TRACECA Programme:
Regional traffic database and forecasting model

Database Manual

May 1997

European Union
Tacis Programme

TRACECA: Regional Traffic Database and Forecasting Model

(Project No. WS.93.05/05.01/B008)

Database Manual

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1. INTRODUCTION

1.1 The TACIS project TRACECA Traffic Forecasting Model, Project No. WW93.05/ 05.01/B008 provides computer-based planning tools for use in the eight TRACECA states for analysing transport and trade flows and developing forecasts.

1.2 A multi-modal transport model will provide the facility for forecasting future strategic trade traffic movements in the TRACECA Region. The input data to this model necessary to provide an adequate representation of base year traffic and transport supply characteristics is facilitated by a database. The TRACECA database is stored in MS ACCESS.

1.3 In creating the database a series of MS EXCEL spreadsheets containing the data sets have been assembled for each country.

1.4 These spreadsheet tables provided an intermediate step in the database construction. New data will be able to be entered directly to the MS ACCESS database. However, these spreadsheets themselves provide a useful reference point for data sets obtained during the course of the study.

1.5 This manual therefore comprises two further sections. Section 2 describes the scope of data obtained and the assembly of this data in spreadsheet tables.

1.6 Section 3 describes the structure and contents of the ACCESS database including the conversion of the EXCEL spreadsheet datasets into database tables.

2. MS EXCEL SPREADSHEET DATA FILES

SCOPE OF DATA

2.1 The data contained within the database comprises six broad types of information:

(i) : **Socio-economic indices and Import/Export Data**

- area and population by country and administration area;
- GDP by country;
- tons transported by mode by country;
- tons imported/exported by commodity (and by mode where available);
- tons exported by commodity group and mode from oblasts (administrative areas) with Kazakhstan.

(ii) : **Road Network Characteristics and Traffic**

- length, width, pavement type and pavement condition by road section;
- vehicles and trucks per day by road section (when observed).

(iii) : **Rail Network Characteristics and Traffic**

- length, signalling and control systems, gradients and loading standard by rail section;

- tons transported between internal (to country) administration area and between internal oblast and junction points by commodity group;
- tons transported by commodity by rail section;
- number and weight of containers loaded and unloaded;
- rail transit times.

(iv) : **Sea Port Characteristics and Traffic**

- depth, area, length and capacity by port facility;
- port tariffs for different services;
- cargo handling (unloading/loading) activity tons exported/ imported by commodity.
- sample of vessel movements by vessel type, imported/exported commodity type and weight and by part of origin/destination and unloading times.

(v) : **Airport Characteristics and Traffic**

- type of aircraft landed and based at airport;
- runway dimensions;
- availability of facilities for loading/unloading;
- goods despatched (tons) by internal, neighbouring country and international air route;
- turnover (billion ton kms);
- tariffs by type of route;

- unloading time;
- cargo (tons) by origin/destination airport;
- tariff distance.

(vi) : **Routeing Data**

- mode choice, transit time, transport time and distance by route section for given origin and destination for sample of freight movements;
- trucks per month across international borders for Turkmenistan and Kazakhstan.

2.2 In addition to these six groups of data, further information has been obtained from a variety of sources on transport tariffs. This information has been used as the basis for calculating costs for input to the transport model. Annex A provides an explanation of the data sources and cost calculations.

2.3 The six types of datasets obtained for inclusion in the TRACECA database have been assembled in a series of tables as listed below and as shown in Figure 2.1.

List of MS EXCEL Tables

Table I.1	Social and economic indices
Table I.2	Transportation by types of vehicles
Table I.3	Cargo flows data through the border (export) for 1995
Table I.4	Cargo flows data through the border (import) for 1995
Table I.5	Origin destination matrices by commodity.
Table II.1	Road network - characteristics and condition of road sections' and pavements (1994-95)
Table II.2	Road Network - traffic intensity
Table III.1	Railway network technical-operating characteristics
Table III.2	Cargoes correspondence (in types) within railway network

Table III.3	Railway network density of goods movement through railway network sections
Table III.4	Railway network annual shipment of containers from railway network terminals
Table III.5	Railway network transit time of passage of a train on the route
Table IV.1	Sea port's technical-operating characteristics
Table IV.2	Ports dues for provision of the sea port services
Table IV.3	Sea port loading-unloading works for 1995
Table IV.4	List of vessels unloaded in III quarter of 1995
Table IV.5	List of vessels loaded in III quarter of 1995
Table V.1	Information about airports' carrying capacity
Table V.2	Airport's technical and economic data
Table V.3	Cargoflows direction from/to airport
Table VI.I	Investigation of route cargoes
Table VI.2	Investigation of vehicles' transportation on borders

2.4 Where appropriate datasets have been structured to enable cross referencing and consistent identification of information.

2.5 For this reason all data sets are allocated to one or a group of spatial units which corresponds to the transport model definition. Three spatial units are used:

- zones : representing the spatial units for representing freight movements between different parts of the TRACECA region.

- nodes : representing road junctions, rail termini, rail junctions and ports and points at which significant changes in the standard of the transport supply varies.

- links : representing the road, rail and sea strategic transport route network as a series of discrete section of transport infrastructure or service lines connecting nodes.

2.6 The definition of the TRACECA region in terms of the three types of spatial unit is described below:

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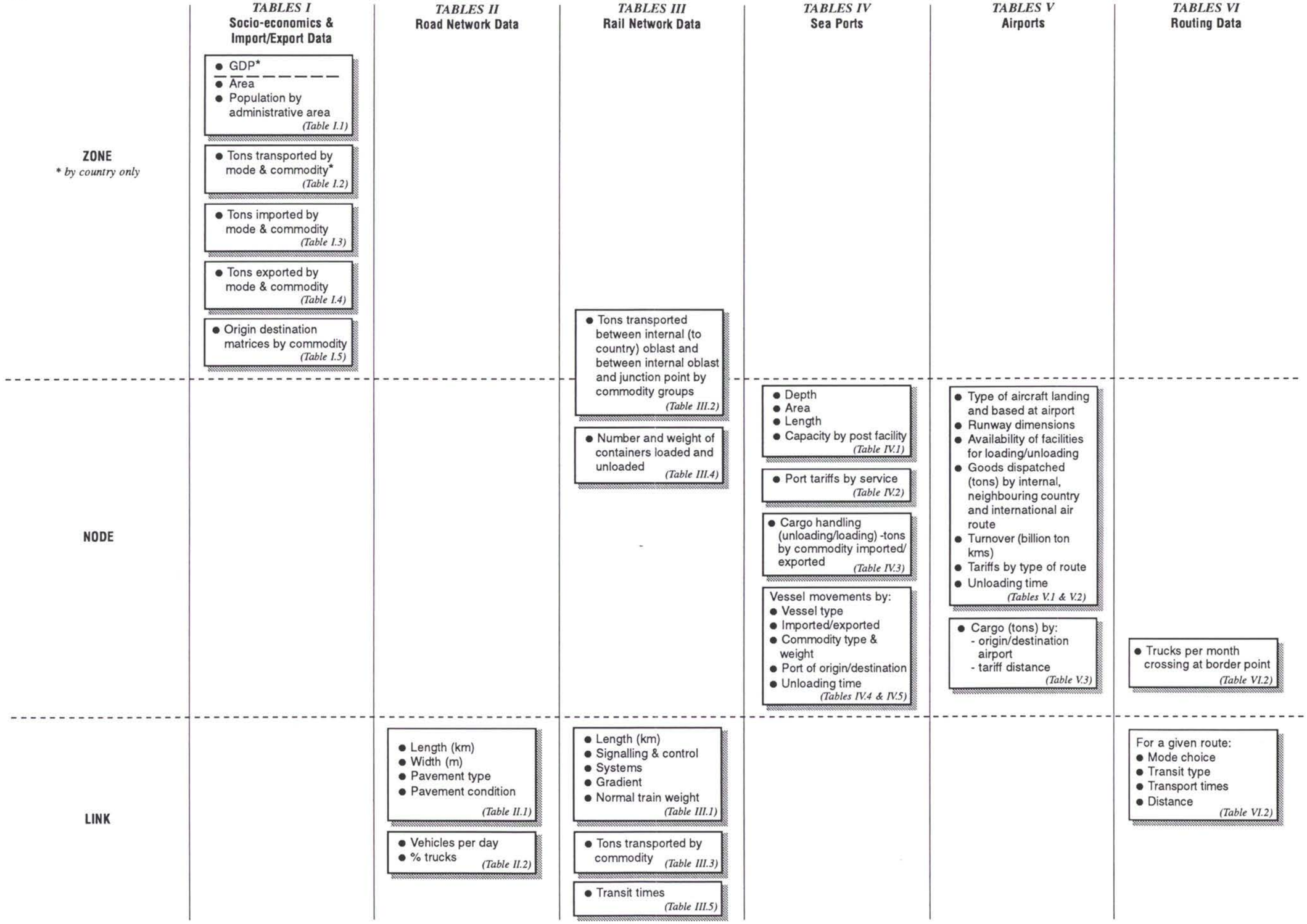


FIGURE 2.1

FIGURE 2.2
Zone Plan

FIGURE 2.2
Zone Plan

ZONES

2.7 The zoning system comprises 33 zones internal to the TRACECA region and 23 external zones. Figure 2.2 shows the zoning system.

2.8 Internal zones comprise whole countries or groups of administrative areas (Oblasts) within a country. External zones represent geographic regions for the rest of the world taking account of trading routes.

2.9 Each zone has a unique referencing number as show in Tables 2.1 and 2.2.

Table 2.1 - TRACECA Internal Zoning System

Country	Country Id	Zone Name	Zone Id	Oblast Name (Administrative Area)	Oblast Id
ARMENIA	1	Armenia	22	Shirak	8
				Erevan	1
				Tavush	11
				Syunik	9
				Kotaik	7
				Lori	6
				Geharkunik	5
				Armavir	4
				Ararat	3
				Aragacotn	2
				Vaiocdzor	10
AZERBAIJAN	2	Azerbaijan	23	Sheki	20
				Ali-Bairamly	17
				Naftalan	21
				Lenkoran	19
				Evlah	18
				Sumgait	15
				Gyanja	14

Country	Country Id	Zone Name	Zone Id	Oblast Name (Administrative Area)	Oblast Id
				Nahichevanskaya A. R.	12
				Baku	13
				Minchegaur	16
GEORGIA	3	Georgia	21	Racha-Letchumi	28
				Tbilisi	34
				Abchazeti	33
				Achara	32
				Svaneti	31
				Kaheti	22
				Samegrelo	29
				Imereti	27
				Samtche-Djavachetey	26
				Mtianeti	25
				Kvemo Kartley	24
				Shuda Kartley	23
				Guriya	30
KAZAKHSTAN	4	Zapadno-Kazakchstanskaya	151	Zapadno-Kazakchstanskaya	42
		Atyrausskaya	152	Atyrausskaya oblast	38
		Mangistausskaya	153	Mangistausskaya oblast	47
		Kustanaiskaya	161	Kustanaiskaya oblast	46
		Turgaiskaya	162	Turgaiskaya oblast	52
		Aktyubinskaya	163	Aktyubinskaya oblast	36
		Severo-Kazakchtanskaya	171	Severo-Kazakchtanskaya	49
		Kokchetavskaya	172	Kokchetavskaya oblast	45
		Pavlodarskaya	173	Pavlodarskaya oblast	48
		Akmolinskaya	181	Akmolinskaya oblast	35
		Karagandinskaya	182	Karagandinskaya oblast	43

Country	Country Id	Zone Name	Zone Id	Oblast Name (Administrative Area)	Oblast Id
		Djezkazganskaya	183	Djezkazganskaya oblast	41
		Semipalatinskaya	184	Semipalatinskaya oblast	50
		Vostochno-Kazakchstanskaya	185	Vostochno-Kazakchstanskaya	39
		Taldy-Kurganskaya	191	Taldy-Kurganskaya oblast	51
		Almatinskaya	192	Almatinskaya oblast	37
		Kzyl-Ordinskaya	201	Kzyl-Ordinskaya oblast	44
		Yujno-Kazakchstanskaya	202	Yujno-Kazakchstanskaya	53
		Djambul'skaya	203	Djambul'skaya oblast	40
KYRGHYZSTAN	5	Kyrghyzstan	4	Djelal-Abadskaya oblast	54
				Issyk-Kulskaya oblast	55
				Narynskaya oblast	56
				Oshskaya oblast	57
				Talasskaya oblast	58
				Chuiskaya oblast	59
				Bishkek	60
TADJIKISTAN	6	Leninabadskaya and Districts of Republican Submission	1	Districts of republican submission and Dushanbe	61
				Leninabadskaia oblast	62
		Hatlonskaya	2	Hatlonskaia oblast	63
		Gorno-Badahshanskaia	3	Gorno-Badahshanskaia autonomous oblast	64
TURKMENISTAN	7	Cardjouskaya and Maryiskaya	12	Chardjouskaya oblast	65
				Maryiskaya oblast	66
		Tashanakaya and Ashgabadskaya	13	Tashanskaya oblast	67
				Ashgabadskaya oblast	68
		Krasnovodskaya	14	Krasnovodskaya oblast	69
UZBEKISTAN	8	Andijanskay, Namanganskaya and Ferganskaya	7	Ferganskaya oblast	80

Country	Country Id	Zone Name	Zone Id	Oblast Name (Administrative Area)	Oblast Id
				Andijanskaya oblast	70
				Namanganskaya oblast	75
		Djizakskaya, Syrdarinskaya and Tashkentskaya	8	Tashkentskaya oblast	79
				Djizakskaya oblast	72
				Syrdar'inskaya oblast	78
		Bucharskaya (part of), Chorezmskaya and Rep. of Karakalpakstan	9	Navoiiskaya oblast	74
				Republic of Karakalpakstan	82
				Chorezmskaya oblast	81
		Bucharskaya (part of) and Samarkandskaya	10	Samarkandskaya oblast	76
				Bucharskaya oblast	71
		Kashkadar'inskaya and Surchandar'inskaya	11	Kashkadar'inskaya oblast	73
				Surchandar'inskaya oblast	77

Table 2.2 - TRACECA External Zoning System

Country	Country Id	Zone Name	Zone Id
EXTERNAL	9	South Russia	24
		North Russia	26
		North Russia	27
		North Russia	28
		Ukrane	29
		China	30
		Indian Sub Cont.	31
		Iran, Gulf	32
		Turkey	33

Country	Country Id	Zone Name	Zone Id
		N-Western Europe	34
		Southern Europe	35
		Central Europe	36
		Baltic States	37
		N-Central Europe	38
		Northern Europe	39
		Middle East	40
		East Africa	41
		West Africa	42
		East Asia Developing	43
		East Asia Industrial	44
		East Coast America	45
		West Coast America & Pacific	46

NODES AND LINKS

2.10 The road, rail and maritime networks in the TRACECA region and represented as a series of nodes connected by links representing the main modal routes.

2.11 These nodes and links provide the means to store attributes describing the transport supply and the volume of traffic using different parts of the network.

2.12 Each node has a unique reference number and map co-ordinates in order to reference its precise geographical location. Links are defined as a connection between two nodes (a node, b node). Nodes stored in a file within both the database and within the traffic forecast model software SATURN. Plots of the road and rail and maritime networks produced using SATURN graphics are presented in Figures 2.3 and 2.4 (these are attached as plots at the end of this chapter).

2.13 Key nodes for which information is contained within the database are shown in Annex B.

2.14 A full list of nodes, their names and their coordinates by country for road and rail networks is given in Annex C.

COMMODITIES

2.15 For certain data sets trade and transport flows are given by commodity groups. The import/export trade data is provided for 21 categories of commodity. Rail flows are sub-divided into 9 different categories. Annex D contains a table of the main commodity groups used in the zone based import and export data and shows their relationship to the sub-commodities which are used by the rail authorities.

MODES

2.16 In certain tables transport modes are given classification numbers. A list of these is provided in Annex E.

TRACECA Regional Traffic Model - Road Network, Caucasus

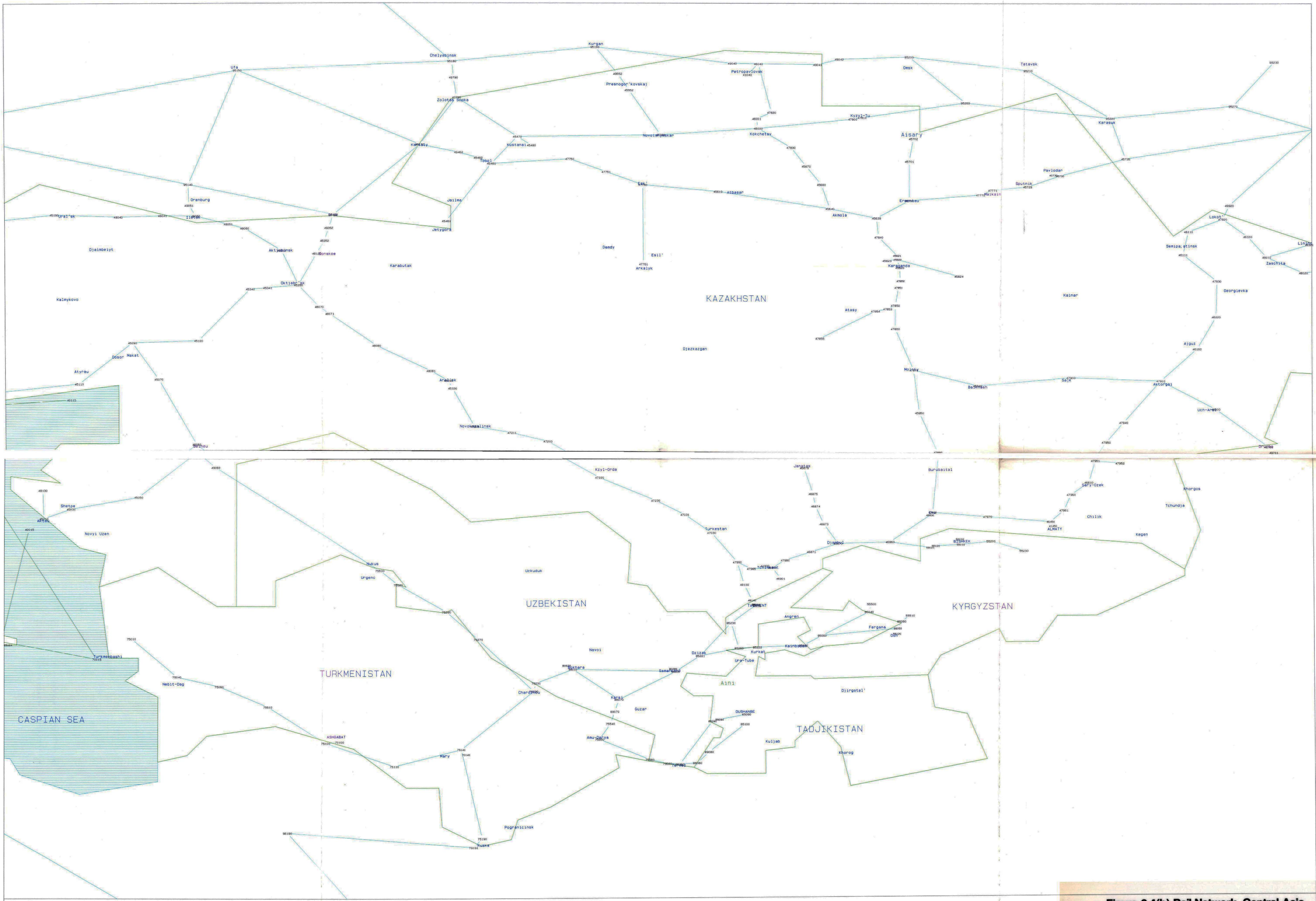
Figure 2.3(a) Road Network, Caucasus

TRACECA Regional Traffic Model - Road Network, Central Asia

Figure 2.3(b) Road Network, Central Asia

TRACECA Regional Traffic Model - Rail Network, Caucasus

Figure 2.4(a) Rail Network, Caucasus



TRACECA Regional Traffic Model - Rail Network, Central Asia

Figure 2.4(b) Rail Network, Central Asia

3. MS ACCESS DATABASE

STRUCTURE OF THE DATABASE

3.1 A relational database is a means of storing information such that a user has a convenient means of accessing information. The data is stored in a series of tables which comprise of records (like a spreadsheet row) and is divided into columns called fields. These fields form elements of the record (e.g. length, speed etc) and each record has a cells under these fields (similar to a conventional spreadsheet) which hold the elements of data. Relationships are created between these tables by establishing links to common fields (which contain common data) within other tables. Such a structure of tables and links is called a 'schema'. Figure 3.1 illustrates the database schema used for the TRACECA data sets.

3.2 In the TRACECA database data is stored as either:

(i) A number (integer or real);

(ii) A text string (up to 255 characters);

(iii) An embedded Microsoft Excel Spreadsheet (accessed by double clicking on the data cell).

3.3 Some of the table fields (or combinations of fields) must be unique. These are called primary keys and are shown as bold text in Figure 3.1. An example of a primary key is the ANODE field in the NODE BASE table. Only one record (row of data elements) may exist for this ANODE. This same rule also applies to combinations of fields that form a unique reference such as a unique network link. A one-way link would therefore be stored as an ANODE-BNODE pair and a BNODE-ANODE pair.

3.4 To retrieve data from the database the user must perform a query. Conventionally the native database language 'SQL' would be used to perform a query but MS ACCESS incorporates user friendly tools for generating queries. An example of a query would

be to extract say 'the flow data for each link in a specific zone greater than 100 vehicles. This could either be done by converting the query into SQL or via the MS ACCESS query wizard. The result in either case would be a new table containing the link records with their corresponding flow data. This could then be:

(i) formatted using the MS ACCESS reports tool;

(ii) exported into an MS WORD table;

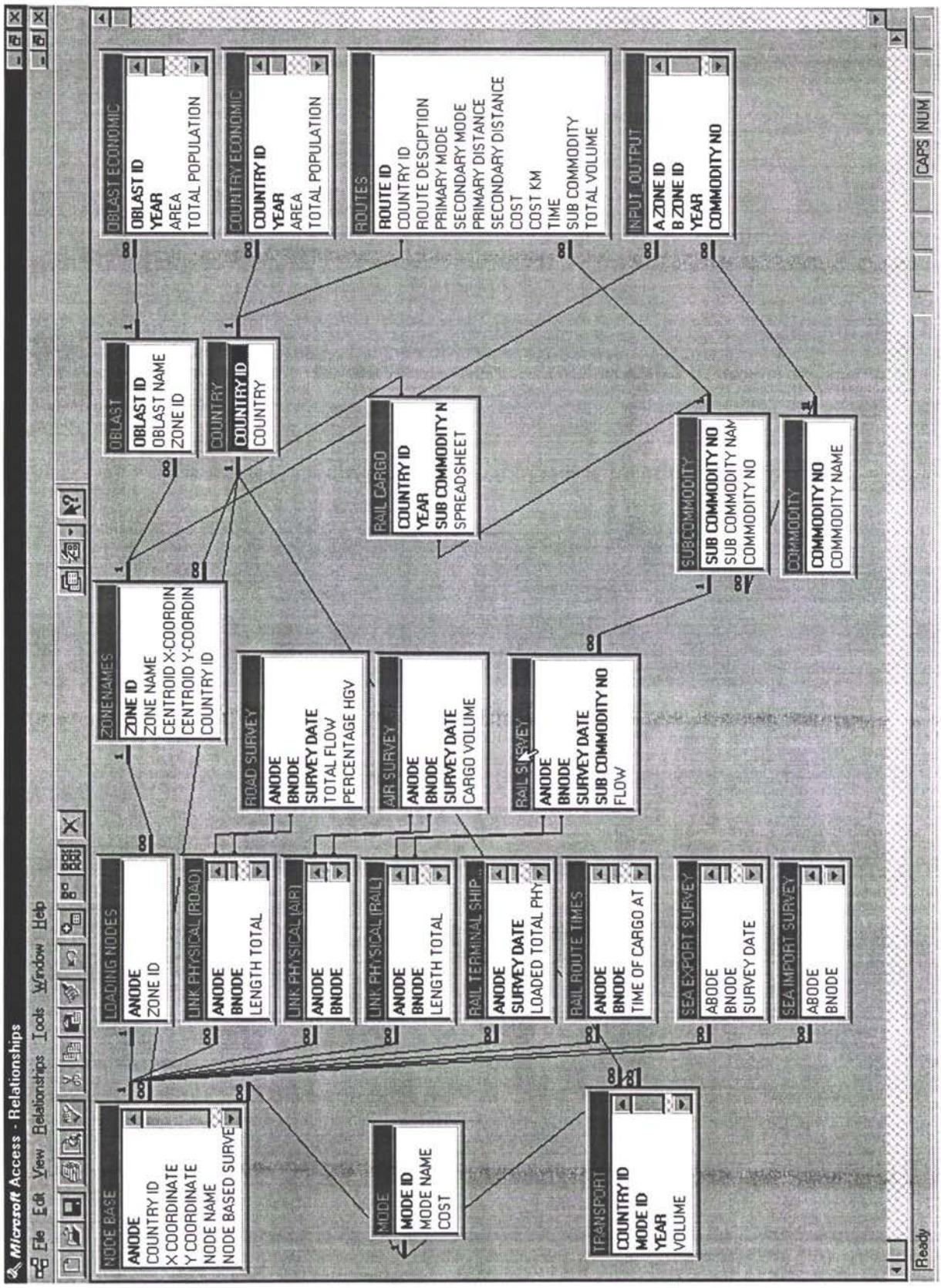
(iii) exported into MS EXCEL for further analysis;

(iv) dumped as a text file for use in the traffic modelling software etc.

3.5 The practice of generating queries to extract the required data can sometimes be complex requiring queries of queries and it is recommended that a new user spends some time consulting the MS ACCESS manual. An example query has been set out and worked in paragraph 3.9.

3.6 Appending and updating the database is simpler. The user simply edits or appends the appropriate table(s) although in some instances the user may be unable to add certain items of data. This is usually because the new data conflicts with integrity of a link to another table e.g. the user tries to input an unknown transport MODE ID in NODE BASE's MODE ID field. The solution would be to add the MODE ID to the MODE table first. Some thought must therefore be given before adding new data.

Figure 3.1 - Database Schema



DETAILED DATABASE CONTENTS

3.8 Table 3.1 list the contents of all of the tables within the database schema shown in Figure 3.1. Together these tables hold all of the TRACECA data. A correspondence between these database tables and the EXCEL data sets is presented in Annex F.

Table 3.1 - List of MS ACCESS Tables and Their Contents

MS ACCESS Table	Fields within the table	Comments
CATAGORY	**CATEGORY ID**	
	CATEGORY DESCRIPTION	
	CAPACITY	
COMMODITY	**COMMODITY NO**	The main 21 categories of cargo and their associated code.
	COMMODITY NAME	
COUNTRY	**COUNTY ID**	The 8 countries and their codes used in the database. Note 9 = outside model area
	COUNTRY NAME	
COUNTRY ECONOMIC	**COUNTRY ID**	Contains aggregated Oblast socio-economic data for the 8 countries in the TRACECA area.
	YEAR	
	AREA	
	TOTAL POPULATION	
	CITY POPULATION	
	GNP PER CAPITA	
	GDP PER CAPITA	
	EMPLOYMENT RATE	
	CAR OWNERSHIP RATE	
OBLAST ECONOMIC	**OBLAST ID**	Contains socio-economic data for the 82 Oblasts in the TRACECA area.
	YEAR	
	AREA	
	TOTAL POPULATION	
	CITY POPULATION	
	GNP PER CAPITA	

MS ACCESS Table	Fields within the table	Comments
	GDP PER CAPITA	
	EMPLOYMENT RATE	
	CAR OWNERSHIP RATE	
	IMPORT EXPORT SPREADSHEET	
INPUT_OUTPUT	**A ZONE ID**	This table contains the bulk of the TRACECA data. It contains a flow of commodity between all zones.
	B ZONE ID	
	YEAR	
	COMMODITY NO	Note: This data has been pre-processed so that the reported total imports and total reported exports between zones balance.
	IMPORT EXPORT FLOW	
LINK PHYSICAL (RAIL)	• **ANODE**	This table contains the physical attributes of rail links within the model.
	• **BNODE**	
	• LENGTH TOTAL	
	• LENGTH 2 WAY	
	• LENGTH 1 WAY	
	• DISPATCH BOARD	
	• AUTOMATIC BLOCKING	
	• SEMIAUTOMATIC BLOCKING	
	• OTHERS	
	• TRACTION TYPE	
	• LENGTH ENTRANCE WAYS	
	• LEADING GRADIENT (A TO B)	
	• LEADING GRADIENT (B TO A)	
	• FREIGHT (A TO B)	
	• FREIGHT (B TO A)	
	• PASSENGER (A TO B)	
	• PASSENGER (B TO A)	
LINK PHYSICAL (ROAD)	• **ANODE**	This table contains the physical attributes of road links within the model.
	• **BNODE**	

MS ACCESS Table	Fields within the table	Comments
	• LENGTH TOTAL	
	• LENGTH MOUNTAIN	
	• WIDTH ROADBED	
	• WIDTH PAVEMENT	
	• LENGTH CAPITAL PAVEMENT	
	• LENGTH FACILITATED PAVEMENT	
	• LENGTH OTHER PAVEMENT	
	• LENGTH GOOD PAVEMENT PLANE	
	• LENGTH SATISFACTORY PAVEMENT PLANE	
	• LENGTH UNSATISFACTORY PAVEMENT PLANE	
LOADING NODES	• **ANODE** • ZONE ID	Contains the loading points from the zones on to the network.
MODE	• **MODE ID** • MODE NAME • COST	This table contains the mode and associated mode code used with the database.
NODE BASE	• **ANODE** • X CO-ORDINATE • Y CO-ORDINATE • NODE NAME • NODE BASED SURVEY INFORMATION • MODE ID	This table is the one of the most important tables in the database. It hold and exhaustive list of all nodes within the model along with the nodes attributes. Some of the nodes contain a reference in the NODE BASED SURVEY INFORMATION field. This reference is stored an embedded EXCEL spreadsheet which contains node specific information e.g. the capacity of a seaport.
OBLAST	• **OBLAST ID** • OBLAST NAME • ZONE ID	Contains the names and codes of the Oblasts and their association with the model zones.
RAIL CARGO	• **COUNTRY ID** • **YEAR** • **SUB COMMODITY NO**	This table contains embedded EXCEL spreadsheets which hold external/internal oblast/zone commodity flows.

MS ACCESS Table	Fields within the table	Comments
	• SPREADSHEET	
RAIL ROUTE TIMES	• **ANODE** • **BNODE** • TIME OF CARGO AT END OF SECTION • TIME OF CARGO AT START OF SECTION • TIME OF PASSENGER AT END OF SECTION • TIME OF PASSENGER AT START OF SECTION • RESERVE CARRYING CAPACITY	
RAIL SURVEY	• **ANODE** • **BNODE** • **SURVEY DATE** • **SUB COMMODITY NO** • FLOW	**One way** import and export flows of sub-commodity on links along the railway network for survey years.
RAIL TERMINAL SHIPMENTS	• ANODE • SURVEY DATE • LOADED TOTAL PHYSICAL UNITS • LOADED TOTAL AVERAGE WEIGHT • LOADED LARGE PHYSICAL UNITS • LOADED LARGE AVERAGE WEIGHT • LOADED MEDIUM PHYSICAL UNITS • LOADED MEDIUM AVERAGE WEIGHT • LOADED SPECIAL PHYSICAL UNITS • LOADED SPECIAL AVERAGE WEIGHT • UNLOADED TOTAL PHYSICAL UNITS • UNLOADED TOTAL AVERAGE WEIGHT • UNLOADED LARGE PHYSICAL UNITS • UNLOADED LARGE AVERAGE WEIGHT • UNLOADED MEDIUM PHYSICAL UNITS • UNLOADED MEDIUM AVERAGE WEIGHT	This table contains loading and unloading data for the rail terminal

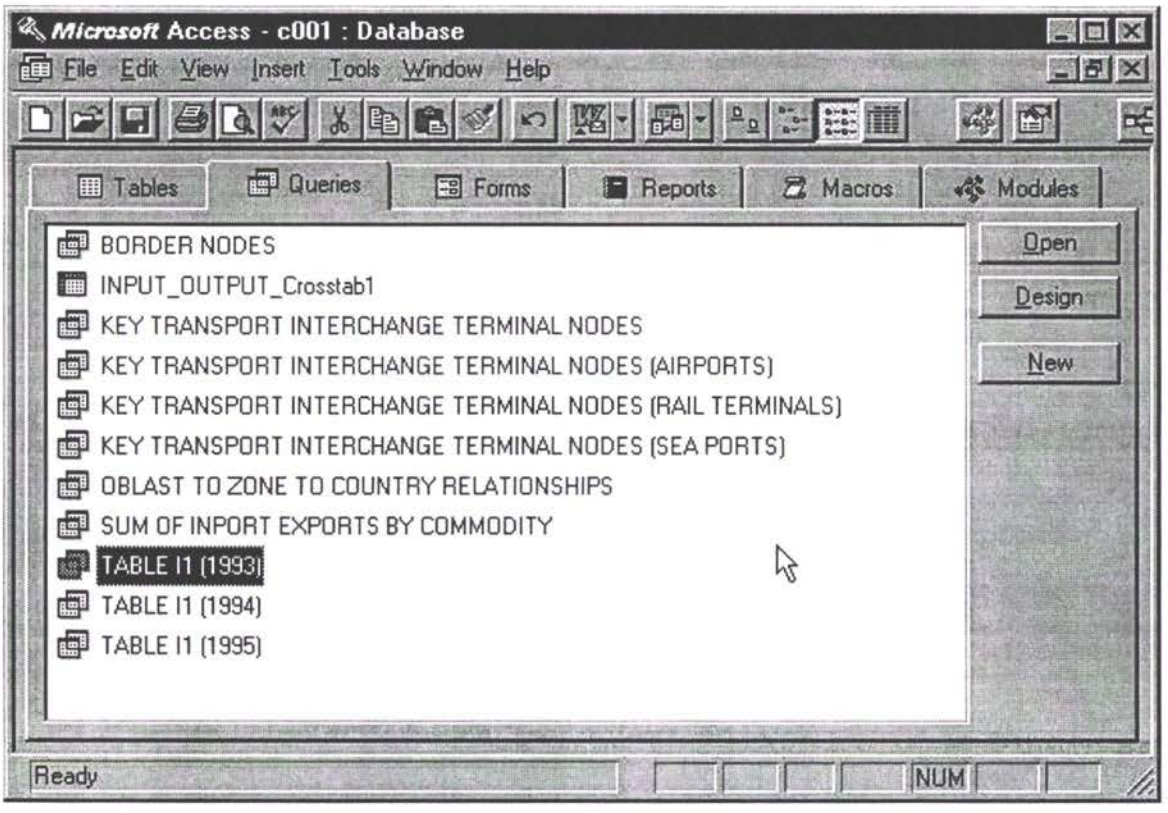
MS ACCESS Table	Fields within the table	Comments
	• UNLOADED SPECIAL PHYSICAL UNITS	
	• UNLOADED SPECIAL AVERAGE WEIGHT	
ROAD SURVEY	• **ANODE** • **BNODE** • **SURVEY DATE** • TOTAL FLOW • PERCENTAGE HGV	**Two way** total and HGV flows on links along the railway network for survey years.
ROUTES	• **ROUTE ID** • COUNTRY ID • ROUTE DESCRIPTION • PRIMARY MODE • SECONDARY MODE • PRIMARY DISTANCE • SECONDARY DISTANCE • COST • COST KM • TIME • SUB COMMODITY • TOTAL VOLUME	ROUTE ID is a unique reference assigned to different routes which are made of combinations of links
SEA EXPORT SURVEY	• ANODE • BNODE • VESSEL • VESSEL TYPE • SUB COMMODITY ID • WEIGHT • CONTAINERS • WAITING TIME	Export flows by sub commodity between seaports for survey years.
SEA IMPORT SURVEY	• ANODE • BNODE	Export flows by sub commodity between seaports for survey years.

MS ACCESS Table	Fields within the table	Comments
	• VESSEL • VESSEL TYPE • SUB COMMODITY ID • WEIGHT • CONTAINERS • WAITING TIME	
SUB COMMODITY	• **SUB COMMODITY ID** • SUB COMMODITY NAME	Commodities used in the rail data. These form subsets of the main 21 categories.
TRANSPORT	• **COUNTRY ID** • **MODE ID** • **YEAR** • VOLUME • TURNOVER	This table contains the volume and turnover for the 4 transport modes by country.
ZONENAMES	• **ZONE ID** • ZONE NAME • CENTROID X-COORDINATE • CENTROID Y-COORDINATE • COUNTRY ID	An exhaustive list of the 56 zones used in the TRACECA model along with the model centroid co-ordinates and country associations.

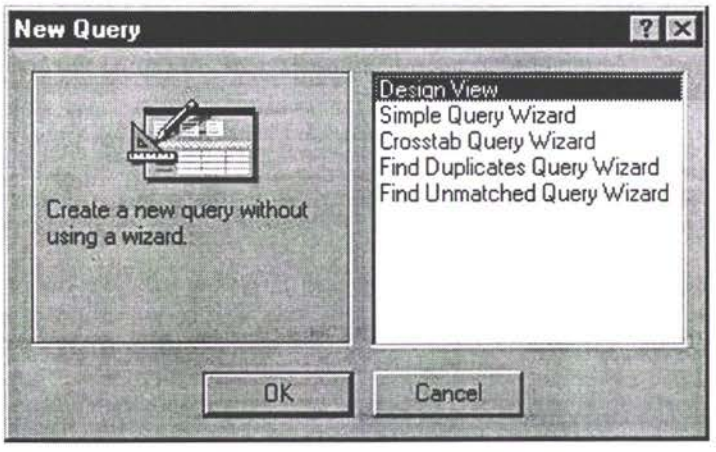
Example Queries

3.9 To demonstrate the methodology for conducting a query the following example has been constructed. If the user wants to reproduce this example then a copy of the MS ACCESS running with the TRACECA database will be necessary.

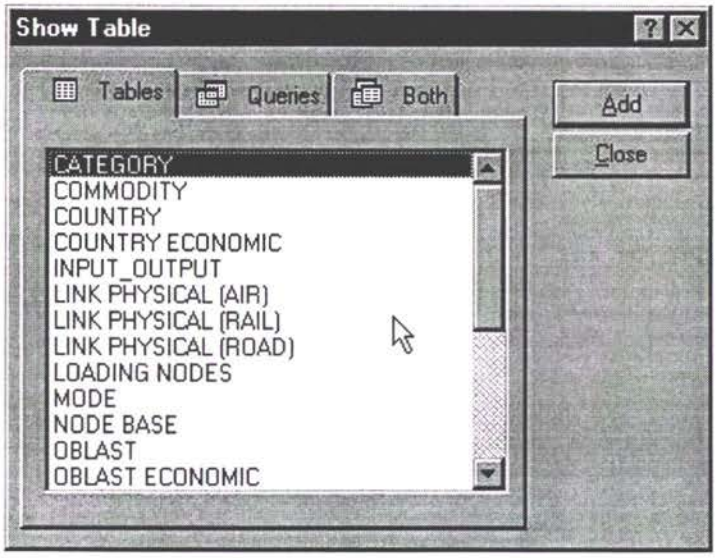
Query: "Construct a query to construct a table containing the *total population* and *area* for all *oblasts* in the *country* **Armenia** in **1993**. Also calculate the *population per unit area*."



3.11 Open the TRACECA database using MS ACCESS and select the tag marked 'Queries'. Now click the 'New' button.

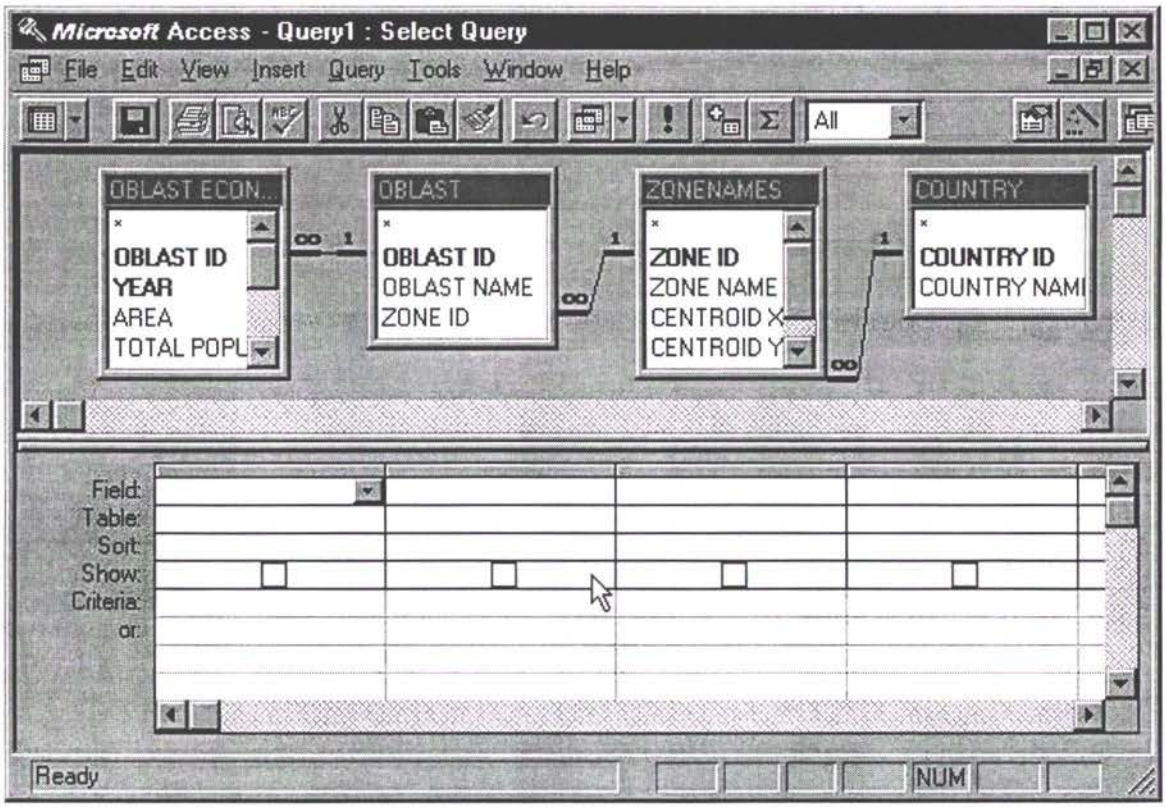


3.13 From the 'New Query' window select 'Design View' and click 'Ok'.

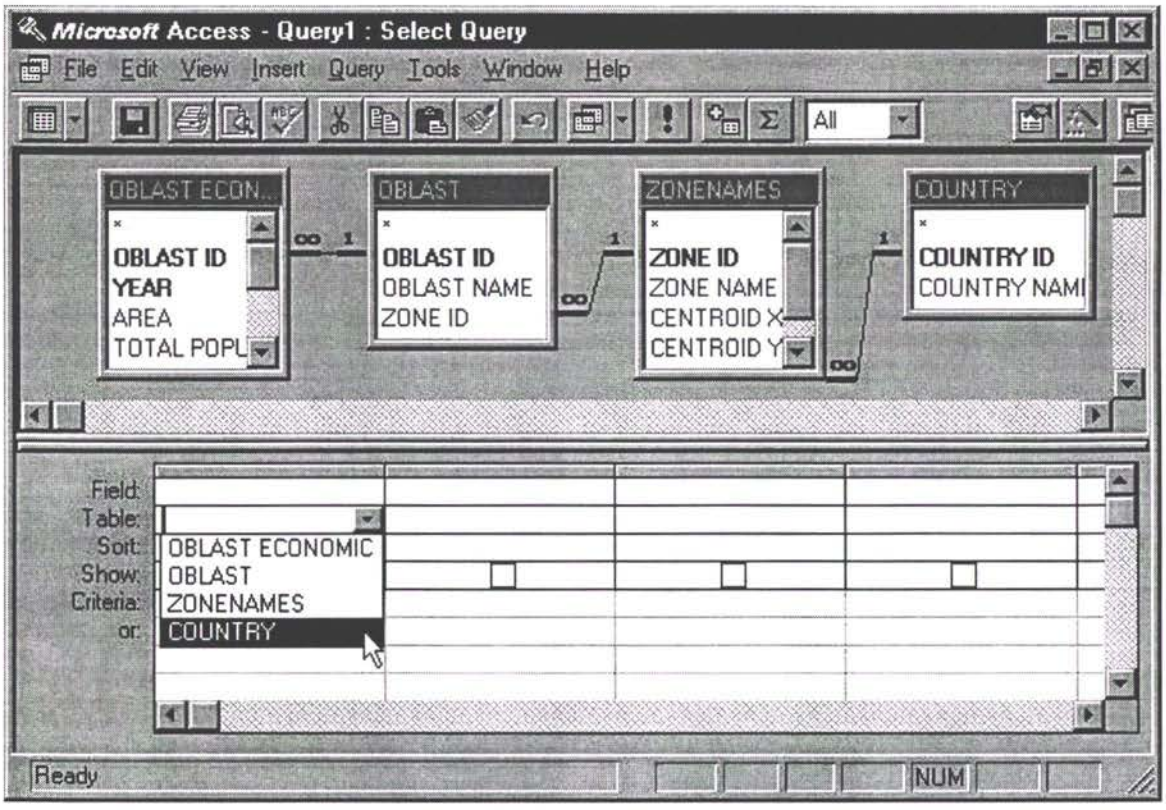


3.15 From the 'Show Table' window select the tables required for the query by double clicking the table name. To select the appropriate tables the user will need to become familiar with the database schema which includes understanding the relationships between the tables.

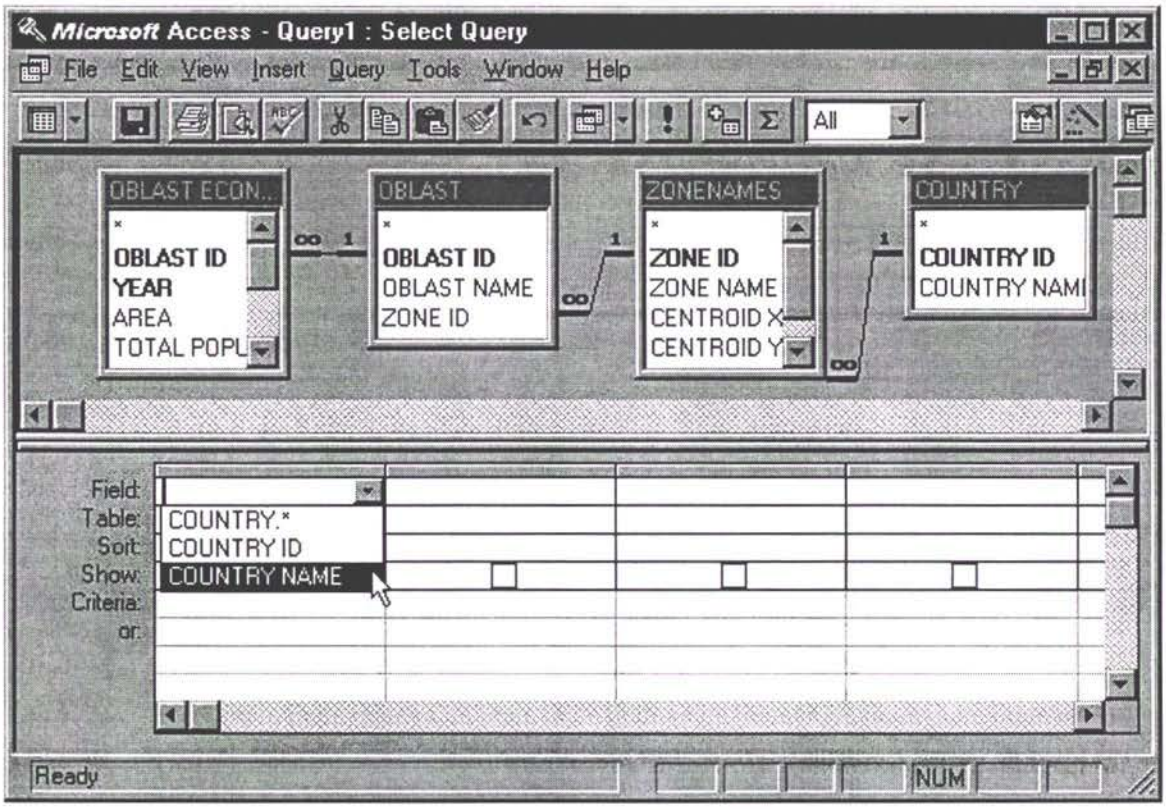
3.16 Once all the required tables are selected return to the main 'Query' menu.



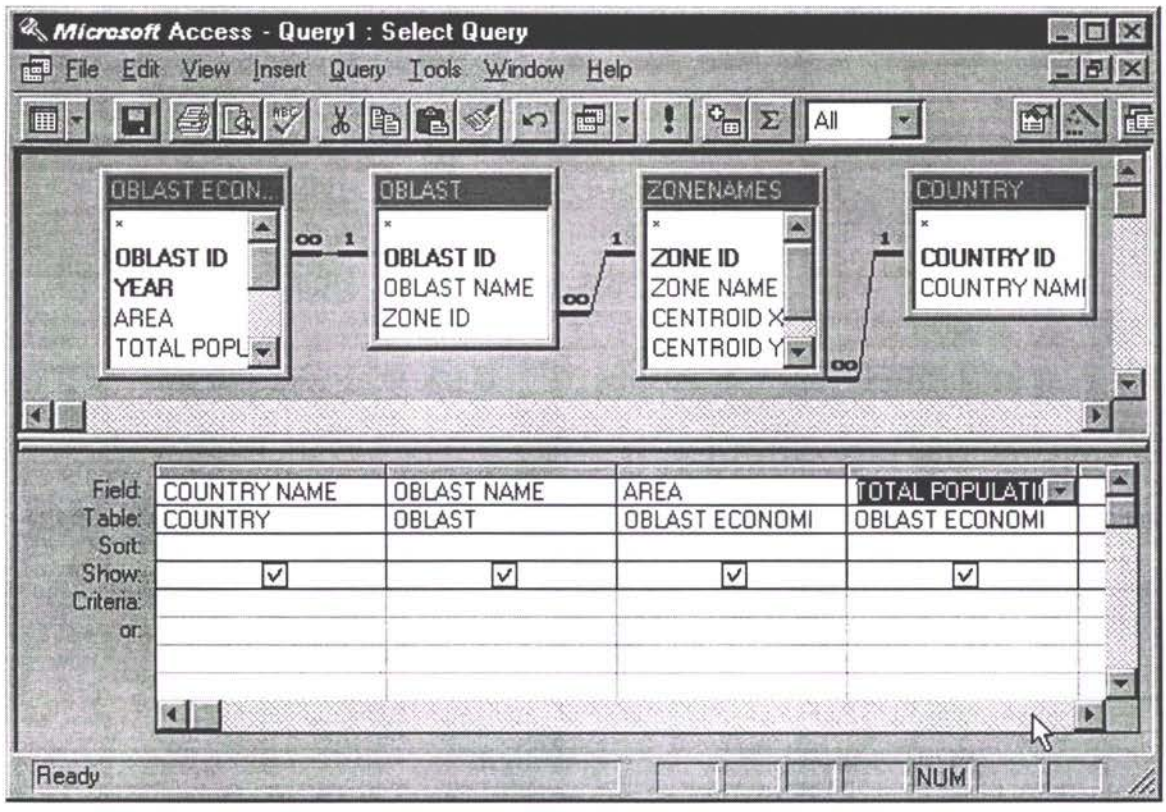
3.18 You will notice that all the table links are automatically inherited from the database schema.



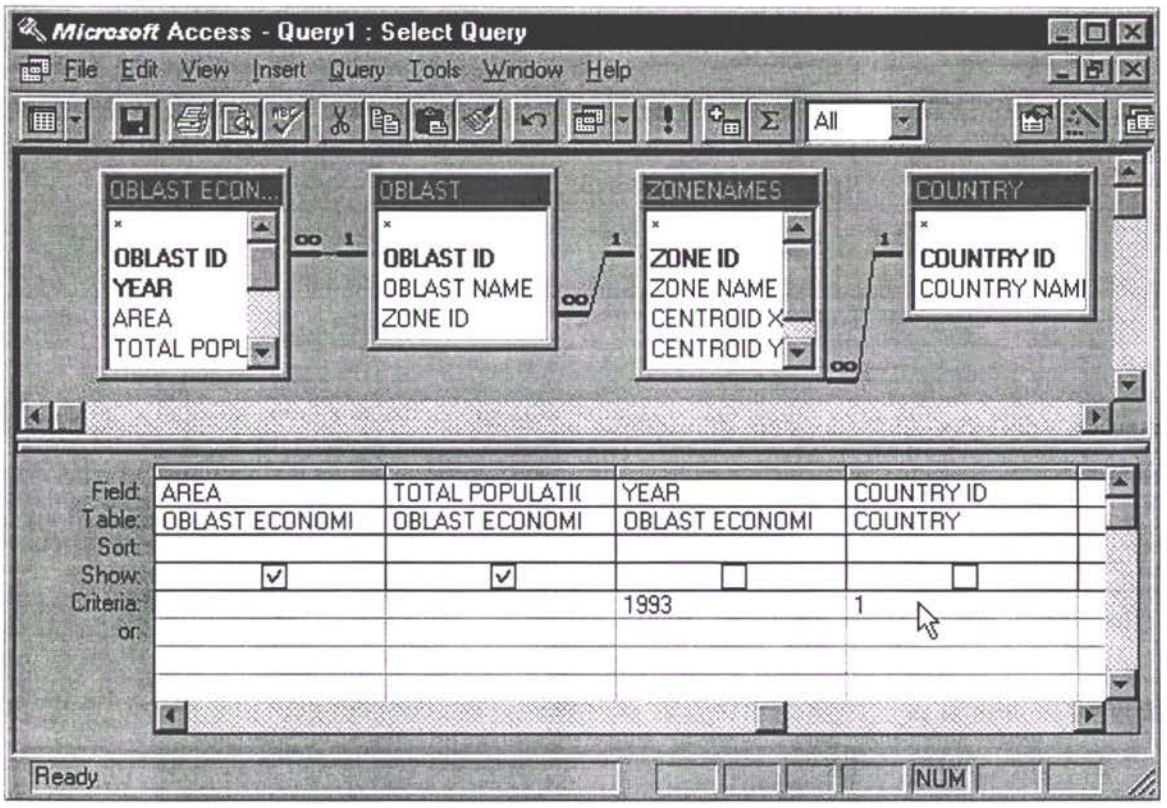
3.20 Now that the tables have been selected the user must design the query in the query design grid. The query design grid allows the user to select the data fields to form the query from the available tables. Firstly select the table from the drop down box on the line marked 'Table' (e.g. COUNTRY) and secondly select the 'Field' (e.g. COUNTRY NAME) in the same way.



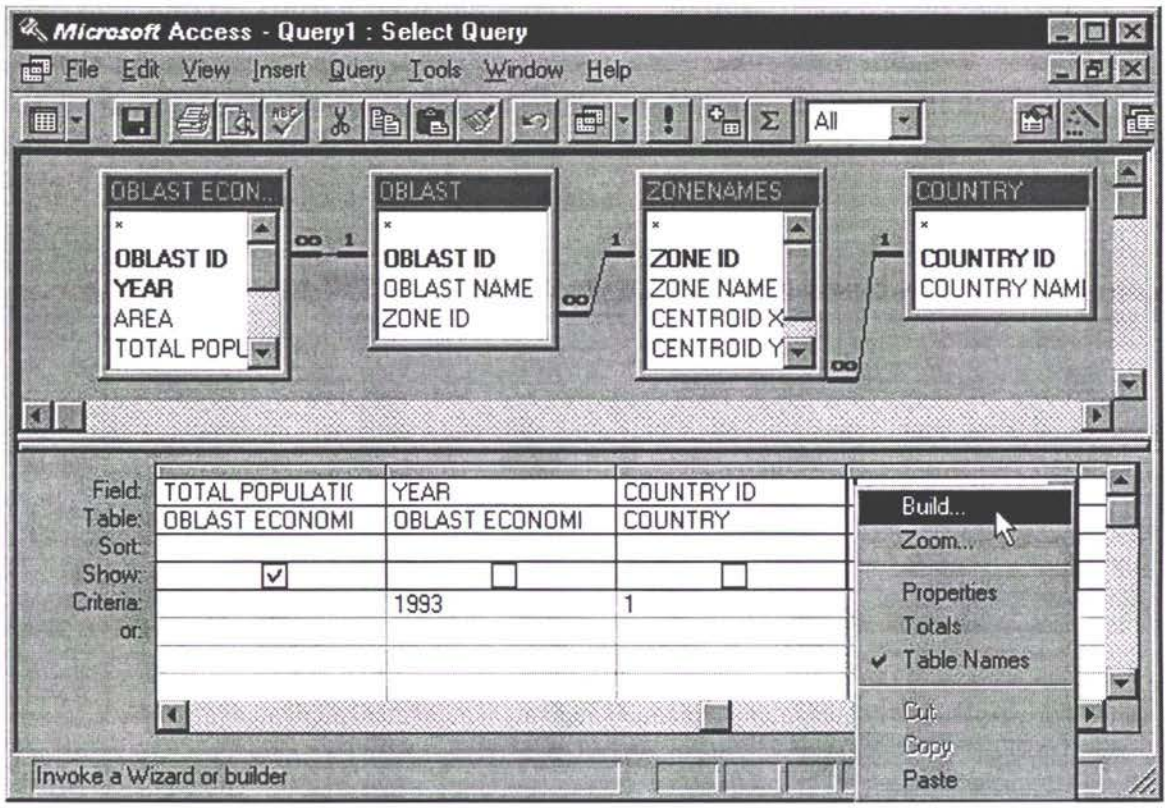
3.22 Repeat the previous step in a different columns of the query design grid until the whole query has been designed. Notice that the 'check boxes' on the line marked 'Show' are all checked. The 'checked' data fields are normally the data which you wish to extract from the query (highlighted in italic in the Query). These indicate that the data from these columns will be visible in the resultant table.



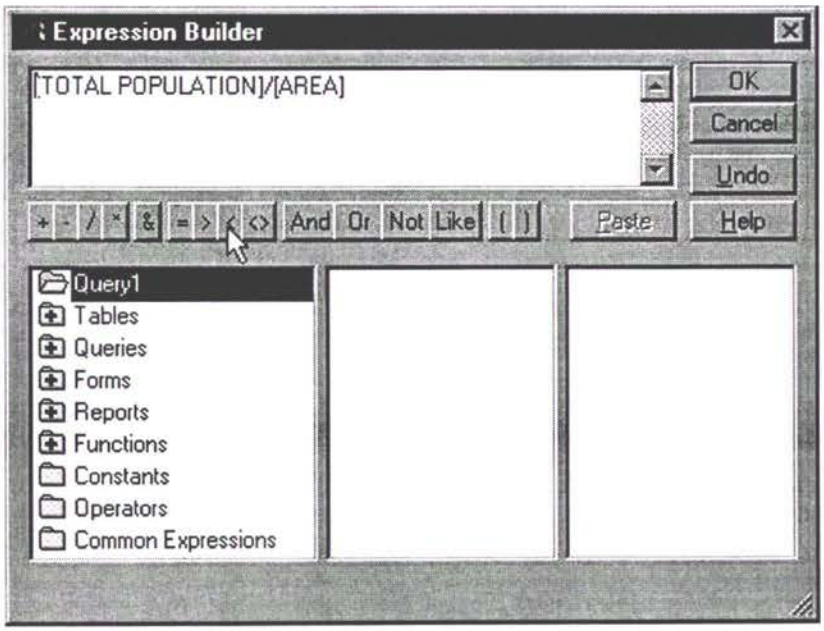
3.24 The next step is to specify you criteria for the query. In this example the criteria is that the survey data comes from the year 1993 and that the country is Armenia (highlighted in bold in the Query). Notice that these boxes are not 'checked' as they are not required in the output.



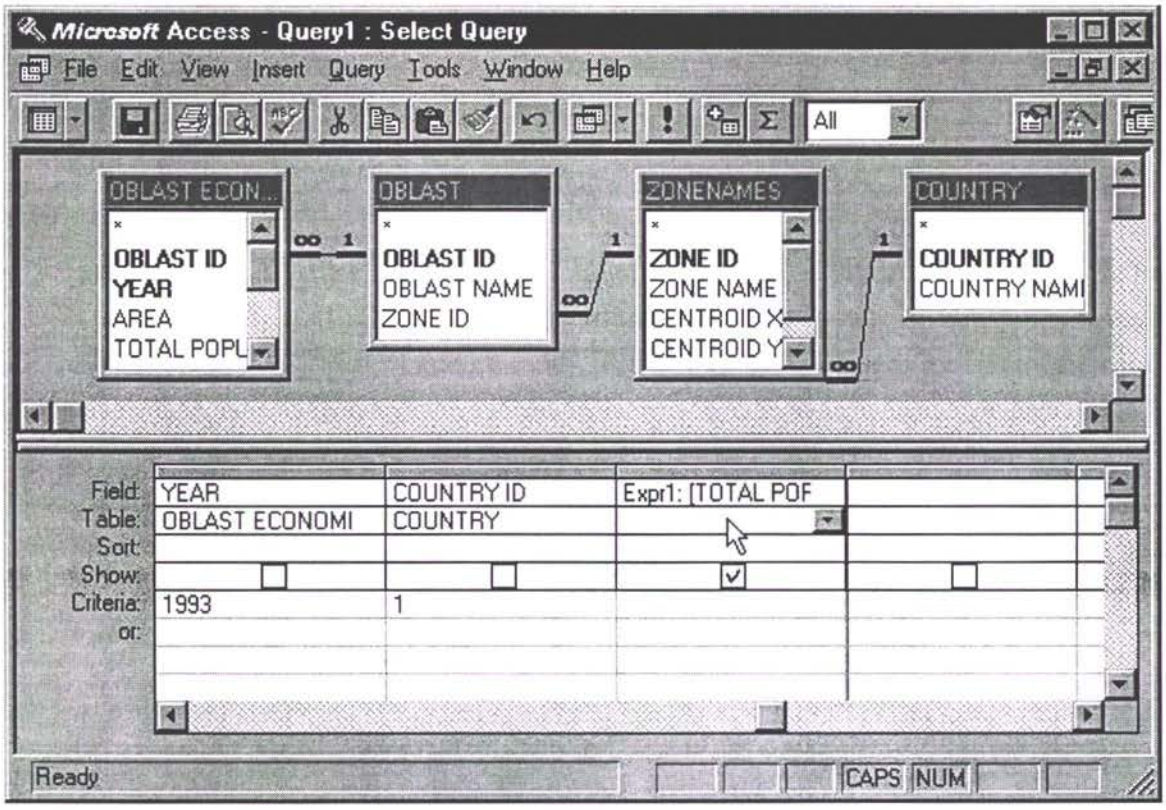
3.26 Finally we need to incorporate our small calculation. Calculations are input via the 'Expression Builder'. To select the 'Expression Builder' simply right-click the mouse on a new column in the query design grid and select 'Build…'.



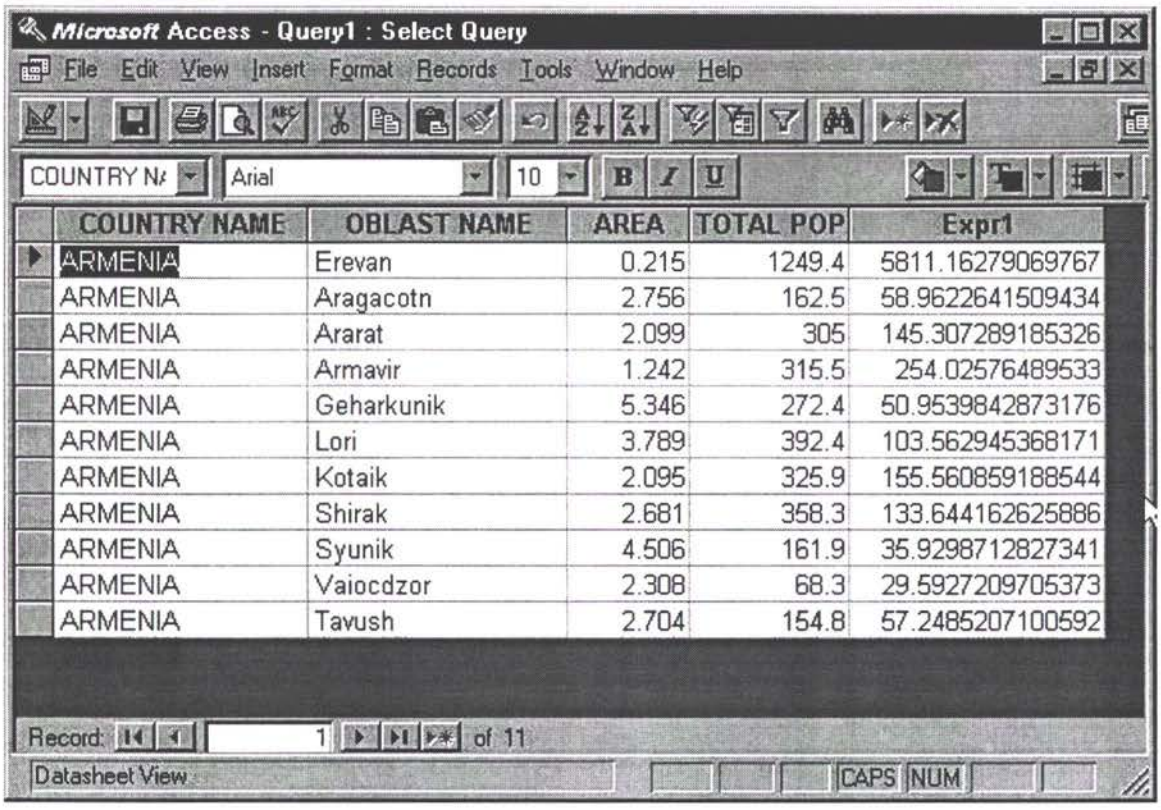
3.28 In the 'Expression Builder' window type in the forula of the expression e.g. [TOTAL POPULATION]/[AREA]. Note the use of square brackets to distinguish a field and click 'Ok'.



3.30 As we wish the expression to form part of the output the user must ensure that the 'Show' checkbox is 'checked'.



3.32 Finally, using the mouse, select 'View' and 'Datasheet' from the main menu. This will display the results of you query. Congratulations.



COUNTRY NAME	OBLAST NAME	AREA	TOTAL POP	Expr1
ARMENIA	Erevan	0.215	1249.4	5811.16279069767
ARMENIA	Aragacotn	2.756	162.5	58.9622641509434
ARMENIA	Ararat	2.099	305	145.307289185326
ARMENIA	Armavir	1.242	315.5	254.02576489533
ARMENIA	Geharkunik	5.346	272.4	50.9539842873176
ARMENIA	Lori	3.789	392.4	103.562945368171
ARMENIA	Kotaik	2.095	325.9	155.560859188544
ARMENIA	Shirak	2.681	358.3	133.644162625886
ARMENIA	Syunik	4.506	161.9	35.9298712827341
ARMENIA	Vaiocdzor	2.308	68.3	29.5927209705373
ARMENIA	Tavush	2.704	154.8	57.2485207100592

3.34 Now that the resultant table has been composed the user could:

- export it into Excel for further analysis;
- export it into a Word table for presenation (as in this manual);
- dump it as a text file for use in Saturn.

3.35 For the advanced user who does not wish to use the graphical interface the SQL can be input direct. For the above example this would be:

SQL: "SELECT DISTINCTROW COUNTRY.[COUNTRY NAME], OBLAST.[OBLAST NAME], [OBLAST ECONOMIC].AREA, [OBLAST ECONOMIC].[TOTAL POPULATION], [CITY POPULATION]/[AREA] AS Expr1 FROM (COUNTRY INNER JOIN ZONENAMES ON COUNTRY.[COUNTRY ID] = ZONENAMES.[COUNTRY ID]) INNER JOIN (OBLAST INNER JOIN [OBLAST ECONOMIC] ON (OBLAST.[OBLAST ID] = [OBLAST ECONOMIC].[OBLAST ID]) AND (OBLAST.[OBLAST ID] = [OBLAST ECONOMIC].[OBLAST ID])) ON ZONENAMES.[ZONE ID] = OBLAST.[ZONE ID] WHERE ((([OBLAST ECONOMIC].YEAR)=1993) AND ((COUNTRY.[COUNTRY ID])=1)) ORDER BY COUNTRY.[COUNTRY NAME], OBLAST.[OBLAST NAME];"

3.36 Although this method is quicker we recommend that the new user becomes familiar with the MS ACCESS interface.

Summary Of Annexes Contained In This Report

3.37 Annex A contains an explanation of how to calculate the transport tariffs.

3.38 Annex B provides a list of transport interchanges and terminal nodes.

3.39 Annex C provides a list of all nodes, their names, their co-ordinate by country for road and rail networks.

3.40 Annex D contains a table of the main commodity groups used in the zone based import/export data and shows their relationship to the 'sub commodities' which have been used in the rail flow data.

3.41 Annex E contains a table with the mode classifications used in the database.

3.42 Annex F contains a lookup table to illustrate the relationships between the spreadsheets and the database tables.

3.43 Annex G contains a list of all data files to be found on the accompanying CD.

Notes

3.44 The following data for spreadsheet tables III.2 (rail cargo movements) is incomplete and will be collated as it becomes available:

- Armenia for 1993 and 1995;
- Azerbaijan 1993;
- Turkmenistan 1993 and 1995 (as yet no data received);
- Kyrghystan 1993.

ANNEX A

Calculation of Transport Tariffs

A. CALCULATION OF TRANSPORT TARIFFS

A.1 In order to validate the model it is necessary to be able to compare the costs of transporting different categories of commodities over different routes by different modes of transport. The decision of a transporter on the mode of transport for sending his consignment will depend on many factors but can be generalised as a cost function usually made up of three elements:

- unit cost to cover elements independent of the distance transported (loading, unloading, transfers between modes or railway gauges, customs and other duties and taxes levied by authorities on each assignment) -expressed as cost per ton

- costs directly related to the distance travelled on each mode of transport (to cover fuel, staff wages, maintenance etc.) expressed as cost per ton.km

- perceived cost of time taken to deliver goods to their destination, to reflect the transport's preference for modes that reduce the time spent in transit

A.2 Since freight rates are not quoted in this format, it is necessary to deduce the parameters necessary for the model from any available data. It is frequently difficult to obtain detailed or accurate freight rates for reasons of commercial sensitivity, but figures have been obtained from freight forwarders, railway companies and transporters. These have been analysed to develop estimated parameters for the transport factors above.

SOURCES

A.3 Three main sources of data have been used:

- Russian railway rates for containers travelling from the European borders to the capitals of the TRACECA countries

- Sample rates obtained for imports and exports to Kazakstan, mainly for rail but with some road consignments, together with individual rates quoted as examples in interviews with officials etc.

- figures quoted in other TACIS reports:

  (i) "Forwarding - Multi-modal transport systems" (Ref. 1)

  (ii) "Transportation of Uzbekistan cotton" (Ref. 2)

A.4 The results of the analysis of this data is presented below. It should be emphasised that:

- the data sample was rather limited and only covered one or two commodities within a specific grouping

- rates were quoted on both an individual consignment basis (e.g. 15 ton load) and on a period contract basis (e.g. 15000 -20000 ton annual contracts)

- rates are a mixture of direct market rates and indicative reference tariffs. Extra discounts or surcharges may be applied depending on prevailing commercial circumstances.

A.5 The results by mode are given below - all rates are expressed in US dollars.

ROAD

A.6 For transport within the TRACECA region, the relatively few rates obtained give freight tariffs in the range

$ per ton = 10 + 0.06 per km

A.7 For transport trips which the borders into Russia, the rates are higher suggesting the imposition of border and customs charges amounting to an extra $20 per ton, giving

$ per ton = 30 + 0.06 per km.

A.8 All traffic using the southern route to the port of Bandar Abbas will use road. In view of the cheaper fuel costs in Iran, the variable cost element will be lower, but border charges will add an extra $10 per ton to give:

$ per ton = 20 + 0.035 per km.

RAIL

A.9 The central source of rail freight rates for Russia and the TRACECA countries is the Transrail organisation in Switzerland that represents the railways in Europe. they have supplied the following rates for a 20 foot container travelling from Europe through either Brest or Chop to each of the TRACECA capitals (Yerevan can not be served due to political troubles). Rates are originally quoted in Swiss Francs and have been converted into $ at the rate $ 1 = 1.25 Swiss Francs.

Transit point	Brest		Chop	
Capital	distance(km)	$	distance(km)	$
Baku	3130	1330	3120	1390
Tblisi	2830	1665	2680	1900
Almaty	4910	1755	5350	2170
Bishke	4640	2230	5080	2490
Tashkent	4240	1830	4690	2084
Dushambe	4860	2740	5170	2970
Ashgabad	4610	2740	4920	2876

A.10 Rates for 40 foot containers are in general 75% higher on all routes.

A.11 Analysis of these rates identifies a reasonably constant variable cost per km, but significant differences in the fixed cost element. We assume that an important component in the differences is the additional costs in the form of customs duties and taxes as traffic crosses the various national borders. There are also slight differences in the level of rates between traffic through Brest and Chop.

A.12 We therefore postulate that a general formula to describe the freight rates as follows:

$/ton = a + b.km + c + d

where,

a = basic cost associated with container transport

b = cost per km travelled on the network

c = fixed handling /transit cost associated with the origin points (Brest, Chop)

d = cost per border crossing (cumulative)

A.13 On the basis of an average load per 20' container of 10 tons, we calculate the following parameters;

a = $ 25 per ton

b = $0.03 per ton.km

c = $5 for Brest, $15 for Chop (per ton)

d = $0 per ton for crossing	Russia - Kazakstan
= $5	Russia - Azerbeijan
= $60	Russia - Georgia
= $25	Kazakstan - Uzbekistan
= $55	Kazakstan - Kyrgystan
= $75	Uzbekistan - Tadjikistan
= $75	Uzbekistan - Turkmenistan

A.14 It should be noted that containers are not much used in the TRACECA corridor (Ref 1). For certain commodities that are imported from America their use is more frequent with routing usually via the Baltic ports.

A.15 TransRail have also been very helpful in supplying rates for specific commodities - grain, cotton and chemicals. The most complete set of rates are available for the imports of grain through 3 entry points - Brest, Chop and the Baltic port of Klaipeda.

The rates per ton in US$ (calculated from rates quoted in Swiss Francs using the conversion rate $1 = 1.25 Swiss Francs) for grain are:

Destination	via Brest	via Chop	via Klaipeda
Baku	66	67	60
Tblisi	78	80	71
Almaty	76	94	70
Bishkek	85	95	80
Tashkent	77	86	72
Dushanbe	108	118	102
Ashgabad	102	108	96

A.16 Using a similar general formula to that developed for containers , we obtain the following values of the parameters:

a = $10 per ton

b = $0 012 per ton. km

c = $0 for the port of Klaipeda, $5 per ton for traffic through Brest and $10 through Chop

d = $ 4 per ton for crossing Russia - Kazakstan

= $10 Russia - Azerbeijan

= $27 Russia - Georgia

= $6 Kazakstan - Uzbekistan

= $9 Kazakstan - Kyrgystan

= $22 Uzbekistan - Tadjikistan

= $20 Uzbekistan - Turkmenistan

A.17 Cotton. TransRail were able to supply freight rates in $ per ton for exports of cotton from Tashkent to the key exit points as follows:

Tashkent - Brest $84 per ton

Tashkent - Klaipeda $82 per ton

Tashkent - Odessa $90 per ton

A.18 These rates are higher than those for grain over the same routes (e.g. Klaipeda-Tashkent $72 cf. $82 per ton). This is possibly due to the commodity based variations in the rates charged by Russian railways. Retaining the same value as above for paramters a, c, and d, we find that increasing parameter b to $0.014 per km. gives a good representation of the freight rates. For the port of Odessa, a value of c = $ 12 per ton is taken.

A.19 Figures available from Kazakstan cover a wide range of commodities, but often only in small consignments. we have concentrated on commodities with significant volumes and where several rates are quoted.

Iron Pellets/Bricks:

low value bulk commodities in general transported over short distances and with no special handling required

$ per ton = 4 + 0.008 per km

Chemicals:

examples were quoted for exports from Kazakstan to Russia and also beyond to Europe. The latter destinations have a higher unit rate which is assumed to reflect the transfers required at the change of gauge at the Euro- Russian borders and general customs charges. Rates are in the range:

$ per ton = 10 + 0.012 per km for Traceca and Russia

$ per ton = 50 + 0.012 per km for Europe

A.20 The higher rates for Europe are assumed to reflect/include a charge of about $25 per ton for the change of gauge between Russian and European railways that is effected at either Brest or Chop.

A.21 TransRail have also supplied rates for chemical exports from Almaty to the key exit points, giving rates as follows:

Almaty- Brest	$77 per ton
Almaty- St. Petersburg	$71 per ton
Almaty- Nachodka(Pacific)	$100 per ton
Almaty- Odessa	$88 per ton

A.22 These are in line with the rates obtained from Kazakstan and with the loading charges of $5 per ton taken for Brest traffic above (parameter c). On that basis the charges for the other ports are:

$0 for St. Petersburg, $ 15 - $ 20 for Odessa and Nachodka.

Other Cargo:

A.23 Little specific data was available for other commodities. It was noted that the Russian rail tariffs have graded rates for different commodities ranging from a base rate for general cargo to a 50% surcharge for engineering spares, drinks, etc. We shall assume that other commodities are charged at this top rate. The handling charges for transport within Traceca is likely to be between the low rate for bulk and the specialized rate for chemicals. The assumed rates are therefore:

$ per ton = 10 + 0.012 per km

CASPIAN SEA

A.24 Three items of data only are available for this important transit route. We anticipate that it will be possible to use better information when other TACIS reports become available.

A.25 For bulk goods we were quoted (per crossing)

wheat . $5 per ton

salt .$2.5 per ton

A.26 Ref 1 quotes the rate for a rail wagon (which can transport either 50 tons of cargo or 2 * 20 foot containers) as $564. This gives

general cargo	$12 per ton
containerised cargo	$28 per ton

MARITIME

A.27 Ref 1 quotes three values for maritime transport for containers on the following routes (rates per 20 foot container and per ton assuming a container load of 10 tons)

Riga : Rotterdam	$850	$85 per ton
Bandar Abbas: Italy	$1800	$180
Poti : Italy	$2650	$265

A.28 The rates for Bandar Abbas : Italy are in line with current container liner rates of $1400 to $1600 per 20 foot container.

A.29 From our study we were only able to obtain rates from Kazakstan that covered both the rail and maritime trips combined. After making assumptions about the cost of the rail component, the picture of maritime rates that emerges is

Baltic : Europe	$40 to $80
Nachodka : Asia	$50 to $90
Black Sea (Odessa): Europe	$110 to $130

A.30 This confirms the much higher rates that apply to goods travelling from the Black Sea

SUMMARY

Mode	Route/Area/Commodity	Rate $ Per Ton
Road	Traceca	10 + 0.06 per km
	Russia	30 + 0.06 per km
	Bandar Abbas	20 + 0.035 per km
Caspian	salt	2.5
	wheat	5
	general cargo	12
	container goods	28
Sea	Baltic : Europe	40 to 85
	Asia	50 to 90
	Bandar Abbas	150 to 200
	Black Sea	120 to 250

ANNEX B

Key Transport Interchange/Terminal Nodes

B. KEY TRANSPORT INTERCHANGE/TERMINAL NODES

Country Name	Node Name	Node Number
	RAIL TERMINALS	
ARMENIA	Karmir/Blur	101
AZERBAIJAN	Baku	25120
GEORGIA	Batumi	35130
	Gori	35270
	Hashuri	35180
	Kaspi	35181
	Kutaisi - 2	301
	Poti	35100
	Rustavi - gruz.	35331
	Samtredia	35150
	Tbilisi - tovarnyi	35329
	Tbilisi - uzlovoi	35330
	Telavi	35521
	Zestafoni	35170
KAZAKHSTAN	?	47761
	?	435
	Agadyr	47860
	Ak-Kul	45660
	Aksu	401
	Aktubinsk	45310
	Almaty	46450
	Anar	47840
	Arys	47990
	Atbasar	45610
	Atyrau	45110
	Ayaguz	46160
	B.Metalurgicheskaya	402
	B.Mikhailovka	403
	B.P.7	404
	Balkhash	45940
	Boschakul	405
	Chaglinka	406
	Chaldala	407
	Derzhavinskaya	408
	Druzhba	46700
	Dzhaksy	409

Dzhetygara	410
Dzhezkazgan	411
Ekibastuz	47770
Ermak	412
Ermak-Gruzovoi	413
Ermentau	45700
Esil	47760
Karaganda	45820
Karatau	46874
Karazhal	414
Kokchetav	46000
Komsomolets	415
Konechnaya	416
Korshunovo	417
Kur.Borovoye	47830
Kurgasyn	418
Kushmurun	47750
Kustanai	419
Kzyl-Orda	47220
Kzyl-Tu	420
Leninogorsk	46320
Lugovaya	46860
Maikuduk	421
Mailina	422
Makinka	423
Mangyshlak	45010
Murza	424
Neverovskaya	425
Novo-Dubovsk	426
Novoishimskaya	47780
Nurinskaya	427
Otar	47970
Pavlodar	45730
Post 120	446
Sary-Ozek	46610
Scherbakty	428
Semipalatinsk	46110
Serebryanka	429
Shemonaikha	46330
Shortandy	430
Shu	46830
Shymkent	46900
Smirnovo	431
Sorokovaya	432
Suly	433

	Taincha	47820
	Tatty	436
	Tekeli	437
	Temir-Tau	45823
	Tselinograd	438
	Tulkubas	47980
	Tura-Tam	439
	Turkestan	47030
	Ush-Tobe	47950
	Ushkulyn	440
	Volodarskoe	441
	Zaschita	48010
	Zhambyl	46870
	Zhana-Arka	442
	Zhana-Aul	443
	Zhanatas	444
	Zheleznorudnaya	45470
	Zhilaevo	445
	Zyryanovsk	48030
KYRGHYZSTAN	Alamedin	501
	Bishkek	55010
	Djelal-Abad	55100
	Issyk-Kul	55230
	Kara-Balta	55020
	Osh	55120
TURKMENISTAN	Amudar'inskaya	701
	Bairam-Ali	702
	Chardjou	75230
	Gazachak	75290
	Kaka	703
	Kizyl-Arvat	704
	Kushka	75190
	Maiskaya	705
	Nebit-Dag	75040
	Nukus	75531
	Ovezberdy-Kulievo	706
	Seidy	707
	Tashauz	708
	Tedjen	709
	Turkmenbashi	75010
	Zerger	710
UZBEKISTAN	Ahangaran	801
	Andizhan	802
	Angren	803
	Bekabad	85222

	Buhara-2	804
	Chirchik	806
	Denau	807
	Dzhizak	85221
	Galaba	808
	Gallyaaral	809
	Havast	810
	Hodjeili	811
	Kakir	812
	Kashkadarya	86070
	Kitab	828
	Kokand	85060
	Kum-Kurgan	813
	Kungrad	814
	Kzyl-Tepe	815
	Margilan	816
	Minchlik	817
	Raustan	818
	Samark	819
	Shumilova	820
	Syrdaria	821
	Termez	85360
	Uch-Kuduk	822
	Uchkurgan	86040
	Ulugbek	823
	Uzbekistan(Tash)	85010
	Yalangach	824
	Yangiyul	825
	Yangizeravshan	826
	Yrgench	827
	SEAPORTS	
AZERBAIJAN	Baku	20125
EXTERNAL	?	9000
	Aladja	2906
	Astrahan	2905
	Belgium	3402
	Bulgaria	3506
	Burgas	3508
	Enzeli	3201
	Feodosia	2903
	Gelenjik	3602
	Greece	3502
	Ilichevsk	2904
	Italy	3500
	Izmir	3303

	Kianly	1403
	Kiodja	9001
	Kiyanly	1404
	Krasnovodsk	1402
	Lithuania	3704
	Mahachkala	2401
	Mariypol	2501
	Neftyanye Kamni	2502
	Nikolaev	2907
	Noushehr	3202
	Novorossiisk	2901
	Odessa	2503
	Okarem	1401
	Podporozhie	2504
	Rumania	3600
	Russia	2400
	Stambul	3305
	Turkey	3304
	Ukraine	2900
	USA	4508
	Varna	2801
	Venice	3501
GEORGIA	Batumi	39130
	Poti	39100
KAZAKHSTAN	Aktau	40015
TURKMENISTAN	Turkmenistan	70015
	AIRPORTS	
ARMENIA	Gumri	1010
	Kamo	1060
	Shirak	1040
	Stepanavan	1050
	Zvartnoc (Erevan)	1030
AZERBAIJAN	Baku	2010
	Bina	2020
	Evlah	2050
	Gyandja	2030
	Nahichevan	2040
GEORGIA	Tbilisi	3010
KAZAKHSTAN	Akmola	4020
	Aktau	4040
	Aktubinsk	4030
	Almaty	4010
	Atyrau	4050
	Karaganda	4070
	Kostanai	4060

	Shimkent	4100
	Ural'sk	4080
	Ust-Kamenogorsk	4090
	Zhambyl	4110
KYRGHYZSTAN	Manas	5010
	Osh	5020
TADJIKISTAN	Dushanbe	6010
	Hodjent	6020
	Kuliab	6040
	Kurgan-Tube	6030
TURKMENISTAN	Ashgabat	7010
	Chardjev	7020
	Dashhovuz	7050
	Mary	7040
	Turkmenbashi	7030

UZBEKISTAN	Samarkand	8020
	Tashkent	8010
	Termez	8030

ANNEX C

Node Names and Co-Ordinates by Country

C. NODE NAMES AND CO-ORDINATES BY COUNTRY

C.1 In the below table the first digit of each node number maps to the country code (see Table 2.1) and thus indicates the country in which the node is situated.

Anode	Node Name	X Coordinate	Y Coordinate
101	Karmir/Blur	0.00	0.00
102	Dilizhan	0.00	0.00
103	Erevan	0.00	0.00
104	Ìàsis	0.00	0.00
105	Nursun-Zod	0.00	0.00
10001	border of Georgia	43.44	41.08
10020	Gyumri	43.50	40.48
10030	Ashtarak	44.22	40.18
10031	Alagyaz	46.22	39.05
10040	Erevan	44.30	40.11
10060	Sevan	44.57	40.34
10080	Dilijan	44.52	40.45
10090	Ijevan	45.07	40.53
10091	border of Azerbaijan	45.15	41.02
10110	Ararat	44.40	39.48
10120	Eraseh	44.46	39.45
10130	Vanadzor	44.30	40.48
10131	Spitak	44.15	40.48
10132	Stepavan	44.22	41.00
10133	border of Georgia	44.15	41.13
10140	Dzoraget	44.31	40.54
10150	Alaverdi	44.39	41.08
10160	Bagratashen	44.51	41.15
10170	Megri	46.16	38.56
10180	Kadjaran	46.22	39.10
10190	Kafan	46.24	39.13
10200	Goris	46.23	39.31
10201	border of Azerbaijan	46.32	39.35
10210	Angehakot	45.57	39.36
10220	pass. Bichanekski	45.51	39.32
10230	Ehegnadzor	45.21	39.46
10240	Martuni	45.19	40.08
15020	Gumri	43.50	40.48
15050	Razdan	44.46	40.30
15090	Idzhevan	45.07	40.53

15120	Eraskh	44.46	39.45
15130	Kirovokan	44.30	40.48
15170	Megri	46.22	39.05
15500	Airum	44.53	41.13
15510	Akhuryan	43.47	40.44
15520	Masis	44.29	40.00
201	Gyanja	0.00	0.00
202	Shirvan	0.00	0.00
20020	Kazah	45.22	41.06
20050	Gyanja	46.22	40.40
20060	Evlah	47.09	40.36
20120	Baku	49.51	40.23
20191	border of Azerbaijan	46.18	41.50
20200	Kahi	46.56	41.26
20210	without name	46.43	41.23
20250	Sumgait	49.51	40.23
20260	Siazan	49.06	41.05
20270	Divichi	48.59	41.12
20290	Kuba	48.31	41.22
20300	Border of Armenia	48.26	41.38
20310	Alyat	49.25	39.57
20320	Salyany	48.58	39.34
20330	Bilyasuvar	48.24	39.24
20340	Jalilabad	48.31	39.14
20350	Massaly	48.40	39.03
20360	Lenkoran	48.50	38.45
20370	without name	48.52	38.28
20390	Kazi-Magomed	48.56	40.03
20391	Kyurdamir	48.10	40.23
20400	Ali-Bairamly	48.56	39.56
20420	Saatly	48.23	39.56
20440	Birmai	47.56	39.46
20441	Goradiz	47.17	39.28
20450	without name	47.55	39.48
20451	Agjabedi	47.27	40.04
20461	Akara	46.45	39.10
20462	Hanlyk	46.45	39.20
20470	Minjivan	46.42	39.03
20471	Border of Armenia	46.35	38.55
20500	Barda	47.08	40.25
20520	Agdam	46.55	39.59
20530	Hankendi	46.44	39.49
20540	Lanchin	46.33	39.37
20600	Shahbuz	45.34	39.25
20610	Nahichevan	45.24	39.13
20620	Julfa	45.38	38.58
20630	Ordubad	46.02	38.56
20631	Border of Armenia	46.10	38.55
25030	Akstafa	45.28	41.08

25051	Mingechaur	47.02	40.37
25052	Mingechaur-city	47.03	40.47
25053	Alabashly	46.07	40.50
25054	bridge Kuschinski	46.00	40.40
25060	Evlah	47.09	40.36
25120	Baku	49.51	40.23
25121	Sumgait	49.51	40.23
25122	Balajary	49.45	40.28
25123	Monino	49.50	40.25
25124	Govsan	50.00	40.22
25125	Karadag	49.37	40.20
25126	Gyuzdek	49.35	40.30
25270	Divichi	48.59	41.12
25310	Alyat	49.25	39.57
25320	Salyany	48.58	39.34
25321	Neftechala	49.12	39.20
25370	Astara	48.52	38.28
25390	Kazi-Magomed	48.56	40.03
25400	Ali-Bairamli	48.45	39.55
25470	Minjevan	46.42	39.03
25530	Hankendi	46.44	39.49
25610	Nahichevan	45.24	39.13
25620	Julfa	45.38	38.58
25810	Beyuk-Kyasik	45.11	41.23
25820	Udjary	47.39	40.31
25830	Yalama (Samur)	48.34	41.44
25840	Osmanly Novye	48.45	39.55
25850	Imishli	48.04	39.52
25860	Sharur	44.58	39.33
301	Kutaisi - 2	0.00	0.00
30001	Adler (Russia)	39.55	43.27
30010	Gagra	40.15	43.20
30020	Gudauta	40.37	43.06
30030	Oshera	40.55	43.04
30040	Suhumi	41.02	43.01
30050	Ochamchira	41.28	42.44
30060	Gali	41.44	42.38
30070	Zugdidi	41.53	42.30
30080	Hobi	41.53	42.21
30091	Senaki	42.04	42.17
30110	Ureki	41.46	41.59
30120	Kobuleti	41.47	41.50
30130	Batumi	41.38	41.38
30131	Sapri	41.28	41.35
30150	Samtredia	42.20	42.10
30160	Kutaisi	42.40	42.15
30170	Zestafoni	43.02	42.07
30180	Hashuri	43.36	42.00
30182	Tschinvali	43.53	42.13

30183	Gufta	43.47	42.25
30184	Roki	44.13	42.32
30190	Keda	42.00	41.38
30200	Hulo	42.18	41.41
30201	without name	42.51	41.43
30210	Ahalcihe	42.59	41.38
30211	border of Turkey	42.45	41.30
30220	Borzhomi	43.21	41.50
30250	Ninocminda	43.36	41.15
30270	Gori	44.05	42.00
30280	Natahtari	44.39	41.55
30281	Zagesi	44.50	41.50
30300	Pasanauri	44.41	42.21
30321	border of Russia	44.30	42.45
30330	Tbilisi	44.49	41.43
30331	Rustavi	44.58	41.32
30332	border of GR	45.05	41.21
30340	Marneuli	44.50	41.28
30341	Bolnisi	44.30	41.30
30351	Sadahlo	44.50	41.15
30360	Sagaredjo	45.20	41.44
30370	Cnori	45.59	41.37
30400	Manglisi	44.24	41.43
30410	Calka	44.05	41.37
35001	Veseloe	39.55	43.27
35071	Ingiri	41.50	42.20
35091	Senaki	42.04	42.17
35100	Poti	41.40	42.09
35130	Batumi	41.38	41.38
35150	Samtredia	42.20	42.10
35170	Zestafoni	43.02	42.07
35180	Hashuri	43.36	42.00
35181	Kaspi	44.25	41.57
35182	Tschivali	43.53	42.13
35270	Gori	44.05	42.00
35281	Mscheta	44.50	41.50
35328	Marabda	44.45	41.30
35329	Tbilisi - tovarnyi	44.52	41.40
35330	Tbilisi - uzlovoi	44.49	41.43
35331	Rustavi - gruz.	44.58	41.32
35351	Sadahlo	44.50	41.15
35510	Kelasuri	41.05	42.58
35511	Syhymi	41.02	43.00
35517	Lilo	44.55	41.40
35518	Iori	45.08	41.40
35519	89 km	45.45	41.40
35520	Gurjaani	45.48	41.43
35521	Telavi	45.28	41.53
401	Aksu	0.00	0.00

402	B.Metalurgicheskaya	0.00	0.00
403	B.Mikhailovka	0.00	0.00
404	B.P.7	0.00	0.00
405	Boschakul	0.00	0.00
406	Chaglinka	0.00	0.00
407	Chaldala	0.00	0.00
408	Derzhavinskaya	0.00	0.00
409	Dzhaksy	0.00	0.00
410	Dzhetygara	0.00	0.00
411	Dzhezkazgan	0.00	0.00
412	Ermak	0.00	0.00
413	Ermak-Gruzovoi	0.00	0.00
414	Karazhal	0.00	0.00
415	Komsomolets	0.00	0.00
416	Konechnaya	0.00	0.00
417	Korshunovo	0.00	0.00
418	Kurgasyn	0.00	0.00
419	Kustanai	0.00	0.00
420	Kzyl-Tu	0.00	0.00
421	Maikuduk	0.00	0.00
422	Mailina	0.00	0.00
423	Makinka	0.00	0.00
424	Murza	0.00	0.00
425	Neverovskaya	0.00	0.00
426	Novo-Dubovsk	0.00	0.00
427	Nurinskaya	0.00	0.00
428	Scherbakty	0.00	0.00
429	Serebryanka	0.00	0.00
430	Shortandy	0.00	0.00
431	Smirnovo	0.00	0.00
432	Sorokovaya	0.00	0.00
433	Suly	0.00	0.00
434	Taldy-Kurgan	0.00	0.00
435		0.00	0.00
436	Tatty	0.00	0.00
437	Tekeli	0.00	0.00
438	Tselinograd	0.00	0.00
439	Tura-Tam	0.00	0.00
440	Ushkulyn	0.00	0.00
441	Volodarskoe	0.00	0.00
442	Zhana-Arka	0.00	0.00
443	Zhana-Aul	0.00	0.00
444	Zhanatas	0.00	0.00
445	Zhilaevo	0.00	0.00
446	Post 120	0.00	0.00
447	Ileck	0.00	0.00
448	Presnogorkovskaya	0.00	0.00
40010	Aktau	51.05	43.35
40020	Jetibai	51.47	43.34

40021	Novyi Uzen	53.52	43.21
40022	Fetisovo	52.40	42.47
40030	Shetpe	51.46	43.50
40050	Sai-Utes	53.00	44.01
40060	Beineu	55.07	45.15
40070	Kul'sary	54.01	46.59
40080	Dossor	53.01	47.32
40090	Makat	53.19	47.39
40110	Atyrau	51.56	47.07
40130	Ganushkino	49.16	46.36
40140	Kotaevka (b. of Russia)	48.25	46.32
40150	Inderborskii	51.44	48.33
40151	Mahambet	51.25	47.40
40152	Kalmykovo	51.47	49.03
40153	Chapaevo	51.10	50.12
40154	Budarino	51.04	50.31
40155	Bol. Shagan	51.08	50.57
40160	Bazartobe	51.50	49.23
40170	Esensai	51.28	49.54
40180	Shagatai	51.24	50.16
40190	Ural'sk	51.22	51.14
40191	Podstepnoe	51.28	51.08
40192	without name (Barbastau)	51.24	51.08
40200	Pogodaevo (b. of Russia)	51.03	51.33
40201	Ozinki (b. of Russia)	49.42	51.10
40210	Djambeity	52.35	50.16
40300	Novoalekseevka	55.39	50.08
40301	Zhirenkopa	55.00	51.52
40310	Aktubinsk	57.10	50.17
40320	Karabutak	60.10	49.59
40330	Aralsk	61.40	46.48
40340	Shubarkuduk	56.34	49.13
40350	Oktyabr'sk	57.25	49.28
40360	Alga	57.20	49.46
40370	Leninsk	57.53	50.44
40380	Orsk (b. of Russia)	58.28	51.00
40410	Komsomol'skoe	60.36	50.23
40420	Severnoe	61.37	51.05
40430	Zhailma	61.37	51.32
40440	Adaevka	62.06	51.47
40450	Ordjonikidze	61.46	52.28
40460	Tobol	62.39	52.40
40470	Rudnyi	63.07	52.57
40480	Kustanai	63.35	53.10
40490	Fedorovka	62.42	53.38
40500	Komsomolec	62.02	53.45
40510	Troick	61.33	54.07
40520	Semiozernoe	64.08	52.22
40530	Damdy	65.03	51.03

40540	Uricki	65.34	53.19
40541	without name	66.35	53.00
40550	Borovskoi	64.12	53.48
40560	Zverinogolovskoe	64.42	54.25
40571	Derzhavinsk	66.19	51.03
40572	Buzuluk	66.16	51.55
40578	Sergeevka	67.25	53.51
40600	Jaksy	67.20	51.55
40610	Atbasar	68.20	51.48
40620	Zhaltyr	68.50	51.40
40640	Akmola	71.30	51.10
40650	Shortandy	71.00	51.46
40670	Makinsk	70.27	52.40
40700	Ermentau	73.10	51.38
40710	Shiderty	74.20	51.47
40720	Kalkaman	76.02	51.58
40730	Pavlodar	76.57	52.18
40732	Uspenka	77.25	52.54
40733	Lozovoe (b. of Russia)	77.45	53.21
40734	Sherbakty	78.09	52.29
40735	border of Russia	78.55	52.35
40760	Molodezhnyi	73.30	50.40
40790	Lebyzh'e	77.46	51.28
40810	Temirtau	72.56	50.05
40820	Karaganda	73.10	49.50
40830	Ul'yanovskii	73.42	50.02
40840	Karkaralinsk	75.21	49.23
40850	Kainar	77.22	49.12
40870	Atasu	71.38	48.42
40880	Zhezkazgan	67.46	47.47
40900	Arkalyk	66.50	50.13
40910	Amantogai	65.33	50.22
40940	Balhash	74.59	46.49
40950	Saryshagan	73.30	46.07
41000	Kokchetav	69.25	53.17
41040	Petropavlovsk	69.06	54.54
41050	Petuhovo (b. of Russia)	68.20	54.58
41060	Bulaevo	70.26	54.54
41070	Isilkul	71.00	54.54
41100	Bol. Vladimirovka	79.31	50.53
41110	Semipalatinsk	80.13	50.28
41130	Veseloyarsk (b. of Russia)	81.51	51.00
41150	Barshatas	78.21	48.13
41160	Ayaguz	80.23	47.56
41170	Taskesken	80.44	47.15
41180	Urdjar	81.38	47.05
41190	Makanchi	82.00	46.48
41200	Bahty	82.40	46.45
41230	Zhangiztobe	81.18	49.16

41240	Georgievka	81.35	49.19
41250	Kokpekty	82.24	48.45
41270	Zaisan	84.55	47.28
41280	Maikapchigai	85.15	47.28
41300	Ust'-Kamenogorsk	82.38	49.58
41310	Sekisovka	83.05	50.18
41320	Leninogorsk	83.35	50.18
41330	Shemonaiha	81.54	50.39
41340	Tretiakovo (b. of Russia)	81.55	50.50
41400	Burubaital	74.05	44.50
41410	Kanshengel'	75.32	44.20
41430	Chemolgan	76.37	43.23
41440	Kaskelen	76.37	43.12
41450	Almaty	76.57	43.15
41470	Georgievka	74.40	43.03
41490	Chilik	78.15	43.36
41500	Kokpek	79.28	43.32
41510	Chundja	79.32	43.35
41520	Kolzhat	80.35	43.36
41530	Kegen'	79.15	43.05
41540	border of Kyrghyzstan	79.15	42.45
41550	Narynkol	80.15	42.23
41600	Kapchagai	77.12	43.53
41610	Saryozek	77.59	44.22
41612	Zharkent	80.00	44.10
41613	Horgos	80.23	44.13
41630	Taldy-Korgan	78.23	45.00
41660	Sarkand	79.54	45.26
41690	Ucharal	80.56	46.10
41700	Druzhba	82.45	45.20
41830	Chu	73.45	43.36
41831	Tatti	73.19	43.12
41832	Kuragaty	72.59	43.06
41833	Blagoveshenka	74.13	43.20
41840	Merke	73.11	42.52
41850	Chaldovar (Kyrghyzstan)	73.30	42.50
41860	Lugovoe	72.43	42.55
41870	Djambul	71.22	42.54
41900	Shymkent	69.36	42.18
42030	Turkestan	68.15	43.18
42200	Novokazalinsk	62.10	45.50
42210	Djusaly	64.05	45.28
42220	Kzyl-Orda	65.28	44.48
42230	Chiili	66.45	44.10
45010	Mangyshlak	51.05	43.35
45030	Shetpe	51.46	43.50
45050	Sai-Utes	53.00	44.01
45060	Beineu	55.07	45.15
45070	Kulsary	54.01	46.59

45090	Makat	53.19	47.39
45100	Sagiz	54.56	48.12
45110	Atyrau	51.56	47.07
45130	Ganushkino	49.16	46.36
45190	Uralsk	51.22	51.14
45201	Ozinki	49.42	51.10
45310	Aktubinsk	57.10	50.17
45340	Shubarkuduk	56.34	49.13
45350	Kandagach	57.25	49.28
45460	Tobol	62.39	52.40
45470	Zheleznorudnaya	63.07	52.57
45480	Kustai	0.00	0.00
45552	Troebratskii	66.01	54.28
45610	Atbasar	68.20	51.48
45640	Akmola	71.30	51.10
45660	Ak-Kul	70.59	51.59
45700	Ermentau	73.10	51.38
45730	Pavlodar	76.57	52.18
45735	Kulunda	78.57	52.35
45820	Karaganda	73.10	49.50
45823	Temir-Tau		
45940	Balkhash	74.59	46.49
45950	Saryshagan	73.30	46.07
46000	Kokchetav	69.25	53.17
46040	Petropavlovsl	69.06	54.54
46110	Semipalatinsk	80.13	50.28
46160	Ayaguz	80.23	47.56
46220	Zharma	80.50	48.48
46320	Leninogorsk	83.32	50.27
46330	Shemonaikha	81.54	50.39
46450	Almaty	76.57	43.15
46610	Sary-Ozek	77.59	44.22
46700	Druzhba	82.26	45.15
46830	Shu	73.45	43.36
46860	Lugovaya	72.43	42.55
46870	Zhambyl	71.22	42.54
46874	Karatau	0.00	0.00
46900	Shymkent	69.36	42.18
46901		69.91	42.00
47030	Turkestan	68.15	43.18
47200	Kazalinsk	62.10	45.50
47210	Dzhusaly	64.05	45.28
47220	Kzyl-Orda	65.28	44.48
47230	Chiili	66.45	44.10
47750	Kushmurun	64.36	52.27
47760	Esil	66.24	51.58
47761		66.45	49.83
47770	Ekibastuz	75.22	51.42
47780	Novoishimskaya	66.51	53.15

47790	Zol.Sopka	61.35	54.06
47800	Talshik	71.53	53.42
47820	Taincha	69.42	53.50
47830	Kur.Borovoye	70.12	52.56
47840	Anar	72.27	50.38
47850	Zharyk	72.51	48.52
47855		70.95	48.03
47860	Agadyr	72.53	48.17
47870	Mointy	73.21	47.13
47880	Chiganak	73.58	45.06
47890	Berlik-1	73.49	43.40
47900	Sayak	77.22	47.02
47910	Aktogai	79.40	46.57
47920	Lokot	81.11	51.11
47930	Charskaya	81.05	49.35
47940	Matai	78.43	45.53
47950	Ush-Tobe	78.00	45.16
47952		78.62	44.90
47960	Koskuduk	77.22	44.06
47970	Otar	75.13	43.33
47980	Tulkubas	70.02	42.28
47990	Arys	68.48	42.26
48000	Beskol	81.05	46.13
48010	Zaschita	82.38	49.58
48020	Serebryanka	83.20	49.43
48030	Zyryanovsk	84.20	49.43
48040	Kazakhstan	53.00	51.09
48050	Iletsk-1	54.59	51.10
48060	Yaisan	56.14	50.51
48070	Emba	58.08	48.50
48080	Chelkar	59.36	47.50
48090	Saksaulnaya	61.26	46.56
48100	Chengeldy	68.59	41.51
48110	Razyezd-1	48.32	46.41
48120	Nikel-Tau	0.00	0.00
48130	Nov.Uzen	53.52	43.21
48140	Sary-Agach	69.10	41.27
501	Alamedin	0.00	0.00
502	Abad	0.00	0.00
50010	Bishkek	74.36	42.54
50020	Kara-Balta	73.52	42.50
50021	Sosnovka	73.55	42.42
50022	Belovodskoe	74.14	42.52
50030	pass. Teo-Ashuu	73.48	42.21
50031	siding Suusamyr	73.48	42.20
50050	Torkent	73.15	41.54
50070	Kara-Kul	72.35	41.35
50080	Tash-Kumyr	72.14	41.21
50100	Djelal-Abad	73.00	40.56

50110	Kara-Suu	72.53	40.44
50120	Osh	72.48	40.33
50140	Sari-Tash	73.15	39.44
50141	Irkeshtam	73.55	39.42
50200	Kant	74.52	42.55
50220	turning Buruldai	75.52	42.30
50230	Issik-Kul	76.12	42.26
50240	Bozteri	77.15	42.43
50250	Grigorievka	77.28	42.44
50260	Tup	78.22	42.44
50270	Ken-Suu	78.45	42.49
50280	Kochkorka	75.45	42.14
50290	Narin	75.59	41.26
50300	Torugart	75.18	40.33
55010	Bishkek	74.36	42.54
55020	Kara-Balta	73.52	42.50
55080	Tashkumyr	72.14	41.20
55100	Djelal-Abad	73.00	40.56
55101	Bagish	73.15	40.56
55120	Osh	72.48	40.33
55200	Tokmak	75.18	42.55
55230	Issyk-Kul	76.12	42.26
55501	Shamaldysai	72.15	41.13
55510	Kok-Yangak	73.13	41.02
601	Kurgan- Tyube	0.00	0.00
602	Bazar	0.00	0.00
60020	Ura-Tube	68.59	39.55
60021	Kurkak	69.20	40.07
60022	Kanibadam	70.29	40.17
60030	Shahristan	68.49	39.47
60040	Aini	68.32	39.23
60050	Pugus (Varzob)	68.49	38.46
60060	Dushanbe	68.48	38.35
60062	Dahanakiik	68.45	38.19
60063	Kurgan-Tube	68.47	37.50
60066	Kyzyl-Kala	68.40	37.55
60067	Kabodien	68.12	37.23
60068	Aivadj	68.03	37.00
60070	Shahrinav	68.20	38.34
60071	border of Uzbekistan	68.07	38.30
60090	Kofarnihon	69.01	38.34
60091	Dangara	69.20	38.07
60092	Kuliab	69.48	37.55
60100	Obigarm(Rogun)	69.42	38.43
60120	Lyabidzhar	69.59	38.54
60130	Garm	70.22	39.02
60140	Djirgatal	71.12	39.13
60150	Karamyk	71.46	39.30
60160	Kalaihum	70.46	38.28

60190	Horog	71.44	38.03
60200	Vir	72.10	37.43
60210	Djelandi	72.38	37.36
60230	Murgab	73.59	38.10
60240	pass. Kyzyl-Art	73.20	39.23
65021	Chudjand	69.18	40.17
65022	Kanibadam	70.29	40.17
65023	Shurab	70.08	40.05
65090	Yangi-Bazar	69.01	38.34
65100	Yavan	68.56	38.17
701	Amudar'inskaya	0.00	0.00
702	Bairam-Ali	0.00	0.00
703	Kaka	0.00	0.00
704	Kizyl-Arvat	0.00	0.00
705	Maiskaya	0.00	0.00
706	Ovezberdy-Kulievo	0.00	0.00
707	Seidy	0.00	0.00
708	Tashauz	0.00	0.00
709	Tedjen	0.00	0.00
710	Zerger	0.00	0.00
711	Sarahs	0.00	0.00
70010	Turkmenbashi	53.00	40.00
70011	Bekdash	52.43	41.37
70012	border of Kazakhstan	52.40	41.53
70040	Nebit-Dag	54.22	39.30
70050	Kum-Dag	54.35	39.16
70070	Kizil-Arvat	56.15	38.58
70071	Sharlouk (Garrygala)	55.45	38.15
70072	Kizyl-Artek	54.47	37.44
70073	Gidriolum	54.32	37.32
70090	Geok-Tepe	57.58	38.09
70100	Ashgabat	58.23	37.57
70101	Gaudan	58.26	37.37
70110	Dushak	60.02	37.13
70120	Tedjen	60.31	37.23
70130	Hauz-Han	61.05	37.13
70131	Serahs	61.15	36.33
70140	Mary	61.50	37.36
70150	Iolotan	62.21	37.18
70160	name by Chapaev	62.38	36.42
70170	Tahta-Bazar	62.52	35.57
70171	Pogranichnik	63.08	35.43
70172	without name	62.44	36.05
70180	Kala-I-Mor	62.33	35.39
70190	Kushka	62.18	35.10
70200	Bairam-Ali	62.10	37.37
70230	Chardjou	63.34	39.06
70231	Farab	63.35	39.10
70235	Kerki	65.13	37.50

70236	border of Uzbekistan	37.21	66.33
70240	Deinau	63.11	39.15
70250	Seidi	62.56	39.22
70260	Kabaklyoba	62.31	40.04
70270	Dargan-Ata	62.10	40.29
70280	Lebap	61.53	41.01
70290	Gaz-Achak	61.20	41.12
70300	Urgench	60.38	41.33
70310	Tashauz	59.58	41.50
70330	Kunya-Urgench	59.24	42.06
70340	Darvaza	58.24	40.11
75010	Turkmenbashi	53.00	40.00
75040	Nebit-Dag	54.22	39.30
75060	Kazandjik	55.32	39.16
75100	Ashgabat	58.23	37.57
75110	Dushak	60.02	37.13
75140	Mary	61.50	37.36
75190	Kushka	62.18	35.10
75230	Chardjou	63.34	39.06
75231	Farab	63.35	39.10
75270	Dargan-Ata	62.10	40.29
75290	Gazachak	61.20	41.12
75510	Bami	56.48	38.45
75520	Siding 449	60.05	41.50
75530	Tahiatash	59.35	42.20
75531	Nukus	59.38	42.27
75540	Talimardjan	65.32	38.18
75550	Amudar'inskaya	65.15	37.54
75560	Siding 161	66.32	37.22
801	Ahangaran	0.00	0.00
802	Andizhan	0.00	0.00
803	Angren	0.00	0.00
804	Buhara-2	0.00	0.00
805	Byhara	0.00	0.00
806	Chirchik	0.00	0.00
807	Denau	0.00	0.00
808	Galaba	0.00	0.00
809	Gallyaaral	0.00	0.00
810	Havast	0.00	0.00
811	Hodjeili	0.00	0.00
812	Kakir	0.00	0.00
813	Kum-Kurgan	0.00	0.00
814	Kungrad	0.00	0.00
815	Kzyl-Tepe	0.00	0.00
816	Margilan	0.00	0.00
817	Minchlik	0.00	0.00
818	Raustan	0.00	0.00
819	Samark	0.00	0.00
820	Shumilova	0.00	0.00

821	Syrdaria	0.00	0.00
822	Uch-Kuduk	0.00	0.00
823	Ulugbek	0.00	0.00
824	Yalangach	0.00	0.00
825	Yangiyul	0.00	0.00
826	Yangizeravshan	0.00	0.00
827	Yrgench	0.00	0.00
828	Kitab	0.00	0.00
829	Jastlyk	0.00	0.00
830	Karakalpakia	0.00	0.00
831	Karshi	0.00	0.00
832	Kelif	0.00	0.00
833	Mechnat	0.00	0.00
834	Namangan	0.00	0.00
835	Navoi	0.00	0.00
836	Tachiatash	0.00	0.00
837	Tinchlik	0.00	0.00
838	Uchkuduk	0.00	0.00
80010	Tashkent	69.18	41.20
80020	Toitepa	69.22	41.03
80030	Ahangaran	69.37	40.54
80040	Angren	70.12	41.01
80050	Pungan	70.49	40.45
80060	Kokand	70.57	40.33
80070	Yngikurgan	71.09	40.34
80080	Boz	71.55	40.41
80090	Shahrihan	72.03	40.44
80100	Andizhan	72.22	40.45
80110	Hodjaabad	72.37	40.40
80200	Yngiul'	69.03	41.07
80210	Chinaz	68.45	40.56
80220	without name	68.40	40.52
80221	Djizak	67.50	40.06
80222	Bekabad (Uzbekistan)	69.14	40.13
80230	Sirdar'y	68.38	40.52
80240	Baht	68.42	40.43
80250	Gulistan	68.46	40.30
80260	Havast (Uzbekistan)	68.50	40.13
80270	Gallyaral	67.35	40.02
80280	Bulungur	67.18	39.45
80290	Djambai	67.07	39.42
80300	Samarkand	66.48	39.40
80310	Shahrisabz	66.50	39.03
80320	Guzar	66.15	38.36
80330	Dehkanabad	66.31	38.21
80340	Derbent	67.00	38.12
80350	Sherabad	67.01	37.40
80360	Termez	67.16	37.14
80370	Djarkurgan	67.26	37.30

80380	Surhan	67.32	37.44
80390	Kumkurgan	67.35	37.51
80400	Shurchi	67.47	37.59
80410	Denau (Uzbekistan)	67.55	38.17
80500	Ishtihan	66.30	39.56
80510	Kattakurgan	66.15	39.55
80520	Karmana	65.15	40.15
80530	Kanimeh	65.10	40.16
80540	Zarafshan	64.14	41.32
80550	Uchkuduk	63.33	42.13
80560	Halkabad	59.42	42.40
80600	Kiziltepa	64.50	40.03
80610	Gizhduvan	64.41	40.06
80620	Buhara	64.25	39.48
80630	Zhondor	64.11	39.46
80640	Alat (Uzbekistan)	63.48	39.35
80650	Gazli	63.29	40.08
80660	Turtkul'	61.00	41.34
80670	Beruni	60.44	41.41
80671	Mangit	60.04	42.07
80680	Nukus	59.29	42.50
80690	Hodjeili (Uzbekistan)	59.25	42.48
85010	Uzbekistan(Tash)	69.18	41.20
85060	Kokand	70.57	40.33
85221	Dzhizak	67.50	40.06
85222	Bekabad	69.14	40.13
85230	Syrdarinskaya	68.38	40.52
85260	Khavast	68.50	40.13
85360	Termez	67.16	37.14
86000	Marokand	67.08	39.40
86010	Bukhara 1	64.35	39.42
86020	Bekabad	69.18	40.13
86040	Uchkurgan	72.10	41.08
86050	Karasu (Uzb.)	72.54	40.42
86060	Khanabad	73.00	40.53
86070	Kashkadarya	65.45	38.55
86080	Amuzang	67.45	37.17
86090	Sary-Assia	68.00	38.25

ANNEX D

Commodity and Sub-Commodity Relationships

D. COMMODITY AND SUB-COMMODITY RELATIONSHIPS

COMMODITY NO	COMMODITY NAME	SUB COMMODITY NO	SUB COMMODITY NAME
1	CATTLE AND PRODUCTS OF ANIMAL ORIGIN	-	-
2	PRODUCTS OF VEGETABLE ORIGIN	780	VEGETABLE OIL
		850	BARLEY
		860	BORIT
		880	CIGARETTES
		940	GRAIN
		950	LAUREL LEAF
		1090	TOBACCO
3	FAT AND OIL OF ANIMAL OR VEGETABLE ORIGIN	-	-
4	FINISHED FOOD STUFFS	190	CEREALS AND GRAIN
		500	ALCOHOLIC DRINKS
		630	FLOUR
		640	FOOD-STUFF
		960	MIN. WATER
		1000	PACKING FLOUR
		1070	SUGAR
		1080	TEA, MIN. WATER
5	MINERAL PRODUCTS	110	COAL
		120	COKE
		130	OIL
		140	ORE
		690	OIL PRODUCTS
		910	DIESEL FUEL
		920	GASOLINE
		1010	PETROLEUM
		1020	PETROLEUM PROD.
		1040	SALT
		1120	WATER
6	PRODUCTS OF CHEMICAL INDUSTRY	180	CHEMICAL FERTILIZER
		550	CATHODE CU
		560	CHEMICAL
		580	CR OXIDE

		600	ELECTROLYTE
		620	EXPLOSIVE
		670	LIQUID CL
		720	SHAMPOO
		790	VINEGAR ACID
		820	YELLOW P
		830	ZINC
		840	ZINC OXIDE
7	PLASTICS AND RUBBER, AND THEIR WARES	760	TYRES
8	WOOD AND ITS WARES	-	-
9	WOOD AND ITS WARES	160	TIMBER
10	PAPER AND ITS WARES	800	WALL-PAPER
11	TEXTILE AND ITS WARES	220	COTTON
		530	CARPET-COVER
		540	CARPETS
		660	KNITTED WEAR
		710	SACKS
12	SHOES, HEAD DRESSES, UMBRELLAS, WALKING STICKS ETC	-	-
13	WARES FROM STONE, GYPSUM AND CEMENT	200	CEMENT
		510	ASBESTOS
		520	BRICKS
		590	DISHES
		970	MINING BULK
14	PRECIOUS AND SEMI-PRECIOUS STONES AND METALS, AND THEIR WARES	740	TITANIUM (POROUS?)
		750	TITANIUM SLAG
15	NON-PRECIOUS METAL AND ITS WARES	150	METAL
		650	IRON-ORE PELLETS
		680	METAL
		1030	ROAD - METAL
16	MACHINERY, EQUIPMENT AND MECHANISMS	900	CONTAINERS
		1050	SCRAP-METAL
		1060	SPARE PARTS
17	ROAD, RAIL AND WATER VEHICLES	990	MOTOR EQUIP.
		1100	VEHICLES
18	DEVICES (APPARATUS) AND APPLIANCES	610	EQUIPMENT FOR CHEMICAL LABS
		730	STILL
		810	WATER-HEATER
19	ARMS AND AMMUNITION, THEIR SPARE PARTS AND ACCESSORIES	870	CARS, TANKS
20	DIFFERENT MANUFACTURED GOODS	170	CONSTRUCTION
		210	OTHER

		700	PIPES
		770	UNKNOWN
		930	GENERAL CARGO
		980	MISCELLANEOUS
		1110	VESSELS
21	ART PRODUCTS	-	-

ANNEX E

Mode Classification

E. MODE CLASSIFICATION

MODE ID	MODE NAME
10	SEA
20	RAIL
30	ROAD
35	PUBLIC TRANSPORT (used in TRANSPORT table only)
40	AIR
45	OTHER

APPENDIX F

Equivalence List Between Excel and Access Tables

F. EQUIVALENCE LIST BETWEEN EXCEL AND ACCESS TABLES

Spreadsheet Table Reference	Name	Database Table Reference
I.1	Social And Economic Indices	COUNTRY ECONOMIC OBLAST ECONOMIC
I.2	Transport By Types Of Vehicle	TRANSPORT
I.3	Cargo Flows Data Through The Border (Export) For 1995	COUNTRY ECONOMIC
I.4	Cargo Flows Data Through The Border (Import) For 1995	
I.5	Origin Destination Matrices by Commodity	INPUT_OUTPUT
II.1	Road Network - Characteristics And Condition Of Road Sections' Pavements (1994-1995)	LINK PHYSICAL (ROAD)
II.2	Road Network - Traffic Intensity	ROAD SURVEY
III.1	Railway Network Technical-Operating Characteristics	LINK PHYSICAL (ROAD)
III.2	Cargoes Correspondence (In Types) Within The Railway	RAIL CARGO (Embedded Spreadsheet)
III.3	Railway Network Density Of Goods Movement Through Railway Network Sections	RAIL SURVEY
III.4	Railway Network Annual Shipment Of Containers From Railway Network Terminals	RAIL TERMINAL SHIPMENTS
III.5	Railway Network Transit Time Of Passengers Of A Train On Route	RAIL ROUTE TIMES
IV.1	Sea Ports Technical-Operating Characteristics	NODE BASE (Embedded Spreadsheet)
IV.2	Port Dues For Provision Of The Sea Port Services	NODE BASE (Embedded Spreadsheet)
IV.3	Sea Port Loading-Unloading Works For 1995	NODE BASE (Embedded Spreadsheet)
IV.4	List Of Vessels Unloaded In III Quarter Of 1995	SEA IMPORT SURVEY SEA EXPORT SURVEY
IV.5	List Of Vessels Loaded In III Quarter Of 1995	SEA IMPORT SURVEY SEA EXPORT SURVEY

V.1	Information About Airports Carrying Capacity	NODE BASE (Embedded Spreadsheet)
V.2	Airports Technical And Economic Data	NODE BASE (Embedded Spreadsheet)
V.3	Cargo Flows Direction From/To Airport	NODE BASE (Embedded Spreadsheet)
VI.1	Investigation Of Route Cargoes	ROUTES
VI.2	Investigation Of Vehicle Transportation's On Borders	ROUTES

APPENDIX G

Listing Of Files Found On The CD

G. LISTING OF THE FILES FOUND ON THE CD

Directory	File Name	Description
\DOCS	MANUAL.DOC	The main text of this report
\DOCS	ANNEX.DOC	The annexes of this report
\AR		Armenia Data
	T1-AR.XLS	Table I.1 and I.2 Microsoft Excel spreadsheet
	T2-AR.XLS	Table II.1 and II.2 Microsoft Excel spreadsheet
	T3-2AR3.XLS	Table III.2 Microsoft Excel spreadsheet (1993)
	T3-AR.XLS	Table III.1 , III.3, III.4 and III.5 Microsoft Excel spreadsheet
	T4-AR.XLS	Table IV.1, IV.2, IV.3, IV.4 and IV.5 Microsoft Excel spreadsheet
	T5-AR.XLS	Table V.1, V.2 and V.3 Microsoft Excel spreadsheet
	T6-AR.XLS	Table VI.1 and VI.2 Microsoft Excel spreadsheet
\AZ		Azerbaijan Data
	T1-AZ.XLS	Table I.1 and I.2 Microsoft Excel spreadsheet
	T2-AZ.XLS	Table II.1 and II.2 Microsoft Excel spreadsheet
	T3-2AZ3.XLS	Table III.2 Microsoft Excel spreadsheet (1993)
	T3-AZ.XLS	Table III.1 , III.3, III.4 and III.5 Microsoft Excel spreadsheet
	T4-AZ.XLS	Table IV.1, IV.2, IV.3, IV.4 and IV.5 Microsoft Excel spreadsheet
	T5-AZ.XLS	Table V.1, V.2 and V.3 Microsoft Excel spreadsheet
	T6-AZ.XLS	Table VI.1 and VI.2 Microsoft Excel spreadsheet
\GR		Georgia Data
	T1-GR.XLS	Table I.1 and I.2 Microsoft Excel spreadsheet
	T2-GR.XLS	Table II.1 and II.2 Microsoft Excel spreadsheet
	T3-2GR3.XLS	Table III.2 Microsoft Excel spreadsheet (1993)
	T3-GR.ZLS	Table III.1 , III.3, III.4 and III.5 Microsoft Excel spreadsheet

	T4-GR.XLS	Table IV.1, IV.2, IV.3, IV.4 and IV.5 Microsoft Excel spreadsheet
	T5-GR.XLS	Table V.1, V.2 and V.3 Microsoft Excel spreadsheet
	T6-GR.XLS	Table VI.1 and VI.2 Microsoft Excel spreadsheet
\KR		Kyrghyzstan Data
	T1-KR.XLS	Table I.1 and I.2 Microsoft Excel spreadsheet
	T2-KR.XLS	Table II.1 and II.2 Microsoft Excel spreadsheet
	T3-2KR3.XLS	Table III.2 Microsoft Excel spreadsheet (1993)
	T3-2KR5.XLS	Table III.2 Microsoft Excel spreadsheet (1995)
	T3-KR.XLS	Table III.1 , III.3, III.4 and III.5 Microsoft Excel spreadsheet
	T4-KR.XLS	Table IV.1, IV.2, IV.3, IV.4 and IV.5 Microsoft Excel spreadsheet
	T5-KR.XLS	Table V.1, V.2 and V.3 Microsoft Excel spreadsheet
	T6-KR.XLS	Table VI.1 and VI.2 Microsoft Excel spreadsheet
\KZ		Kazakhstan Data
	T1-KZ.XLS	Table I.1 and I.2 Microsoft Excel spreadsheet
	T2-KZ.XLS	Table II.1 and II.2 Microsoft Excel spreadsheet
	T3-2KZ3A.XLS	Table III.2 Microsoft Excel spreadsheet (1993 Almatinskaya)
	T3-2KZ3C.XLS	Table III.2 Microsoft Excel spreadsheet (1993 Tcelinaya)
	T3-2KZ3Z.XLS	Table III.2 Microsoft Excel spreadsheet (1993 Zapadno-Kazakhstanskaya)
	T3-2KZ5A.XLS	Table III.2 Microsoft Excel spreadsheet (1995 Almatinskaya)
	T3-2KZ5C.XLS	Table III.2 Microsoft Excel spreadsheet (1995 Tcelinaya)
	T3-2KZ5Z.XLS	Table III.2 Microsoft Excel spreadsheet (1995 Zapadno-Kazakhstanskaya)
	T3-KZ.XLS	Table III.1 , III.3, III.4 and III.5 Microsoft Excel spreadsheet
	T4-KZ.XLS	Table IV.1, IV.2, IV.3, IV.4 and IV.5 Microsoft Excel spreadsheet
	T5-KZ.XLS	Table V.1, V.2 and V.3 Microsoft Excel spreadsheet
	T6-KZ.XLS	Table VI.1 and VI.2 Microsoft Excel spreadsheet
\TA		Tadjikistan Data
	T1-TA.XLS	Table I.1 and I.2 Microsoft Excel spreadsheet
	T2-TA.XLS	Table II.1 and II.2 Microsoft Excel spreadsheet
	T3-TA5.XLS	Table III.2 Microsoft Excel spreadsheet

	T3-TA.XLS	Table III.1 , III.3, III.4 and III.5 Microsoft Excel spreadsheet
	T4-TA.XLS	Table IV.1, IV.2, IV.3, IV.4 and IV.5 Microsoft Excel spreadsheet
	T5-TA.XLS	Table V.1, V.2 and V.3 Microsoft Excel spreadsheet
	T6-TA.XLS	Table VI.1 and VI.2 Microsoft Excel spreadsheet
\TU		Turkmenistan Data
	T1-TU.XLS	Table I.1 and I.2 Microsoft Excel spreadsheet
	T2-TU.XLS	Table II.1 and II.2 Microsoft Excel spreadsheet
	T3-TU.XLS	Table III.1 , III.3, III.4 and III.5 Microsoft Excel spreadsheet
	T4-TU.XLS	Table IV.1, IV.2, IV.3, IV.4 and IV.5 Microsoft Excel spreadsheet
	T5-TU.XLS	Table V.1, V.2 and V.3 Microsoft Excel spreadsheet
	T6-TU.XLS	Table VI.1 and VI.2 Microsoft Excel spreadsheet
\UZ		Uzbekistan Data
	T1-UZ.XLS	Table I.1 and I.2 Microsoft Excel spreadsheet
	T2-UZ.XLS	Table II.1 and II.2 Microsoft Excel spreadsheet
	T3-UZ5.XLS	Table III.2 Microsoft Excel spreadsheet
	T3-UZ.XLS	Table III.1 , III.3, III.4 and III.5 Microsoft Excel spreadsheet
	T4-UZ.XLS	Table IV.1, IV.2, IV.3, IV.4 and IV.5 Microsoft Excel spreadsheet
	T5-UZ.XLS	Table V.1, V.2 and V.3 Microsoft Excel spreadsheet
	T6-UZ.XLS	Table VI.1 and VI.2 Microsoft Excel spreadsheet
\IMP&EXP		All Country Data
	T1_3&4.XLS	Table I.3 and 1.4 Microsoft Excel spreadsheet
	T1_3&4M.XLS	Table I.3 and 1.4 Microsoft Excel spreadsheet (by mode only)
	T1_3&4OI.XLS	Table I.3 and 1.4 Microsoft Excel spreadsheet (by mode, oblast for import)
	T1_3&4OE.XLS	Table I.3 and 1.4 Microsoft Excel spreadsheet (by mode, oblast for export)
	T1-5.XLS	Table I.5 Microsoft Excel spreadsheet
\DATABASE	TRACECA.MDB	The Microsoft Access database file. (approx. 34 MB)