakhstan	Opastinsilta 12 H, 00520 Helsinki, Finland
Tel. Number	: +7-3282-260 126 or 262 900	+358-9-8689 880
Fax number	: +7-3272-262 818	+358-9-8689 8820
Telex number	:	
E-mail	:	<u>Matti.mannonen@finnr</u> <u>oad.fi</u>
Contact person	: Boris L. Goncharov, Director Engineeringautodor	Matti Mannonen
Signatures	:	

COVER PAGE 5

Field Management Module

Local Operator	EC Consultant
----------------	---------------

Name	: Ministry of Transport	Finnroad Oy
Address	: 42 Isanov St., Bishkek 720017, Kyrgyzstan	Opastinsilta 12 H, 00520 Helsinki, Finland
Tel. number	: +996-3312-224 889	+358-9-8689 880
Fax number	: +996-3312-213 667	+358-9-8689 8820
Telex number	:	
E-mail	:	<u>Matti.mannonen@finnr oad.fi</u>
Contact person	: R. U. Rakhmatullin, Head of Roads Department	Matti Mannonen
Signatures	:	

## COVER PAGE 6

## FIELD MANAGEMENT UNIT

	Local Operator	EC Consultant
Name	: Kyrghyz Raiway Directorate	Finnroad Oy
Address	: 83 Leo Tolstoi Street, Bishkek, Kyrgyzstan	Opastinsilta 12 H, 00520 Helsinki, Finland
Tel. number	: +996-3312-254 627	+358-9-8689 880
Fax number	:	+358-9-8689 8820
Telex number	:	
E-mail	:	<u>Matti.mannonen@finnr oad.fi</u>
Contact person	: Zeinulla Talasbaev, Chief Engineer	Matti Mannonen
Signatures	:	



COVER PAGE 7

FIELD MANAGEMENT UNIT

Local Operator	EC Consultant
----------------	---------------

Name	: Ministry of Infrastructure Development, Department of Road	Finnroad Oy
Address	: Chingis Khan Avenue, Ulaanbaatar 210628, Mongolia	Opastinsilta 12 H, 00520 Helsinki, Finland
Tel. number	: +976-1-325 426	+358-9-8689 880
Fax. number	: +976-1-310 503	+358-9-8689 8820
Telex number	:	
E-mail	:	<u>Matti.mannonen@finnr oad.fi</u>
Contact person	: Sod Ochirbat, First Deputy Director	Matti Mannonen
Signatures	:	

## COVER PAGE 8

## FIELD MANAGEMENT UNIT

	Local Operator	EC Consultant
Name	: Tajikiprotransstroy	Finnroad Oy
Address	: 14, Ayni St., Dushanbe 734042, Tadjikistan	Opastinsilta 12 H, 00520 Helsinki, Finland
Tel. number	: +7-3772-212 020 ; 215 380	+358-9-8689 880
Fax. number	: +7-3772-212 020	+358-9-8689 8820
Telex number	:	
E-mail	:	<u>Matti.mannonen@finnr oad.fi</u>
Contact person	: Timur D. Mirzoev, Director	Matti Mannonen
Signatures	:	

COVER PAGE 9

FIELD MANAGEMENT UNIT

	Local Operator	EC Consultant
Name	: Turkmenautoellari	Finnroad Oy
Address	: 1 km of Povrize highwayTurkmenistan	Opastinsilta 12 H, 00520 Helsinki, Finland
Tel. number	: +993-12-245 487; +3632-245 487	+358-9-8689 880
Fax. number	: +993-12-255 378; 511 678	+358-9-8689 8820
Telex number	:	
E-mail	:	<u>Matti.mannonen@finnroad.fi</u>
Contact person	: Vladimir Volodin, Main Specialist	Matti Mannonen
Signatures	:	

COVER PAGE 10

FIELD MANAGEMENT UNIT

Local Operator	EC Consultant
----------------	---------------

Name	: National Road Administration UZAVTOYOL	Finnroad Oy
Address	: 68 a, Pushkin St., 700000 Tashkent, Uzbekistan	Opastinsilta 12 H, 00520 Helsinki, Finland
Tel. number	: +7-3712-682 526; 361 582	+358-9-8689 880
Fax number	: +7-3712-682 531	+358-9-8689 8820
Telex number	:	
E-mail	:	<u>Matti.mannonen@finnro</u> <u>ad.fi</u>
Contact person	: Vohid Normamatovich Azamov, Director	Matti Mannonen
Signatures	:	

Date of report : 17 December 1999

Reporting period : 24 July 1997 – 31 December 1999

Author of report : Bror Karell, Project Director

EC M & E Team

(name) (signature) (date)

EC Delegation

(name) (signature) (date)

TACIS Bureau

(Task Manager) (name) (signature) (date)

## **1. INTRODUCTION AND PROJECT SYNOPSIS**

### **1.1 Introduction and Character of Report**

The project covered nine countries and had five different modules. There was, unfortunately, very little synergy between the various modules. As the various modules were independent from each other the consortium members Finnroad and Parkman internally split up the work and their responsibilities in such a way that Finnroad was responsible for the implementation of Modules A,B and C and Parkman for Modules D and E. Finnroad as the leading partner was responsible for the whole project towards the Commission.

This Final Summary Report covers the period from the start date of the project (24 July 1997) up to the completion of the project. Neither the TOR nor the contract provides for this summary report. It was, however, agreed between the Task Manager, Donata Maccelli, and the project director that the Field Management Module will prepare a final summary report on the achievements and problems related to the Project. The objective of this report is to give the reader an overall view of

- The activities and output of the project
- The main objectives of the various modules
- How the objectives were reached
- Deviations from the original planning
- Lessons learnt

This report will not, due to its special purpose and character, fully follow the model of the standard Tacis Final Report.

The contract was signed on 24 July 1997. According to the contract the project was to be completed within 15 months, which meant by 24 October 1998. The final reports should be issued before 24 November 1998. By Addendum No 1 dated 23 November 1998 the Contractor was granted an extension in the time of completion up to and including 24 July 1999. By Addendum No 2 dated 19 July 1999 the time of completion was extended up to and including 23 November 1999. By Addendum No 3 dated 15 November 1999 the time of completion was further extended up to and including 31 December 1999.

All Modules of the Project have by now been completed. The Final Reports covering the activities of the respective Modules have already been issued.

### **1.2 Reports Issued by the Various Modules**

The various Modules of the Project have issued the following reports:

Module A, Materials, Plant and Standards

- Inception Report, September 1997
- Progress Report 1, November 1997
- Phase 1 Final Report, March 1998
- Progress Report 2, March 1998

- Phase 2 Final Deliverables, November 1998, which consisted of
  - Russian translation of all those parts of the AASHTO Specifications and Tests, which are referred to in the ADB Construction Standards together with a small number recommended by us for being used in road maintenance
  - Tender Documents with commentaries for Contract Documents suitable for ADB/WB projects
  - A general Laboratory Assessment Report and a specific one for Armenia, Azerbaijan and Georgia
  - Bitumen Specification Report
  - Full set of the official AASHTO standards
  - Equipment Manufacturer's Listing (sent in October 1998)
  - CD rom containing the produced documents
- Final Report, December 1999

#### Module B, Winter Maintenance

- Inception Report, September 1997
- Progress Report 1, November 1997
- Progress Report 2, March 1998
- Country by Country Winter Maintenance System (WMS) Reports, September 1998
- Final Report, December 1998

#### Module C, Restructuring of the Transport Sector in Azerbaijan

- Inception Report, September 1997
- Progress Report 1, November 1997
- Final Report, March 1998

#### Module D, Pavement and Bridge Management Systems

- Inception Report, September 1997
- Progress Report 1, November 1997
- Progress Report 2, March 1998
- Final Report, November 1999

#### Module E, Prefeasibility Studies

- Inception Report, September 1997
- Progress Report 1, December 1997
- Supplementary Progress Report, February 1998
- Progress Report 2, April 1998
- Final Report, July 1999

#### Module F, Field Management Module

- Inception Report, September 1997
- Progress Report 1, November 1997
- Progress Report 2, March 1998.

In the Inception, Progress and Final Reports of the various modules the key issues, achievements, deviations, specific problems and recommendations of each respective module were dealt with.

### 1.3 Project Synopsis

<b>Project Title:</b>	Technical Assistance to the Southern Republics of the CIS and Georgia – TRACECA: Roads Maintenance
<b>Project Number:</b>	TNREG 9601
<b>Countries:</b>	Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan, Mongolia, Tadjikistan, Turkmenistan and Uzbekistan

#### Overall objectives of the project:

- improved construction of bituminous pavements in order to minimise the sum of vehicle operating costs over the road network and the cost of road construction and maintenance (Module A)
- reduction of operation restrictions and insecurity on key transit routes in winter time, leading to lower vehicle operating costs and decreased traffic accidents (Module B)
- local production of transport related goods through foreign investments (Modules A and B)
- restructuring of the road sector in Azerbaijan in accordance with market economy conditions (Module C)
- promote the rational allocation of limited routine road maintenance funds in the most economically advantageous way by implementing the use the PMS and BMS systems (Module D)
- increased trade and improved communication facilities through railroad and road routes from Uzbekistan through Kyrgyzstan to Kashgar in China (Module E).

#### Objectives of the Field Management Module:

Successful completion of the project. through effective project co-ordination and overall field management.

#### Final Outputs:

The final output with recommendations from the work of Modules A – E are explained in the Final Reports of the respective modules.



The management module concentrated on

- managing and supervising the project activities and in giving support to the various modules in keeping the recipients and counterparts committed to the project and in getting the recipient organisations to accept and to implement proposed new strategies, recommendations and working methods
- promoting foreign investments into the road construction and road maintenance related industries

**Project activities:**

The project activities of Modules A – E are described in the Final Reports of the respective modules.

The project activities of the Project Management Module consisted of:

- managing and supervising of the project
- providing support to the various modules of the project
- concluding the sub-consultants agreements with the sub-consultants in the various countries
- liaison with the recipients, counterparts, sub-consultants, European Commission, EU Regional Offices, Tacis Co-ordination Units, TRACECA Co-ordination Team and TRACECA Monitoring Team.
- arranging the Steering Committee Meeting
- arranging the Investors Conference.
- following up of the reporting and the translation, printing and distribution of the reports of the various modules

**Project starting date:** 24 July 1997.

**Project duration:** Originally 16 months but after extensions up to and including 31 December 1999.

## 2. SUMMARY OF THE PROJECT SINCE THE START

### 2.1 General

Following the signing of the contract on July 24 1997 a project start up meeting was held in Brussels on 31 July 1997. The various modules started their field activities as follows:

- Module A on 20 August 1997
- Module B on 24 August 1997
- Module C on 12 August 1997
- Module D on 16 August 1997
- Module E on 5 September 1997 and
- Module F on 12 August 1997.

The Inception Report Phase (start of project up to 30 September 1997) was by far too short for a project covering nine countries. The short Inception Report Phase did not make it possible for the project director or the team leaders of Modules A, B and D to visit all project countries prior to having to submit the Inception Reports. Therefore it was not, prior to the submission of the Inception Reports, possible to get a full picture of the priority issues and the existing constraints in each country. Consequently we were not, at the end of the Inception Report Phase, fully in a position to assess the need to propose adjustments to the TOR. Thus the Inception Reports did not in all respects meet their objectives.

By the time of submitting the first Progress Report on 30 November 1997 experts from all modules had met with all their respective recipient organisations and local sub-consultants. Therefore the first Progress Reports of modules A, B and D had partly the character of an updated Inception Report and partly that of a Progress Report. During the first Progress Report Phase the project director agreed with the TRACECA Co-ordinator for Central Asia that the contractor should concentrate its efforts on priority issues in each of the project countries. Other questions should receive less attention. As a consequence of that decision e.g. Module A provided additional Bitumen and Refinery input.

The Module C study tour to Finland was arranged 25 November - 3 December 1997 with 15 participants from Azerbaijan. Lin O'Grady from EBRD also participated in the study tour.

In December 1997 the security situation in Tajikistan worsened and hindered some planned trips to materialise. In an E-mail dated 17 December 1997 the TRACECA Co-ordination Team in Brussels informed the Contractor that "the Commissioners advice no one to travel to Tajikistan in the near future and that they will issue a further message when they consider the position is secure and it is safe to travel again". The recommendation not to enter Tajikistan remained in force from December 1997 up to the completion of the project. The unfortunate situation in Tajikistan affected the implementation of Modules A, B, and D. Modules A and D were unable to carry out the

planned work in Tajikistan as they would have required visits/working in the country. Module B prepared the WMS report on basis of discussions with the Recipient and on information received from Tajikistan and without visiting the country.

The Steering Committee Meeting of Modules A and B was held in Almaty on 16 and 17 February 1998. All Recipient organisations, with the exception of Sakavtogza, Georgia, were represented at the meeting.

The Module B study tour to Finland took place between 23 - 27 February 1998. Eighteen persons representing all nine countries participated in the study tour.

The Investors Conference was held in Almaty on 21 May 1998. Twelve EU based and 21 Traceca country based companies and organisations participated in the conference.

In several countries the recipients expressed criticism against the TOR. The criticism focused on the fact that the TOR did not properly pay attention to their specific problems.

In Turkmenistan the recipient was dissatisfied with the TOR for Modules A and D. In the opinion of the Turkmen recipient too little attention had, in Module A, been paid to their main problem, which was the high paraffin content in the bitumen. Under Module D the Turkmen recipient requested that bridge testing should be carried out instead of a bridge inspection. With the approval of the TRACECA Co-ordinator for Central Asia the Contractor allocated additional resources for investigating the paraffin problem and for teaching the Turkmen recipient in the method of bridge load testing.

In Georgia the recipient was also unhappy, as the TOR for Module D only contained bridge inspection and no bridge load testing. The initial dissatisfaction by the Georgian recipient did not, however, lead to any change in the scope of works of Module A in Georgia.

In Kazakhstan our sub-consultant, the Research Institute Kazdornii, had developed a PMS of their own for the needs of Kazakhstan. The Kazakhstan recipient along with Kazdornii was much more interested in using and further developing their own PMS than to have the Rosy PMS developed. The Kazakhstan recipient along with Kazdornii requested that the Rosy PMS should be interfaced with the locally developed PMS. The long lasting wish and request by the Kazakhstan recipient and sub-consultant did not, however, lead to an interfacing of the two systems.

Generally the implementation of the project and the various modules proceeded as planned.

Modules A (Materials, Plant and Standards), B (Winter Maintenance), C (Restructuring of the Transport Sector in Azerbaijan) and E (Feasibility Studies) were completed within the original contract period.

The implementation of Module D (Pavement and Bridge Management Systems) was delayed due to the following two reasons

- The procurement process of the Falling Weight Deflectometers (FWD) was more complicated and time consuming than expected
- The software of the Pavement Management System (PMS) and Bridge Management System (BMS), which were delivered under a previous project, contained some significant shortcomings.

The FWDs were originally scheduled to be delivered in spring 1988 but due to the time consuming procurement process they were only delivered in summer 1999.

The Russian version of the PMS software, which ought to have been in condition before the start of our project, was only made operational by the previous consultant in June 1999, that is 24-25 months after the start of the project and 7 months after the original completion time.

## 2.2 The Field Management Module

After the start up meeting the project director started to work on full time for the project. The field activities started on 12 August with a visit to the three Caucasian countries, Azerbaijan, Georgia and Armenia. On 1 September 1997 the project director left for his permanent assignment in Bishek. On 31 May 1998 the project director returned to Finland after having completed his field assignment as planned. After the completion of his permanent field assignment the project director has made three follow up visits to Bishkek, in September and December 1998 and the last one in September 1999.

On 8 September 1997 the project director in Tashkent participated in the 1st Co-ordination Meeting for the Study of Improvement the Transport Links between the Central Asian Republics and Kashgar in China.

At meetings held in Ashgabat on 20 and 21 October 1997 and in Bishkek on 6 and 7 November 1997 the project director agreed with the TRACECA Co-ordinator for Central Asia that the Contractor should concentrate its efforts on the priority issues in each project country. Other questions should receive less attention. As a consequence of that decision e.g. Module A allocated more input to the bitumen and refinery issues.

On 5 November the project director in Bishkek participated in the 2nd Co-ordination Meeting for the Study of Improvement the Transport Links between the Central Asian Republics and Kashgar in China. At this meeting the governments of China, the Kyrgyz Republic and Uzbekistan signed a protocol on further studying two rail alternatives for a transport corridor from the Fergana Valley in Uzbekistan through the Kyrgyz Republic to Kashgar in China.

The Steering Committee Meeting of Modules A and B was held in Almaty on 16 and 17 February 1998. All Recipient organisations, with the exception of Sakavtogza, Georgia, where represented at the meeting. The TRACECA Co-ordinator for Central Asia and the TRACECA Monitor for Central Asia were also present at the meeting. In addition a person from the International Road Fund (IRF) was invited and attended the meeting.

At a meeting in Tashkent on 7 February, 1998 between Timur Mirzoev, Director Tajikgiprotransstoy, Mike Sims, TRACECA Co-ordinator Central Asia and the project director the options for implementing the Tajikistan part of the Module D were discussed. It was agreed that the Contractor, subject to the approval of Brussels, should concentrate its work to the Kojent area, which so far had had no internal unrest. The reason for limiting the work to the Kojent area was that the whole country was not considered safe. The Contractor, however, never got a permission from the Task Manager or anyone else in the Commission that the Module D staff may enter Tajikistan and carry out work there.

The Investors Conference was held in Almaty on 21 May 1998. Twelve EU based and 21 Traceca country based companies and organisations participated in the conference.

The Senior Project Engineer for Central Asia of the Asian Development Bank (ADB) and the TRACECA Co-ordinator for Central Asia also participated in the conference.

The Field Management Office in Bishkek has, at the cost of the contractor, been maintained behind the original completion time up to the completion of the project. After the departure of the project director the field office has been headed by the Office Manager of the project, Alla Denisova.

### **3. OVERALL REPORT ON THE TOTAL PROJECT**

#### **3.1 Project Achievements in Comparison with Planned Results**

The ambitious TOR, coupled with a vast geographic area of nine countries and limited allocation of resources, proved from the start of the project to place a big challenge on the Contractor's project personnel. As a whole, we, however, believe that we quite well fulfilled the tasks set out in the TOR and that the objectives of the various modules were achieved.

##### **3.1.1 Field Management Module**

The TOR did not provide for any overall person to manage the project. The Contractor, however, felt that it would be difficult to properly manage the project without nominating a separate person to co-ordinate and supervise the activities of the various independent modules. Moreover the Contractor considered that the project management and supervision function could more effectively be carried out from an office in the region than from the home office. Against this background the Contractor suggested in his technical proposal that a field management office should be established in Bishkek for managing and supervising the activities of the project.

We consider that the field management office highly contributed to a successful implementation of the project and that it well met its objectives, which were to

- Manage and supervise the project
- Provide support to the various modules of the project
- Conclude the sub-consultants agreements with the sub-consultants in the various countries
- Liase with the recipients, counterparts, sub-consultants, European Commission, EU Regional Offices, Tacis Co-ordination Units, TRACECA Co-ordination Team and TRACECA Monitoring Team.
- Arrange the Investors Conference.
- Follow up the reporting and the translation, printing and distribution of the reports of the various modules

The arranging of the Steering Committee Meeting for Modules A and B was not originally assigned to the project director. The project director, however, had the closest connections to the Recipients in the various countries and the staff in field management

office to his disposal. Therefore the field management office carried out all practical arrangements relating to the Steering Committee Meeting.

The key benefits of the Field Management Module were

- It was the central point for arranging all practical issues relating to the implementation of the project in Central Asia, where most of the activities of the project were carried out. The office e.g. assisted in arranging visas, local flight bookings, accommodation, transportation and appointments.
- The project director took care of concluding the sub-consultants agreement and he acted as a contact person between the Contractor and the Sub-consultants. Thus the various modules of the project did not have to negotiate and sign separate sub-consultants agreement.
- The project director acted as a contact person between the Recipients, the Tacis Co-ordination Units and the TRACECA Co-ordination Team.

Two of the modules covered all nine countries and one module eight countries. Consequently it was not possible for the team leaders of those modules to be in regular contact with all Recipients. Therefore the project director acted as the main contact person between the Recipients and the Contractor.

The project director had monthly meetings with the Tacis Co-ordination Unit in Bishkek, at which occasion he briefed the Team Leader and the Project Manager of the Co-ordination Unit on the progress of the works.

One of the most important roles of the project director was to liaise with the TRACECA Co-ordinator for Central Asia. Due to lack of support from the previous Task Manager the TRACECA Co-ordinator for Central Asia had to take over the role of the Task Manager. All technical changes to the scope of work was agreed upon with the TRACECA Co-ordinator for Central Asia.

The project director arranged the Investors Conference. The arranging of the Investors Conference was a long lasting, time consuming and demanding task. At the end of the day we feel and believe that the Investors Conference met its objectives.

As a whole we consider that the decision to set up a Field Management Module was a proper one as the module greatly contributed to a successful completion of the project.

### **3.1.2 Module A, Materials, Plant and Standards**

The scope of work of Module A covered all nine project countries.

The overall objective of Module A was to improve construction of bituminous pavements in order to minimise the sum of vehicle operating costs over the road network and the cost of road construction and maintenance.

Module A consisted of two phases, Phase 1, which lasted for 6 months, and Phase 2, which lasted for 9 months.

During Phase 1 the Contractor should

- Through data collection, field visits, discussions and analysis review the requirements, resources and standards for bituminous pavement construction for a ten year period in all nine countries
- Prepare recommendations, draft standards and specifications to be presented to the steering committee in a special report.

The objectives of Phase 1 were quite successfully met. The TRACECA Co-ordinator for Central Asia had requested the Contractor to concentrate its efforts on the priority issues in each project country and therefore particular attention was given to bitumen production and quality control, with recommendations for refinery upgrading and for a number of changes to the bitumen specifications.

The recommendations of the Phase 1 report were presented to the Steering Committee at a meeting held in Almaty on 16 and 17 February 1998. The Steering Committee consisted of one Recipient representative from the in each of the nine countries. The delegates managed to agree on all other important issues except to what extent and how the recommended AASHTO specifications should be adopted.

The Steering Committee requested the Contractor to carry out the following tasks during Phase 2

- Translate into Russian the recommended AASHTO specifications and tests
- Assess the investment need in laboratory equipment
- Circulate information on suppliers of laboratory equipment, mobile cranes
- Liaise with the parallel ADB project on Highway Design Standards

According to the TOR the Contractor should during Phase 2

- Finalize the recommendations covering revised standards and specifications as adopted by the Steering Committee
- Follow up the implementation of the recommendations adopted by the Steering Committee
- Promote foreign investment for enhancing local manufacturing of plant, equipment or spare parts needed for road construction and maintenance.

The recommendations adopted by the Steering Committee meant that Module A got involved in translating AASHTO specifications and tests.

The task to enhance local manufacturing of plant, equipment or spare parts needed for road construction and maintenance, was basically taken care of by the project director. For that purpose an Investors Conference was arranged in Almaty on 21 May 1998.

The International Road Fund (IRF) arranged a conference in Ashgabat on 15-17 April 1998. A representative from the IRF was invited to attend and attended the Steering Committee meeting in Almaty on 16 – 17 February 1998 with the aim to invite the Steering Committee members to the IRF conference to be held in Ashgabat. Most of the

Steering Committee members attended the Ashgabat conference. The travelling and accommodation costs of the attendants were paid by IRF.

On May 22 1998 a meeting took place in Almaty between the TRACECA Co-ordinator for Central Asia, the ADB Senior Project Engineer for Central Asia, the Consultant for the ADB financed Design Standards and Construction Specification Project and the Module A Team Leader. At the meeting the overlapping and gaps between the TRACECA and ADB projects were discussed. It was decided that the two projects should produce a co-ordinated set of outputs. As a consequence, Module A was requested to concentrate more effort on the production of a complete typical contract document in Russian and on the translation of all AASHTO material standards and tests referred to in either the ADB construction specifications or in the specifications for the typical contract documents.

The agreement on May 22 involved Module A in the translation of many more documents. That translation work was only completed in November 1998.

The output of Phase 2 was differed slightly from that mentioned in the TOR. The reason was that Module A, after the agreement in Almaty on 21 May 1998, got heavily involved in translating complicated technical documents. Instead of being able to visit the various Recipients for following up the implementation of the recommendations adopted by the Steering Committee, the Module A Team Leader found himself stuck as a technical adviser to the translators of the complicated technical documents.

In their Monitoring Report No 4 dated 30 November 1998 the TRACECA Monitoring team expressed their dissatisfaction with the output of Phase 2 as only one field follow up trip had been conducted by the Module A Team Leader during Phase 2. The TRACECA Monitoring Team had little or no understanding for the change in the scope of work agreed upon in Almaty on 21 May 1998. In order to soften the critics of the Monitor the Contractor decided to make one more visit to each recipient for promoting the adoption of the revised standards.

The final output of Phase 2 slightly differs from the intended one and from that provided for in the TOR in the sense that more documents were produced than originally provided for. As the Recipients, thanks to the May 1998 agreement e.g. got a full set of sample contract documents the final output of Module A is more comprehensive than that requested in the TOR. Therefore the Contractor believes that the Phase 2 output is at least as useful for the Recipients as the originally planned output. Consequently we consider that Module A met its objectives.

### **3.1.3 Module B, Winter Maintenance**

The scope of work of Module B covered all nine project countries.

The overall objective of Module B was to reduce operation restrictions and insecurity on key transit routes in winter time, leading to lower vehicle operating costs and decreased traffic accidents.

In order to meet the objectives Module B produced a comprehensive country by country Winter Maintenance System (WMS) Proposal. Each country by country WMS Proposal target level of services (LOS)

- Applicable standards



- the winter maintenance methods
- Quality monitoring and reporting
- Organisational development and training
- A proposal for a model maintenance base with equipment dimensioning
- An investment package proposal for a pilot road section.

Transfer of knowledge to the recipient organisations was a priority issue for Module B. In order to reach that target start up seminars were held in each county upon commencement of the work. At the same time a counterpart staff groups was nominated for each country. The task of the counterpart staff group was to be trained by closely following the progress of the work and by commenting on the proposals presented by the project team. Upon completion of the WMS Proposal the counterpart staff should be the key persons for promoting the implementing the WMS proposal.

A part of the training programme was a study tour to Finland 23.2-27.2.1998. Eighteen participants representing all nine countries participated in the study tour. At the end of the study tour the participants were asked to complete a feed back questionnaire. The feed back showed that the participants were generally were satisfied with the programme. A separate report on the study tour was attached to Progress Report 2 of Module B.

The last phase in the training and transfer of knowledge process was the final seminars in each country. At the final seminars the WMS proposals were presented and discussed. In all but one country (Georgia) the final seminars were highly appreciated. Very competent maintenance specialists participated in the seminars and there were fruitful discussions on the seminar topics.

Prior to the start of the field activities Module B sent a questionnaire to each Recipient. The objective of the questionnaire was to speed up the tight time schedule by receiving the basic information already at the start up seminars. At the start up seminars it, however, turned out that, in all countries except Mongolia, nothing had been done to the questionnaires. The sub-consultants in some countries provided the requested information only in 1998.

At the Steering Committee meeting in Almaty on 16 and 17 February 1998 the outlines of the WMS proposal and the LOS were presented. Unfortunately the Steering Committee did not have enough time for discussing the outlines of the WMS proposal and LOS in more detail as the topics of Module A consumed most of the time.

At the Investors Conference in Almaty on 21 May 1998 the investment package proposals of the WMS reports were presented. The investment package proposals are made for the consideration of international financial institutions, as mentioned in the TOR.

There were overlapping projects in Georgia, Kazakhstan and Mongolia. The scope of the World Bank (WB) financed Winter Maintenance Project in Georgia almost entirely overlapped with the work of Module B. In order to avoid duplicating work the Contractor made attempts exclude Georgia from Module B or to limit the Module B involvement solely to issues not covered by the WB financed project. A proposed meeting with the former Task Manager for discussing and agreeing on the issue, however, never

materialised. As the Georgian Recipient asked the Contractor to submit to them the output specified in the TOR Module B did so.

In our opinion Module B well met the objectives set out in the TOR. The best indicator for that is that almost all recipients gave, at the concluding seminars, oral promises to start to implement the recommendations and by now at least three countries have started to do so.

### 3.1.4 **Module C, Restructuring of the Transport Sector in Azerbaijan**

The scope of work of Module C covered Azerbaijan only.

The overall objective of Module B was to restructure the road sector in Azerbaijan in accordance with market economy conditions.

In order to meet the objectives Module B prepared a

- Road sector policy and a legal framework for the road sector
- Functional classification of the roads
- Updated Road Act
- Road financing study and an updated Road Fund Law.
- Road maintenance study and maintenance plan
- Action plan for restructuring the road sector including road maintenance equipment, management and human resources development. The restructuring plan also contained a commercialisation and privatisation action plan, for the following five years, of the road design, construction and road related supporting service organisations within Azeravtoyol
- Technical assistance programme.

At the start up meeting in Brussels on 31 July 1999 the TOR of Module C and the Contractor's proposal were discussed in quite detail between Ms. Lin O'Grady from EBRD and the Project Director and Module C Team Leader. Ms. Lin O'Grady emphasized that the completion of Module C and the acceptance by the Recipient and EBRD of the Contractor's proposal is a condition for EBRD to sign the forthcoming road rehabilitation loan with Azerbaijan. That was the reason why EBRD closely supervised and monitored the progress of and final output by Module C.

Module C encountered a setback on 8 August 1997, when the mother in law of the Module C Team Leader, Mr. Esko Sirviö, passed away. Mr. Sirviö was scheduled to travel with the project director to Baku on 12 August 1997 to start the project. Mr. Sirviö actually made the initial trip to Baku but returned to Finland on 22 August 1997 for the funeral. After the funeral Mr Sirviö informed the Contractor that he, due to family reasons, is unwilling to return to Baku. Mr. Kari Nykter was thereafter nominated as the Team Leader for Module C.

On 3 October a tripartite meeting was held in Azerbaijan where the Inception Report was discussed and commented. Ms. Lin O'Grady together with an other expert from

EBRD participated in the meeting. After the meeting the Team Leader got further written comments from EBRD, which were taken into account when compiling the Final Report.

The Draft Final Report was also sent to various ministries and financial institutions (e.g. the International Monetary Fund (IMF) and WB) with a request to provide comments.

A study tour to Finland for 15 persons was arranged between 25 November and 3 December 1997. The study tour was highly appreciated by the participants. We believe that the study tour far better opened the eyes of the participants than our reports. It is difficult to describe the reactions of the participants when they saw maintenance units with modern and functioning machinery and equipment. Based on our experience from the study tours of Modules B and C we recommend that corresponding study tours will be included into the programmes of other similar projects.

There were no major deviations from the planned programme nor any significant problems in Module C. A negative thing was that the Director of Azeravtoyol did not appear to be interested in the project. Our Module C staff was never given the opportunity to discuss the project with him. The Deputy Director of Azeravtoyol was, however, easily accessible and the co-operation with him was good and fruitful.

The location and management of the Road Fund was a major issue of discussion. Azeravtoyol felt that Road Fund should be managed by them. They were afraid that the Ministry of Finance will use the proceeds of the Road Fund for other purposes if they will manage the Fund. It was, however, in order to get the funding recommendations accepted, vital to follow the views of the IMF, EBRD and Ministry of Finance. According to their views the Road Fund has to be a part of the national budget and as such under the control of the Ministry of Finance.

Module C was the only module covering only one country. That fact made the work of Module C easier and more normal than the work of the other modules. The Module C staff could whenever required discuss open issues with the Recipient, which was not possible for the other modules.

The Final Report was issued in February 1998. We believe that Module C well met its objectives. At least the comments received from IMF and EBRD indicated that they were satisfied with the outcome of the work. Also the Recipient, even if they were not happy with the Road Fund solution, believed that the recommendations and proposals will be implemented.

### **3.1.5 Module D, Pavement and Bridge Management Systems**

The scope of work of Module D covered all project countries except Mongolia.

The overall objective of Module D was to promote the rational allocation of limited routine road maintenance funds in the most economically advantageous way by introducing the use of the Pavement Management Systems (PMS) and Bridge Management Systems (BMS).

In order to meet the objectives Module D

- Introduced current EU practise in road and bridge testing procedures

- Implemented the use of software, which was supplied and introduced under an earlier project, for PMS and BMS analyses
- Provided Falling Weight Deflectometers (FWD) and base level equipment to support the systematic implementation of PMS and BMS
- Identified specific sections of the TRACECA corridor for application of the tools of economic analyses for supporting external (IFI) and local funding for prioritised planned maintenance and rehabilitation
- Trained local staff in the use of the supplied equipment and in the use of PMD and BMS.

Module D had, compared with the other modules, two specific features

- The module should implement the use of a PMS and BMS, the software of which was supplied and introduced on a pilot basis under an earlier project
- The module should supply certain equipment

Both of these special features turned out to create a lot of problems and delay in the implementation of the work of the module.

The PMS software, which was supplied under a previous project and should have been in condition before the start of our project, was only made operational by the previous consultant in June 1999, which is 22 months after the start of the project and 7 months after the original time of completion.. Moreover the BMS, which also was supplied under the previous project, turned out to be a data base only and not a software for BMS.

The procurement and supply of the three FWDs turned out to be a real time consuming exercise. Tacis adopted new Procurement Guidelines in the initial phase of this project, which caused uncertainty over the appropriate procedure to follow. The instruction from the Task Manager to use the Open Tender procedure instead of a Restricted Tender procedure for a tender competition among three known European manufacturers further slowed down the procurement procedure. Also unclear payment conditions in the contract along with a slow approval procedure contributed to the delay.

Due to the shortcomings in the software of the PMS and BMS and due to the delayed delivery of the FWDs, Module D was unable to complete its work within the original completion time. The time of completion has been extended up to and including 31 December 1999 and by now the work of Module D is completed.

There were several deviations from the original scope of work. The deviations are more closely dealt with in Section 4.5 Deviations from Original Planning.

The Technical Manager of Module D visited Tajikistan in the initial phase of the project for establishing the locations of the bridges to be inspected and the roads to be surveyed. It was not, however, possible to carry out further work in Tajikistan as Brussels in December 1997 instructed the Contractor not to make further visits to Tajikistan.

Module D delivered bridge inspection equipment to all eight project countries and FWDs to Armenia, Kazakhstan and the Kyrgyz Republic.

Bridge inspection was carried out in all countries except Tajikistan.

The techniques and principles for performing bridge capacity tests were introduced on three bridges in Turkmenistan.

Drive over and detailed road condition surveys for collecting data for the PMS was carried out in Armenia, Uzbekistan, Kazakhstan and the Kyrgyz Republic.

Feasibility studies for selected road routes were made in Armenia, Uzbekistan, Kazakhstan and the Kyrgyz Republic.

Training on data collection, entry, processing techniques and use of the PMS Software was given in Armenia, Uzbekistan, Kazakhstan and the Kyrgyz Republic.

The final output of Module D fulfils the requirement of the TOR and thus meets the objective set out in the TOR. In longer terms the objectives are in danger of failing due to the fact that the introduced PMS/BMS is cumbersome and costly for the Recipients to keep up to date. In some of the project countries the Recipients openly admitted that they are not interested in the PMS/BMS as they do not anyhow have funds for carrying out required maintenance work and they contended that they do not even money for paying the salaries. It is also quite evident that an intended further expansion of the PMS/BMS, by the Recipients themselves, to cover the whole national network will with some certainty be done in only two countries (Armenia and Kazakhstan). Module D, however, carried out the assignment according to the requirements of the TOR and therefore the Contractor cannot be blamed for the too early introduced PMS/BMS.

### 3.1.6 **Module E, Prefeasibility Studies**

The scope of work of Module E covered Uzbekistan, Tajikistan and the Kyrgyz Republic

The overall objective of Module E was to increase trade and improve communication facilities through railroad and road routes from Uzbekistan through Kyrgyzstan to Kashgar in China.

In order to meet the objectives Module E produced a comprehensive report containing

- Sociological and Macro-economic assessment
- Traffic flow and freight forecasting
- Engineering assessment of the road and rail routes with cost estimates
- Projected national growth potentials
- Economic analysis
- Reasoned recommendations

The following corridors were included in the study

- Tashkent - Dushanbe (road)
- Osh – Sari Tas –Erkech Tam (road)

- Balykchy (Issy Kul) – Narin – Kashgar (road and rail)
- Uzbekistan – Osh- Kashgar (rail)
- Bishkek – Osh - Kashgar (rail)

The Module E Highway Engineer participated on 8 September 1997 in Tashkent in the 1st Co-ordination Meeting for the Study of Improvement the Transport Links between the Central Asian Republics and China. At the meeting the importance of developing a road and rail transport corridor from Fergana Valley through the Kyrgyz Republic into China was stressed. The discussions concentrated on evaluating the benefits and constraints of three alternative rail routes.

In early November the Module E Highway Engineer participated in Bishkek in the 2nd Co-ordination Meeting for the Study of Improvement the Transport Links between the Central Asian Republics and China. At that meeting one of the alternative rail routes was deleted but at the same time the governments of China, the Kyrgyz Republic and Uzbekistan signed a protocol whereby they agreed to further study the two remaining rail route alternatives from the Fergana Valley in Uzbekistan through the Kyrgyz Republic to Kashgar in China.

In the initial stage of the project the Module E Highway Engineer travelled by road from Tashkent to Dushanbe in order to survey and familiarise himself with the route included in study. Thanks to that trip Module E was in a position to complete its work on the Tashkent – Dushanbe road.

After the submission of the Inception Report, Module E was requested to appraise, comment and justify the use of the traffic forecast and freight traffic flow figures produced by a previous study, in case those figures were used. Module E had understood the TOR in such a way that the traffic forecasts and freight traffic flows from that earlier Tacis project, being the product of a full computer modelling exercise, could be taken as such as the starting point for this study. The work to derive a new traffic forecast and freight traffic flow figures significantly increased the workload of the Transport Economists. Therefore the inputs of the Transport Economists had to be increased.

In the initial phase of the project Module E was criticised by all involved parties for being too little in the field and for doing too much work in the home office. At the end of the project Module D was, however, considered to have done a proper study. Only the Kyrgyz Recipients were to some extent unhappy as neither of the two politically prioritised rail road corridors from Fergana Valley through the Kyrgyz Republic into China were found feasible for further studies.

In our opinion Module E well met the objectives set out in the TOR. A good indicator for that is that the Commission has decided to make a full Feasibility Study with Preliminary Design for the Osh – Sari Tas –Erkech Tam road.

### 3.1.7

#### **Activities to Stimulate Foreign Investments**

The TOR did not provide for any Investors Conference but only requested the Contractor to stimulate foreign investments. In its technical proposal the Contractor proposed that two Investors Conferences, one in the Caucasus countries and one in Central Asia, should be held for stimulating foreign investments. In January 1998 it, however, became evident that there is not enough market demand in the Caucasus Countries in road

construction and maintenance equipment for making an Investors Conference attractive. Therefore it was decided to cancel the Investors Conference scheduled for the Caucasus Countries and to arrange only one in Central Asia.

After the Steering Committee meeting in Almaty on 16 and 17 February 1998, the IRF invite the Steering Committee Members to the IRF conference in Ashgabat on 15-17 April 1998. As a result most of the Steering Committee Members attended the IRF conference.

The project director was scheduled to have a presentation at the IRF conference on the TRACECA Road Maintenance Project and its investment opportunities. Due to a flight cancellation the project manager was, however, stranded in Moscow. The team leader of Module A, who also participated in the conference, made the presentation in the absence of the project director.

The Investors Conference was held in Almaty on 21 May 1998 with all together 48 participants. Twelve European and 22 regional firms participated in the conference. The regional firms were from Kazakhstan, Mongolia, Uzbekistan, Kyrgyz Republic and Byelorussia. An interesting presentation by the ABD representative led to a lively discussion.

The objective of the Investors Conference was to find possible partners from the European Union, Tacis or Phare member countries for setting up joint ventures or other forms of co-operation with local companies in the TRACECA countries for enhancing local manufacturing of plant, equipment or spare parts needed for road construction and maintenance.

The invitations to the Investors Conference were distributed through different channels.

About 50 firms were directly approached by the Contractors' offices in Bishkek, Helsinki and Southampton.

The home office of the Contractor also distributed the invitations through the Embassies of the EU member states in Helsinki, the Finnish Trade Association and the Finnish Central Chamber of Commerce for onward transmission to relevant organisations in the various countries.

Moreover the IRF distributed the invitation to its 600 members .

Invitations were also sent directly to the World Bank, EBRD, Asian Development Bank, Islamic Development Bank, Kuwait Fund.

The conference resulted in a number of new business contacts between EU based and local firms. The conference also resulted in the discussions for setting up two joint ventures. One of them was a Finnish-Kazak partnership for local manufacturing and assembling of truck-mounted maintenance equipment. The other was a Finnish-Kazak partnership for setting up a mobile asphalt plant including bitumen stabilisation and pavement recycling operation. To our knowledge neither of the partnerships have, however, finally materialised due to the fact that the Kazak partners have been unable to fulfil their portion of the planned investment. The conference also led to discussions between ADB and an Austrian company on the use of modified bitumen.

As a whole the Investors Conference fulfilled its objectives as it linked together interested foreign and local companies and gave the attending companies an opportunity

to further develop contacts with each other. Had the two intended joint ventures materialised then we would have considered the conference a success.

#### **4. Deviations from Original Planning**

Some of the modules had hardly no deviations from the original planning whereas some other modules had quite significant deviations.

##### **4.1 Module F, Field Management Module**

In Module F there were no significant deviations from the original planning. The Field Management Module took fully over the arrangement of the Investors Conference and the practical arrangements of the Steering Committee Meeting after Module A had had to increase the Bitumen and Refinery input.

Two Investors Conferences were originally scheduled to be held in April 1998, one in the Caucasus region and one in Central Asia. The Investors Conference scheduled for Caucasus was, however, cancelled due to lack of market demand. The Investors Conference in Central Asia was postponed from April to May 1998 as it was found beneficial to arrange the Investors Conference simultaneously with the International TRANSIT 98 Exhibition in Almaty.

At the time of completing his field assignment in Bishkek in May 1998 the project director had 2,25 months left of his input. One month was transferred to Module B for carrying out the final seminars in the various project countries as 1,25 months was considered sufficient for finalising the tasks of the Field Management Unit.

##### **4.2 Module A, Materials, Plant and Standards**

There were several deviations from the originally planned programme of Module A.

During Phase 1 the Contractor was requested to increase the Bitumen and Refinery inputs in order to be able to study in more depth the problem with the high paraffin content in the bitumen.

Planned visits to Tajikistan in December 1997 had to be cancelled as the TRACECA Co-ordination team informed the Contractor that our staff should not travel to Tajikistan.

During Phase 2 more significant deviations took place. The Steering Committee meeting in February 1998 requested that liaison should take place with the parallel ADB financed project in Highway Design Standards and Construction Specifications.

At the meeting between the TRACECA Co-ordinator for Central Asia, the ADB Senior Project Engineer for Central Asia, the Consultant for the ADB financed Design Standards and Construction Specification Project and the Module A Team Leader the overlapping and gaps between the TRACECA and ADB project were discussed. It was decided that the two projects should produce a co-ordinated set of outputs. As a consequence, Module A was requested to produce a typical international contract document in English and Russian, including a construction specification and to translate all AASHTO material standards and tests referred to in either the ADB construction specifications or in the specifications for the typical contract documents. The agreed change in the scope of work fulfilled the request of the Steering Committee Meeting that the materials specifications and test standards should relate to construction specifications, which themselves should relate to a design methodology. As a result of the change the



AASHTO standards to be translated increased from 24 to 156 and required continuous oversight by the Team leader. All together the change turned out to be a much greater effort than anticipated.

As a consequence of the redirection of efforts the Team Leader only made one visit per country during Phase 2.

After the submission of the final deliverables a visit was made to each country for introducing and explaining the final documents. These extra country visits were not in the original programme neither were they paid by Tacis.

In our opinion the deviations contributed to a better achievement of the objectives of Module A then what would have been the case under the original work programme.

#### **4.3 Module B, Winter Maintenance**

There were no significant deviations in the programme of Module B.

The start up meeting in Kazakhstan was, at the Recipients request, twice postponed by a week. The last minute postponements affected the tight travel schedule of the Team Leader as planned trips had to be cancelled. The postponements caused a two weeks delay, which, due to the very tight time schedule, was difficult to recover.

In order to recover the time lost due to late submission of the basic information from some project countries the task of the equipment specialist was split up between two experts. One expert covered the Caucasus countries and the other one the Central Asian Countries. This solution was beneficial for Module B as it saved time and moreover allowed the Team Leader to crosscheck the opinions of the two experts.

The concluding seminars were postponed from May/June to September 1998 in order to give the Recipients ample time to study and comment on the draft WMS proposals. The Final Technical Deliverables were dispatched after the concluding seminars in October 1998.

The final output of Module B was fully in compliance with the TOR.

#### **4.4 Module C, Restructuring of the Transport Sector in Azerbaijan**

There were no significant deviations in the programme of Module C.

The only major deviation was the change of the nominated Team Leader Mr. Esko Sirviö to Mr. Kari Nykter in the early stage of the project. The change was due to the sudden death of the mother in law of Mr. Sirviö.

#### **4.5 Module D, Pavement and Bridge Management Systems**

There were several significant deviations from the originally planned programme of Module D.

There was a considerable delay in the procurement of the FWDs. The FWDs were originally scheduled to be delivered in spring 1988 but due to the time consuming procurement process they were only delivered in the summer of 1999. The PMS field work could only start after the delivery of the FWDs.

There were shortcomings in the software of the PMS and BMS programs, which were delivered under a previous project. The delivered and installed software, which was supposed to be in condition at the start of the project, was only made operational by the previous consultant in June 1999, that is 22 months after the start of our project and 7 months after the original completion time of our project.

In Armenia the intention was to survey M-24 from Yerevan to the Georgian border. Highway M-24, however, first enters Azerbaijan and only then goes into Georgia. The border crossing on M-24 between Armenia and Azerbaijan remained closed and therefore it was not considered feasible to survey a dead end road. Consequently it was agreed to change highway M-24 to highway M-3, which is the main route from Turkey through Armenia into Georgia. The drive over survey covered 132 km and the detailed condition survey 51 km on the route Yerevan – Astarak – Spitak – Tashir – Georgian border.

The recommendation not to enter Tajikistan remained in force from December 1997 to the completion of the project. Thus all work scheduled to be done in Tajikistan had to be cancelled.

In Turkmenistan the bridge inspection programme was extended to cover the introduction of the techniques and principles for performing bridge capacity tests. Bridge capacity tests were introduced on three bridges.

In Uzbekistan the TRACECA routes M-39 and M-37 were originally intended to be surveyed. The Recipient, however, requested that M-39 should be substituted by road A-373, Tashkent – Andijan and that the work on M-37 should cover the distance between Samarkand and the Turkmenistan border.

In the Kyrgyz Republic the original PMS work covered the survey of the Uzbekistan border – Bishkek ring road part of M-39. The Recipient, however, asked for the deletion of M-39 and asked that all work should be concentrated to the 184 km long Osh – Sari Tas road. After the drive over survey had been carried out on the Osh – Sari Tas road the Kyrgyz Recipient again changed his mind and requested that the full length of the Kyrgyz part of the M-39 should be subject for PMS survey.

In Kazakhstan the originally planned PMS program was also changed. At the request of the Recipient the Almaty – Druzhbe road (M-39/A-350/M-38) was changed to the Almaty – Kakpek – Chargoos road (A-351) and the work on M-39 between Chimkent and the Uzbekistan border was deleted.

The delay in the procurement procedure of the FWDs and the shortcomings in the PMS and BMS software affected the progress of the work but did not, at the end, prevent Module D from reaching the objectives set out in the TOR. The bridge capacity tests, which were carried out in Turkmenistan, were a new type of work, which were not originally planned.

#### 4.6 **Module E, Prefeasibility Studies**

There was one major deviation from the originally planned programme of Module E.

The implementation of Module E differed from that of the other modules in the sense that almost half of the work was carried out in the home office. This method of implementation was, however, already set out in the Contractor's proposal.

The main deviation constituted the need to increase the input of the Transport Economists. The deviation was prompted by the fact that the Contractor understood the TOR in such a way that the traffic forecasts and freight traffic flows from an earlier Tacis project, could as such be taken as the starting point for the Module E study. Module E was, however, requested to make updated traffic forecast and freight traffic flows. The carrying out of these extra forecasts significantly increased the workload of the Transport Economists.

According to the TOR Module E should study two alternative railroad routes from Uzbekistan through the Kyrgyz Republic into China. At the 2nd Co-ordination Meeting in Bishkek in early November 1997 for the Study of Improvement of the Transport Links between the Central Asian Republics and Kashgar in China the delegates of the governments of China, the Kyrgyz Republic and Uzbekistan decided to delete one of three alternatives and further study two rail alternatives for a transport corridor from the Fergana Valley in Uzbekistan through the Kyrgyz Republic to Kashgar in China. The two remaining rail alternatives were studied by Module E. The Kyrgyz – China railroad alternative Balykchy – Narin – Kashgar remained unchanged in the program.

The deviations did not affect Module E from achieving the objectives set out in the TOR. On the contrary the output of Module E seems to have been satisfactory as the European Union has followed the Contractor's recommendation and decided to make a full feasibility study with preliminary design on the studied road route Osh – Sari from the Kyrgyz Republic into China..

## 5. **Lessons Learnt and Recommendations**

Already at the tendering stage it was recognised that the TOR were over-ambitious in relation to the allocated resources. It should, of course, have been the Contractor's obligation to limit its scope of work to a reasonable level. We, as well as the other tenderers, however, wished to win the assignment. Therefore we considered at the time, and we still feel, that we would not have won the contract had we in our proposal limited our scope of work from that mentioned in the TOR. We also consider that it is primarily the Employer's obligation to set out a fair balance between the scope of work and the allocated resources.

The Inception Report Phase was by far too short for a project like this. The too short Inception Report Phase did not make it possible to get a full picture of the priority issues and the existing constraints in the nine project countries. Consequently the modules covering 8 or 9 countries were not, at the time of drafting the Inception Reports, in a position to assess the need to propose adjustments to the TOR. Therefore the Inception Reports of those modules did not, in that respect, meet their objectives. Only two months later, at the time of issuing the first Progress Report, did we have a full picture of the existing constraints and of the priority issues in all project countries. Therefore Progress Report 1 of some modules had partly the character of an Inception Report. We recommend that Tacis in future should set the length of the Inception Report Phase to meet the requirements of the project.

The project covered nine countries and there was little synergy between the five modules. Both consortium members manned the modules, which they were responsible for, with their own staff. As no savings were received through the use of joint resources it is questionable whether there initially were any benefits of combining unrelated components into one large project. We therefore recommend that unrelated multimodule projects like this, in future, should be split up into several individual projects. That would

make the managing of the project easier for both Tacis and the Contractor. Moreover problems with one module would not affect all the other ones.

From the point of view of Module C (Winter Maintenance) the timing of the project was not optimal. The contract was signed in the middle of the summer and all data and field visits were made in autumn during the warm season. The desk work (writing of the WMS proposals) was done in the winter period, when the field visits ought to have been made. By splitting up the modules into individual projects or by starting the modules at different times the Module C experts would have been given a chance to observe real winter conditions and maintenance activities in the field prior to making the WMS proposals.

Four modules out of five were completed on time. Only Module D was unfortunately, considerably delayed. It is, in our opinion, questionable if the Contractor under the prevailing circumstances could have avoided the delay, which postponed the completion of Module D. Therefore we consider that Tacis ought to have accepted such a solution that the Contract, concerning four modules, should have been considered completed already a year ago. Taking into consideration the shortcomings in the software supplied under a previous project, Module D ought to have been separated from this contract and set up as a separate contract. We consider it harsh that the Contractor has to wait for the final payment for four modules for over a year due to the fact that one module is delayed for reasons outside its control. In our opinion Tacis should in future be more flexible in corresponding situations.

An optimum result is usually reached when the recipient and the consultant closely work together. Due to the vast project region that was not possible in three of the modules of this project. Particularly Modules A in Phase 1 and Module B throughout the project should have had a clear need to frequently discuss different issues with the Recipient organisations. Therefore it could have been more appropriate to complete the project country by country. That would have meant that project team should have started in one end of the project area and once one county should have been completed then the team would have moved to the next country. In that way the staff of the modules would have been in a position to carry out their work in close contact with the Recipient organisations and local Sub-consultants and avoided time consuming travelling. The other alternative would have been to split up the implementation between two teams, one covering the Caucasus countries and Turkmenistan and the other Mongolia and the Central Asian states.

Mongolia suffered from their remote location and poor flight connections from the other project countries. The only regular flight connections from Central Asia to Mongolia were via Beijing or Moscow. Whenever our project staff visited Mongolia the Recipient and the local Sub-consultant had done their homework well and thoroughly prepared themselves for the visits. We felt sorry for the Mongolians as we so seldom had the possibility to visit them, discuss with them vital issues and get their feed back on our views. Based on our experiences from this project we recommend that a separate team, in future projects, should be set up for Mongolia or that a project should cover Mongolia only.

At the time of starting our project it was a well known fact that there still existed defects in the PMS and BMS software, which was supplied and installed on a pilot basis under a previous project. We were supposed to feed in more information into an existing and functioning PMS/BMS software. At the start up meeting in late July 1997 the Task Manager told the project director that the PMS/BMS software sub-consultant must not commence with their work under the new project before they have rectified the defects

from the previous project. The shortcomings were rectified only in June 1999, which was 24-25 months from the start of the project. We recommend that Tacis in future should postpone the start up of a module/project or stop it, until the defects are corrected, if corresponding situations occur.

The outputs of Modules A, B, C and D are left to the Recipients for implementation. It is likely that some Recipients will “forget” to implement the results and recommendations of the various modules. In order to safeguard the sustainability of the output and that the objectives are sustained it is recommended that Tacis in future similar projects add to the implementation time a follow up period. The follow period could be one to two years during which term the Contractor should make two follow up trips annually.

Module D found in several countries that the staff trained during the previous project in the use of the PMS/BMS were no longer available. Therefore the training had to start from scratch. Most likely the persons trained under this project will not either remain in their present positions very long. In order to avoid a collapse of the PMS/BMS a follow up period or a service contract with the software supplier would be required.

The study tours turned out to be very useful as they opened the eyes of the participants to understand our message. Therefore we recommend that corresponding study tours should be included into the programmes of future similar projects.

In the experience of the Project Director it is usual that the leader of the project once in a while meets with the Task Manager and informs him/discusses with him important issues relating to the project. The previous Task Manager of this project was, however, very reluctant in accepting any “project” meeting, even if there, in the project director’s opinion, should have been important issues to discuss. The Contractor was instructed to discuss all project matters with the TRACECA Co-ordinator for Central Asia. The TRACECA Co-ordinator for Central Asia, however, only had authorisation to agree on changes, which were within the TOR. There were several occasions when the Contractor would have needed a formal approval to a variation from the TOR/Contract , but in lack of a decision from the former Task Manager it was, in practice, orally decided with the TRACECA Co-ordinator for Central Asia how to proceed. We feel that the Contractor should get from the Task Manager the support required for being in a position to properly implement the project.

## **6. Sustainability of the Project**

The sustainability of the project is very much dependant upon the Recipients having required financial resources for implementing the recommendations and for updating and further expanding the PMS/BMS to cover the entire countries. New machinery and equipment cannot be procured and facilities remarkably improved without available funds. The proposed new standards and recommendations will soon be forgotten, if they cannot be tested in a new project. During the project we learned from the Recipients that their main problem is lack of money. In one country the Recipient said that they do not even have money for salaries. In an other country only one maintenance machine out of ten was working in one maintenance unit as they did not have money to buy more gasoline. We believe that the sustainability of particularly Modules A and B are in danger unless there will be IFI financed projects. The IFI financed projects should moreover contain a component for procuring necessary new machinery and equipment.

As far as Module B is concerned the Recipients in at least three countries have started to adopt the recommendations. Without new equipment and improved facilities it will,

however, be difficult for them to reach the proposed levels of service and to implement the new recommendations.

As far as Module C is concerned the Recipient has, to our knowledge, taken actions for getting the government and parliament to accept the key recommendations. Unfortunately we are not aware if any of the recommendations so far have been finally approved.

The sustainability of Module D is subject to the greatest risks. From the Project Directors discussions with the Recipients it has become quite evident that the Recipient with some exceptions do not understand the value of the PMS and BMS systems. We fear that the installed PMS and BMS, for the time being, are too cumbersome and costly for the Recipients to keep up to date. In some of the project countries the Recipients openly admitted that they are not interested in the PMS/BMS as they do not anyhow have funds for carrying out required maintenance work. They also presumed that the PMS will be outdated soon as they do not have recourses for updating the road data, which is necessary for the PMS software. It is also quite evident that the intended further expansion of the PMS/BMS, by the Recipients themselves, to cover the whole national network will probably be done in one or two countries only. There is an apparent risk that the PMS and BMS will not be properly maintained and thus the fed data will soon loose its accuracy making the PMS and BMS useless.

We consider that the sustainability of the various modules could be considerably improved if a follow period of one to two years would be added to projects like this. During the follow up period periodic follow up trips would be made to the Recipients.

## 7. **Staff Input**

All modules, except Module C, exceeded the man days/months allocated to them.

### 7.1 **Module F**

At the time the Project Director finished his field assignment in May 1998 he had 2,25 man months left of the time allocated to him. One man month of his remaining time was transferred to Module B as 1,25 man months were believed to be sufficient for concluding the tasks of the Field Management Module.

Due to the extended implementation time the Project Director had to make two additional field visits and therefore he exceeded his input by 14 man days.

The project office in Bishkek has been kept open up to the end of the project. Therefore the time allocated to the Office Manager has been significantly exceeded. The same applies to the costs allocated to the field office.

### 7.2 **Module A**

The time allocated to the translators were heavily exceeded due to the huge amount of additional translation work during Phase 2. One month of the Team Leader's time was sacrificed for compensating the extra translation work but that was by far too little.

Moreover Module A had to spend one extra man month in introducing the Phase 2 Final Deliverables to the Recipients.

### 7.3 **Module B**

Even after the transfer of one man month of the project director's time to Module B, the module exceeded its days with 35 man days.

During the implementation time the Module B Team Leader was assisted by a young engineer, Janne Luomanoja, for almost three months. Mr. Luomanoja was, under a Finnish Road Administration (Finnra) training programme, sent to Bishkek for getting practical training in project activities.

### 7.4 **Module C**

The key staff of Module C had shortly before the start of this project carried out and completed a similar road sector restructuring study in the Kyrgyz Republic. Azerbaijan and the Kyrgyz Republic are both former parts of the Soviet Union and therefore the situation in both countries were quite similar. Thanks to the work done in the Kyrgyz Republic, Module C managed to complete the work within the allocated time. Without the very recent experience from a similar study in a corresponding environment, the allocated time would have been heavily exceeded.

### 7.5 **Module D**

Due to the extended time of completion Module D exceeded the allocated man months/days with slightly over 50%.

### 7.6 **Module E**

Due to the fact that Module E was requested to carry out a updated traffic and freight traffic forecasts and more extensive economic analysis than envisaged the input of the Transport Economists had to be a significantly increased. Additional input from supporting staff was also needed. All together Module E exceeded the allocated man days by about 100%.

## 8. **Positive and Negative Performances**

During the implementation of the project we experienced positive and negative performances. We wish to summarise them as follows:

- When visiting the Recipients for the first time we were surprised to note that the Recipients in most of the countries were unaware that the TRACECA Roads Maintenance Project was about to taking off.
- The previous Task Manager did not seem to be interested in the project. At least he kept himself out of it as much as possible.
- The present Task Manager has acted properly. We are satisfied with her performance.
- EBRD and Ms. Lin O'Grady adopted an active role in the implementation of Module C and gave the module staff good support.
- Module C was pleased with the good assistance and support they got from the Tacis Co-ordination Unit in Baku

- The project got excellent support from the TRACECA Co-ordinator for Central Asia and his secretary. The progress and quality of the project should have been hampered unless the TRACECA Co-ordinator for Central Asia would have taken decisions, which, least to say, were on the limits of his authority. In lack of response and decisions from the Task Manager the TRACECA Co-ordinator for Central Asia, however, had, in order to keep the project moving, to make the decisions.
- The co-operation with and the support from the Tacis Co-ordination offices in Bishkek and Almaty was good.
- The support from the Tacis Co-ordination Unit in Tashkent was poor. Once the Project Director and the Module E Team Leader had to cancel a trip to Tashkent as the Tacis Co-ordination Unit in Tashkent only sent the visa invitation letters late in the afternoon on the day before departure. The invitation letters had been asked for well in advance and the Tacis office was reminded several times. When the invitation letters finally arrived their validity started three days too late. The Module E Team Leader was already in Moscow and he had to reschedule his trip from there. The Project Manager sent to the Team Leader of the Tacis Co-ordination Unit in Tashkent a letter of complaint and asked for an explanation but never received any reply.
- The Recipient and Sub-consultant in Mongolia fulfilled their share of the project in an excellent way.
- The co-operation with the TRACECA Monitor for Central Asia was cordial and his critics justified, constructive and to the benefit of the project
- The critics from the TRACECA Monitor for the Caucasus Countries was sometimes unjustified, incorrect and exaggerated. This particularly refers to his Monitoring Report No 4 dated 30 November 1998 . Most of the critics in the said Monitoring report was subjective, unjustified, exaggerated and moreover the report contained several incorrect statements. We were particularly surprised as the TRACECA Monitor for the Caucasus Countries tried to force us to set up an other project office in the Caucasus countries. The TOR did not provide for any field co-ordination office to be set up. We, however, proposed to set up one field co-ordination office in Bishkek and allocated money for it in the proposal. Moreover Module C established a side office in Baku. Even if there was no request in the TOR to set up an other side office (and we are still convinced that there would not have been useful need or benefits of it) and no money was allocated for it, the TRACECA Monitor for the Caucasus Countries blamed us in two of his Monitoring Reports for not having followed his advice to set up an other office. We would believe that the task of the TRACECA Monitor is to monitor that the performance of the Contractor is according to the TOR and the Contract and not to try to impose upon the Contractor extra costs, which are not recoverable.
- Finally our best thanks to all parties in Bishkek for the good working environment and support you gave to the project staff and the project office.