Tacis

TRACECA : Central Asian
Railways Restructuring Project
Module E: Telecommunications
Inception Report
January 1998

Project title	TRACECA: TELECOMMUNICATIONS		
Project number	TNREG 9602		
Country	Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan		
	Local operator	EU Consultant	
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Signatures			

Date of report: December 1997

Reporting period: September 1997 to December 1997

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EU E team			
EU Delegation	(name)	(signature)	(date)
TACIS Bureau	(name)	(signature)	(date)
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Introduction

This study on interconnection of telecommunications systems in TRACECA countries is part of the Central Asian Railways Restructuring study consisting of Module E.
This project is financed by Tacis/Traceca in collaboration with the European Bank for Reconstruction and Development (EBRD).

1 Project Synopsis

Project Title	:	TRACECA - Central Asian Restructuring - Module E Feasibility Study Concerning Interconnection Possibilities Between the Telecommunication Networks of the TRACECA countries
Project Number	:	TNREG 9602
Countries	:	Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan.

Project objectives	:	The objective of this project is to study the possibility of setting up an efficient telecommunications system among TRACECA country railways. Interconnection possibilities with European railways will also be studied.
Planned outputs	:	A diagnosis of telecommunications systems used. A seminar to present the systems used in Europe. An action and investment plan. A training seminar on new systems (if an additional budget is allocated).
Project activities	:	Preparation of questionnaires for the inventory Inventory of existing systems in TRACECA. countries Analysis of existing telecommunications and IT-related reports on TRACECA countries. Organisation of a seminar to present European systems. Analysis of interconnection possibilities with European railways. Preparation of the action and investment plan.. Organisation of training (if an additional budget is allocated).
Target groups	:	Railways in TRACECA countries, in particular their IT and telecommunications managers.
Project starting date	:	1 September 1997
Project duration	:	11 months

2 Analysis of Project

2.1 Needs of the beneficiaries

In the meeting held in Paris on 21, 22 and 23 April 1996, railway managers agreed that the first condition for the implementation of the TRACECA programme was the setting up of an efficient telecommunications network linking the various TRACECA countries.

Furthermore against the background of growing competition and an urgent need to improve productivity, an efficient telecommunications network is most definitely an asset.

2.2 State of telecommunications systems

Notwithstanding exceptions, the telecommunications systems are old and not very automated (analogue networks, paper-insulated cables; limited functionalities, low performance levels). A star-shaped architecture has been inherited from the former USSR.

Network maintenance poses serious problems (lack of spare parts, need to cannibalise equipment).

The situation is particularly critical in Georgia and Armenia because equipment has been destroyed (earthquakes, civil war, etc.).

2.3 State of information technology systems

IT equipment is old for the most part although micro-computers grouped into local networks are emerging. Notwithstanding exceptions, the modems used for links have a low bit rate.

IT architecture is still very much marked by the centralisation of freight and passenger applications dating from the former USSR.

2.4 Project start up

2.4.1 Initial contacts

The experts travelled to six of the eight countries concerned.
They visited railway headquarters and international departments.
The persons met in these departments are listed in Appendix 4.

On the whole these contacts provided an opportunity to interview local IT and telecommunications technical experts and to obtain all or part of the information needed to draw up the inventory in these fields.

In addition, the UIC experts met with the experts taking part in modules B and C of this project. In particular, collaboration with Messrs. V. Herriau and P. Jennings was highly useful. Two meetings with Mr. O. Dereudre, IT expert for these two modules, gave the UIC experts a better idea of the problems at hand and of possible solutions.

They also met Mr. B. Ziller of the EBRD, with whom they exchanged initial information on the budget aspects of future investments.

A co-ordination meeting was held with Messrs. Barry, Higgins and Cheeseman in early October 1997 at UIC.

Furthermore, the experts met directly with the Tacis/Traceca representatives in Tbilissi and Tashkent.

2.4.2 Caucasian Countries

Since an invitation to tender will be issued in early January 1998 for the pilot stage of the telecommunications system renovation in the railways of Armenia, Azerbaijan and Georgia, i.e. before this study is published, the UIC experts took part in preparing the relevant specifications in collaboration with TRACTEBEL.

2.4.3 Kyrgyzstan and Tajikistan

Because of the situation in Tajikistan, the difficulties of travelling to Kyrgzstan and Tajikistan and the short amount of time available to our experts on the spot (three days, including travel according to the Terms of Reference), a delegation of IT and telecommunications managers from each of these countries was invited to travel to Tashkent to inform our experts. The IT expert from Tajikistan was unable to come, but his telecommunications colleague was able to provide a certain amount of information.
Naturally, we reimbursed the expenses for these delegations.

2.4.4 Kazakhstan

The consultants travelled to Kazakhstan in October. They did contact the IT and telecommunications managers, but the latter were forbidden by their headquarters to reply to the questionnaires. The questions were considered to fall within the realm of military secrets. The consultants were informed that the replies would have to be validated by the Deputy Prime Minister before they could be sent in written form. The consultants have not received anything to date.
The Module A consultants do not appear to have encountered problems of this nature.
Hence, it would be worthwhile to return to Kazakhstan to complete the inventory stage (see 3.4).

2.4.5 Staff

During the diagnosis stage, because our experts visited eight countries for very brief periods of time, it was not necessary to employ local staff at all times. An interpreter was employed intermittently in each country.
It was not possible to hire a professional French/Russian interpreter in Armenia and in Turkmenistan. J. Fazik who also speaks Russian helped considerably in these two countries. The productivity of the group of experts suffered as a result.
Because of the lack of administrative staff on the spot for this module, the assistance provided by the local Tacis, TRACECA representatives and the « permanent » teams for modules A, B and C was highly appreciated.

2.4.6 Logistics

Thanks to good cooperation on the part of the railways visited, no offices or telephone lines were rented, nor computers purchased.

2.4.7 Involvement of counterparts

On the whole, the headquarters and international departments of the railways visited made it possible to meet local experts promptly.
However, in some cases the local experts received the questionnaires on the arrival of the UIC experts which meant that the UIC experts were less productive (not yet quantifiable).
A car with a driver was made available to them free of charge when needed.
Except in special cases, the meeting rooms were provided free of charge for the experts.

2.5 Work progress

2.5.1 Reports available (review and consequences)

A large number of studies have been carried out on the railways and the ports concerned and a good number of them appear to contain information on signalling, telecommunications and IT.

CIE CONSULT	Central Asia Railways Restructuring
DECON	Rail Maintenance Central Asia: Infrastructure Maintenance 2
HPTI	TA Development of port Baku Management Assistance & Training
HPTI	Feasibility Study of New Terminal Facilities in the Georgian Ports
HPTI Addendum	Port Master Plan
KRAMER	Communication Network for the Caucasian Railways
RAMBOLL	Port Network Plan & Improvement Program. Renovation of Ferry Terminals Baku & Turkmenbashi
RAMBOLL-Add.	Supplementary Consultancy Services for Rehabilitation of Ferry Terminals B&T & Dry Cargo Terminal
SWK Trade	Trade Facilitation, Customs Procedures & Freight Forwarding Project
TEWET	Infra. Maint. 1 - Railways Pre-Investment Study & Pilot train Bak-Tbl- Batumi.- Poti.
TEWET	Joint Venture(s) Trans-Caucasian Railways
TEWET	Communication Network for the Caucasian Railways
UNCTAD	Rail Freight Traffic Management & Information System

They will be examined and analysed by the consultants.
The work schedule has been adjusted accordingly.

Since the consultants were not able to spend much time on the spot, the information in these studies will be taken up again if necessary.

2.5.2 Experts

The UIC team is made up of high-level experts who have excellent telecommunications and IT knowledge, not only for European countries, but also for those of the CIS.

The following are taking part in project implementation work :

André Michel UIC/SNCF (IT coordination, responsible for financial matters)
Tadeusz Kaczmarek - UIC/PKP (project coordination)
Jozef Fazik - UIC/ZSR (telecom)
Jean-Michel Wiss - UIC/SNCF (telecom and IT)
Dominique Lebrun - UIC/SNCF (training, administration)
Eric Phan-Kim - UIC (IT and networks, drafting)

See their career details in Appendix 5.

The project experts will consult the UIC specialised bodies whenever necessary as well as UIC member railways (137 at present).

2.5.3 Output

One initial tangible result of the start-up stage is that the specialists were able to familiarise themselves with the TRACECA railways and with the TRACECA project in general.

Telecommunications : meetings have been held with all the necessary local experts (for Kazakhstan, see 2.4.4). Information has been obtained on the communication systems on the corridor.

IT : meetings have been held with all the necessary local experts (for Kazakhstan, see 2.4.4). Information has been obtained on inter-city and international IT data interchange. The actual specifications for the international systems, particularly ASSOUP and EXPRESS have not been obtained. Furthermore, the link between all these IT systems and the Moscow system is not very clear.

➔ Two additional man/weeks are requested in order to be able to obtain the necessary explanations regarding IT systems.

2.5.5 The ports question : Caspian Sea and Black Sea

The general idea behind this project is to set up an efficient communication system between the countries on the TRACECA corridor.

This study will therefore include a diagnosis of the communications systems of the railways in TRACECA countries. However, it would appear that a few important links have been overlooked : the port authorities and shipping companies of the Black Sea and the Caspian Sea are not only fully-fledged partners in freight transport, but also harbour a potential for loss of time due to formalities and even loss of goods. For a high quality freight transport service, it is important for the customer to be able to locate his goods accurately and to speed up formalities by carrying them out electronically at least partially.

This study should be extended to encompass the ports of :

* Turkmenbashi (Turkmenistan)
* Aktau (Kazakhstan)
* Baku (Azerbaijan)
* Poti and Batumi (Georgia)

as well as possibly :

* Odessa (Ukraine)
* Constanta and Varna (Bulgaria)
* Istanbul, Samsun (Turkey).

➔ Work load necessary for all of these : 25 man/weeks.
➔ Work load necessary solely for the eight countries of this study : 12 man/weeks.

2.5.6 Economic study

It is customary for the telecommunication subsidiaries of European railway companies to install communication facilities with capacity far greater than that required for current needs for two reasons :

* To have spare capacity for their specific requirements for the future.
* To be able to lease additional capacity to other companies, for example, public telephone operators.

The economic viability of a modernisation project includes two parameters :

* The costs of leasing currently needed capacity from local telephone operators.
* Estimates of potential profit from leasing the surplus capacity of the new system.

The public telephone systems appear to be old, in poor condition and/or to have insufficient capacity. Up-grading work is under way.

However, this study does not include

* the state of public telecommunications systems
* the inventory of up-grading work under way in these public telecommunications systems
* the assessment of public telecommunications operators' requirements, neither in terms of national capacity, nor in terms of international capacity.

Since it has not been possible to correlate information originating from the two parties (railways and public operators), this study will not contain a precise economic assessment.

2.5.7 Signalling

This study does not take account of railway signalling facilities needed for rail traffic; However, the results of other railway infrastructure studies will be taken into account.

2.5.8 Recent Inclusion of Ukraine and Mongolia

The inclusion of Ukraine and Mongolia occurred after the Terms of Reference for this module were drafted; hence, this study will not include these two countries.
However, it may be advisable to extend this study subsequently to include these two countries which are at the ends of the corridor.

➔ Work load necessary: 15 man/weeks.

2.5.8 Steering Committee

It has not been possible to set up a steering committee because of the multi-country nature of this study.

3 Project Schedule

This study is part of the Tacis Central Asian Railways Restructuring programme. It should be borne in mind that the study is not confined solely to Central Asia, but also includes the Caucasus. In fact, it is one of the rare studies encompassing all the countries of the TRACECA corridor.

This study is financed by Tacis/Traceca and is part of the technical assistance programme for CIS countries. This work is carried out in close co-operation with the EBRD.

The invitation to tender for this project was issued in March 1997 and the contract was awarded to CIE Consult/Systra in July 1997. The UIC is a sub-contractor for Module E.

An interim report will be submitted at the end of February 1998 after which a presentation will be made of European telecommunications systems in Europe in March 1998.

The final preliminary report will be presented in mid-June 1998 after which a presentation will be made of the results of this study in Central Asia and in the Caucasus to the representatives of the countries concerned at the end of June 1998.

The final report will be available in July 1998.

3.1 Project Approach

The study has been divided into three stages :
1. Survey of telecommunications facilities and IT data interchange
2. Presentation of the European systems
3. Action and investment plan
A fourth stage on « Training for new systems » may be added if additional budget resources are released.

In order to be able to obtain a clear and accurate idea of railway problems, needs and goals, a trusting dialogue must be created between the consultants and railways. This need was clearly understood by the railway management concerned on the whole and has already made it possible to obtain a large amount of the information needed for this study. This effort must be maintained.
It should be borne in mind that the fact that the experts sent to the countries concerned are themselves railwaymen from eastern or western Europe made it easier to establish these contacts.

Since matters related to computer-based data interchange and telecommunications are very closely linked, the experts concerned will work together in order to arrive at the most suitable solutions.

3.2 Work plan

Each of the stages of the study has been sub-divided into several points for action :

1. Stock-taking of telecommunications and IT data interchange facilities
> 1a Preparation of two questionnaires (IT and telecommunications)
> 1b Three-day visits in each of the countries concerned to draw up an inventory of existing systems, projects and requirements.
> 1c Analysis of these inventories
> 1d Analysis of the other TRACECA studies

1e If need be, second visits by the UIC experts to certain TRACECA countries to obtain further details and/or data that is lacking

2. Presentation of European systems
2a Preparation of the presentation of European systems
2b Presentation of European systems.

3. Action and investment plan
3a Analysis of interconnection possibilities with Europe
3b Preparation of an action and investment plan
3c Presentation of the action and investment plan

4. Training for new systems
4a Training of local experts (possibly)

The interim report will be drafted on completion of task 1e.
The preliminary final report will be available on completion of task 3b.
The final report will be available one month after task 3c (or task 4 if it takes place).

3.3 Deliverables

3.3.1 Survey

3.3.1.1 Telecommunications

- General features of railway networks and facilities
- Topology and general features of the communication networks
- Topology and detailed features of the communication networks
- Connection with public networks
- Connection between the networks of different countries
- Other means of communication
- Remarks on the telecommunications networks
-

3.3.1.2 Information Technology

- General features of data transmission networks
- General features of IT equipment
- General features of IT applications
- Geographical location of main applications
- Data interchange with local authorities
- Data interchange with customers

3.3.2 Technical visit

- Conferences
- Site visits

3.3.3 Action and investment plan

- General context
- Financial context
- Legal context
- Functionalities to be performed
- Technological changes
- Network architecture
- Interoperability

3.4 Risks

The change in interpretation of the Terms of Reference, no longer involving only an inventory of existing resources solely on the corridor, but an exhaustive inventory the railway telecommunications of the country concerned could increase the work load in the first stage. Since the experts had already visited all the countries concerned, a second round of visits will be necessary.
Moreover, with regard to Kazakhstan, given the enormous area to be covered, two weeks per expert would appear to be a minimum, i.e. six man/weeks.
The total would be 18 man/weeks.

In a number of countries, it is possible that from the political standpoint, there might be a possibility of merging railway and public telecommunications. Part of the resources deployed to renovate railway systems, in particular inter-city links, may well be diverted to the benefit of public telecommunications operators.

Since the railways studied are in the midst of restructuring, the figures for investments will be based on the situation at present. A worst-case and best-case assessment will be made if sufficient information is available.

The project calls for a high degree of co-operation between the eight countries concerned, firstly to carry out the study, secondly and above all to adopt common or at least compatible solutions. Each of the countries concerned in this study must be highly motivated.

4 Annexes

1 List of local operators

Armenia
Railway of Armenia (ARM) 50, Tigran Meci st. 375000, Erevan Phone: (3742) 52 04 28 Fax: (3742) 57 36 30 Vladimir V. Asriianc Directeur Général
Azerbaijan
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Kyrgyzstan
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Tajikistan
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Turkmenistan
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Uzbekistan   .
Republic of Uzbekistan State Joint Stock Railway Company « Uzbek Railways » (UTI) 7, T. Shevchenko st. Tashkent, 700060 Phone: (7-3712) 36 44 00 Fax: (7-3712) 33 69 24 Normat E. Ermetov Président des Chemins de fer

2 Telecommunications questionnaire

General data in relationship with the railway network

Network length in operation (in km):
-of which:
- length of electrified lines (in km)
- length of single track lines (in km)
- length of double track lines (in km)
- length of TRACECA lines
    - of which:
                * length of electrified lines (in km)
                * type of electric traction
                * length of single track sections
                * length of double track sections

Traffic controller on TRACECA lines (yes-no)

If yes:
    - list of the sections with indication of the place where train control is performed
    - length of these sections (in km)
    - technology and tools used by the traffic controller

Capacity of the TRACECA line sections
(Maximum number of pairs of trains during 24 hours)
- limitations (bridges, tunnels etc.)

Number of stations (on TRACECA line sections)
- distance between stations
    - average
    - maximum
Network diagram, TRACECA lines with indication of maximum activity spots.

All data provided must be in relation with the present situation.
If investment projects have been elaborated for the next 5 years to come, indicate also the targets to be reached and the date of realization of these programs.

Data in relationship with the Telecommunication network

Types of telephone lines (different networks) used by the railways
(for instance railway network, service, train control etcs.)

For each type of network, indicate
- the level of hierarchy and the number of switching nodes
- the number of subscribers to the network
- the number of subscribers per node.

Switching node systems - generation of telephone exchanges (I,I,III,IV)
                - analog
                - digital
type of operating   - automatic, manual
                - central, local battery

Existing connection:
- with the general central network of the post office
- international, with neighbouring railways
- international transit (for a third party)
(destination, numbering, quantity, capacity, systems etc.)

All data to be shown for every length of TRACECA line (network, node, subscribers etc.)
- mention the year of putting the switching nodes into service
- maximum length of the link between subscriber and switching node.

Are there altenative loops to the TRACECA lines ?
- indicate the same data for each loop

Draw a diagram:
- of the topology of the networks
- of the geographic layout
- of the structure, of the network configuration
- of the numbering plan
- of the telephone number allocation

Numbering system   - open
                              - closed

Applied signalling (between exchange and node)
- for analog links (E&M, DTMF, R2 etc.)
- for digital links - via an individual channel (CAS)
                     (DTMF signals, R2 etc.)
                     - via a global channel (CCS)
                     (type, DRNSS? use of CCITT N°7?)

Transmission systems - links between exchanges

Transmission system between switching nodes
                NF (low frequency)   ·
                VF (high frequency)
- Transmission equipment (Z12, V60, V3000, B900 channels)
- Frequency modulation principe (TNP)
- PDH systems
- SDH systems

Digital transmission equipment (2Mbit/s, 34Mbit/s, 64Mbit/s etc.)
- mention the year of putting the equipment into service; remarks related to the present in working order state ?
- analog signal repeaters (placing, spacing on the line etc.)

Topology layout - mapping of the transmission system network
(nodes, repeater, number of channels, diagram of the links etc.)

Data provided must be in relation with the present situation.
Have new transmission system projects been elaborated for the next 5 years to come ? If yes, indicate also the data related to these projects and the date of putting into service.

Technical data for the implementation of the transmission systems
- aerial lines
                - material and wire diameter
                - number of wires per line

- cabel line (features, sections, length etc.)
       - copper, symetrical
       - coaxial
       - optical
- buried cable
- aerial cable

- pupinisation layout (spacing)
- cabel diameter, isolation etc.

For each section, drawing of the cable type with typical features
- indicate the century or the year of putting into service; remarks on the present state ?

Provide a map of cables and aerial lines with their typical features for the TRACECA lines and their alternative loops.

If refurbishing of lines are currently undertaken on some sections (new cables, optical fibre cables, corresponding transmission equipment), please indicate the already obtained results and the dates of putting into service.

Connection with the other networks.

- telegraphic network (overall data, features etc.)
       - use of telegraph in the future ?
- data transmission network (X25)
         - connection with the world wide INTERNET ?
         - connection with national data transmission network ?
         - connection with national general X-400 network (electronic post) ?

General data related to the railway data transmission network
- Name of the network
       - international network numbering (DNIC)
         - official, non official

- Number of railway sections
       - maximum number of junctions (X25)
       - used junctions
- of which:
       - synchron "ports" (X25)
       - asynchron "ports" (X3, 28, 29)
       - other wire "ports" (which ones ?)

Provide data related to the present situation and to future projects

Network Supervision system

Description (features)   - of the connexion channels
                      - of the means put in use, models etc.

3 Information Technology questionnaire

Electronic Data Interchange (EDI) is the electronic exchange of structured data messages between computer systems of different organisations.
N.B. Fax, E-mail are usually not considered as EDI

1.   Electronic data interchange (EDI) with customers
    It is assumed that most EDI will be done with large and very large customers. If this is not the case please indicate. In the following only your large customers are considered. When the word customer is applied also forwarders or other trade-parties are addressed.

   Q1.1   Do you apply EDI with your customers?
          (If not go to Q2.1)

   Q1.2   How many large customers do you have in total?

   Q1.3   With how many of them do you exchange data electronically?

   Q1.4   What is the average annual growth in customers with which you exchange data electronically?

   Q1.5   Which percentage of your transports is supported by EDI?

   Q1.6   How many EDI messages are you exchanging daily with your customers?

   Q1.7   Which are your peak-hours in EDI traffic; which percentage of your EDI traffic is exchanged during these peak-hours?

   Q1.8   What is the average size of an EDI message in bytes?

   Q1.9   What kind of EDI-customers applications do you apply or are planned to apply?
          -   timetable inquiry
          -   transport order (consignment note)
          -   booking
          -   tracking and tracing of freight
          -   reporting about accidents during the trip
          -   arrival notice
          -   invoicing
          -   other

   Q1.10 Do you use messages standards?
          If so, which standards are used:
          -   company standards?
          -   the standards of the customer(s)?
          -   more general applied railway standards?
          -   open standards?
          Could you give us specifications of the applied message standards?
          Are there any plans for development of new messages?

   Q1.11 Do you use standardised codes to identify entities?
          If so according to which standards?
          -   in house company standards?
          -   the standards of the customer(s)?
          -   more general applied railway standards?
          -   open standards?

Could you give us specifications of the applied message coding systems?

Q2.1   Do you have current projects or studies aiming EDI with customers or do you have plans to start EDI projects with customers in the (near) future
(If not go to Q3)

Q2.2   What kind of EDI-customers applications are planned to develop?
- timetable inquiry
- transport order (consignment note)
- booking
- tracking and tracing of freight
- reporting about accidents during the trip
- arrival notice
- invoicing
- other

Q2.3   Do you plan to apply messages standards?
If so, which standards:
- company standards?
- the standards of the customer(s)?
- more general applied railway standards?
- open standards?

Q2.4   Do you plan to use standardised codes to identify entities?
If so according to which standards?
- in house company standards?
- the standards of the customer(s)?
- more general applied railway standards?
- open standards?

2   Electronic data interchange (EDI) with authorities (customs, police etc.)
Here EDI between railways and authorities are to be described with respect to boarder crossing transports.

Q3.1   Do you apply EDI with authorities ?
(if not go to Q4)

Q3.2   With which authorities do you exchange data electronically ?
- customs
- police
- veterinary authorities
- vito-sanitaire (plants)
- ministry
- other

Q3.3   What is the average annual growth in EDI traffic with authorities ?

Q3.4   Which percentage of your boarder crossing transports is supported by EDI with authorities?

Q3.5   How many EDI messages concerning boarder crossing traffic are you exchanging daily with authorities?

Q3.6   Which are your peak-hours in this type of EDI traffic; which percentage of this EDI traffic is exchanged during these peak-hours?

Q3.7   What is the average size of an EDI message in bytes?

Q3.8   What kind of EDI-authorities applications do you apply or are planned to apply?

Q3.9   Do you use messages standards?
        If so, which standards are used:
        -       company standards?
        -       the standards of the authorities?
        -       more general applied railway standards?
        -       open standards?
        Could you give us specifications of the applied message standards?
        Are there any plans for development of new messages?

Q3.10 Do you use standardised codes to identify entities?
        If so according to which standards?
        -       in house company standards?
        -       the standards of the authorities?
        -       more general applied railway standards?
        -       open standards?
        Could you give us specifications of the applied message coding systems?

Q4.1   Do you have current projects or studies aiming EDI with authorities or do you have plans to
        start EDI projects with authorities in the (near) future
        (If no go to Q5)

Q4.2   What kind of EDI applications are planned to develop with what authorities ?

Q4.3   Do you plan to apply messages standards?
        If so, which standards:
        -       company standards?
        -       the standards of the authorities?
        -       more general applied railway standards?
        -       open standards?

Q4.4   Do you plan to use standardised codes to identify entities?
    .   If so according to which standards?
        -       in house company standards?
        -       the standards of the authorities?
        -       more general applied railway standards?
        -       open standards?

Q5   Please give here all remarks and suggestions which might be helpful for the project

4 List of counterparts

Armenia
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Kyrgyzstan
Les experts ont été invité via leur directeur général à se rendre à Tashkent

Tajikistan
Les experts ont été invité via leur directeur général à se rendre à Tashkent

Turkmenistan
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5 Overall Plan of Operations

Project Title: Traceca - Central Asian Railways Restructuring Module E: Telecoms	Project Number : TNREG 9602	Countries: Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan
Planning period: Sept 97 to July 98	Prepared on : December 1997	EC Consultant : UIC, 16 rue Jean Rey, 75015 Paris, France

Project objectives

N°	Main Activities	Time Frame											Inputs				
		1997				1998							Personnel		Equipment and Materials	Other	
													EC Consultant	Counterpart			
		Sept	Oct	Nov	Dec	Jan	Feb	Marc	April	May	June	July				Flights	Per Diem
0	Project Management	xxxx	xxxx	xxxx	xxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxx	xxxx	xxxx					
1a	Questionnaires writing	xx	xx·														
1b	Visits in the Traceca countries for the survey	x	xx·	xx													
1c	Analysis of survey data					xxxx	xxxx										
1d	Analysis of other Traceca Reports					xx	xx										
1e	Visits in the Traceca countries to collect additional data						xx			xx							
2a	European systems presentation seminaire preparation							x	x								
2b	European systems presentation seminaire							x									
3a	Analysis of interconnection possibilities with Europe								xx								
3b	Action plan preparation								xx	xxxx	xx						
3c	Action plan presentation in TRACECA countries										xx						
4	Trainings																
												Total					

6 Work Programme (plan of operations for the next period)

Project Title: Traceca - Central Asian Railways Restructuring Module E: Telecoms	Project Number : TNREG 9602	Countries: Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan
Planning period: Jan 98 to March 98	Prepared on : December 1997	EC Consultant : UIC, 16 rue Jean Rey, 75015 Paris, France

Project objectives

Nº	Main Activities	Time Frame			Inputs				
		1998			Personnel		Equipment and Materials	Other	
		Jan	Feb	Marc	EC Consultant	Counterpart		Flights	Per Diem
0	Project Management	xxxx	xxxx	xxxx					
1c	Analysis of survey data	xxxx	xxxx	xxxx					
1d	Analysis of other Traceca Reports	xx	xx						
1e	Visits in the Traceca countries to collect additional data		xx						
2a	European systems presentation seminaire preparation		x	x					
2b	European systems presentation seminaire			x					
	Total								

7 Project staff

Tadeusz Kaczmarek - UIC/PKP (project coordination)
Currently Deputy Director, responsible for relations with Eastern Europe and CIS countries at UIC. In this capacity, he has taken part in Traceca activities for some time as well as in other negotiations aimed at setting up rail links between Europe and Asia.
Before that, he participated in international activities on his railway for many years, in particular in the International Cooperation Department where he was Director for six years. He speaks fluent Russian.

Jozef Fazik - UIC/ZSR (telecommunications)
He has been a Chargé de Mission in the East-West Division at UIC for the last six months. On the Slovak railways, he successively held posts in the Telecommunications and Signalling Departments, then at the International Affairs Department where he was the Director. He speaks fluent Russian.

Jean-Michel Wiss - UIC/SNCF (telecommunications and IT)
He was recently appointed Chargé de Mission in the UIC Technical Department. At the SNCF, he worked in the signalling and telecommunications department. He headed the Mobile Radio Division of the Railway Telecommunications Agency for seven years.
He has participated in several standardisation bodies including CENELEC.

Dominique Lebrun - UIC/SNCF (training, administration)
He is currently responsible for International Training at UIC. In this capacity, he has vast experience in organising training seminars on all continents.
On SNCF he worked in the Human Resources and Marketing Departments where he took part in delegations to Russia on behalf of Systra. He speaks fluent Russian.

Eric Phan-Kim - UIC (IT and railways, drafting work)
He was responsible for IT networks and then for UIC internal IT. He supervised the UIC Internet project. At the same time, over the past three years, he has taken part in the various UIC bodies and associated activities, e.g. the Information Technology Committee, Hermes and EDIFER.