TRACECA Programme Traffic and Feasibility Studies

Progress Report 1

June 2000

REPORT COVER PAGE

Project Title	: **Traffic and Feasibility Studies**
Project Number	: **TNREG 9803**

	Local Beneficiaries	**EC Consultant**
Signatures		
Armenia :	_____	Name BCEOM Société Française d'Ingénierie
Azerbaijan :	_____	Address Place des Frères Montgolfier 78286 Guyancourt Cedex - France
Georgia :	_____	Tel 33 1 30 12 48 00
Kazakhstan :	_____	Fax 33 1 30 12 10 95 E.mail eco@bceom.fr
Kyrghyzstan :	_____	Contact Mr. Philippe Delaporte
Moldova :	_____	_____
Mongolia :	_____	
Tadjikistan :	_____	
Turkmenistan :	_____	
Ukraine :	_____	
Uzbekistan :	_____	

Date of Report : 30 June 2000

Reporting period : Progress Report N°1

Author of Report : Philippe Delaporte - acting TL - BCEOM

EC Monitoring Team Tbilisi	H. Maters	_____ [signature]	_____ [date]
Tashkent	P. Melissen	_____ [signature]	_____ [date]
Kiev	D. Armstrong	_____ [signature]	_____ [date]
TRACECA Co-ordination Team	M. Graille	_____ [signature]	_____ [date]
EC TACIS Programme [Task Manager]	John Bradley	_____ [signature]	_____ [date]

What is Tacis?

The Tacis Programme is a European Union initiative for the New Independent States and Mongolia which fosters the development of harmonious and prosperous economic and political links between the European Union and these partner countries. Its aim is to support the partner countries' initiatives to develop societies based on political freedoms and economic prosperity.

Tacis does this by providing grant finance for know-how to support the process of transformation to market economies and democratic societies.

In its first six years of operation, 1991-1996, Tacis has committed ECU 2,807 million to launch more than 2,500 projects.

Tacis works closely with the partner countries to determine how funds should be spent. This ensures that Tacis funding is relevant to each country's own reform policies and priorities. As part of a broader international effort, Tacis also works closely with other donors and international organisations.

Tacis provides know-how from a wide range of public and private organisations which allows experience of market economies and democracies to be combined with local knowledge and skills. This know-how is delivered by providing policy advice, consultancy teams, studies and training, by developing and reforming legal and regulatory frameworks, institutions and organisations, and by setting up partnership, network, twinnings and pilot projects. Tacis is also a catalyst, unlocking funds from major lenders by providing preinvestment and feasibility studies.

Tacis promotes understanding and appreciation of democracy and a market-oriented social and economic system by cultivating links and lasting relationships between organisations in the partner countries and their counterparts in the European Union.

The main priorities for Tacis funding are public administration reform, restructuring of state enterprises and private sector development, transport and telecommunications infrastructures, energy, nuclear safety and environment, building an effective food production, processing and distribution system, developing social services and education. Each country then chooses the priority sectors depending on its needs.

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1. PROJECT SYNOPSIS for ALL MODULES

Logical Framework

(prepared by Contractor)

Project Title:	Traffic and Feasibility Studies
Project Number:	TNREG 9803
Country:	Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Mongolia, Tajikistan, Turkmenistan, Ukraine, and Uzbekistan.

Wider Objective:

To assist in identifying, prioritising and supporting transport investment projects at the satisfaction of the International Financing Institutions (IFIs) through the introduction and operation of a quantitative planning tool

Specific Project Objectives:

- Setting up a simple and operational computer-based planning tool in the 11 TRACECA States including:
  - A common regional database of transport and trade flows, transport infrastructure and transport costs through an integrated communications network
  - A simple, transparent and consistent multi-modal traffic forecasting model to locally and regionally test economic development scenarios and for the Beneficiaries to identify transport investment projects for external financing.
- Application of the planning instrument to
  - Create comprehensive multi-modal synoptics of existing and forecast future flows
  - Highlight transport bottlenecks of all types, especially connections with Europe
  - Perform specific feasibility/opportunity studies:
    * Module A: Chardzev bridge,
    * Module C: Aktau ferry terminal,
    * Module D: Turkmenbashi Navigation Channel,
    * Module E: Dubendi Oil Port Terminal,
    * Module B: Caspian new shipping services
- Institutionalise for permanent system operations
  - Beneficiaries to introduce and support Investment Projects close to the IFIs
  - System operators to providing the beneficiaries with documentation
  - Information and data providers

Activities:

- Inception and setting up the network of local Correspondents (month 2+3)
- Phase 1: Data collection and database design. Progress Report 1 (month 2+8)
- Phase 2: Development of forecasting models followed by training and Documentation Feasibility Studies. Progress Report 2 (month 2+14)
- Phase 3: Active system dissemination. Draft Final Report (month 2+19)
- Phase 4: Instrument Use. Final Report (month 2+22)

Inputs:

- Technical Assistance for database, population and maintenance, Training
- Computers and software models
- Internet network system and computer connections

Project synopsis: Module A

Project Title:	Traffic and Feasibility Studies
Project Number:	TNREG 9803
Country:	Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Mongolia, Tajikistan, Turkmenistan, Ukraine, and Uzbekistan.

Overall objective: Investment in the transport sector within the TRACECA states supported.

Specific objective: Transport data base and traffic forecasting model established and institutionalised in the eleven TRACECA countries.

Planned outputs:

- Local networks for data collection established, and staff identified and trained. In each TRACECA country at least one centre capable of providing national and regional forecasts;
- Equipment and software provided for the beneficiary states;
- A common transport data base and traffic forecasting model for the eleven TRACECA states designed and developed, in a single physical centre or as a virtual centre, and having links with each country;
- CDs of the data base issued at maximum three monthly intervals, and data available on the TRACECA Web site;
- Traffic forecasts prepared for the feasibility studies of the other modules of the project and for Chardzev bridge.

Activities

A1 Setting up a network of local correspondents;
A2 Training of local project experts on database and traffic forecasting tools;
A3 Equipment supply;
A4 Data base design, data collection and surveys;
A5 Design forecasting methodology;
A6 Documentation of database and forecasting methodology;
A7 Specific traffic forecast for the other modules
A8 Feasibility study of Chardzev bridge;
A9 Synoptics and communications, brochures, conferences.
A10 Overview of links to Europe and the TRACECA neighbouring states
A11 Web site

Target groups:

- Ministries of Transport and Departments responsible for transport in the Cabinet of Ministers, of the eleven TRACECA countries;
- National rail, road, port and maritime companies;
- Ministries of Economy and Departments of Statistics, and Customs Authorities.

Project start date: 30 August1999

Project duration: 24 Months

2. SUMMARY of PROJECT PROGRESS SINCE the START

2.1 INTRODUCTION

This Progress Report 1 describes the implementation of project activities during the five-month period February-June 2000. It intends also to define the planning of activities and inputs/outputs for the next reporting period. It has been produced in accordance with the Tacis "Guidelines for Administrative Reporting on Projects financed from the EU Programme of TACIS".

2.2 PROJECT PROGRESS SINCE THE START

Module A of the Project, which commands the timely and appropriate achievement of the other Modules (B to E), started with a delay of more than two months (10 November 1999), because of non-availability of the Team Leader. What was, at the beginning, a temporary replacement with a new 'acting' Team Leader for a period originally limited to the Inception phase, appears, at the time of this Progress Report, to become more and more a definitive one. The uncertainty related to the project leadership, between September '99 and February '00, was not without an effect to the external image given during that period by the development of project activities and the staff mobilisation.

Nevertheless, in the course of the first six months of the year 2000, the "feasibility of Aktau port terminal" (Module C) was completed with the production in March '00 of the Tender Documents in Russian. The Inception Report about the whole Project, but oriented mainly towards Module A, was also delivered. It was generally well accepted by the project Beneficiaries and readers, especially as far the project analysis and approach regarding the Project objective and its related main issues are concerned.

The objective of Module A is the creation of a planning instrument, simple, efficient and easy to use, and the institutionalisation of its use. At this stage of the project, distinct progress is being made, not only on the technical work but also to effect permanent institutionalisation of the planning instrument, since all sub-tasks to be performed contain a component linked to support this activity. In this respect, the local network of correspondents and Leading Centres have been identified, and almost all of them are equipped with electronic devices for data storage and communications in offices located in the Beneficiaries' premises. The main concern at the moment is for Turkmenistan where the project Beneficiary could not yet be approached.

The data collection phase commenced in April 2000 with two workshops held in Kiev and in Almaty. They attracted about 45 experts from 10 countries drawn from ministries of transport, customs, port authorities, road agencies, railway companies, research laboratories and local consultancies. The workshops sought involvement with producing the data and using the planning instrument. The core concept (which required local experts to value their own use of the planning instrument before they would effectively contribute data) was sound, as the feedback received from the local experts was positive for the concept and a desire to use the planning instrument at the end of the project. The workshops were followed by a set of country visits to supply the data tables, to maintain the momentum generated in the workshops, to provide equipment and conclude contracts for supplying the data. The remainder of the reporting period was dedicated to refining the data tables, developing the

methodology and the procedures for traffic forecasting. Data collection including some site surveys are presently on-going (on board of ferries on the Caspian Sea).

Regarding the other Modules of the Project, the "Feasibility for rehabilitation of Aktau Port Ferry Terminal" (Module C) has been completed with submission of the Final Report and The Tender Documents. The Modules B (New Caspian Sea Shipping Services) and E (Oil Transport on the Caspian Sea) have been launched in May 2000. The Inception Reports for Module B will be submitted beginning July both versions: English and Russian. Specific reports regarding Sub-tasks of Module E are in preparation. Activities for Module D concerning the Feasibility of Turkmenbashi Navigation Channel have been limited to preliminary contacts in Turkmenistan.

2.3 KEY PERSONNEL RESOURCES

The Key Personnel resources used are summarised in the following table:

KEY PERSONNEL RESOURCES USED at 30 June 2000
SINCE START of PROJECT

		working man.month (*)		
Name	**Position**	**EU**	**Traceca**	**Total**
Ph. Delaporte	Acting Team Leader	1.55	5.41	6.96
P. Pezant	Economist-Regional Co-ordinator	0.09	3.55	3.64
J. Worthington	Economist-Regional Co-ordinator	0.18	0.50	0.68
P. Davidson	Model and Database Designer	0.57	0.95	1.52
C. Mills	Database Assistant	0.32	2.43	2.75
Y. Goulin	Modeller	0.68	0.75	1.43
A. Merrien	TL Modules C-D-E Port Engineer	2.63	4.00	6.63
B. Francou	Port Economist	2.27	0.37	2.64
R. Gould	Environmental Expert	0.14	0.40	0.54
Y Chaumaz	Mechanical Engineer	0.41		0.41
P. Durel	Petroleum/Port Economist	0.22	0.22	0.44
JM Bocognano	Marine Infrastructure Engineer	0.68	0.39	1.07
M. Perronet	Oil Port Terminal Expert		0.19	0.19
M. Immele	Port Terminal Expert	0.45	0.39	0.84
C. Montfort	Oil Traffic Analyst	0.45	0.75	1.20
M. Sames	TL Module B Transport Economist	0.50	0.50	1.00
N. Bellstedt	Senior Shipping Expert	0.20	0.50	0.70
J.G. Schmidt	Maritime and Nautical Expert		1.00	1.00
T. Havelka	Pool of Experts		1.00	1.00

Total at End June 2000	11.34	23.37	34.71
Total Project	22.70	68.00	90.70
Percentage	50.0%	34.4%	38.3%

(*) based on 22 working days per month

38 percent of key staff resources have been used compared with about 42 percent of the total time allocated for the contract (24 months). Based upon the Module shares proposed in the Terms of Reference, the overall project achievement, by the end of the reporting period, would be around 30 percent of the final outputs. However, it must be considered that the first time period of a project is always more resources consuming, especially under the conditions this present project started.

3. SUMMARY of PROJECT PLANNING for the REMAINDER of the PROJECT

3.1 MODULE A

The objective of Module A is to devise a planning instrument and to use it to forecast demand for a future transport situation (or scenario). The planning instrument will comprise the database, models and future scenario and should be taken over by the Beneficiaries at the end of the project.

This module has been divided into activities covering collecting the base data with the assistance and support of the local experts and assembling it into the Traceca-traffic database; preparing the base matrices for passengers and freight for each commodity group; preparing the database modelling processes, software and validating them against observed behaviour; preparing a forecast planning scenario for 2015 containing the schemes and measures which could be introduced by the Traceca projects including feasibility studies to be carried out, upgrading the transport network: road, rail and shipping services; using the planning instrument to forecast the likely levels of demand; producing the website as a communication medium for the planning instrument and maintaining the co-operation of the local experts for using the planning instrument after the end of the project.

The data will be collected by local experts in three phases covering the data for years 1998, 1999 and 2000 with the 1998 data to be supplied as soon as possible and the other years to follow on until spring 2001. The database will comprise a set of spreadsheets for each country, holding data about the road, rail, port facilities and shipping networks, about the movement of ships and trains together with the passengers and the freight commodities they carried for the year; about border crossings, customs declarations of commodity tonnages and passenger volumes by mode; about sampled passenger origin-destination interviews (from roadside interviews in Kazakhstan and Turkmenistan -Chardzev bridge-, and on-board interviews on the Caspian Sea ships -second run); about trade flows and statistics; about socio-economic data of GDP, production-consumption by commodity group, population and vehicle registrations (preferably by oblast) and about mapping.

Matrices will be derived for each freight commodity grouping (of which there are 25 for the time being,) using the international trade data, customs data, the production-consumption data and modelling. Passenger matrices will be based upon existing passenger origin-destination data, and other data and procedures. These methodologies use the route choice algorithm to help determine the pattern of matrix cells which pass through each count location. The planning instrument includes tools to calculate alternative freight paths on the road, rail and shipping networks taking into account generalised cost, customs tariffs and the border crossings available. Special attention is being given to the user-interface and in presenting the results simply, involving visual displays, graphs, maps etc (as well as numbers). It is hoped that the planning instrument will be map based, but the availability of digitised mapping is hampering us. The software is being developed in Visual Basic, which should also make it compatible with web technology.

A training programme will be prepared and implemented during the second phase of the Project together with the dissemination of the project outputs in the eleven Traceca countries.

3.2 OTHER MODULES: B-D-E

At the beginning of the next reporting period Reports for Modules B and E will be delivered and discussed:

- Inception Report for Module B, and
- Specific Reports regarding the first phases of sub-tasks E1 and E2

Then the activities related to these Modules will develop further. If no delay occurs in the production of international traffic forecasts from Module A (especially on the Caspian sea), or because unpredictable difficulties raised from the Beneficiary side, then the Feasibility Studies will be on-going (or may be completed) during the last part of the period for:

- The Navigation channel of Turkmenbashi Port (Turkmenistan)
- The Rehabilitation of the Dubendi oil Terminal (Azerbaijan)

The subjects to be dealt with in both Modules (E and B) regarding: (1) oil transport on the Caspian sea and (2) the development of new Caspian sea shipping services, are rather delicate to cover since they involve many political aspects that have components even outside the Traceca States. In these areas the project activities can progress more slowly than professionally and technically it can be expected.

4. PROJECT PROGRESS IN REPORTING PERIOD

4.1 PROJECT GENERAL ORGANISATION

Regarding project organisation, the main project office has been operational in Baku since the middle of February '00. This is the place where experts of all Modules can meet, work, communicate and travel from. This location was made at the EC's request as it is the best central spot to deal with and to unify all components of the Project. This project office is not to be confused with the equipped rooms located in the Beneficiary premises. These offices will remain when the project is over from the contractor side (they are sometimes shared with other Traceca projects). They are the centres of the future communication system which will link each of them both (a) with the database administrator (Server) covering all Traceca countries and (b) with any potential users in their respective country.

All these offices are different from the proposal made earlier (at the time of the Inception) to share a space in the building of the Traceca Intergovernmental Joint Commission to physically house the equipment for the database Server. This proposal has an institutional basis that is to provide a legal and administrative environment for the future sustainable operations of the Project outputs. Incidentally the Joint Commission building is also located in Baku. For the time being, relations have developed between contractors of both Traceca projects, but working sessions have not yet been held to investigate means to integrate their own resources for the future.

4.2 SUMMARY TABLE OF ACTIVITIES DURING THE REPORTING PERIOD

The following Table provides the activities to be carried out during the reporting period, as planned in the Inception Report, and those actually performed.

MODULE A

TASK	Planned in the Inception Report (in January 2000)	Actual during Reporting Period (February-June)
TP-A1	▪ Finalisation on a formal manner of the local expert assistance network	Network of local experts fully finalised in 10 countries. Uncompleted in ▪ Turkmenistan
TP-A4	▪ Implementation of the 1998 data collection from the local side	Local experts provided with Excel tables for 1998/199 data collection, except: ▪ Turkmenistan
TP-A4	▪ Site survey undertakings (as much as possible and necessary) ▪ Pre-design in EU of the database structure and contents ▪ Continuation of the database design and design preparation of forecasting models in TRACECA site with assistance of experts from the pilot countries.	Site surveys on going for shipping lines, ferry on Caspian Sea: ▪ Baku - Aktau ▪ Baku - Turkmenbashi ▪ Prepared for data Collection (see above) ▪ Modelling on going

TP-A1 and TP-A2	Two first workshops/seminars will be organised to acquaint the Local Correspondents with the preliminary designs of the database and forecasting models: data, formats, structure, etc. tentatively: ▪ in Bishkek for the five countries of Central Asia plus Mongolia (middle of March 2000) ▪ in Kiev for Caucasus countries plus those of the Black Sea (end of March 2000)	The workshops took place in: ▪ in Almaty on 11-13 April '00 ▪ in Kiev on 5-6 April '00, same countries plus Mongolia representative
TP-A6	▪ Starting preparation of basic documentation	▪ No activities
TP-A3 TP-A11	▪ Design of communications system and supply of the first equipment, as necessary	▪ Equipment already delivered or to be soon delivered in 10 countries

MODULE B

TP-B2 TP-B3	▪ Starting the appraisal for new shipping services on Caspian Sea: Tasks B2 and B3	▪ Module launched in May '00 ▪ Inception Report (Eng.) end of June

MODULE C

TP-C6	▪ Completion of the Module with production of the Final Report	▪ Module Completed - Project under Tender

MODULE D

	▪ No specific activities are foreseen during this time-period	▪ No activities

MODULE E

TP-E1	▪ Preliminary traffic forecast: task E1 Phases 1 and 2	▪ Module launched in May '00 ▪ Preliminary Report to be issued end June
TP-E2 Phase 1	▪ Implementation on site of task E2-Phase 1: inventory of oil infrastructure, storage and transfer	▪ On going
TP-E2 Phase 2	▪ Preliminary synthesis for oil supply/demand appraisal: task E2-Phase 2	▪ On going

4.3 DETAILS ABOUT MODULE A SUB-TASKS

4.3.1 TP-Task A.1: Local Network for Data Collection

Concerning this task, it has to be recalled that in Central Asian States the Leading Centres are mainly Transport Institutes of which the staff was generally involved in the previous project. In the other countries, especially the new one in Traceca, data providers (or doers in

the Technical Proposal) were identified, as mentioned in the Inception Report, on the criteria to be "*permanent Official in any transport state agencies/administrations/authorities thus having easy, permanent and direct access to their own respective transport/economic data*". The basic assumption to implementing such an approach was that it could be a strong component for further project institutionalisation.

In the latter case, cohesion can appear then not as strong as in the first case. But the Leaders (in the Technical Proposal terminology) -key government officers- are quite involved in the project processing, thus providing a particular strength and power to this kind of organisation. This latter way implies, in a physical manner, that a project room or office be made available within the Beneficiary premises (generally MOT/MOTC). That was done in all cases, as necessary, requiring sometimes the contractor financial participation for some refurbishment. This way also implies hiring of a temporary local co-ordinator during the data collection phase since no contractor permanent representative exists in every country. However almost all Traceca countries[1] have been visited, several times for some of them either by the Acting Team Leader or by the Regional Co-ordinators.

At this stage of the project, investigations and development of the network can be considered as almost fully completed. Two complementary reasons for that: (1) regrouping individuals and organisations who become de facto involved in the project through their attendance in the two workshops organised by the contractor, (2) the supply of computer equipment for easy data transfer to the main project office in Baku. Network strengthening (as a third step mentioned in the TP) will not wait the second phase of the project, but will start as soon as the network is on the Web. The small restriction about the assessment of full completion comes from the fact that, for technical reasons, no representative of Turkmenistan attended the Almaty workshop, even though the "Turkmenstatprognoz" is known to be the Project Leading Centre and has been visited twice. Unfortunately, the Turkmen Beneficiary at the Cabinet of Ministers could not yet been met in spite of these visits. A new approach will be made after issuing this report.

The data collection phase commenced in April 2000 with two workshops held (1) on 5-6 in Kiev for 28 experts from six countries of Black Sea, Caucasus and Mongolia, and (2) on 11-13 in Almaty for 18 experts from four Central Asian States. Local experts were drawn from ministries of transport, customs, port authorities, road agencies, railway companies, research laboratories and local consultancies –all people who control collection and use of transport data and statistics (unfortunately, no representatives of Turkmenistan could attend). The purpose of the workshop was to introduce the project, to discuss with the local experts (data providers) the content of the database, to get them involved with producing the data and to gain their active interest in using further the planning instrument.

The original concept introduced in the Technical Proposal seems to be sound. The feedback received from the local experts was positive. They were perhaps a bit sceptical that all countries could co-operate in this manner (especially about contributing sensitive information e.g. tariffs) but were persuaded that the end result was worth supplying sensitive information in some aggregated form, for use on this project. The workshops were followed by a set of country visits to supply the data tables containing the network definition, data tables and

[1] The planned visit to Mongolia for mid-June 2000 has been postponed for July due to national election and possible non availability of Mongolian Officials at this time

documentation all in Russian. The visits were designed to maintain the momentum generated in the workshops. Computers were provided and contracts concluded with data providers for supplying the data for the database tables. It is planned to visit Turkmenistan after issuing this Report.

As a matter of fact, progress is somehow lagging in Turkmenistan where contacts were taken early in the project. At that time some objections were raised by the Tacis CU for a preliminary visit based on the fact that Traceca projects might not be implemented in Turkmenistan[2]. During the last visit made April, the contractor was told at the CU that a campaign of explanation was necessary before the project could be fully accepted. So far no overall approval of project activities was obtained from the Cabinet of Ministers although some contacts already took place for Modules B and D.

4.3.2 TP-Task A.2: Training and Regionalisation

As mentioned above, two workshops were undertaken in April to introduce to the local experts (Doers), the project objective in general and Module A in particular. The programme of the workshops and themes discussed are presented in Appendix 1 together with the list of participants. Documentation and Papers were delivered to all participants as a basis for discussion. They were partly in English and partly in Russian. But, they are not reprinted in this report (too many pages). However, they are available at the Baku project office for external consultation as necessary.

In this area of activity, the contractor has ever since recognised that training is an other key component for the project institutionalisation. Many tasks in the Module deal with this aspect, and the Inception Report proposes a second phase in the project entirely devoted to this issue, when the planning instrument to be created is made operational. If no delay occurs, this phase will take place at beginning 2001 until the end of the project. It is called the "Active Introduction" of the planning instrument through its Regionalisation. The launching of this specific activity will be made through a seminar, the content of which is oriented for the "Leaders" (or Beneficiaries), accompanied by the main potential users, to understand the role of the project outputs as a management tool and planning instrument.

Workshops with too many participants have also their limits of efficiency. Budgets are also limited in the Financial Proposal to organise them at large scale. It is therefore planned that the project experts (not necessarily limited to those of Module A) disperse in Traceca countries, or rather by groups of limited number of countries like: Moldova and Ukraine, Georgia and Armenia, Azerbaijan and Turkmenistan, Kazakstan and Kyrgyzstan (with Mongolia), Tadjikistan and Uzbekistan to implement theoretical and practical training sessions on a regional basis. The proposed period will correspond to the "data collection" task for the year 2000.

There are five themes identified in the TOR and the Technical Proposal with respect to training for which the contractor has concentrated his efforts:

[2] Turmenistan is not member of the Traceca Intergovernmental Joint Commission issued from the Baku Conference of September 1998. This fact may have generated some misunderstanding regarding the present project.

1. Role of the database and traffic forecasting as a management tool, developed for this project. Effectively it is "on-the-job" training in the use of the model linked to the specific circumstances of the Traceca countries.
2. Investment decision and methodology: Some basic training manuals (English and Russian) are available to the contractor.
3. Basic computer and data management skills: This theme is primarily practical exercises made on the job.
4. Standard approaches to forecasting (e.g. O/D matrices, econometric algorithms, etc.): The training material is already available to the contractor to fill the requirements of this theme.
5. Survey Techniques: This theme does not present any difficulty.

4.3.3 TP-Task A.3: Equipment Supply

With the agreement of the Task Manager, the "Direct Agreement" procedure for purchase of supply from Tacis Funds has been used separately for each country. At the reference date of this report, all countries are equipped except few of them for technical reasons like Turkmenistan[3]. But, this will be done for the latter hopefully next month. However, the electronic equipment will be officially delivered to the Beneficiaries only when the project outputs are operational. For the time being, the hardware, even installed in its final location (beneficiary premises), remains for the unique use of the project at this stage of the work: concentration of data (database tables in Excel files) and e.mail to Baku project main office.

Hardware and software are consistent both with the contractor's financial proposal, on one side and their final expected utilisation within the project internal network on the Web, on the other side. They consist of (minimum specifications in conformity with the agreed budget):

▪ Desktop computer	Pentium III	500+ MHz
		256 Mb-RAM
		HDD 10+ Gb
		CD-ROM
		32 Mb Video RAM-100 MHz (Graphics)
	Monitor	15" + or 17"
	External ZIP drive	
	Modems	56K Baud
	Software	Antivirus
		Microsoft Office 2000 Pro
▪ Printer	Series HP 1100	

Due sometimes to specific requirements from the Beneficiary, these basic characteristics were a little improved, under the condition to remain within the budget limits. This equipment will get its final configuration when implementing TP-Task A11, that is through the development of the Web site and installation of the 'Server'.

[3] and Mongolia (see footnote 1). It may have also happened, before the month end, in very few countries for technical reasons, even though the equipment to be purchased is well identified, like, for instance, late delivery of funds, unavailability of the software or parts of hardware (delays), etc.

4.3.4 TP-Task A.4: Database design, population and maintenance

Use of the contents of the data tables designed during the previous project has been made extensively both for the basic network and the traffic data (international transport flows). The information contained in the tables has been however corrected and developed[4]. A particular attention was given for collecting data from the border crossings, as they constitute as many natural screen lines as necessary for model calibration. It is also the reason why representatives of Customs Administration were invited to attend the workshops.

The range of information required from the local partners is rather wide. However, the final content of the data tables will be adjusted according to the availability of data and their easiness of access, keeping in mind that the institutionalisation component in this area relies upon these factors.

The second half of the reporting period was dedicated to refining the data tables, developing the methodology and the procedures for modelling including partially testing them, keeping in mind that they will be the future instruments for traffic forecasting. The database and information framework from the previous project was used as a starting point but this has been developed further in methodological detail and fields of data to be collected. The perception barriers imposed by border crossings has been brought into the database and modelling process and the disparate types of freight data assembled into a methodology for producing base commodity flow matrices.

Programme of traffic surveys:

For the time being, two origin/destination surveys for passengers and freight are on going on board of the ferries between Baku-Aktau and Baku-Turkmenbashi. On the basis of questionnaires prepared by the contractor, staff of the Caspian Sea Shipping Company are currently carrying out this O-D survey, for four return trips on Baku-Aktau line and six on Baku-Turkmenbashi line. A second run for two and three return trips respectively will take place by the end of the year in order to catch any seasonal variation.

The Georgian experts agreed to carry out a road O/D survey on the trunk road Baku-Poti (Georgian side) in such a location that it also allows to catch the traffic between Russia and the South Caucasus: Armenia/Iran.

4.3.5 TP-Task A.5: Design Forecasting Methodology[5]

Module A has been divided into activities (1) for collecting the base data with assistance and co-operation of the local experts and assembling it into the Traceca-traffic database; (2) preparing the base matrices for passengers and freight for each commodity group; preparing the database planning processes, software and (3) validating them against observed behaviour.

Matrices will be derived for each freight commodity grouping[6] (of which there are 25,) using the international trade data for the inter-country parts of the matrix which will be reconciled

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[4] See Appendix 2, on the database, about the sources of information used during the previous project

[5] Practical procedures are presented and developed in Appendix 3

[6] See Appendix 4.

with customs data; the production-consumption data by oblast for the internal flows and modelling to inter oblast to oblast (or group of oblasts) freight commodity flow matrices by commodity group. Passenger matrices will be elaborated on a more theoretical basis to produce a trip length distribution which is used to synthesise a matrix using 'gravity type' modelling, where matrix cells are constrained to the customs counts, port statistics and other existing traffic data. These methodologies use the route choice algorithm to help determine the pattern of matrix cells which pass through each count location.

The planning instrument includes tools to calculate alternative paths taken by freight and passengers on the road, rail and shipping networks taking into account generalised cost[7] and customs tariffs. Work has involved developing an innovative algorithm to incorporate these important variables into the pathbuilding process. This innovation is carried through to a probabilistic assignment of the matrix to the paths using the logit model. Attention is being given to the user-interface to ensure that the right type of information is given to the user to adjust (ie the correct 'knobs' and 'levers' are provided for the user) so as to run the model, and that it is provided in a user-friendly way by employing the full set of Windows controls that users have come to expect. Care is also being taken to present the results simply, involving visual displays, graphs, maps etc (as well as numbers). The software is being developed in Visual Basic, which should also make it compatible with web technology.

It is hoped that the planning instrument will be map based but the availability of digitised mapping is hampering the contractor. In some countries it does not seem to exist, in others it exists but costs a lot of money and in others it is to a limited level of precision. Sometimes it is to a different projection, which means that it is not always possible to overlay map features from one projection onto another which means that roads etc would not be aligned correctly. This is a problem for the team and we are seeking ways of taking this forward. As a fall-back, we have managed to get a coarsely-digitised set of coastlines together with city locations and names (pertaining to the Russian Communist era) which we are using as a default. The maps we use should ideally be freely available to all and be capable of distribution over the web. However this idealised goal may not be achievable and we may have to resort to a lesser goal in each country in consultation with the local experts.

4.3.6 Other Tasks (TP-A6 to A10)

No activities were implemented during the reporting period

4.3.7 TP-Task A.11: Free Data Filling Station (Web site)

The overall design of the website and its evolution throughout the conduct of the study has been commenced although the detail still needs to be completed. Initially a simple web site has been developed with a home page and a simple download facility. It has been mounted on the domain name www.traffic.in-baku.com on our internet service provider's computers in Baku. As the database is built-up the download facility will be extended from just the raw data to include the database and tools comprising the planning instrument. If possible the website may eventually allow some on-line processing so that users can use some of the

[7] costs to be produced during the next reporting period. For the time being, tests made on the basis of link length.

tools to view extracts and results from the planning instrument. Eventually they will be able to download and use the entire planning instrument.

Care needs to be taken to ensure the integrity of the website and the confidentiality of the data providers – possibly be using password protection although we would like to avoid complexity on this issue as this may limit its use.

4.4 DETAILS ABOUT OTHER MODULE (B-C-D-E) SUB-TASKS

4.4.1 Module B: New Caspian Sea Shipping Services

This Module is managed "Uniconsult". Mr. Marcel Sames, transport economist and team leader for module B, and Mr. Norbert Bellstedt, senior shipping expert, paid an initial visit to Azerbaijan, Kazakhstan and Turkmenistan from 15 May to 3 June 2000. Mr. Jochen Schmidt, maritime and nautical engineer, paid also a visit to the beneficiary countries between 21 May and 21 June 2000.

An Inception Report on this Module will be submitted beginning July 2000 after completing its translation in Russian.

4.4.2 Module C: Aktau Ferry Terminal Redevelopment

The draft Tender Dossier which was submitted to Tacis in January 2000 was amended step by step in March and April. The final Dossier was completed in April then the EC officially announced the Tender. A site visit took place in May 24. The consultant attended the visit and prepared related minutes which were later forwarded by EC to all tenderers. Tenderers are to submit their bids by July 3. An evaluation committee will evaluate the offers and the work contract is expected to be signed in August. The Team Leader of this Module will be member of this committee. The rehabilitation works are planned to be completed in May 2001.

A draft feasibility report was issued in March. After taking into consideration the remarks, the final versions (English and Russian) were completed in May.

4.4.3 Module D: Navigation Channel for Turkmenbashi Port

Contacts have been made with the Turkmenbashi Port Director, with Tacis CU in Ashgabat and Haskoning's representative who is carrying out an EBRD-financed Institutional Port development Programme.

4.4.4 Module E: Transport of Crude oil products on the Caspian Sea

This Module was launched in May '00 with the Port of Marseille Authority experts first visit in the Caspian Region, although investigations regarding the collection and compilation of the available information were carried out earlier in EU. For the time being, the activities concentrated on

(a) Sub-task E1 (Traffic Forecast) Phases 1 and 2 related to the "inventory of the geographic locations, players and media" and "data collection" respectively,

(b) Sub-task E2 (Evaluation of Infrastructure) Phases 1 related to the "inventory of the existing infrastructure".

Production of a preliminary Paper developing the themes covered by the sub-task E2 Phase 1 is about to be issued by the end of June.

5. PROJECT PLANNING FOR NEXT REPORTING PERIOD

This section gives more detailed information about the work intended to be done during the next reporting period, that is to say from July to end of year (30 December 2000). Sub-tasks in the various Modules still in progress are analysed one after the other.

5.1 SUB-TASKS of MODULE A

5.1.1 TP-Task A.1: Local Network for Data Collection

The local network of experts is at work apart from Turkmenistan. The consultant intends to make a new approach in July to meet with the Beneficiary and to set up the network of experts. We will explain the concept of the project and what can be got out of it. But we are confident in its participation in the nearest future in the various Modules of the project in which it is involved.

Actions will be launched to strengthening the local network of correspondents by developing communication means through the Web (see A11).

5.1.2 TP-Task A.2: Training and Regionalisation

Training during the next period will consist mainly of a close follow-up of local correspondent activities during the data collection phase and assistance to building their database country wise. As the planning instrument develops, the contractor will prepare accordingly a training programme at Beneficiary and database user level that could be implemented during the second phase of the Project: Seminar before project dissemination in the Traceca countries will be prepared.

Regarding the project institutionalisation, some components, from now and then, can be identified, for instance:

- Identification and selection of the network of local partners;
- On the job training and local activities follow up;
- Project outputs: quality and performance of the product, easiness of use;
- data base development (not only for traffic forecasting) to fit the expectations and interest of the potential users;
- financial resources for database and model operations and identification of other incentives, like short training periods to participating in similar project developed in Europe;
- administrative framework for the project outputs and use: Intergovernmental Joint Commission of Baku;
- Development of planning instrument for geographic consistency purpose to the Black Sea countries;

Reflections on these themes will be developed further, together with the identification of the practical means to address these issues.

5.1.3 TP-Task A.3: Equipment Supply

The local network communications system should be completed by fixing the Web site with the relevant communication means for the potential users.

5.1.4 TP-Task A.4: Database design, population and maintenance

The data will be collected, with the assistance of the local experts, in three phases covering the data for years 1998, 1999 and 2000 with the 1998 data to be supplied as soon as possible and the other years to follow up until spring 2001. When the information is received, the 1998 data will be inserted into the database and checked to ensure that it is consistent. The result will be a set of spreadsheets for each country, holding data about the road, rail, port facilities and shipping networks, about the movement of ships and trains together with the passengers and freight commodities they carried for the year; about border crossings, customs declarations of commodity tonnages and passenger volumes by mode; about sampled passenger origin-destination interviews (from roadside interviews in Kazakhstan and on-board interviews on the Caspian Sea ships); about trade flows and statistics; about socio-economic data of GDP, production-consumption by commodity group, population and vehicle registrations (preferably by oblast) and about mapping.

The contractor will be preparing the forecast planning scenario for 2015 which will contain the schemes and measures which could be introduced by the Traceca projects including upgrading the transport network road and rail links planned by the various countries (Feasibilty Studies) including possible shipping services. The planning instrument will then be used to forecast the likely levels of demand on the networks.

The whole database should have been designed to hold the 1998 data as well as the 1999 data. The user interface screens should have been prepared and be in-use to help display, check and validate the data. Database tables should have been prepared to hold the intermediate data, the validation data, the matrices and the results data.

The 1998 data should have been received, checked and put into the 1998 databases. The 1998 matrices should have been prepared for passengers and freight. The 1999 data should have been received and we should be in the process of inserting it into the database.

Programme of traffic surveys:

Processing of the two origin/destination surveys for passengers and freight on ferries between Baku-Aktau and Baku-Turkmenbashi. Implementation of the second run for two and three return trips respectively *should have been undertaken* by the end of the year.

The other site surveys should have been also completed:

- O/D survey on the trunk road Baku-Poti (Georgian side)
- Updating 1998 Kazakstan road O/D survey
- Turkmenistan: Chardzev bridge
- Turkmenistan/Iran, if possible.

5.1.5 TP-Task A.5: Design Forecasting Methodology

Preparing a forecast planning scénario for 2015 containing the schemes and measures which could be introduced by the Traceca projects including upgrading the road, rail and shipping services; using the planning instrument to forecast the likely levels of demand; producing the website as a communication medium for the planning instrument and maintaining the co-operation of the local experts for using the planning instrument after the end of the project.

The demand forecasting methodology should be complete and the software should have been written to undertake the various processes on the data including the path building and assignment. The software may not yet be user friendly but it should be capable of providing an assignment for a given set of O/D matrices.

The international freight matrices should have been forecast to 2015 and we should be in the process of using them to produce initial forecasts on the future scenario network. As a matter of fact, the huge differences in local conditions between the 11 countries under study make it difficult the use of an unique model as far the domestic/local traffic is concerned. The determination of local traffics can be done during the second phase of the project when the consultant will train and disseminate the product among Traceca countries. He can then provide his assistance to designing methods adapted to each local condition for this type of traffic.

5.1.6 TP-Task A6-A11

Prepare and mount the first version web site with a simple home page and download facilities for the raw data tables (see Chapter 4.).

Prepare and mount the second version web site with descriptions about the project, project staff, news, progress, ongoing activities and downloads of the database and some database processes and software. By the end of the reporting period the raw data should include the 1998 and possibly the 1999 returns from the data providers inserted into the database. It should include the 1998 (and possibly the 1999) matrices and the results from the 1998 model run. The database processes should include a user interface for the networks perhaps with simple mapping together with the path building and assignment processes. The user interface will probably not be complete and we would probably be ironing-out the wrinkles in the software and path building processes.

5.1.7 TP-Task A7-A8

These two tasks concern the provision of traffic forecasts as inputs in some specific feasibility studies (Chardzev bridge) and for the proceedings of the other Modules. Their implementations rely directly on the availability of the required data for the database, the successful design, test and operations of the traffic forecasting models, and the making of appropriate and relevant assumptions in building up the transport demand forecasts. As mentioned above these inputs should be ready during the next reporting period in order to allow the other modules to proceed according to planning.

5.1.8 TP-Task A9-A10

No specific activities are planned during the next reporting period for these two sub-tasks.

5.2 SUB-TASKS of OTHER MODULES: B-D-E

5.2.1 Module B

Mr. Marcel Sames, transport economist and team leader for Module B,.is expected to come back to the Caspian region in September and to stay there until the end of November 2000. Mr. Norbert Bellstedt, senior shipping expert, is scheduled for a second visit to the three main beneficiaries in September. Mr. Jochen Schmidt, maritime and nautical engineer, will start a second mission to the Caspian region in autumn 2000.

Mrs. Helga Wagner, training expert, will start her mission for the preparation of the training seminar after analysing the results of the investigation into the present regional training system in close co-ordination with the task manager of Module B and the overall team leader. Mr. W. Arlt, Mr. K. Plate, Mr. H. Stuemer (training expert pool), training experts, will be committed to the project as soon as the time schedule for the training seminar is agreed and fixed with the overall team leader and the beneficiaries.

The work plan for the next reporting period will depend on the response of the beneficiaries to the contents of the Inception Report.

If the beneficiaries decide to fully support the objectives and of the Module B then the consultants will proceed as proposed in the Inception Report. As soon as a reliable and solid forecast is available, it will identify the major transport routes across the Caspian and analyse on which routes there is room for new or additional services. Furthermore, they will investigate in how far competition on these routes is necessary and feasible. This stage should be completed by the beginning of September 2000. If there are routes that justify further investigations, discussions will be held with the beneficiaries to identify the one service or shipping line approach most promising. The consultants will then analyse the legal, regulatory and political environment under which this service or shipping line will have operate and discuss identified obstacles with the Intergovernmental Joint Commission. This stage is scheduled to be completed by the end of September.

Based on these findings, a proposal for a management structure will be elaborated to be discussed with the beneficiary. The last stage will be the elaboration business or feasibility plan which may be submitted in draft version towards the middle of December 2000.

In case the beneficiary countries decide not to further support Module B, the consultants propose to redirect the contents of the Terms of Reference, since their seems to be no further grounds on which qualitatively adequate analysis will be feasible in order to achieve the objectives.

5.2.2 Module D

The Team Leader of the Module, the mechanical engineer and the environment specialist will visit the site in August. They will collect all available data: reports, charts, natural conditions, dredging means and practices, and will interview the channel users: captains of the Caspian Shipping Company, and of the newly-created Turkmen Shipping Company. They will also prepare the field surveys to be carried out in September: bathymetry spot check, sea-bed soil sampling and current evaluation. Then the whole team of experts will travel to Turkmenbashi in September to perform the field surveys and to complete the input data collection in the areas of sediment transport, navigation aids and finance. An Inception Report will be issued by the end of September. If no delays occur in the provision of traffic forecasts from Module A, then the activities for Module D are planned to be completed by the end of December 2000.

5.2.3 Module E

Sub-task E1: The report covering this sub-task should be delivered within the first two months of the period. Some on site data collection, especially in Turkmenbashi, still remains to be done.

Sub-task E2: Similarly the report covering this sub-task should be delivered within the first two months of the period. It will concentrate on the possible development scenarios for the rehabilitation of Dubendi oil port with preliminary estimates of the investments. As indicated and shown in the Task time-schedule in the Inception Report, a break is planned in the Module activities to provide time for the Beneficiary to validate and to direct further the scope of work towards the selected option. The activity will then resume to carrying out practically the Feasibility Study for rehabilitation of Dubendi Oil Port (Sub-task E3).

A subcontracting agreement will be signed in July with the Azeri Institutes "Caspmorniiproekt" and "Asqiproneftechim" to perform the engineering studies for Dubendi oil terminal with the assistance of the contractor.

5.3 SUMMARY TABLE

The following Table summarises the activities planned to be carried out during the next reporting period.

TASK	Planned Activities for the Next Reporting Report (July - December 2000)
MODULE A	
TP-A1	▪ New approach in Turkmenistan and launching the data collection in this country ▪ Consolidation of existing group of local experts
TP-A2	▪ Follow-up of local expert activities and ▪ Preparation of Training Programme for project outputs dissemination and operations
TP-A3	▪ Complete equipment delivery in relation with fixing the Web site
TP-A4	▪ Complete 1998-1999 data collection to feed the database ▪ Complete site Survey undertakings: Chardzev bridge/Caucasus, etc. ▪ Finalise design of the database structure and contents
TP-A5	▪ Complete the modelling system ▪ Validation Base Year Traffic flows ▪ Preliminary and Final Traffic forecasts for International freight flows
TP-A6	▪ Starting preparation of basic documentation on database and forecasting models
TP-A7	▪ Prepare specific traffic forecasts for feasibility studies of other Modules
TP-A8	▪ Launch activities related to the feasibility study for the construction of the Chardzev bridge
TP-A9	▪ No specific activities foreseen during the period
TP-A10	▪ No specific activities foreseen during the period
TP-A11	▪ Design of communications system and supply of the appropriate equipment for the Web network, as necessary
MODULE B	
TP-B1 TP-B2 TP-B3	▪ Completion of sub-tasks

TP-B4 TP-B5	▪ Launching and performing activities related to these sub-tasks

MODULE D

TP-D1	▪ Determination of the current navigation channel conditions
TP-D2	▪ completion of Module activities by the end of the year if no external delay occurs

MODULE E

TP-E1	▪ Completion of the Sub-task Phases 2 and 3
TP-E2	▪ Completion of the Sub-task Phases 1 and 2
TP-E3	▪ Launching, performing and completing the Dubendi Rehabilitation Feasibility Study
TP-E4	▪ Performing the detailed design for Dubendi Rehabilitation

PLANNING TABLES

TABLE 1

OVERALL PLAN OF OPERATIONS

Project Title: Traffic and Feasibility Studies - TNREG9803	Contract Nb: 99.0130	Countries: 11 TRACECA States
Planning Period: September 1999 - August 2001	Prepared: January 2000 - Revised June 2000 (Tasks harmonised with Synopsis)	EU Lead Consultant: BCEOM
Project Objectives: Design and institutionalisation of a transport planning tool for the 11 TRACECA States		

No	MAIN ACTIVITIES	TIME FRAME									INPUTS		
		1999		2000				2001			PERSONNEL (weeks)		PERDIEM
		Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	EU Experts Weeks	Local Experts Weeks	days
		SS	OONNDD	JJFFMM	AAMMJJ	JJAASS	OONNDD	JJFFMM	AAMMJJ	JJAA			
Module A													
A0	Inception		XXX	XX							9	0	54
A1	Local Network of Correspondents		XXX	XXYY	X						11	0	77
A2	Training on database and traffic forecasting tools				X------	-------	-------	XXYYZZ	XXYYZZ	XX	34	104	207
A3	Equipment Supply				XX	X X	X				9	0	45
A4	Database design, Data Collection and surveys			XX	X YYZZ	XXYYZZ	XX		XXYYZZ		22	290	110
A5	Design forecasting mehodology				YYZZ	XXYYZZ	XX----				33	40	220
A6	Database Development and documentation				X	XX	XXYYZZ				11	5	65
A7	Specific traffic forecasts						XXYY				10	10	65
A9	Synoptics and communications, brochures, conferences						XX	XXY			12	8	60
A10	Overview of Links with Europe						XXYY				8	8	50
A11	Web site					XX	XX	XX	XX	X	9	10	54
A8	Chardzev Bridge Feasibility						XXYY				8	10	51
	TOTAL										176	485	1,058
Module B													
B12	Appraisal for New Caspian Sea Shipping Services				XXYYZZ	XXYYZZ	XX				19	18	110
B13	Management Structure and Business Plan						XXYYZZ	XXXX			24	15	92
	TOTAL										43	33	202
Module C													
C14	Acktau Ferry Terminal - Tender Documents	X	XXYYZZ	XXYYZZ	X						24	16	120
C15	Feasibility Study and Recommendations		XX	XXYYZZ	XXY						11	2	30
	TOTAL										35	18	150
Module D													
D16	Turkmenbashi Navigation Channel					XYY	XXYYZZ				21	12	105
Module E													
E17	Oil supply/demand Appraisal			XXY	XXYYZZ	XX					31	0	100
E18	Dubendi berth 3 - Feasibility -Tender Doc. - Follow up						XXYYZZ	XXYYZZ	XXYYZZ		57	40	185
	TOTAL										88	40	285
	OVERALL TOTAL										363	588	1,800

TABLE 3

PLAN OF OPERATIONS FOR THE NEXT PERIOD

Project Title: Traffic and Feasibility Studies - TNREG9803	Contract Nb: 99.0130	Countries: 11 TRACECA States
Planning Period: July 2000 - December 2000	Prepared: June 2000	EU Lead Consultant: BCEOM

Project Objectives: Design and institutionalisation of a transport planning tool for the 11 TRACECA States

No	MAIN ACTIVITIES	TIME FRAME							INPUTS		
		2000						2001	PERSONNEL (weeks)		PERDIEM
		JULY	AUG	SEP	OCT	NOV	DEC		EU Experts	Local Experts	
		1234	1234	1234	1234	1234	1234		Weeks	Weeks	days
Module A											
A0	Inception										
A1	Local Network of Correspondents										
A2	Training on database and traffic forecasting tools	X---	-------	-------	-------	-------	-------		8	20	50
A3	Equipment Supply	XX		XX	XX				4	0	28
A4	Database design, Data Collection and surveys	XXXX	XXXX	XXXX	XXXX				20	145	95
A5	Design forecasting mehodology	XXXX	XXXX	XXXX	XXXX				24	10	130
A6	Database Development and documentation			XXXX	XXXX	XXXX	XXXX		6	4	35
A7	Specific traffic forecasts				XXXX	XXXX			4	5	24
A9	Synoptics and communications, brochures, conferences						XXXX		6	4	35
A10	Overview of Links with Europe				XX	XXXX	XX		6	5	35
A11	Web site			XXXX	XXXX				6	6	40
A8	Chardzev Bridge Feasibility				XXXX	XXXX			8	10	51
	TOTAL								92	209	523
Module B											
B12	Appraisal for New Caspian Sea Shipping Services	XXXX	XXXX	XXXX	XXXX				10	10	60
B13	Management Structure and Business Plan				XXXX	XXXX	XXXX		10	7	60
	TOTAL								20	17	120
Module C											
	TOTAL										
Module D											
D16	Turkmenbashi Navigation Channel		XX	XXXX	XXXX	XXXX	XXXX		21	12	105
Module E											
E17	Oil supply/demand Appraisal	XXXX							20	20	75
E18	Dubendi berth 3 - Feasibility-Tender Doc. - Follow up				XXXX	XXXX	XXXX		30	15	160
	TOTAL								50	35	235
	OVERALL TOTAL								162	261	878

APPENDIX 1

WORKSHOPS

PROGRAMME
PARTICIPANTS
LOCAL NETWORK of CORRESPONDENTS

KIEV and ALMATY TECHNICAL WORKSHOPS

PROGRAMME

Morning Session

1. Introduction to the Traceca Project: Traffic and Feasibility Studies — Ph. Delaporte

Project Objectives

Project structure in Modules

Contents of Module A:
Building up a Traffic Forecasting Model based on a Regional Database on Transport
Necessity of Sustainability for:
- update and maintenance of the database
- use of database and model for transport planning purposes
- exchanges information/data between users through intenational communications

Project organisation and purpose of the workshop

2. Methodology Approach — Ph. Delaporte, Peter Davidson, Paul Pezant

Traffic forecasting or flow assignment on networks at different period of time
- Base year: building up the matrix OD of freight flows
- Base year: buiding up the matrix OD of passenger flows

Some elements on forecasting procedures

Data requirements:
- easy access and routine delivery
- support for forecasts

Discussion

Break

Afternoon Session

3. Presentation of Data Tables — Peter Davidson

Presentation of data table contents

Availability of data
Constraints to obtain data
Technical issues
- Zoning
- Commodity list
- about the networks

Discussion

4. Site Surveys — Ph. Delaporte, Peter Davidson

O/D surveys: location, organisation

Morning Session

5. Presentation of outputs (visualisation of results) — Peter Davidson

Demonstration of the visualisation of results (show examples)

Discussion

6. About the Web site

Possible techniques

Discussion

Break

Afternoon Session

7. Definition of a Work Programme — Ph. Delaporte, Paul Pezant, Peter Davidson

Time Schedule for:
- Data collection 1998
- Data collection 1999
- Data collection 2000

Sub-Contract framework

Discussion

END

TRACECA: TRAFFIC and FEASIBILITY STUDIES

LIST of PROJECT BENEFICIARIES and LOCAL EXPERTS

Attendance to Workshop	COUNTRY- BENEFICIARY & LOCAL EXPERTS	FUNCTION	ORGANISATION
	ARMENIA		
N	*Gargik GRIGORYAN*	*Beneficiary : Head of Inretnational Affairs*	*Ministry of Transport and Communication*
Y	Khachatur MANUKYAN	Project Co-ordinator	
Y	Armen SIMONYAN		Road Department
Y	Achot MELIKYAN	Head of Project Implementation Unit	Railways Department
Y	Murad MANDVELYAN		Customs Department
N	Torosian GEORGE	Head of Transport and Communication Dpt	National Service of Statistics
	AZERBAIJAN		
N	*Ikram SADIKOV*	*Beneficiary : Head of Transport Department*	*Ministry of Economy*
Y	Nazim ISMAYLOV	Economy and Statistics	Ministry of Economy
Y	Alakbarov NAZAMI	Head of Department	Azerautonagliyyat State Concern
Y	Ilgar MUSTAFAYEV	Head of Calculation Centre	Azerbaijan State Railways
Y	Raya GASIMOVA	Head of Economic Dpt	Baku International Sea Trade Port
Y	Makhmoud GADZINSKY	Dpty Head of External Economic Links Dpt	Azerbaijan State Caspian Shipping Comp.
Y	Farasat MURSALOV	Dpty Head of Statistics and Analyses Dpt	Azerbaijan State Customs Committee
	GEORGIA		
N	*Vakhtang LOMADZE*	*Beneficiary : First Deputy Minister*	*Ministry of Transport*
Y	Paata TSAGAREISHVILI	Head of Dpt of Interbranch Co-ordination	Ministry of Transport
Y	Otar KIRTSKHAIA	Head of Computer Center	Computer Centre - MOT
Y	Zviad CHKARTISHVILI	Head of Commercial Dpt - Marketing Manager	Port of Poti
Y	Raul PATLADZE	Head of Commercial Dpt - Marketing Manager	Port of Batumi
Y	Nugzar GASVIANI	Dpty Head of Road exploitation Dpt	State Department of Roads- Traffic
Y	Tamaz TSIKELASHVILI	Dpty Head of Division of Transport Movements	Georgian Railways Ltd
Y	Avtandil JISHKARIANI	Head of Division - Analyses and Inspection	Department of Customs
	KAZAKSTAN		
N	*Khairat S. KARYBZNANOV*	*Beneficiary: First Deputy Minister*	*Ministry of Transport and Communications*
Y	Murat BEKMAGAMBETOV	Director	PJSC "NIIT" Transport Research Institute
Y	Alexander BOGDANCHIKOV	Head of Department	PJSC "NIIT" Transport Research Institute
Y	Yelena GRIGORIADI	Head of Department	PJSC "NIIT" Transport Research Institute
Y	Svetlana SMIRNOVA	Chief Expert	PJSC "NIIT" Transport Research Institute
N	Pavel KAVALENKO	Chief Expert - Water transport	PJSC "NIIT" Transport Research Institute
Y	Oleg KRASIKOV	Deputy Director	JSC "KazDorNII"
Y	Nail YUSUPOV	Head of Department	JSC "KazDorNII"
Y	Zanina ROMANOVNA	Head of Transport Department	RK Statistics Agency
Y	Asiya RUSTEMOVNA	Chief Expert	RK Statistics Agency
Y	Tatyana MELSITOVA	Chief Expert RK Informational Technologies	Ministry of State Income (Customs Department)
	KYRGYZSTAN		
N	*Sulaiman S. ZAKIROV*	*Beneficiary: Deputy Minister*	*Ministry of Transport*
Y	Levan ALIBEGOSHVILI	Director	KyrgyzDorTransProyect
Y	Sergey LUBIANIHK	Sector Manager	KyrgyzDorTransProyect
Y	Natalya POLKHLEB	Chief Economist	National Committee for Statistics

TRACECA: TRAFFIC and FEASIBILITY STUDIES

LIST of PROJECT BENEFICIARIES
and LOCAL EXPERTS

Attendance to Workshop	COUNTRY- BENEFICIARY & LOCAL EXPERTS	FUNCTION	ORGANISATION
	MOLDOVA		
N	*Boris GHERASIM*	*Beneficiary : Vice Minister*	*Ministry of Transport and Communications*
Y	Alina DIACENCO	Head of Development Division	Main Directorate of Railway Transport MOTC
Y	Diana RUSU	Main Specialist Dpt Systematisation & Prognosis	General Economy Directorate - MOTC
Y	Yuriy Teodor DADECHIN	Main Specialist of Cargo Section	Customs Department
Y	Nicolae CIOBANU	Director	Department of Roads - MOTC
N	Anna RUSU	Project Co-ordinator	
N	Eugen DATCO	Vice Director Main Direction of Auto Transport	MOTC
N	Iurie TONU	Administrator - Local Software Network	MOTC
	MONGOLIA		
N	*Mrs OYUNCHIMEG*	*Head of Department*	*Ministry of Infrastructure Development*
Y	G. NARANTUYA	Officer - Traffic Engineering	Dpt of Roads - Ministry of Infrastructure Development
	TADJIKISTAN		
N	*Abduralim ASHUROV*	*Beneficiary: Deputy Minister*	*Ministry of Transport and Roads*
Y	Timur MIRZOEV	Director	TajikGiproTransStroy
N	Yuriy YULDASHEV	Chief Engineer	TajikGiproTransStroy
N	Makhbuba ABDULAEVA	Chief Planning Division	TajikGiproTransStroy
Y	Tatyana NOVIKOVA	Chief Expert	TadzhikGiproTransStroy
Y	Sitora YAKHYAYEVA	Engineer	TadzhikGiproTransStroy
	TURKMENISTAN		
N	*Hudaykuli HALIKOV*	*Beneficiary: Deputy Chairman*	*Cabinet of Ministers*
N	Juma BAIRAMOV	Director	National Institute on Statistics and Forecasting
N	Najia BADYKOVA	Head of Foreign Economic Relations Department	National Institute on Statistics and Forecasting
	UKRAINE		
Y	*G. LEGENKY*	*Beneficiary : Head of Transport Policy Department*	*Ministry of Transport*
Y	Valera NETREBA	Database and Modelling - Co-ordinator	Consultant to Computer Centre of MOT
Y	Yakov NEBOZHATKO		UkrinteravtoService
Y	Vladimir YERMOLENKO	Road Engineer	
Y	Tatiana TARTAIKO	Railway Transport Engineer	
Y	Nicolai MELNIK	River and Sea Transport Engineer	
	UZBEKISTAN		
N	*Valeri I. ATAEV*	*Beneficiary: Deputy Chairman*	*Cabinet of Ministers*
Y	Kamal ULDZHABAYEV	Chairman	JSC "UzInformTransSistema"
Y	Yuriy KOCHETKOV	Head of Department	JSC "UzInformTransSistema"
Y	Shukurali TURSUNOV	Deputy Head of Economic Service	"UzbekistoTemirYullari"

APPENDIX 2

OVERVIEW of the DATABASE

DESCRIPTION
CONTENTS of TABLES
INFORMATION SOURCES (references to the previous Project)

OVERVIEW OF THE DATABASE

The information stored in the database will be used :

- To build the freight flow matrices
- To build the passenger flow matrix
- To build the various networks
- To implement the forecast

In addition to international sources (UN, Dollarstat), additional international trade information sources have to be looked for in the different countries.

Each item of data in the database will be linked to either a Link of the network or to a specific Zone (internal or external). All the data will be entered into Excel files. There will be one table coded per Excel sheet. In the following, each table will be described in detail. In each table, two types of field have been distinguished. Key variables are used to identify precisely the record stored in the table, to distinguish one record to another (e.g.: A node and B node ID for a link table; Country of origin and destination in an O/D table). Content variables permit to describe the characteristics of each record.

Five types of data have been distinguished:

- Infrastructure characteristics
- Socio-Economic Data
- Trade and transport OD information
- Passenger OD information from surveys
- Traffic data

INFRASTRUCTURE CHARECTERISTICS

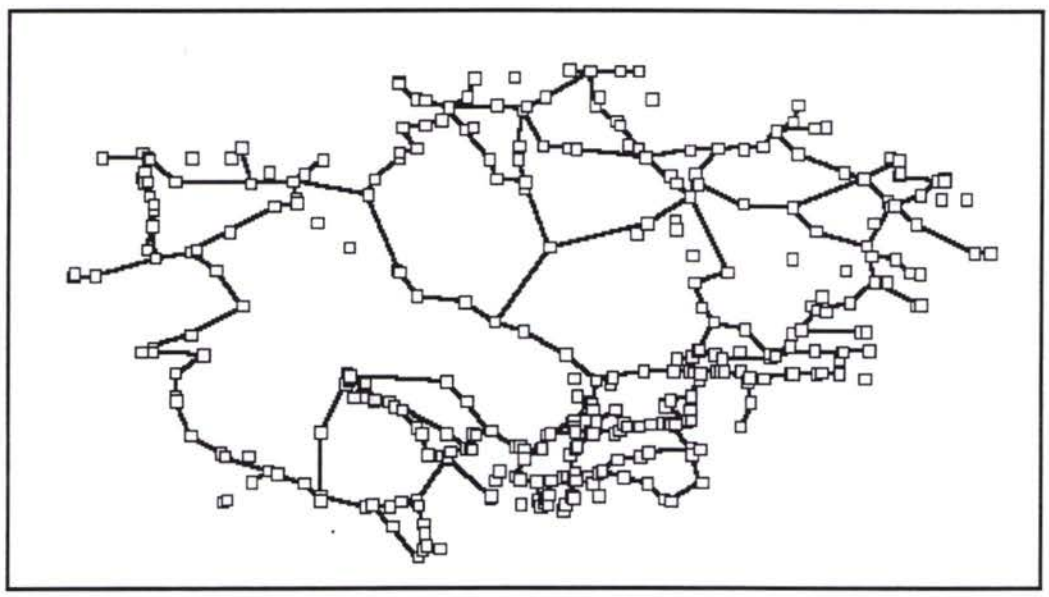
Infrastructure characteristics will be described in the database by a series of data tables. Each data table will contain information about each type of infrastructure, road, rail and shipping. In addition to these transport links, specific links will be added in order to code border crossing, transhipment and port characteristics.

Infrastructure can be viewed pictorially as a series of nodes linked by links which make up a network. It has to be stressed that one can circulate in two directions on each network. As the majority of links will have the same characteristics both ways, in some case one will have to distinguish data on each of the direction. In that case two different fields will be filled: one from the A node to the B node, another from the B node to the A node. Each of these different types of links are illustrated below.

- Road Link
- Rail Link
- Shipping Link
- Port Link
- Border Link

NETWORK

The following example illustrates the simple network structure to be used. Major road and rail links, the black lines will join nodes. Each link will contain information such as the distance, travel time and type of transport between each node pair.

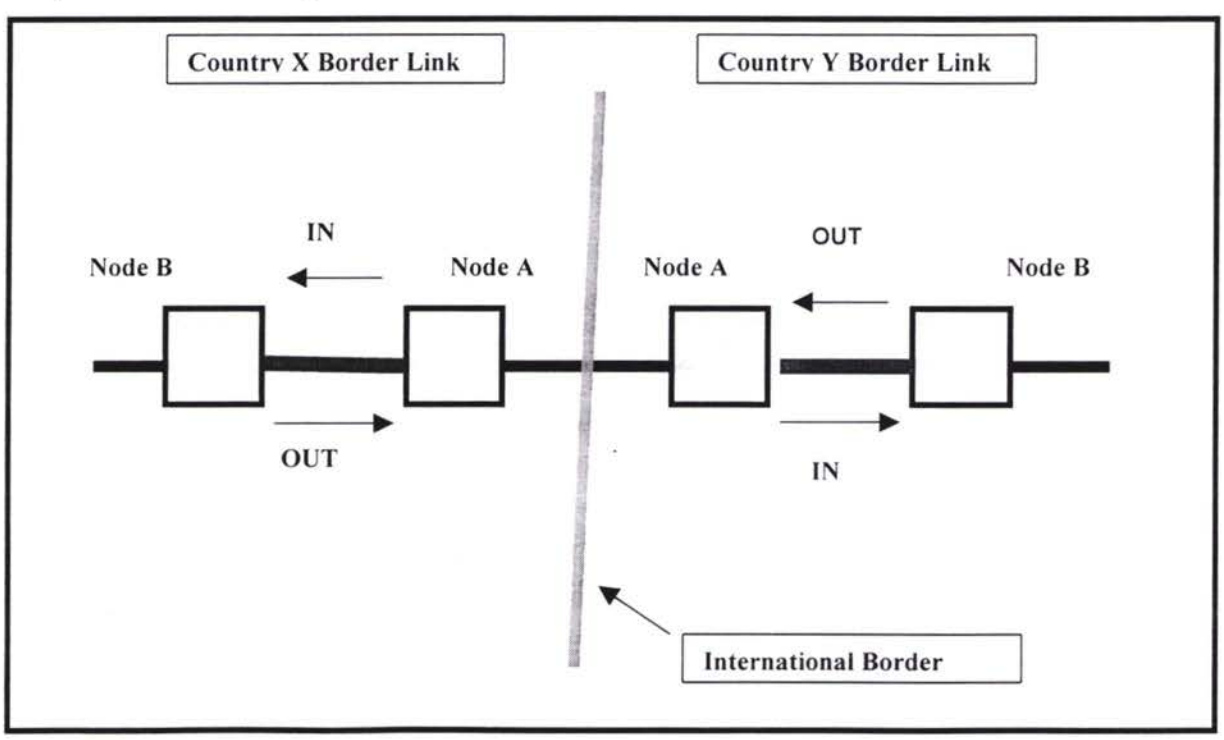


Example of Network with Nodes and Links

BORDER CROSSING LINK

The example below is of a road border crossing at customs. Each border crossing is different with each having varying tariffs and longer or shorter queuing times to cross. This has a significant impact on journey making decisions and is therefore necessary information for the database. There is one link at each border crossing. This means there are two links at each border crossing.

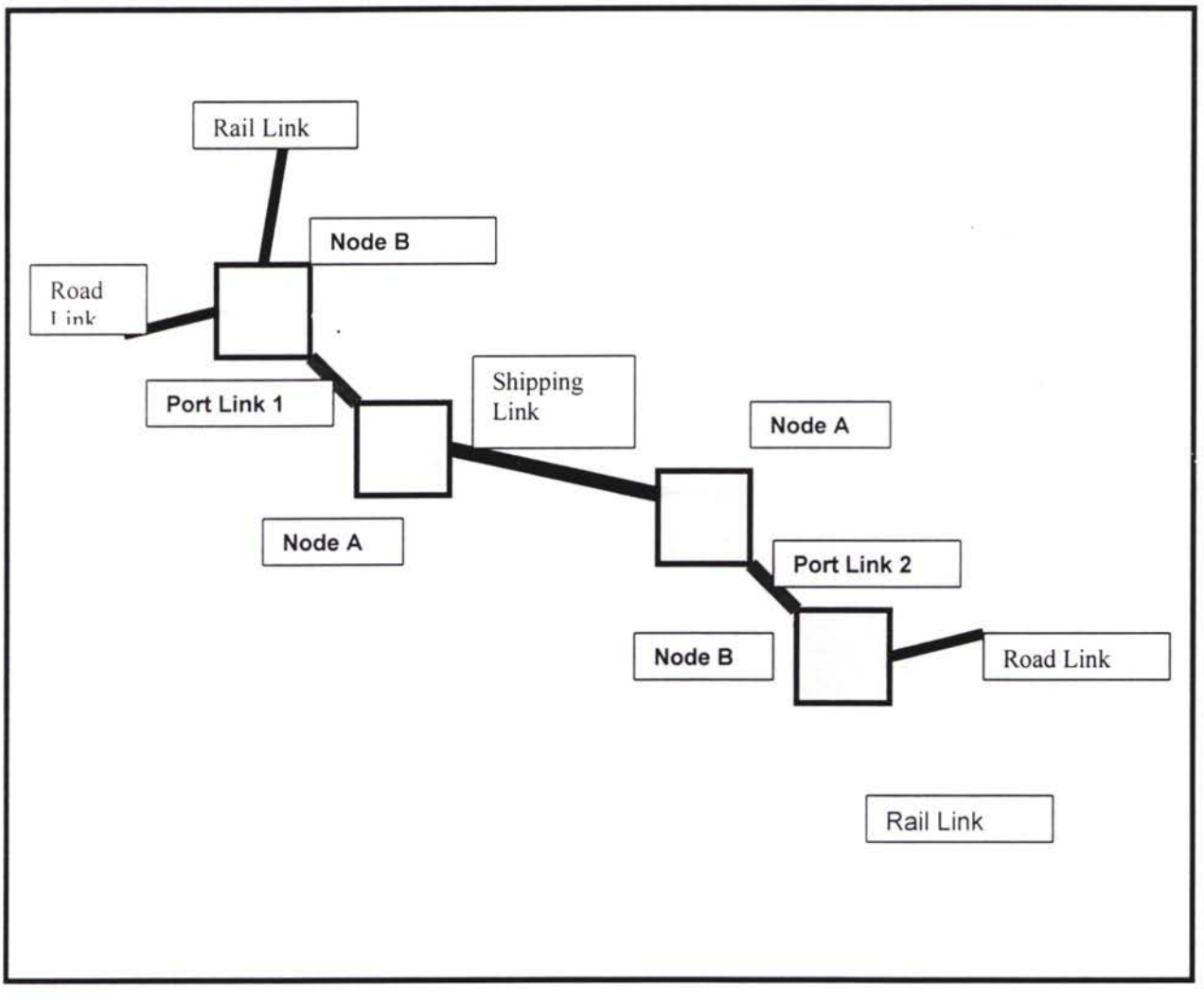
Example of Border Crossing Link.



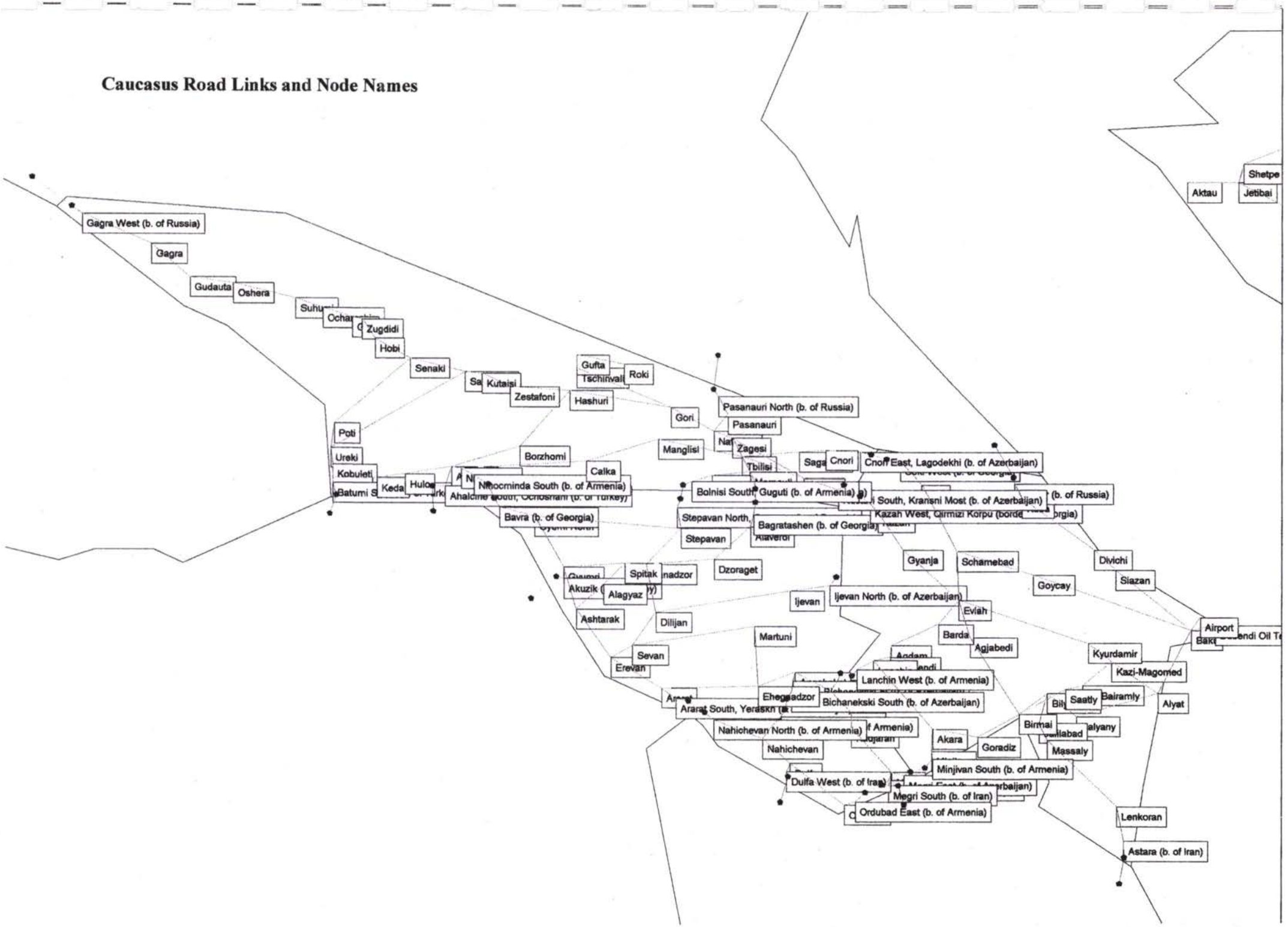
PORT LINK

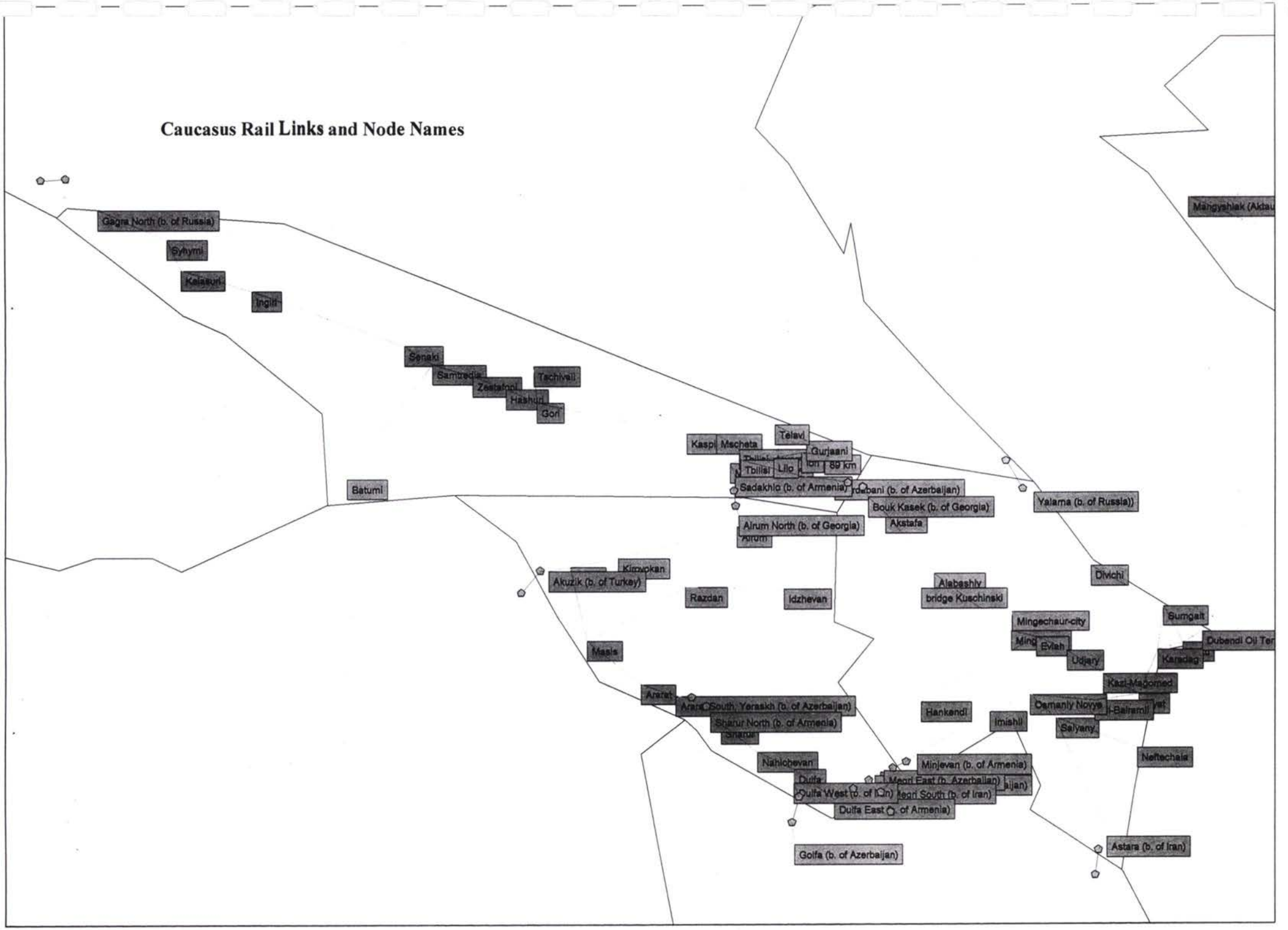
The following example illustrates the node and link formation for ports and shipping lanes. Ports are attached to the main network via road and/or rail links. The port itself is modelled using two nodes, A and B. The link between these nodes represent the interchange of goods and passengers from road and rail to the ships, containing such data as time, type of port and transhipment parameters. Ports are then linked to other ports via a shipping link which contains such data as distance, travel time and ship types.

Example of Port and Shipping Links



Caucasus Road Links and Node Names




Caucasus Rail Links and Node Names
Gagra North (b. of Russia)
Syhymi
Kalasuri
Ingiri
Senaki
Samtredia
Zestafoni
Hashuri
Tschivali
Gori
Batumi
Kaspi
Mscheta
Telavi
Gurjaani
Tbilisi
Lilo
89 km
Sadakhlo (b. of Armenia)
Bouk Kasek (b. of Georgia)
Akstafa
Alrum North (b. of Georgia)
Alrum
Yalama (b. of Russia))
Divichi
Kirovokan
Akuzik (b. of Turkey)
Razdan
Idzhevan
Alabashly
bridge Kuschinski
Mingechaur-city
Evlah
Udjary
Sumgait
Karadag
Kazi-Magomed
Masis
Ararat
Ararat South, Yeraskh (b. of Azerbaijan)
Sharur North (b. of Armenia)
Hankendi
Imishli
Osmanly Novye
Salyany
Nahichevan
Minjevan (b. of Armenia)
Dulfa
Dulfa West (b. of Iran)
Dulfa East (b. of Armenia)
Neftechala
Golfa (b. of Azerbaijan)
Astara (b. of Iran)

Central Asian Road Links and Nodes

CONTENTS OF EXCEL DATA TABLES

LINK DESCRIPTION of PHYSICAL CHARACTERISTICS

Physical Link - RAIL — **TABLE 2.1**

• A Node	Name
• B Node	Name
• Opened (2)/ Closed (1)	
• Total Length	km
• Multiple tracks length	km
Signalling	
• Automatic	km
• Semi-Automatic	km
• Centralised system	km
• Electrification	code
• Maximum speed on Line	km/h
• Kilometres of speed limitations	km
Average speed	
• Freight Trains	km/h
• Passenger Trains	km/h
Commercial speed	
• Freight Trains	km/h
• Passenger Trains	km/h
Maximum Load on track	
• Forward A - B	tonnes
• Backward B - A	tonnes

Physical Link - ROAD — **TABLE 2.2**

• A Node	Name
• B Node	Name
• Road Identification (Mx, Ey, etc.)	
• Opened (2)/ Closed (1)	
• Total Length	km
Road Class Category (FSU)	
• Category I-a	km
• Category I-b	km
• Category I I	km
• Category I I I	km
• Category I V	km
• Category V	km
Topography	
• Montainous Length	km
• Flat Length	km
Pavement	
• Surfaced	km
• Unsurfaced	km
Pavement Condition	
• Good	km
• Fair	km
• Bad	km
Carriageway	
• Width	m
• Width with hard shoulders	m
Load Allowed	
• Lowest Mawimum Axle	tonne
• Lowest Maximum Gross Weight	tonne
Average speed	
• Car	km/h
• Bus	km/h
• Truck	km/h

CONTENTS OF EXCEL DATA TABLES

	Special Data		
		Road capacity	
	• Forward	A to B	Veh/day
	• Backward	A to B	Veh/day

Physical Link - SHIPPING	**TABLE 2.3**		
	• A Port		Name
	• B Port		Name
	• Opened (2)/ Closed (1)		
	• Distance including detours		km
	• Average travel time		hour
		Passenger Ship	
	• Number per month		Nb
	• Number of passengers per month		Nb
		Tankers	
	• Number per year		Nb
	• tonnage per year		tonne
		Ferry - RoRo	
	• Number per year		Nb
	• vehicles transported per year		Nb
		General Cargo Ship	
	• Number per year		Nb
	• tonnage per year		tonne
		Dry Bulk Cargo	
	• Number per year		Nb
	• tonnage per year		tonne
		Container Ship	
	• Number per year		Nb
	• Number of Containers per year		Nb
		Other Ship	
	• Number per year		Nb
	• tonnage per year		tonne

Physical Link - Port	**TABLE 2.4**		
	• Port Name		Name
		Access Channel	
	• Depth		m
	• Length		m
		Port Area	
	• Water (offshore protected)		m^2
	• Port Onshore		m^2
		General Cargo Berths	
General Cargo Berths	• Number of Berths		Nb
	• Draft		m
	• Total Length		m
	• Maximum Vessel DWT		tonne
	• Total Operational Lifting Equipment Capacity		tonne
	• Total Berth Capacity		tonne/year
	• Average Operational Time: Loading		tonne/day
	• Average Operational Time: Unloading		tonne/day
Liquid Bulk (Non-oil Petroleum) Berth	Ditto		
Liquid Bulk (Oil Petroleum) Berth	Ditto		
Dry Bulk Berth	Ditto		

CONTENTS OF EXCEL DATA TABLES

Container Berth	Ditto	
Other Specialised (Ferry…) Berth	Ditto	
	On-Shore Multi-purpose Terminals	
	• Commodity	Code
	• Total Area (m²)	m²
	• Draft (m)	m
	• Capacity (m3)	m3
	Sheds	
	• Number	Nb
	• Total Area	m²

Physical Link - Transhipment Rail/Road	**TABLE 2.5**	
	List of all transhipment stations	
Station 1	• Name of Station 1	Name
	• Handled tonnage (Loading and Unloading)	tonne/year
	• Handling capacity	mn/tonne
	• Cost per tonne	USD
Station 2	Ditto	
etc.		

Physical Link - Border Crossing	**TABLE 2.6**	
	List of all Border Crossings	
Border Post 1	• Border Crossing Name	Name
	• Opened (2)/ Closed (1)	
	• Mode: Road / Rail	Code
	ON SITE - Road Infrastructure	
	• IN: Operating lanes Cars	Nb
	• IN: Operating lanes Buses	Nb
	• IN: Operating lanes Trucks	Nb
	• OUT: Operating lanes Cars	Nb
	• OUT: Operating lanes Buses	Nb
	• OUT: Operating lanes Trucks	Nb
	Other Side of Border	
	• Country	Name
	• Border Crossing Name	Name
Border Post 2	Ditto	
etc…		

Border Crossing Tariffs	**TABLE 2.7**

MACRO & SOCIO ECONOMY

Socio-Economy per OBLAST	**TABLE 3.1.A**	
Oblast	• Oblast Name	Name
	• Area	km²
	• Cultivated Area	km²
	• Not available for Cultivation	km²
	• Topography: flat / hilly /montainous	code
	• Population Total	Nb
	• Population less than 20 years old	Nb
	• Rural Population	Nb
	• Urban Population	Nb
	• Active Population	Nb

CONTENTS OF EXCEL DATA TABLES

	• Employment in Agriculture	Nb
	• Employment in Industry	Nb
	• Employment in Services	Nb
	• Gross Domestic Product (Constant Prices=CP)	USD '000
	• GDP/ capita (CP)	USD
	• GDP Agriculture (Constant Prices)	USD '000
	• GDP Industry (Constant Prices)	USD '000
	• GDP Services (Constant Prices)	USD '000
	• Vehicle Registration Total end year	Nb
	• Car Registration end year	Nb
	• Mini-bus Registration end year	Nb
	• Bus/Coach Registration end year	Nb
	• Light Truck Registration end year	Nb
	• Heavy Truck Registration end year	Nb
Main Production per OBLAST	**TABLE 3.1.B**	
Oblast	• Oblast Name	Name
Commodity 1	• Main Commodity Production	Name
	• Commodity Group	Code
	• Annual Production if available	tonne
Commodity 2 etc.	Ditto	

INTERNATIONAL TRADE FLOWS

Country to Country **EXPORT**	**TABLE 4.1.1 (All Modes)**	
	• Country A -EXPORTING Country-	Name
	• Country B	Name
	• Commodity Group	1-25
	• Flows per year	tonne/year
	TABLE 4.1.2 (Road - out)	
	• Country A -EXPORTING Country-	Name
	• Country B	Name
	• Commodity Group	1-25
	• Flows per year	tonne/year
	TABLE 4.1.3 (Rail - out)	
	• Country A -EXPORTING Country-	Name
	• Country B	Name
	• Commodity Group	1-25
	• Flows per year	tonne/year
	TABLE 4.1.4 (Pipelines - out)	
	• Country A -EXPORTING Country-	Name
	• Country B	Name
	• 2 Commodity Groups: Crude/Refined	Code
	• Flows per year	tonne/year
Country to Country **IMPORT**	**TABLE 4.2.1 (All Modes)**	
	• Country A -IMPORTING Country-	Name
	• Country B	Name
	• Commodity Group	1-25
	• Flows per year	tonne/year
	TABLE 4.2.2 (Road - in)	
	• Country A -IMPORTING Country-	Name
	• Country B	Name
	• Commodity Group	1-25

CONTENTS OF EXCEL DATA TABLES

		• Flows per year	tonne/year
		TABLE 4.2.3 (Rail - in)	
		• Country A -IMPORTING Country-	Name
		• Country B	Name
		• Commodity Group	1-25
		• Flows per year	tonne/year
		TABLE 4.2.4 (Pipelines - in)	
		• Country A -IMPORTING Country-	Name
		• Country B	Name
		• Commodity Group: Crude/Refined	Code
		• Flows per year	tonne/year
Transit in Country		**TABLE 4.3**	
		• Country where Freight is TRANSITING	Name
		• Country ORIGIN of Freight	Code
		• Country DESTINATION of Freight	Code
		• Commodity Group	1-25
		• Flows per year	tonne/year
		• ALL MODES	tonne
		• Transit by Road	tonne
		• Transit by Rail	tonne
		• Pipeline	tonne
	etc.	Ditto	

TRAFFIC by LINK			
Road Link AADT (daily Traffic)		**TABLE 6.1**	
		• A Node	Name
		• B Node	Name
		• Traffic Section Length	km
		• Direction A→ B=1 / B →A=2 / A ⟷ B =3	Code
		• 2 Wheels Motorized	AADT
		• Car & Taxi	AADT
		• Mini-bus	AADT
		• Bus & Coach	AADT
		• Light Goods Vehicle and PU-Vans	AADT
		• Goods Vehicle 2-axles	AADT
		• Heavy Goods Vehicle 3-axles	AADT
		• Heavy Goods Vehicles more 3-axles	AADT
Rail Link Load		**TABLE 6.2**	
		• A Node	Name
		• B Node	Name
		• Traffic Section Length	km
		• Direction A→ B=1 / B →A=2 / A ⟷ B =3	Code
		• PASSENGERS per year	Nb/year
	Commodity 1	• Commodity Group	1-25
		• Link Load / per year	tonne/year
	etc.	Ditto	

TRAFFIC at TRANSHIPMENTS			
PORT		**TABLE 7.1.1**	
		• Port Name	Name
		EXPORT	
	Commodity 1	• Commodity Group	1-25
		• Traffic per Year	tonne/year
		• Country of Destination	Name

etc.	Ditto	
	TABLE 7.1.2	
	TRANSIT - OUT	
Commodity 1	• Commodity Group	1-25
	• Traffic per Year	tonne/year
	• Country of Origin	Name
	• Country of Destination	Name
etc.	Ditto	
	TABLE 7.1.3	
	IMPORT	
Commodity 1	• Commodity Group	1-25
	• Traffic per Year	tonne/year
	• Country of Origin	Name
etc.	Ditto	
	TABLE 7.1.4	
	TRANSIT - IN	
Commodity 1	• Commodity Group	1-25
	• Traffic per Year	tonne/year
	• Country of Origin	Name
	• Country of Destination	Name
etc.	Ditto	

VESSEL MOVEMENT EXPORT	**TABLE 7.2.1**	
	• Port Name	Name
	EXPORT MOVEMENT	
	Indicate Time Period of the Year	
	(from month to month)	
	• Name of Vessel	Name
	• Vessel Type	Texte
	• DWT	tonne
	• Flag	Name
	• Date of Arrival (Port Call)	Day
	• Date of Departure	Day
	• Cargo Type	Name
	• Cargo Weight Loaded	tonne
	• Number of Loaded Containers in TEU	Nb
	• Waiting Time before Servicing in Port	hours
	• Next Port of Destination	Name
	• Total DUTIES Paid	USD
VESSEL MOVEMENT IMPORT	**TABLE 7.2.2**	
	• Port Name	Name
	IMPORT MOVEMENT	
	Indicate Time Period of the Year	
	(from month to month)	
	• Name of Vessel	Name
	• Vessel Type	Texte
	• DWT	tonne
	• Flag	Name
	• Date of Arrival (Port Call)	Day
	• Date of Departure	Day
	• Cargo Type	Name
	• Cargo Weight Unloaded	tonne
	• Number of Unloaded Containers in TEU	Nb
	• Waiting Time before Servicing in Port	hours

	• Last Port of Departure	Name
	• Total DUTIES Paid	USD

TRAFFIC at BORDER CROSSING	**TABLE 7.3**	
Trains and Vehicles	*ROAD BORDER CROSSING*	
Road Border Post 1	• Border Crossing Name	Name
	IN-COUNTRY DIRECTION	
	• Car & Taxi	AADT
	• Bus & Coach	AADT
	• Trucks	AADT
	OUT-COUNTRY DIRECTION	
	• Car & Taxi	AADT
	• Bus & Coach	AADT
	• Trucks	AADT
etc.	Ditto	
	RAIL BORDER CROSSING	
Rail Border Post 1	Border Crossing Name	Name
	IN-COUNTRY DIRECTION	
	• Passenger Trains / day	Nb
	• Freight Trains / day	Nb
	OUT-COUNTRY DIRECTION	
	• Passenger Trains / day	Nb
	• Freight Trains / day	Nb
etc.	ditto	

TRAFFIC at BORDER CROSSING	**TABLE 7.4**	
Commodity		
Border Post 1	• Border Crossing Name	Name
	• Mode: Rail / Road	Code
	IN-COUNTRY DIRECTION	
	• Container Code: Yes/No	Code
	• Commodity Group	1-25
	• IMPORT Freight per year	tonne/year
	• TRANSIT IN Freigh per year	tonne/year
	OUT-COUNTRY DIRECTION	
	• Container Code: Yes/No	Code
	• Commodity Group	1-25
	• EXPORT freight per year	tonne/year
	• TRANSIT OUT freight per year	tonne/year
etc.	ditto	

POTENTIAL SOURCES of INFORMATION
References with the former Regional Traffic Database Project

REFERENCES										
Previous Project	Tables	TITLE OF TABLES	ARMENIA	GEORGIA	AZERBAIJAN	KAZAKSTAN	KYRGYZSTAN	TADJIKISTAN	TURKMENISTAN	UZBEKISTAN
III.1.1	2.1	Railway network Technical Operating characteristics by links	Ministry of Transport	Department of Railways	Administration of Railways	GPI Kazgiprogeldortrans	Administration of Railways	Administration of Railways in Tadjikistan	Administration of Railway Company of Turkendemiryolari	State Joint-Stock Railway Company Uzbekistan Temir Youlari
II.1.1	2.2	Road network characteristics & Surfacing Conditions by Links	RPO 'Armavtodop	Concern 'Gruzavtodoroga'	Road Company 'Azavtoyol'	Research Institute 'KazdorNII'	GPI 'Kyrgyzdortrans-proekt'	GPI 'Tadjikgipro-transstroi"	State Company 'Turkmenavtoyolari"	State Joint-Stock Company 'Uzavtoyoul'
	2.3	Shipping Lines Operations			Caspian Sea Shipping Company					
IV.1	2.4	Port Technical Operating characteristics		Administration of Batumi//Poti Port	Administration of Baku SeaPort	Department of Sea transport			Turkmen Sea Steam-Navigation (Turkmenbashi port)	
	2.5	Rail/Road Transhipment Links	Ministry of Transport	Department of Railways	Administration of Railways	GPI Kazgiprogeldortrans	Administration of Railways	Administration of Railways in Tadji.	Administration of Railway Company of Turkendemiryolari	State Joint-Stock Railway Company Uzbekistan Temir Youlari
	2.6	Border Crossing Links								
I.1	3.1	Socio-Economic Data	Department of Statistics State Register and Analysis of the Republic of Armenia	State Department of Socio-Economic Information	State Statistics Committee	National Agency for Statistics	State Statistics Committee	State Statistics Committee	State Statistics Committee	Gosprognozstat
	3.2	Oblast/Regional Production	Department of Statistics State Register and Analysis of the Republic of Armenia	State Department of Socio-Economic Information	State Statistics Committee	National Agency for Statistics	State Statistics Committee	State Statistics Committee	State Statistics Committee	Gosprognozstat
I.3.1	4.1	International Trade Flows -EXPORT by Commodity	Ministry of Transport	Customs data via State Department of Socio-Economic Information	Customs Data	National Agency for Statistics	State Statistics Committee	Ministry of Economics for Tadjikistan	State Customs	Customs Data
I.3.2/4.2	4.1 (2-3)	Details by Modes of cargo flows EXPORT through Border		Customs data via State Department of Socio-Economic Information	Customs data	National Agency for Statistics		Ministry of Economics for Tadjikistan	State Customs	
I.4.1	4.2	International Trade Flows -IMPORT by Commodity	Ministry of Transport	Customs data via State Department of Socio-Economic Information	Customs Data	National Agency for Statistics	State Statistics Committee	Ministry of Economics for Tadjikistan	State Customs	Customs Data
I.3.2/4.2	4.2 (2-3)	Details by Modes of cargo flows IMPORT through Border		Customs data via State Department of Socio-Economic Information	Customs data	National Agency for Statistics		Ministry of Economics for Tadjikistan	State Customs	
	4.3	International Trade Flows -TRANSIT All Commodities								
I.3.3/4.3	4.4 & 4.5	Details of Cargo Flows by modes / Zone				National Agency for Statistics		Ministry of Economics	State Customs	Customs data

POTENTIAL SOURCES of INFORMATION
References with the former Regional Traffic Database Project

REFERENCES										
Previous Project	Tables	TITLE OF TABLES	ARMENIA	GEORGIA	AZERBAIJAN	KAZAKSTAN	KYRGYZSTAN	TADJIKISTAN	TURKMENISTAN	UZBEKISTAN
II.2	6.1	Road Traffic by Links	RPO 'Armavtodop	Concern 'Gruzavtodoroga'	Road Company 'Azavtoyol'	Research Institute 'KazdorNII'	GPI 'Kyrgyzdortrans-proekt'	GPI 'Tadjikgipro-transstroi'	State Company 'Turkmenavtoyollari''	State Joint-Stock Company 'Uzavtoyol'
III.3	6.2	Railway traffic by Links by Railway commodity Groups	Ministry of Transport	Department of Railways	Administration of Railways	GPI Kazgiprogeldortrans		Administration of Railways in Tadji.		
III.2		Railway traffic of domestic carriage, import, export, and transit /per commodity groups								
IV.3.1	7.1	Port Loading traffic EXPORT		Administration of Batumi//Poti Port	Administration of Baku SeaPort	Department of Sea transport			Turkmen Sea Steam-Navigation (Turkmenbashi port)	
IV.3.1	7.1 (2)	Port Loading traffic TRANSIT-OUT		Administration of Batumi//Poti Port	Administration of Baku SeaPort	Department of Sea transport			Turkmen Sea Steam-Navigation (Turkmenbashi port)	
IV.3.1	7.1 (3)	Port Unloading traffic IMPORT		Administration of Batumi//Poti Port	Administration of Baku SeaPort	Department of Sea transport			Turkmen Sea Steam-Navigation (Turkmenbashi port)	
IV.3.1	7.1 (4)	Port Unloading traffic TRANSIT-IN		Administration of Batumi//Poti Port	Administration of Baku SeaPort	Department of Sea transport			Turkmen Sea Steam-Navigation (Turkmenbashi port)	
IV.4.1	7.2	Vessels Movements Export		Administration of Batumi//Poti Port	Administration of Baku SeaPort	Department of Sea transport			Turkmen Sea Steam-Navigation (Turkmenbashi port)	
IV.4.1	7.2 (2)	Vessels Movements Import		Administration of Batumi//Poti Port	Administration of Baku SeaPort	Department of Sea transport			Turkmen Sea Steam-Navigation (Turkmenbashi port)	
	7.3	Traffic Border in terms of Vehicles/trains	Customs Administration	Customs Administration	Customs Administration	Customs Administration	Customs Administration	Customs Administration	Customs Administration	Customs Administration
	7.4	Traffic Border in terms of Commodity	Customs Administration	Customs Administration	Customs Administration	Customs Administration	Customs Administration	Customs Administration	Customs Administration	Customs Administration
III.4	7.5	Railway traffic Terminals/ containers	Ministry of Transport	Department of Railways	Administration of Railways	GPI Kazgiprogeldortrans	Administration of Railways	Administration of Railways in Tadjikistan	Administration of Railway Company of Turkendemiryolari	State Joint-Stock Railway Company Uzbekistan Temir Yolari
V.1		Airports carrying Capacity	Ministry of Transport	Department of Air Transport Air company 'Lasare'	Air Company 'Azal'	GPI 'Kaxaeroproekt'	Air Company 'Kyrgyzabagyldyryl'	State Air Company 'Tadjikistan Aero'		
V.2		Airports Operations / some airports	Ministry of Transport	Department of Air Transport Air company 'Lasare'	Air Company 'Azal'	GPI 'Kaxaeroproekt'	Air Company 'Kyrgyzabagyldyryl'	State Air Company 'Tadjikistan Aero'	National Office of Civil Aviation	
V.3.1/2/3		Freight Flows /airports/ In & out	Ministry of Transport	Department of Air Transport Air company 'Lasare'	Air Company 'Azal'	GPI 'Kaxaeroproekt'	Air Company 'Kyrgyzabagyldyryl'	State Air Company 'Tadjikistan Aero'		

APPENDIX 3

ELEMENTS of METHODOLOGY and PROCEDURES

1. INTRODUCTION

The first step of the procedure is to identify the transport demand as it existed in the years: 1998 and 1999 through the recorded traffic. The demand is characterised by movements of freight and passenger flows from one "surplus" origin (generally a goods production zone for freight) to a "deficit" destination zone (consumption or transformation zone) and represented by matrix tables. The demand is then assigned on the transport network through the use of various transport modes according to selected criteria representing the user behaviour and modal choices. Outputs of the first step are the provision of relevant and representative O/D tables which illustrate, at a certain period of time, the "traffic demand pattern" within the area under study. Based on expected available information, production of the traffic demand pattern can be investigated from three complementary directions:

1. International (or country to country) freight transport flows
2. Domestic (or internal to country) freight transport flows
3. Passenger flows for both together international and domestic

The second step consists in validating the matrices of flows by identifying and estimating the relevant factors and indicators (quantitatively and/or qualitatively) that can explain the generation and distribution of the transport flows with the minimum of uncertainty.

The third step consists in estimating, at the future year of reference (2015), the values of the indicators in order to forecast the future transport demand. This can be done at the case by case basis, through the building of (or the use of existing) economic development scenarios, etc..

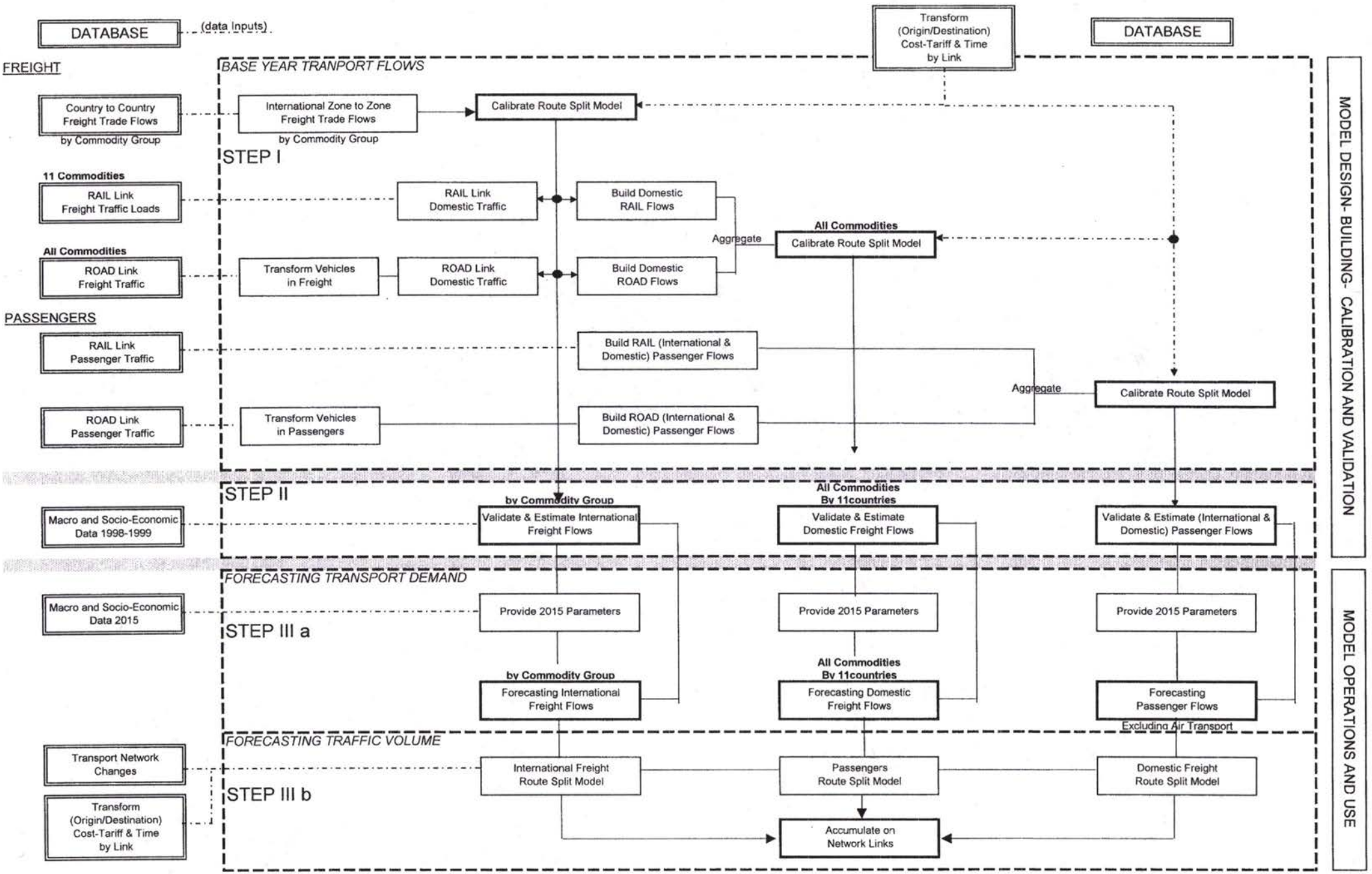
Then the forecasted traffic demand, under its three components, will be assigned on the transport network to estimating the future traffic loads. Changes in the network characteristics can be made for any mode, including their tariffs. This last step does not involve as many assumptions and hypotheses since it only implements the mechanisms of competition between modes calibrated while processing the other steps.
A flow chart of the overall procedure illustrates this approach (next page). It indicates the input data, extracted from the database, necessary to proceed.

The methodology procedure is detailed in the following paragraphs.

2. ROUTE CHOICE MODELLING

The transport network, to deal with selecting all potential routes, integrates all modes of transport. It includes specific transhipment points that allow the movements of goods to pass from one network (e.g. rail) to another network (e.g. road). The transhipment points are ports and well located rail/road transhipment stations. It includes also not only the internal transport network of the 11 Traceca countries, but also external parallel competitive links, mainly in Russia and Iran. This methodology equates to the practical implementation of the transport chain concept.

FLOW CHART of OVERALL TRAFFIC FORECAST MODELLING



The search of the routes through the network is based on the 'shortest path' algorithm. Links selected on a former shortest path are then penalised to allow the identification of a second 'shortest path'. And so on. The criteria to selecting a 'shortest path' will be the generalised transport cost by link that is a mix of costs, tariffs and time. Then a logit model gives the share (percentage) of total flows to be assigned on each route (that is for each link making the route). The formula used is:

$$SRi = \frac{\exp(k\,Ri)}{\sum_{i=1}^{n} (\exp(k\,Ri))}$$

-equation 1

where SRi is the share (percentage) of traffic flow using Route i

Ri : the sum of generalised transport costs of all links constituting the Route I

k : calibration coefficient

and n number of different selected routes

There 'modal' split model is replaced by the 'route choice' model

Also there is no need to locate centroids (loading/unloading nodes) on the network to generate and receive traffic flows. Flows can be assigned from any node to any node. For the time being, tests of the "route selection" model have provided rather encouraging and interesting results.

STEP I

3. BASE YEAR - INTERNATIONAL FREIGHT TRANSPORT FLOWS

Introduction

1998 and 1999 Import/Export and possibly Transit related to the international trade flows are presently collected in each Traceca country from Customs Administration and National Statistics Offices through the network of local experts. These data are referenced in the database under Tables 4.1 to 4.3. The format of these latter tables are similar to those established during the previous project (with Ref: I.3 & I.4).

The commodities identified under HS96 (Harmonised System) have been aggregated in 25 groups which integrate the specific railway classification (10 groups) and the freight nomenclature used in port statistics (see Appendix 4 for the commodity grouping). This aggregation allows therefore to identify without ambiguity maritime and railway freight traffics.

Building up the matrices of international freight flows takes three steps associated with two validations (flow chart diagram is provided next page):

- Building country to country matrices by groups of commodities -all transport modes
- Desegregation at zone/oblast level of the above country to country matrices
- Matrices validation and routes/itineraries identification

Country to country Matrices

As mentioned, these matrices are under data collection. The first work, when the information is received, will be to identify the discrepancies in trade flows, since, within the Traceca country system, Export flow from country A to B should logically correspond to an Import flow of country B from A. Generally these discrepancies come from confusions during the aggregation of commodities into limited number of groups. This is especially the case if the total flows (out and in) for all commodities between two countries are correct. Some Customs representatives at the workshops propose the delivery of trade flows for the 97 Customs classes. This is also the best solution for the contractor. Another possibility is to compare Import flows versus Export flows. However, if discrepancies are too large, complementary investigations to the data providers will need to be carried out.

Some countries record Transit flows, generally all modes included. It is therefore convenient to use this information to validate the country to country exchange matrices. To do so it is necessary to accumulate all exchange flows generated between all pairs of external countries that potentially can go through a selected country. If the potential routes/itineraries are known between one country Origin and one country Destination, then transit in a third country can be easily accumulated.

The model described earlier to selecting routes can be used for derived purposes, like the calculation of transit flows within a country. A derived version has been designed especially to calculate the total transit flows in each Traceca country. Based on the information available, the country to country exchange matrices can be then refined.

Disagregation at zone/oblast level

In the previous project, details of freight flows were provided at the oblast level for Kazakstan, Tadjikistan, Turkmenistan and Uzbekistan, while in the four other countries there was no disagregation, and each country was considered as one zone. It is planned to keep the initial zoning for the first group, with the expectation that similar data will be provided for the current project, and, to detail a little more for the remaining countries. Information to allow such a disagregation has been requested through Table 3.2. Depending upon the reliability, quality and level of details of the information to be received, zoning for the latter countries (oblast or group of oblasts) will be finally set up.

The methodology to disagregate data, from country to zones, relies upon the availability of regional sources of information about international and domestic transport. A relevant source is the O/D survey. Only one road survey is available in Kazakstan that needs to be updated. It is planned to carry out this survey in a very limited number of survey stations to adjust the data to present but without requiring an additional huge workload and organisation. Also rail statistics can provide domestic information on international traffic: rail stations (or transhipment stations) of origin or destination of international flows.

Based upon the available data by O/D "couples" -one element of the couple being at the regional level- a gravity model (for each commodity group) will be used as necessary to calibrate the missing flows at the zone level as shown below.

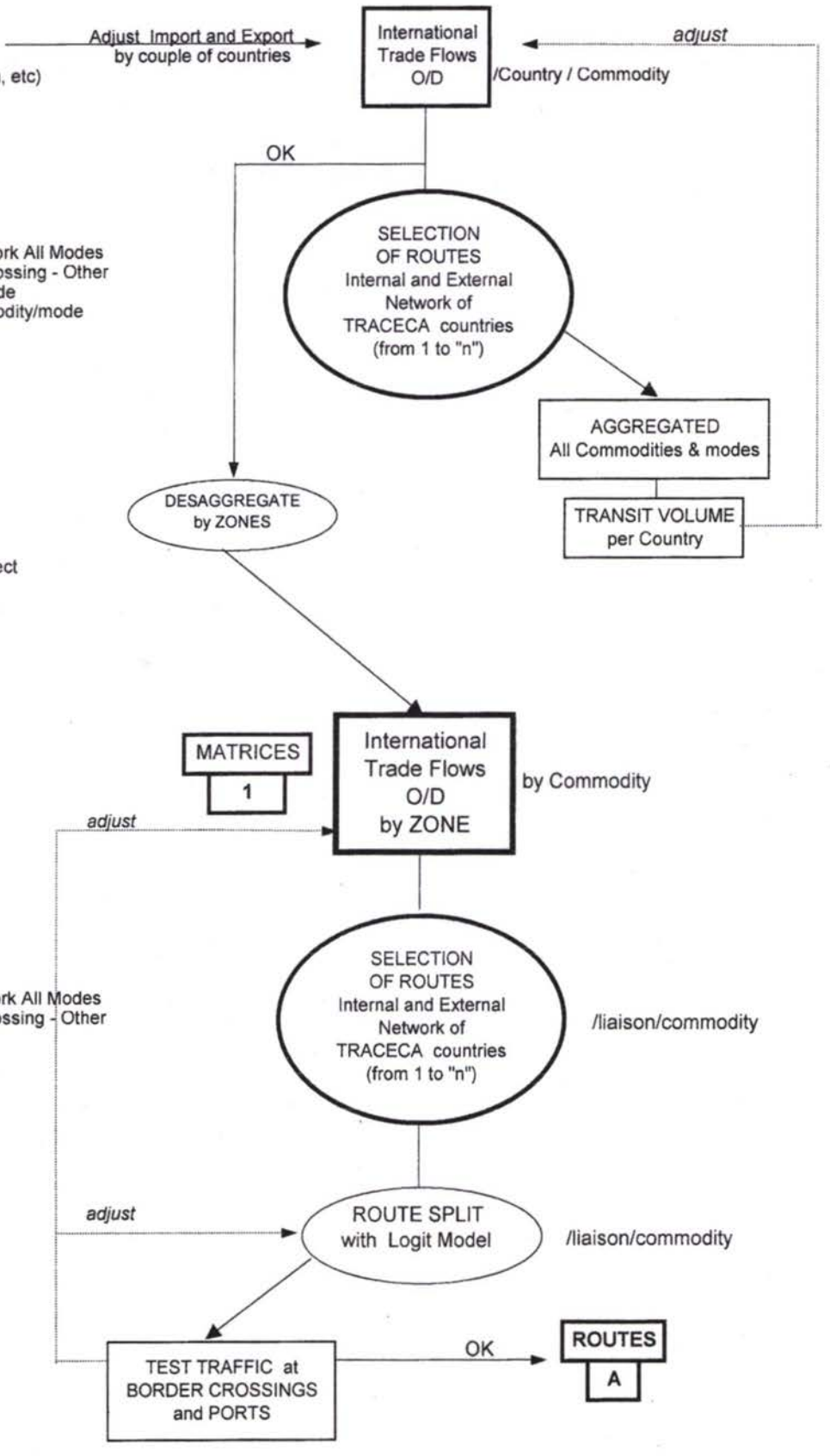
FREIGHT INTERNATIONAL

BASE YEAR

DATABASE

DATA TABLES 4.

* CUSTOMS DATA per country
* National Statistic Offices
* add Transit Trade Flows (ECMT - Russia, etc)



DATA TABLES 2.

Infrastructure Network

* Integrated Transport Infrastructure Network All Modes
  Road - Rail - Maritime - Port - Border Crossing - Other
* Tariffs and Times/ liaison/commodity/mode
* Generalised costs per liaison/ per commodity/mode

DATA TABLES 3./5.

* Regional Information available
  on International Transport flows
* Socio-economy data per Oblast
* Production/Consumption per Oblast
* Transhipment Rail/Road
* Former 1995 Regional Forecasting Project
* International Forwarder Survey

Infrastructure Network

* Integrated Transport Infrastructure Network All Modes
  Road - Rail - Maritime - Port - Border Crossing - Other

DATA TABLES 7.

Traffic on Infrastructure Network

Border Crossing - Ports - Transhipments

* Traffic Imp/Exp/Transit
* Maritime traffic

Matrices pre-validation of international trade flows at zone level

The disagregation procedure of the original country to country flows implies assumptions and results with a certain degree of uncertainty. It is the reason why a second validation is necessary. The "Route selection" model provides the road and rail links that constitute the route, but also the port and border crossing links in the case of international traffic. Through the "route split", it provides also the freight load on these two latter links for every commodity group. For the purpose of the validation procedure, only the latter links will be investigated.

Based upon the traffic data requested in Tables 7 of the database for ports and border crossings, this makes it possible to adjust both (a) the volume of trade flows at the zone level considered either as an origin or a destination as the case may be, and (b) the calibration coefficient of the 'Route split' formula.

This set of calculations and procedures gives two relevant outputs:

- The matrices of international freight flows by commodity group (noted Matrices 1)
- Their associated routes (integrating the mode(s) used) together with their share of freight load (noted set of Routes A)

4. BASE YEAR - DOMESTIC FREIGHT FLOWS

On certain "TEN"[1] Corridors, identified for the purpose to accommodate mostly international or long distance traffic, the road domestic traffic, in a certain country of Eastern Europe, represented in 1995 an average above 75 percent of the AADT[2], while the international traffic (exchange and transit), subject to the above procedure, represented less than 25 percent. It is probable that such a distribution exists within the Traceca countries and that domestic traffic is the bulk of the whole traffic.

For domestic traffic, the transport network to be used is the same as the one used for international traffic flows, but it is reduced at the country size and does not incorporate any more border crossing links and port links, but only rail/road transhipments stations. Since the validation of the domestic traffic flows is made through the traffic counts on roads (vehicles) and freight loads on rail link, the two modes are studied separately.

Rail Domestic Freight Flows

If the matrices of "Domestic", Import, Export and Transit, elaborated for rail freight during the previous project (with Ref.:III-2./1-10) are continuously updated and therefore made available for the current project, then the domestic flows can be assigned on the rail infrastructure network right away. If these matrices cannot be elaborated simply, then a procedure has to be developed in order to build up the domestic freight flows by rail, provided that the total freight load by rail links and commodity groups is available (Request Table 6.2 of Database).

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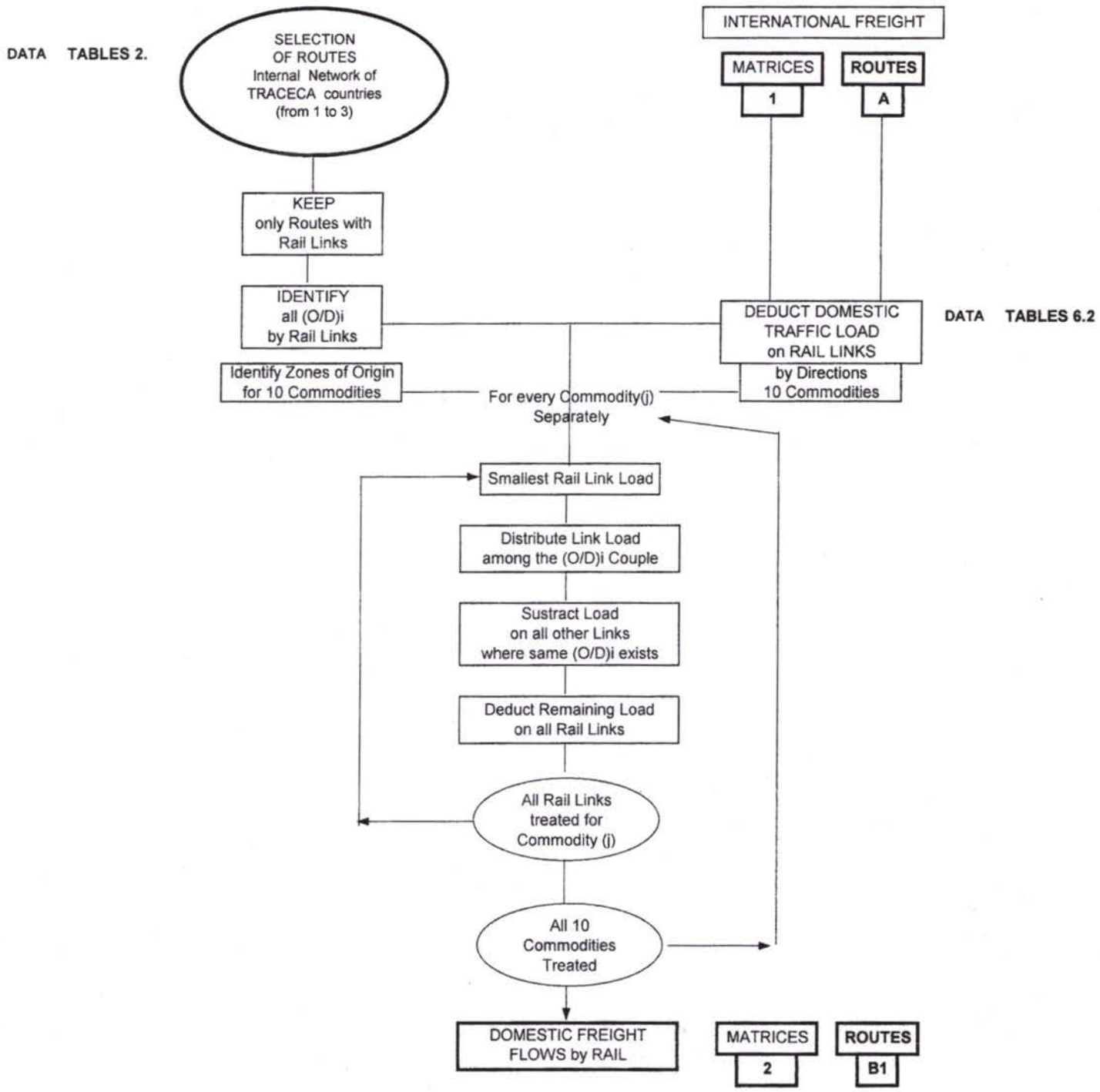
[1] TEN: Transport Trans European Network

[2] AADT: Annual Average Daily Traffic

FREIGHT DOMESTIC RAIL

BASE YEAR



Having extracted the international traffic on all rail links from Matrices "1" and Routes "A", it is possible by difference to deduct for each rail link the domestic traffic by commodity groups. Meanwhile, the 'Route selection' model, used within a unique country, provides all potential O/D couples between which the internal exchange flows can use a specific rail link. To avoid non relevant O/D couple, it is preferable to identify the main and true origins for every commodity group.

The following procedure is then repeated for every commodity group separately (flow chart diagram is provided in the previous page):

- From the rail link having the smallest freight load, distribute the load among the (O/D)i couples using that link and assigned in the O/D matrix for these (O/D)i couples;
- This value is then subtracted in all links where an (OD)i couple is identified;
- Identify the rail link with the smallest freight load
- do procedure again with the next smallest and so until all loads have been accounted for.

After each iteration a rail link disappears from the network, so the procedure ends when all links are treated. It results from the procedure a set of domestic freight matrices "2" with their associated rail routes "B1". If these domestic freight matrices are assigned on the network, they will produce by definition the same link loads than used for calibration. Uncertainty remains that the set of matrices "2" are not unique to produce these link loads. However, if the Origins and Destinations are properly identified (through a right local expertise), and not in contradiction with those observed for international freight, the set of calculated matrices can be considered of not being far from the actual and true ones

Road Domestic Freight Flows

The building up of the Road Domestic Freight Flows will proceed in a similar manner as for Rail when there exists no road O/D surveys at a country size. Reference data for calibration purpose are the number of vehicles (trucks) in terms of AADT on specific road sections. Therefore, the matrix setting up and validation can be made only (1) from those road links having traffic counts expressed in AADT, and (2) for all commodities.

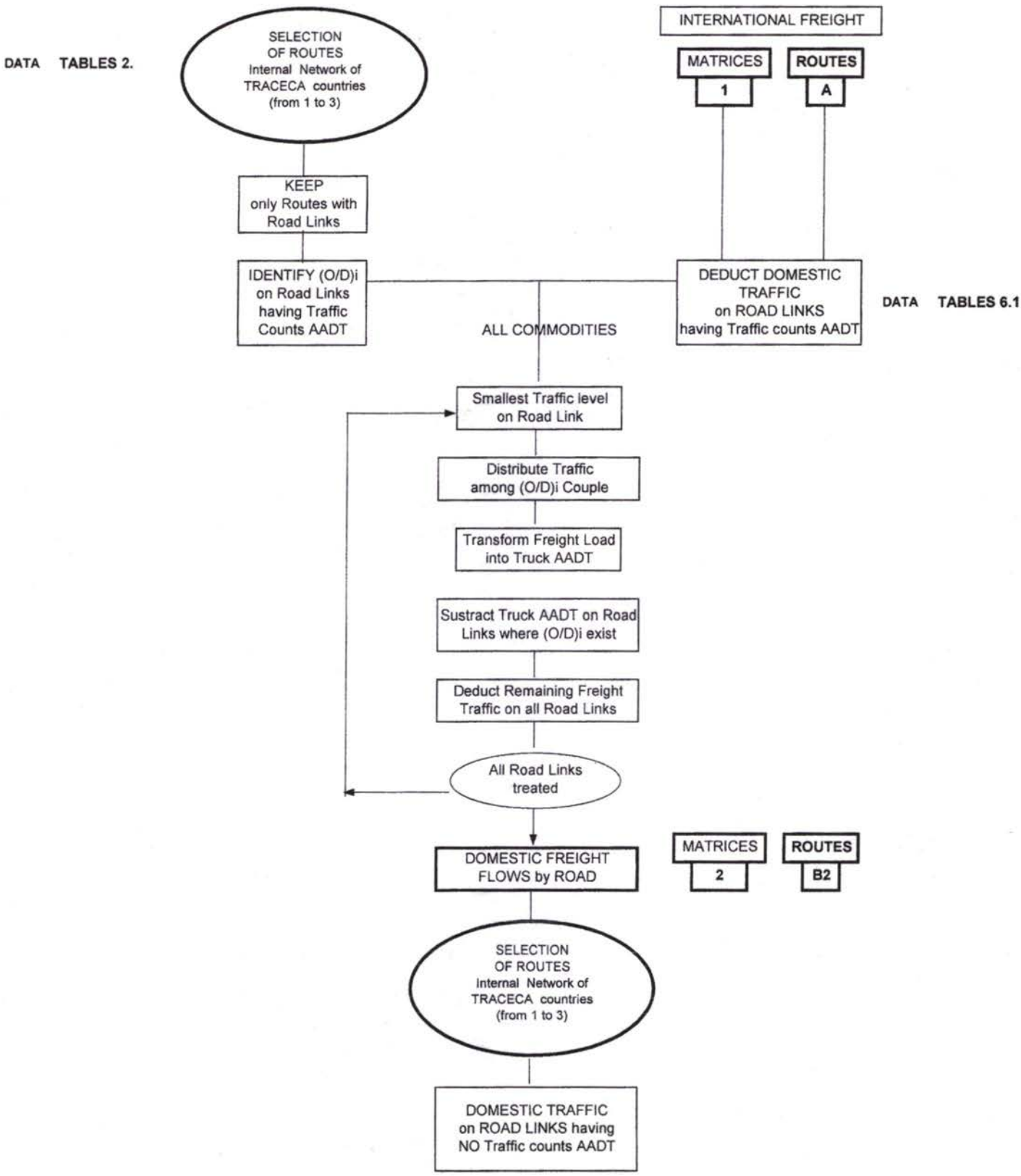
Like for Railways, the international freight flows (exchange and transit), from the set of Matrices "1" and Routes "A" with road links, are subtracted from the total freight traffic (data requested in Table 6.1 of the database) to produce the domestic traffic, after having converted the freight vehicle AADTs to tonnes of cargo. Meanwhile, the 'Route selection' model, used at the country level, provides all potential O/D couples between which the internal exchange flows can use a specific road link.

Then the following procedure is used (the flow chart diagram is provided in the next page):

- From the road link having the smallest freight load, distribute the load among the (O/D)i couples using that link and assigned in the O/D matrix for these (O/D)i couples;
- This value is then subtracted in all links where an (OD)i couple is identified;
- Identify the road link with the smallest freight load
- do procedure again

FREIGHT DOMESTIC ROAD

BASE YEAR



Remarks made for railway about the relevance of the domestic freight matrix obtained from applying the above procedure remain valid for road. Also, it is very probable that the procedure does not cover entirely the road domestic traffic, the one generated by the short distance traffic (internal to an oblast), especially in large countries like Kazakstan. It will be necessary to adjust the local traffic at the road link level, separately for each country.

5. BASE YEAR - PASSENGER FLOWS

There are no means to split international and domestic land passengers from the traffic data available, except in case of specific O/D surveys. But those surveys implemented for instance on the Caspian Sea cover quite a limited area within the overall land space under study.

A simple procedure is to consider land passengers as a unique commodity for which the above procedure for domestic freight applies extended to the entire zoning system (i.e. both internal of Traceca countries and external to Traceca). For forecasting purpose this procedure will be completed by the calibration of a simple "gravity" model.

STEP II

6. MATRIX ESTIMATION METHODOLOGY

The matrices have to be collated from data from several sources, including modelling, each of which would 'tell its own story' and be good at describing one aspect of the overall picture of freight and passenger flows in Traceca. Each type of data would describe the overall picture in its own way. It would have it's own level of aggregation and its own level of precision. Data, including modelling data, may (in mathematical terms) be inconsistent and have its own error structure. These, sometimes conflicting requirements would need to be reconciled and a balance would need to be struck between the data so as to prove the best possible origin-destination matrix with minimum statistical error.

The sources of data were described earlier. There are currently no tried and tested methods for solving this particular problem in the way that we need to formulate it here. However a solution can be found from the recent European Commission's MYSTIC research project which sought to merge different data sources together to produce a matrix in such a way as to use each type of data source in the best possible way and to minimise statistical error. The methodology we will use here will be based on the formulation described below.

The overall model of flow can be described by the following relationship:

cTij = cFi(factors relating to freight and passenger flow production in zone i)
*cFj(factors relating to freight and passenger flow consumption/ attraction to zone j)
*cGij(combined generalised cost for each route between zones i and j)
+ e

- equation 2

Where:

cTij	=	Flow (in tonnes or passengers per year) between zones i and j
c	=	commodity (where passengers are considered a special type of 'commodity')
F	=	a function of socio-economic variables (see database)
G	=	a1* exp(a2* logit-averaged generalised cost between zones i and j)
a1,a2 etc		are calibration constants
e	=	an error term

This would be subject to the constraints provided by the data as follows:

International Trade Flow Constraint

This is applied for each trade flow for which data is available which is generally for each country to country movement and by commodity:

cTrade_Flow = a3*(Sum of Tij over all o/d pairs passing between the two countries) + e

- equation 3

Domestic Trade Flow Constraint

This is applied for each trade flow for which data is available which is generally one figure for each country for all commodities combined:

Trade_Flow = a4*(Sum of Tij over all o/d pairs within the country) + e

- equation 4

Customs Transit Traffic Flow Constraint

This is applied for each trade flow for which data is available which is generally one figure for each country by commodity:

cTrade_Flow = a5*(Sum of Tij over all o/d pairs passing through the country) + e

- equation 5

Customs Import Traffic Flow Constraint

This is applied for each trade flow for which data is available which is generally one figure for each country by commodity:

cTrade_Flow = a6*(Sum of Tij over all o/d pairs entering the country) + e

- equation 6

Customs Export Traffic Flow Constraint

This is applied for each trade flow for which data is available which is generally one figure for each country by commodity:

cTrade_Flow = a7*(Sum of Tij over all o/d pairs leaving the country) + e

- equation 7

Counted Traffic Constraint

The counted traffic AADT for road links will be converted from a vehicle to an annual commodity (/ passenger) flow using average loading factors from O/D surveys. Traffic loads on railway, shipping and port links being directly used under tonnage. The following relationship applied:

cLink_Flow = a8*(Sum of Tij over all o/d pairs using the link) + e

- equation 8

Calibration would be a process of fitting the parameters a1 to a8 and the functions F and G so as to minimise the errors. The function (F and G) could be linear or non-linear equations with such independent variables (perhaps in combination) as: population, employment, area, (national) GDP per head, vehicle registrations, commodity productions. These could be fitted

fitted with linear regression (which uses maximum likelihood) however introducing the constraints necessitates reformulating the maximum likelihood function to be minimised and using a more appropriate algorithm to estimate the matrix – drawing on the MYSTIC work. The precise estimation methodology still needs to be worked out in detail as it would depend upon the nature of the data we would receive. If it is in a suitable form, we would undertake the statistical fitting procedure preferably using maximum likelihood so as to minimise the error terms (-e in the above equations) and produce the best possible matrix for the given data. If the data is unsuitable for this fitting methodology then we would use a pragmatic approach based on the data itself as outlined below. In practice the solution adopted is likely to be combination of the two.

STEP III

7. MATRIX FORECASTING METHODOLOGY

Having estimated the base matrices (cTij base) for each commodity and for passengers using the overall approach described above then forecasting would be achieved by applying the fitted model as shown below where the functions F and G would be known and the cTijf would be the forecast flow matrix for commodity c. This would require forecasts of the variables (population, employment, GDP, commodity production etc) by zone, which would be made independently.

cTijf = cFi(factors relating to freight and passenger flow production in zone i)

*cFj(factors relating to freight and passenger flow consumption/ attraction to zone j)

*cGij(combined generalised cost for each route between zones i and j)

- equation 9

The above way does not exclude the use of simpler techniques of forecasting by using a traffic growth related to the elasticity of transport demand, especially for road local traffic.

8. TRAFFIC FORECASTING ON THE NETWORK

A national year 2015 network will be produced comprising the future schemes, as indicated by the local correspondents, which are committed and under construction as well as those which the project is seeking to evaluate. The traffic forecasts to be on the network can then be achieved by assigning the forecast matrices to the future year 2015 network.

APPENDIX 4

DATA GROUPING

COMMODITIES
COUNTRIES

COMMODITY GROUPS

Commodity groups have been set up from the 97 subclasses of the international classification system adopted in the FSU (also called Harmonised System HS 96). This classification is provided in the next three pages.

A second component considered for commodity grouping is the classification system used in railway transport (11 categories including "Other") also in the FSU, and those commodities that can be easily identified in the general statistics published by Ports. The crosschecks of both series of commodity groups allow to identify the relevant groups of commodity pertaining to both transport modes or either to one or the other (the crosscheck table is given in the following pages). This selection procedure based on transport modes is expected to provide less ambiguity for the traffic data to be collected by the various transport agencies and Authorities and to ease the calibration of models and matrix validation.

All commodities in the HS 96 Classification are then given a group code issued from the former procedure (last pages). There are, for the time being 25 commodity groups. It is possible that this number be reduced in the course of the project.

COMMODITIES UNDER HARMONIZED SYSTEM (HS96)

Identification of commodity groups	Names of commodities	Code of commodity groups
Animal Origin Products	Living animals	1
Animal Origin Products	Meat and meat sub-products	2
Animal Origin Products	Fish and crustacea, shellfish and other water invertebrates	3
Animal Origin Products	Milk and dairy produce; poultry eggs; natural honey, foodstuffs of animal origin, having not been nominated in any other place	4
Animal Origin Products	Foodstuffs of animal origin, not nominated in other places	5
Agriculture Products	Living trees and other plants; bulbs, roots and other analogous parts of plants; cut flowers and ornamental plants	6
Agriculture Products	Vegetables, some edible root-crops and tuber crops	7
Agriculture Products	Edible fruits and nuts; rind and peel of citrus plants or water-melons, melons and gourds	8
Agriculture Products	Coffee, tea, mate (Paraguayan tea) and spices	9
Agriculture Products	Cereal bread	10
Food Stuff	Products of flour-grinding and cereals industry; malt; starch; inulin; wheaten gluten	11
Agriculture Products	Oil- bearing seeds and fruits; other seeds, fruits and grains; officinal plants and plants for technical purposes; straw and forage	12
Agriculture Products	Shellac; gums; pitch and other vegetable saps and extracts	13
Agriculture Products	Vegetable materials for making wicker-wares; other products of vegetable origin, having not been named in another place	14
Animal Origin Products	Fats and oils of animal and vegetable origin; products of their decomposition; ready food fats; waxes of animal or vegetable origin	15
Animal Origin Products	Goods made of meat, fish or crustacea, shellfish or other water invertebrates	16
Food Stuff	Sugar and confectionary made of sugar	17
Food Stuff	Cocoa and products made of it	18
Food Stuff	Goods made of cereals, flour, starch and milk; farinaceous confectionery	19
Food Stuff	Products of processing of vegetables, fruits, nuts and other parts of plants	20
Food Stuff	Various foodstuffs	21
Food Stuff	Alcoholic and non-alcoholic drinks and vinegar	22
Food Stuff	Remains and waste of food industry; ready- fodders for animals	23
Agriculture Products	Tobacco- plant and industrial substitute for tobacco	24
Ware from stone, gypsum, cement	sulphur; rocks and soils; plaster materials, lime and cement	25
Ore	Ores, slags and ashes	26
Oil Products	Mineral fuel, petroleum and refined products; bituminous materials; mineral wax	27
Products of Chemical Industry	Inorganic chemistry products; inorganic and organic compound of precious and rare earth metals, radioactive elements and isotopes	28
Products of Chemical Industry	Organic chemical compounds	29
Products of Chemical Industry	Pharmaceutical products	30
Products of Chemical Industry	Fertilizers	31
Products of Chemical Industry	Tanning and dying extracts; tannins and their products; dye- stuffs, pigments and other dying materials; dyes and varnishes; putty and other mastics; ink (printer's ink)	32
Products of Chemical Industry	Essential oils and rezinoids; perfumer, cosmetic and toilet- set	33
Products of Chemical Industry	Soap, superficial active organic matters, detergents, lubricants, synthetic ready waxes, compounds for cleaning and polishing, candles and analogous goods; paste for modelling, plasticine, "dental wax" and gypsum- based compounds for dental purposes	34
Products of Chemical Industry	Albumens; modified starches; glues; ferments	35
Products of Chemical Industry	Explosives; pyrotechnics; matches; pyrophor alloys; some types of fuel	36
Products of Chemical Industry	Photo and cinema goods	37
Products of Chemical Industry	Other chemical products	38
Rubber and Plastic	Plastics and goods made of plastics	39
Rubber and Plastic	Rubber and rubber goods	40
Textile and its wares	Tanning materials (fur excluded) and leather	41
Textile and its wares	Leather products; saddles and harness; traveling outfit; handbags and similar goods; goods made of animal guts (catgut made of natural silk excluded)	42
Manufactured Goods	Real and artificial furs and goods made of them	43
Wood and its wares	Wood and goods made of it; charcoal	44
Wood and its wares	Cork and goods made of it	45
Wood and its wares	Goods made of straw, alpha and other materials for wicker- work; baskets and other wicker- wares	46
Paper and its wares	Paper of wood- pulp and other fibrous vegetable materials; spoilt sheet, cardboard and paper for recycling	47

COMMODITIES UNDER HARMONIZED SYSTEM (HS96)

Identification of commodity groups	Names of commodities	Code of commodity groups
Paper and its wares	Paper and cardboard; products of paper-pulp, paper and cardboard	48
Paper and its wares	Printed books, newspapers, reproductions and other goods of printing industry; manuscripts, typescript and plans	49
Textile and its wares	Silk	50
Textile and its wares	Wool; thin and coarse hair of animals; horsehair yarn and fabric	51
Agriculture Products	Cotton	52
Textile and its wares	Other vegetable textile fibres; paper yarn and fabrics made of it	53
Textile and its wares	Chemical threads	54
Textile and its wares	Chemical staple fibres	55
Textile and its wares	Waddling, thick felt and unwoven fabrics; special yarn; twine, rope and cord goods, cables, strings and goods made of it	56
Textile and its wares	Carpets and other textile floor covers	57
Textile and its wares	Special fabrics; fabrics with sewn nap; laces, tapestry, trimming materials; embroidery	58
Textile and its wares	Steeped, duplicated textile fabrics, fabrics with coating; technical goods made of them	59
Textile and its wares	Hand- made and machine- made jersey	60
Textile and its wares	Clothes and articles of jersey clothes	61
Textile and its wares	Clothes and textile clothes (excluding jersey)	62
Textile and its wares	Other ready- made textile wear; complete sets; second- hand clothes and textile goods; rags	63
Textile and its wares	Footwear, gaiters and analogous goods; their parts	64
Textile and its wares	Head- dresses and their parts	65
Manufactured Goods	Umbrellas, canes, sitting- sticks, switches, whips and their parts	66
Manufactured Goods	Processed feather and down and goods made of them; artificial flowers; goods made of human hair	67
Ware from stone, gypsum, cement	Goods made of rock, gypsum, cement, asbestos, mica and other similar materials	68
Ware from stone, gypsum, cement	Ceramic goods	69
Ware from stone, gypsum, cement	Glass and goods made of it	70
Manufactured Goods	Natural and cultivated pearl, precious and semiprecious stones, precious metals, metals plated with precious materials and goods made of them; bijouterie; coins	71
Metal ferrous and non ferrous	Ferrous metls	72
Metal ferrous and non ferrous	Goods made of ferrous metals	73
Metal ferrous and non ferrous	Copper and goods made of it	74
Metal ferrous and non ferrous	Nickel and goods made of it	75
Metal ferrous and non ferrous	Alluminium and goods made of it	76
Metal ferrous and non ferrous	Lead and goods made of it	78
Metal ferrous and non ferrous	Zinc and goods made of it	79
Metal ferrous and non ferrous	Tin and goods made of it	80
Metal ferrous and non ferrous	Other non- precious metals; metal ceramics; goods made of them	81
Manufactured Goods	Instruments, knives, spoons, forks made of non- precious metals; their parts made of non- precious metals	82
Metal ferrous and non ferrous	Other goods made of non- precious metals having not been nominated in other place	83
Machinery, equipment and Mechanisms	Nuclear reactors, boilers, equipment and mechanical contrivances; their parts	84
Machinery, equipment and Mechanisms	Electrical machines and equipment, their parts; sound recording and reproducing equipment; equipment for recording and reproducing television representation and sound; their parts and fittings	85
Machinery, equipment and Mechanisms	Railway locomotives and rolling- stock, trams, their parts and fittings; road facilities of railway and tram network, their junctions and parts; signalling machinery and electro- machinery	86
Machinery, equipment and Mechanisms	Overland means of transport, excluding railway rolling- stock and trams; their parts and equipment	87
Machinery, equipment and Mechanisms	Aircraft; spaceships, their parts	88
Machinery, equipment and Mechanisms	Vessels, boats and other floating means	89
Manufactured Goods	Cinematograph and optical apparatus and devices, cameras, checking and measuring instruments, precision devices, surgical and medical instruments and apparatus; their parts and fittings	90
Manufactured Goods	Watches and their parts	91
Manufactured Goods	Musical instruments; their parts and fittings	92
Manufactured Goods	Weapons and ammunition; their parts and fittings	93

COMMODITIES UNDER HARMONIZED SYSTEM (HS96)

Identification of commodity groups	Names of commodities	Code of commodity groups
Manufactured Goods	Furniture; bedding, matrasses, matrass warps, cushions and analogous padded articles of furniture; lighting appliances and their parts, having not been nominated in another place, indicator boards and analogous goods; prefabricated building elements	94
Manufactured Goods	Toys, games and sports goods; their parts and fittings	95
Manufactured Goods	Various ready- made goods	96
Manufactured Goods	Works of art, collection articles and antiquary	97
Ware from stone, gypsum, cement	Construction Materials	

CLASSIFICATION of COMMODITY GROUP BY MODES

PREVIOUS PROJECT CLASSIFICATION			Maritime Statistics		Railway Statistics		Classification by Mode				
COMMODITY GROUP NAME	Group Code	Commodity NAME	General	Identified commodity	Identified commodity	General	Class	Sub-Class	Sub-Sub-Class	Commodity Group Name	Proposed Group Code
Mineral Products	5	Coal		Yes	Yes		1			Coal	1
Mineral Products	5	Coke		Yes	Yes		2			Coke	2
Mineral Products	5	Bauxite		Yes		X	3	1		Bauxite	3
Mineral Products	5	Ore (others)	X			X	3	2		Other Ore include. Salt	4
Mineral Products	5	Salt	X			X	3	2		Other Ore include. Salt	4
Mineral Products	5	Gasoline		Yes		X	4	1	2	Gasoline & Refined Petroleum P.	5
Mineral Products	5	Petroleum Products	X			X	4	1	1	Oil Products excl. Gasoline & Refined Products	6
Mineral Products	5	Diesel-Fuel	X			X	4	1	1	Oil Products excl. Gasoline & Refined Products	6
Mineral Products	5	Oil Products	X			X	4	1	1	Oil Products excl. Gasoline & Refined Products	6
Mineral Products	5	Oil-Petroleum	X			X	4	2		Oil Products excl. Gasoline & Refined Products	6
Mineral Products	5	Petroleum	X			X	4	2		Oil Products excl. Gasoline & Refined Products	6
Products of Vegetable Origin	2	Grain		Yes	Yes		5			Grain - Cereals	7
Finished Food Stuffs	4	Cereals and Grain		Yes	Yes		5			Grain - Cereals	7
Products of Chemical Industry	6	Fertilizers		Yes		X	6	1		Fertilizers	8
Products of Chemical Industry	6	Cathode CU	X			X	6	2		Products of Chemical Industry excl. Fertlizers	9
Products of Chemical Industry	6	Chemical	X			X	6	2		Products of Chemical Industry excl. Fertlizers	9
Products of Chemical Industry	6	CR Oxide	X			X	6	2		Products of Chemical Industry excl. Fertlizers	9
Products of Chemical Industry	6	Electrolyte	X			X	6	2		Products of Chemical Industry excl. Fertlizers	9
Products of Chemical Industry	6	Explosive	X			X	6	2		Products of Chemical Industry excl. Fertlizers	9
Products of Chemical Industry	6	Liquid CL	X			X	6	2		Products of Chemical Industry excl. Fertlizers	9
Products of Chemical Industry	6	Shampoo	X			X	6	2		Products of Chemical Industry excl. Fertlizers	9
Products of Chemical Industry	6	Vinegar Acid	X			X	6	2		Products of Chemical Industry excl. Fertlizers	9
Products of Chemical Industry	6	Yellow P	X			X	6	2		Products of Chemical Industry excl. Fertlizers	9
Products of Chemical Industry	6	Zinc	X			X	6	2		Products of Chemical Industry excl. Fertlizers	9
Products of Chemical Industry	6	Zinc Oxide	X			X	6	2		Products of Chemical Industry excl. Fertlizers	9
Wares from Stone, Gypsum, Cement	13	Cement		Yes		X	7	1		Cement	10
Wares from Stone, Gypsum, Cement	13	Dishes		Yes		X	7	2	1	Construction & Building materials	11
Wares from Stone, Gypsum, Cement	13	Abestos	X			X	7	2	2	Construction & Building materials	11
Wares from Stone, Gypsum, Cement	13	Bricks	X			X	7	2	2	Construction & Building materials	11
Wares from Stone, Gypsum, Cement	13	Mining Bulk	X			X	7	2	2	Construction & Building materials	11
Machinery, Equipment and Mechanisms	16	Scrap metal		Yes		X	8	1		Scrap Metal	12
Precious & Semi Stones, Metal and their Wares	14	Titanium	X			X	8	2		Other Metal ferrous - non ferrous	13
Precious & Semi Stones, Metal and their Wares	14	Titanium Slag	X			X	8	2		Other Metal ferrous - non ferrous	13
Non-Precious Metal and its Wares	15	Metal	X			X	8	2		Other Metal ferrous - non ferrous	13
Non-Precious Metal and its Wares	15	Iron-Ore Pellets	X			X	8	2		Other Metal ferrous - non ferrous	13
Non-Precious Metal and its Wares	15	Metal	X			X	8	2		Other Metal ferrous - non ferrous	13
Non-Precious Metal and its Wares	15	Road-metal	X			X	8	2		Other Metal ferrous - non ferrous	13
Machinery, Equipment and Mechanisms	16	Containers		Yes	Yes		9			Containers	20
Wood and its Wares	9	Timber		Yes	Yes		10	1		Timber	14
Wood and its Wares	9	Wood and its Wares	X			X	10	2		Wood and its wares	15
Paper and its Wares	10	Wall Paper	X			X	10	3		Other Paper	16
Rubber-Plactics and their Wares	7	Tyres	X			X	11	1		Tyres	17
Textile and its Wares	11	Cotton	X			X	12	1		Cotton	18
Textile and its Wares	11	Carpet-Cover	X			X	12	2		Textile and its Wares	19
Textile and its Wares	11	Carpets	X			X	12	2		Textile and its Wares	19
Textile and its Wares	11	Knitted Wear	X			X	12	2		Textile and its Wares	19

CLASSIFICATION of COMMODITY GROUP BY MODES

PREVIOUS PROJECT CLASSIFICATION			Maritime Statistics		Railway Statistics		Classification by Mode				
COMMODITY GROUP NAME	*Group Code*	*Commodity NAME*	*General*	*Identified commodity*	*Identified commodity*	*General*	*Class*	*Sub-Class*	*Sub-Sub-Class*	Commodity Group Name	**Proposed Group Code**
Textile and its Wares	11	Sacks	X			X	12	3		Manufactured Goods and Other	**25**
Shoes, Umbrella, Walking Stick	12	Shoes, etc.	X			X	12	3		Manufactured Goods and Other	**25**
Leather & Fur raw materials and its Wares	8	Leather & its wares	X			X	12	3		Manufactured Goods and Other	**25**
Machinery, Equipment and Mechanisms	16	Spare parts		Yes		X	13	1	1	Machinery, Equipment and Mechanisms	**21**
Road, Rail, Water Vehicles	17	Motor Equipment		Yes		X	13	1	1	Machinery, Equipment and Mechanisms	**21**
Road, Rail, Water Vehicles	17	Vehicles		Yes		X	13	1	2	Machinery, Equipment and Mechanisms	**21**
Devices, Apparatus and Appliances	18	Equipment for Chemical Labs	X			X	13	2	2	Machinery, Equipment and Mechanisms	**21**
Devices, Apparatus and Appliances	18	Steel	X			X	13	2	2	Machinery, Equipment and Mechanisms	**21**
Devices, Apparatus and Appliances	18	Water Heater	X			X	13	2	2	Machinery, Equipment and Mechanisms	**21**
Arms, Ammunition, Spare parts and Accessories	19	Cars, tanks		Yes		X	13	2	1	Machinery, Equipment and Mechanisms	**21**
Manufactured Goods	20	Construction	X			X	13	3	2	Machinery, Equipment and Mechanisms	**21**
Manufactured Goods	20	Pipes		Yes		X	13	3	1	Machinery, Equipment and Mechanisms	**21**
Products of Vegetable Origin	2	Edible Oil	X			X	14	1		Agriculture Products	**23**
Fat and Oil of Animal or Vegetable Origin	3	Fat & Oil of non mineral origin	X			X	14	1		Agriculture Products	**23**
Cattle and Products of Animal Origin	1	Animal & Animal Products	X			X	14	2		Animals and animal products	**22**
Products of Vegetable Origin	2	Barley		Yes		X	14	3	1	Agriculture Products	**23**
Products of Vegetable Origin	2	Borit		Yes		X	14	3	2	Agriculture Products	**23**
Products of Vegetable Origin	2	Cigarettes		Yes		X	14	3	3	Food Stuff	**24**
Products of Vegetable Origin	2	Tobacco		Yes		X	14	3	4	Agriculture Products	**23**
Products of Vegetable Origin	2	Laurel-Leaf		Yes		X	14	3	5	Agriculture Products	**23**
Finished Food Stuffs	4	Alcoholic Drinks	X			X	15	1		Food Stuff	**24**
Finished Food Stuffs	4	Food-Stuff	X			X	15	1		Food Stuff	**24**
Finished Food Stuffs	4	Flour		Yes		X	15	2	1	Food Stuff	**24**
Finished Food Stuffs	4	Packing Flour		Yes		X	15	2	1	Food Stuff	**24**
Finished Food Stuffs	4	Mineral Water		Yes		X	15	2	2	Food Stuff	**24**
Mineral Products	5	Water		Yes		X	15	2	2	Food Stuff	**24**
Finished Food Stuffs	4	Sugar		Yes		X	15	2	3	Food Stuff	**24**
Finished Food Stuffs	4	Tea		Yes		X	15	2	4	Food Stuff	**24**
Manufactured Goods	20	Other	X			X	16			Manufactured Goods and Other	**25**
Manufactured Goods	20	Unknown	X			X	16			Manufactured Goods and Other	**25**
Manufactured Goods	20	General Cargo	X			X	16			Manufactured Goods and Other	**25**
Manufactured Goods	20	Miscellaneous	X			X	16			Manufactured Goods and Other	**25**
Manufactured Goods	20	Vessels		Yes		X	16			Manufactured Goods and Other	**25**
Art Products	21	Art Products	X			X	16			Manufactured Goods and Other	**25**

GROUPS OF COMMODITIES			
Names of commodity groups	*Project Code*	*Commodity Names*	*CODE HS96*
Ore & minerals	1	Coal	26
Ore & minerals	2	Coke	26
Ore & minerals	3	Bauxite	26
Ore & minerals	4	Other ores including salt	26
Oil Products	5	Gasoline	27
Oil Products	6	Mineral fuel, petroleum and refined products; bituminous materials; mineral wax	27
Non processed Agriculture Products	7	Grain and Cereals	10
Products of Chemical Industry	8	Fertilizers	31
Products of Chemical Industry	9	Inorganic chemistry products; inorganic and organic compound of precious and rare earth metals, radioactive elements and isotopes	28
Products of Chemical Industry	9	Organic chemical compounds	29
Products of Chemical Industry	9	Pharmaceutical products	30
Products of Chemical Industry	9	Tanning and dying extracts; tannins and their products; dye- stuffs, pigments and other dying materials; dyes and varnishes; putty and other mastics; ink (printer's ink)	32
Products of Chemical Industry	9	Essential oils and rezinoids; perfumer, cosmetic and toilet- set	33
Products of Chemical Industry	9	Soap, superficial active organic matters, detergents, lubricants, synthetic ready waxes, compounds for cleaning and polishing, candles and analogous goods; paste for modelling, plasticine, "dental wax" and gypsum- based compounds for dental purposes	34
Products of Chemical Industry	9	Albumens; modified starches; glues; ferments	35
Products of Chemical Industry	9	Explosives; pyrotechnics; matches; pyrophor alloys; some types of fuel	36
Products of Chemical Industry	9	Photo and cinema goods	37
Products of Chemical Industry	9	Other chemical products	38
Wares from stone, gypsum, cement	10	Cement	25
Wares from stone, gypsum, cement	11	sulphur; rocks and soils; plaster materials, lime	25
Wares from stone, gypsum, cement	11	Goods made of rock, gypsum, cement, asbestos, mica and other similar materials	68
Wares from stone, gypsum, cement	11	Ceramic goods	69
Wares from stone, gypsum, cement	11	Glass and goods made of it	70
Wares from stone, gypsum, cement	11	Construction Materials	25
Metal ferrous and non ferrous	12	Scrap Metal	72
Metal ferrous and non ferrous	13	Ferrous metls	72
Metal ferrous and non ferrous	13	Goods made of ferrous metals	73
Metal ferrous and non ferrous	13	Copper and goods made of it	74
Metal ferrous and non ferrous	13	Nickel and goods made of it	75
Metal ferrous and non ferrous	13	Alluminium and goods made of it	76
Metal ferrous and non ferrous	13	Lead and goods made of it	78
Metal ferrous and non ferrous	13	Zinc and goods made of it	79
Metal ferrous and non ferrous	13	Tin and goods made of it	80
Metal ferrous and non ferrous	13	Other non- precious metals; metal ceramics; goods made of them	81
Metal ferrous and non ferrous	13	Other goods made of non- precious metals having not been nominated in other place	83
Wood and its wares	14	Timber	44
Wood and its wares	15	Wood and goods made of it	44
Wood and its wares	15	Cork and goods made of it	45
Wood and its wares	15	Goods made of straw, alpha and other materials for wicker- work; baskets and other wicker- wares	46
Paper and its wares	16	Paper of wood- pulp and other fibrous vegetable materials; spoilt sheet, cardboard and paper for recycling	47
Paper and its wares	16	Paper and cardboard; products of paper-pulp, paper and cardboard	48
Paper and its wares	16	Printed books, newspapers, reproductions and other goods of printing industry; manuscripts, typescript and plans	49
Rubber and Plastic	17	Plastics and goods made of plastics	39
Rubber and Plastic	17	Rubber and rubber goods, tyres	40
Textile and its wares	18	Cotton	52

GROUPS OF COMMODITIES			
Names of commodity groups	*Project Code*	*Commodity Names*	*CODE HS96*
Textile and its wares	19	Tanning materials (fur excluded) and leather	41
Textile and its wares	19	Leather products; saddles and harness; traveling outfit; handbags and similar goods; goods made of animal guts (catgut made of natural silk excluded)	42
Textile and its wares	19	Silk	50
Textile and its wares	19	Wool; thin and coarse hair of animals; horsehair yarn and fabric	51
Textile and its wares	19	Other vegetable textile fibres; paper yarn and fabrics made of it	53
Textile and its wares	19	Chemical threads	54
Textile and its wares	19	Chemical staple fibres	55
Textile and its wares	19	Waddling, thick felt and unwoven fabrics; special yarn; twine, rope and cord goods, cables, strings and goods made of it	56
Textile and its wares	19	Carpets and other textile floor covers	57
Textile and its wares	19	Special fabrics; fabrics with sewn nap; laces, tapestry, trimming materials; embroidery	58
Textile and its wares	19	Steeped, duplicated textile fabrics, fabrics with coating; technical goods made of them	59
Textile and its wares	19	Hand- made and machine- made jersey	60
Textile and its wares	19	Clothes and articles of jersey clothes	61
Textile and its wares	19	Clothes and textile clothes (excluding jersey)	62
Textile and its wares	19	Other ready- made textile wear; complete sets; second- hand clothes and textile goods; rags	63
Textile and its wares	19	Footwear, gaiters and analogous goods; their parts	64
Textile and its wares	19	Head- dresses and their parts	65
Machinery, equipment and Mechanisms	20	Containers	
Machinery, equipment and Mechanisms	21	Nuclear reactors, boilers, equipment and mechanical contrivances; their parts	84
Machinery, equipment and Mechanisms	21	Electrical machines and equipment, their parts	85
Machinery, equipment and Mechanisms	21	Devices Apparatus and Appliances	86
Machinery, equipment and Mechanisms	21	Overland means of transport, their parts and equipment	87
Machinery, equipment and Mechanisms	21	Aircraft; spaceships, their parts	88
Machinery, equipment and Mechanisms	21	Vessels, boats and other floating means	89
Products of animal origin	22	Living animals	1
Products of animal origin	22	Meat and meat sub-products	2
Products of animal origin	22	Fish and crustacea, shellfish and other water invertebrates	3
Products of animal origin	22	Milk and dairy produce; poultry eggs; natural honey, foodstuffs of animal origin, having not been nominated in any other place	4
Products of animal origin	22	Foodstuffs of animal origin, not nominated in other places	5
Products of animal origin	22	Fats and oils of animal and vegetable origin; products of their decomposition; ready food fats; waxes of animal or vegetable origin	15
Products of animal origin	22	Goods made of meat, fish or crustacea, shellfish or other water invertebrates	16
Agriculture Products	23	Living trees and other plants; bulbs, roots and other analogous parts of plants; cut flowers and ornamental plants	6
Agriculture Products	23	Vegetables, some edible root-crops and tuber crops	7
Agriculture Products	23	Edible fruits and nuts; rind and peel of citrus plants or water-melons, melons and gourds	8
Agriculture Products	23	Coffee, tea and spices	9
Agriculture Products	23	Oil- bearing seeds and fruits; other seeds, fruits and grains; officinal plants and plants for technical purposes; straw and forage	12
Agriculture Products	23	Shellac; gums; pitch and other vegetable saps and extracts	13
Agriculture Products	23	Vegetable materials for making wicker-wares; other products of vegetable origin, having not been named in another place	14
Agriculture Products	23	Tobacco- plant and industrial substitute for tobacco	24
Food Stuff	24	Sugar and confectionary made of sugar	17
Food Stuff	24	Cocoa and products made of it	18
Food Stuff	24	Goods made of cereals, flour, starch and milk; farinaceous confectionery	19
Food Stuff	24	Products of processing of vegetables, fruits, nuts and other parts of plants	20
Food Stuff	24	Various foodstuffs	21
Food Stuff	24	Alcoholic and non-alcoholic drinks and vinegar	22

GROUPS OF COMMODITIES			
Names of commodity groups	*Project Code*	*Commodity Names*	*CODE HS96*
Food Stuff	24	Remains and waste of food industry; ready- fodders for animals	23
Food Stuff	24	Products of flour-grinding and cereals industry	11
Manufactured Goods	25	Real and artificial furs and goods made of them	43
Manufactured Goods	25	Umbrellas, canes, sitting- sticks, switches, whips and their parts	66
Manufactured Goods	25	Processed feather and down and goods made of them; artificial flowers; goods made of human hair	67
Manufactured Goods	25	Natural and cultivated pearl, precious and semiprecious stones, precious metals, metals plated with precious materials and goods made of them; bijouterie; coins	71
Manufactured Goods	25	Instruments, knives, spoons, forks made of non- precious metals; their parts made of non- precious metals	82
Manufactured Goods	25	Cinematograph and optical apparatus and devices, cameras, checking and measuring instruments, precision devices, surgical and medical instruments and apparatus; their parts and fittings	90
Manufactured Goods	25	Watches and their parts	91
Manufactured Goods	25	Musical instruments; their parts and fittings	92
Manufactured Goods	25	Weapons and ammunition; their parts and fittings	93
Manufactured Goods	25	Furniture; bedding, matrasses, matrass warps, cushions and analogous padded articles of furniture; lighting appliances and their parts, having not been nominated in another place, indicator boards and analogous goods; prefabricated building elements	94
Manufactured Goods	25	Toys, games and sports goods; their parts and fittings	95
Manufactured Goods	25	Various ready- made goods	96
Manufactured Goods	25	Works of art, collection articles and antiquary	97
Manufactured Goods	25	Other and Miscellaneous	

TRACECA-TNREG 9803
TRAFFIC and FEASIBILITY STUDIES
COUNTRY - CODE

ORDER by CODE

CODE	COUNTRY	
TRACECA COUNTRIES		
1	Armenia	*TRACECA COUNTRIES*
2	Azerbaijan	*TRACECA COUNTRIES*
3	Georgia	*TRACECA COUNTRIES*
4	Kazakstan	*TRACECA COUNTRIES*
5	Kyrgyzstan	*TRACECA COUNTRIES*
6	Moldova	*TRACECA COUNTRIES*
7	Mongolia	*TRACECA COUNTRIES*
8	Tadjikistan	*TRACECA COUNTRIES*
9	Turkmenistan	*TRACECA COUNTRIES*
10	Ukraine	*TRACECA COUNTRIES*
11	Uzbekistan	*TRACECA COUNTRIES*
ONE COUNTRY ONE CODE		
12	Afghanistan	*ONE COUNTRY ONE CODE*
13	Belarus	*ONE COUNTRY ONE CODE*
14	Bulgaria	*ONE COUNTRY ONE CODE*
15	China	*ONE COUNTRY ONE CODE*
16	Czech Republic	*ONE COUNTRY ONE CODE*
17	Hungary	*ONE COUNTRY ONE CODE*
18	Iran	*ONE COUNTRY ONE CODE*
19	Pakistan	*ONE COUNTRY ONE CODE*
20	Poland	*ONE COUNTRY ONE CODE*
21	Romania	*ONE COUNTRY ONE CODE*
22	Russia East Ural	*ONE COUNTRY ONE CODE*
23	Russia West Ural	*ONE COUNTRY ONE CODE*
24	Turkey	*ONE COUNTRY ONE CODE*
GROUP of COUNTRIES		
25	Austria	*Western and South Europe*
25	Belgium	*Western and South Europe*
25	France	*Western and South Europe*
25	Germany	*Western and South Europe*
25	Greece	*Western and South Europe*
25	Ireland	*Western and South Europe*
25	Italy	*Western and South Europe*
25	Luxemburg	*Western and South Europe*
25	Netherlands	*Western and South Europe*
25	Portugal	*Western and South Europe*
25	Spain	*Western and South Europe*
25	Switzerland	*Western and South Europe*
25	United Kingdom	*Western and South Europe*
26	Albania	*East of Germany*
26	Slovakia	*East of Germany*
26	Former Yugoslavia States	*East of Germany*
27	Denmark	*Scandinavian Countries*
27	Finland	*Scandinavian Countries*
27	Norway	*Scandinavian Countries*
27	Sweden	*Scandinavian Countries*
28	Estonia	*Baltic States*
28	Latvia	*Baltic States*
28	Lithuania	*Baltic States*
29	Bengladesh	*Indian South-continent*

ALPHABETIC ORDER by COUNTRY

CODE	COUNTRY
12	Afghanistan
33	African countries (all)
26	Albania
35	Argentina
1	Armenia
25	Austria
2	Azerbaijan
13	Belarus
25	Belgium
29	Bengladesh
35	Bolovia
35	Brazil
14	Bulgaria
31	Cambodia
34	Canada
34	Central America Countries
35	Chili
15	China
35	Columbia
16	Czech Republic
27	Denmark
35	Equator
28	Estonia
27	Finland
25	France
3	Georgia
25	Germany
25	Greece
35	Guiana
17	Hungary
29	India
31	Indonesia
30	Irak
18	Iran
25	Ireland
30	Israel
25	Italy
32	Japan
30	Jordan
4	Kazakstan
32	Korea (N & S)
5	Kyrgyzstan
31	Lao
28	Latvia
30	Libanon
28	Lithuania
25	Luxemburg
34	Mexico
6	Moldova
7	Mongolia

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TRAFFIC and FEASIBILITY STUDIES
COUNTRY - CODE

ORDER by CODE

29	India	*Indian South-continent*
29	Sri Lanka	*Indian South-continent*
30	Irak	*Middle East*
30	Israel	*Middle East*
30	Jordan	*Middle East*
30	Libanon	*Middle East*
30	Saudi Arabia	*Middle East*
30	Syria	*Middle East*
30	UAE	*Middle East*
31	Cambodia	*South-East Asia*
31	Indonesia	*South-East Asia*
31	Lao	*South-East Asia*
31	Myanmar/Burma	*South-East Asia*
31	Philippines	*South-East Asia*
31	Singapour	*South-East Asia*
31	Thailand	*South-East Asia*
31	Viet-Nam	*South-East Asia*
32	Japan	*Far-East Asia*
32	Korea (N & S)	*Far-East Asia*
32	Taiwan	*Far-East Asia*
33	African countries (all)	*AFRICA (All countries)*
34	Canada	*North America*
34	Central America Countries	*North America*
34	Mexico	*North America*
34	USA	*North America*
35	Argentina	*South America*
35	Bolovia	*South America*
35	Brazil	*South America*
35	Chili	*South America*
35	Columbia	*South America*
35	Equator	*South America*
35	Guiana	*South America*
35	Paraguay	*South America*
35	Peru	*South America*
35	Uruguay	*South America*
35	Venezuela	*South America*
35	West Indies	*South America*

ALPHABETIC ORDER by COUNTRY

31	Myanmar/Burma
25	Netherlands
27	Norway
19	Pakistan
35	Paraguay
35	Peru
31	Philippines
20	Poland
25	Portugal
21	Romania
22	Russia East Ural
23	Russia West Ural
30	Saudi Arabia
31	Singapour
26	Slovakia
25	Spain
29	Sri-Lanka
27	Sweden
25	Switzerland
30	Syria
8	Tadjikistan
32	Taiwan
31	Thailand
24	Turkey
9	Turkmenistan
30	UAE
10	Ukraine
25	United Kingdom
35	Uruguay
34	USA
11	Uzbekistan
35	Venezuela
31	Viet-Nam
35	West Indies
26	Yugoslavia

APPENDIX 5

MISCELLANEOUS

LIST of TASKS of MODULE A
RECIPIENTS of the PROGRESS REPORT

MODULE A: DATABASE and FORECAST

LIST of TASKS from the Technical Proposal (TP)

TP-A1 **Local Network for Data Collection**
Objective Develop local centers so as to build, populate and maintain the database and use it to undertake traffic forecasting activities

TP-A2 **Training and Regionalisation**
Objective Development of the institutional aspects of the database on an integrated, sustainable, regional basis
Technical development of the database and forecasting methodology by interaction with local experts so that it is created in a form which the local participants feel thay can adopt comfortably and use with ease

TP-A3 **Equipment Supply**
Objective Supply equipment packages to the beneficiary States sufficient to achieve the project objectives and ensure that the equipment is delivered and installed in due time to start working

TP-A4 **Database design, Population and Maintenance**
Objective Set up the design of the database, collection of additional data and setting out the procedures for the input of data and for controlling, approving and maintaining the database

TP-A5 **Design Forecasting Methodology**
Objective design and set up the procedures for traffic forecasting

TP-A6 **Documentation on database and forecasting methodology**
Objective Provide a general overview of the database and model as a management tool with regional relevance
provide comprehensive documentation of the database and traffic forecasting model

TP-A7 **Specific traffic forecast**
Objective develop the forecast scenarios and run the forecasts

TP-A8 **Feasibility study for the construction of the Chardzev bridge (Turkmenistan)**
Objective Review of the feasibility studies of Chardzev bridge

TP-A9 **Synoptics and Communications, Brochures, Conferences**
Objective Allow resources to develop communication on project findings at Conference athrough the Web site

TP-A10 **Overview of links to Europe and the Traceca neighbouring States**
Objective Produce an overview of traffic flows and identify existing physical or non-physical bottlenecks along the main routes linking the TRACECA region to EU

TP-A11 **Free data filling Station (Web site)**
Objecive Field offices to provide dadabase access and output upon request to other TACIS and TRACECA projects and to other donors through the development of the Website with data entry forms

RECIPIENTS of PROGRESS REPORT N°1

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Published June 2000

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