ECONOMIC COMMISSION
FOR EUROPE

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FOR ASIA AND THE PACIFIC

JOINT STUDY ON DEVELOPING EURO-ASIAN TRANSPORT LINKAGES

UNITED NATIONS

ECE - ESCAP JOINT STUDY ON DEVELOPING EURO-ASIAN TRANSPORT LINKAGES UNITED NATIONS

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Prepared under the United Nations Development Account Project on
"Capacity Building through Cooperation in
Developing Land and Land-Sea Interregional Transport Linkages"

UNITED NATIONS
New York and Geneva, 2008

NOTE

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FOREWORD

UNECE and UNESCAP are pleased to publish this study entitled "Developing Euro-Asian Transport Linkages" The study completed over the period 2003-2007 included the identification of the main Euro-Asian inland transport routes and the prioritization of 230 projects along these routes. It incorporates the development of a GIS database and maps; the initial analysis of transit transport obstacles and recommendations for dealing with them were presented at a number of national capacity-building activities pertaining to trade and transport facilitation.

We hope that this analysis will help provide a development framework for the on-going modernization of the Euro-Asian transport network and contribute, through the associated expansion of international trade and national per-capita incomes, to further economic growth, to opening the route towards enhanced participation in globalization and eventually to the achievement of peace and stability.

The development of the Euro-Asian transport links is of course a long-term process that requires first and foremost strong political will and commitment of the countries concerned. It also requires the careful use of scarce financial resources, and an appropriate balance between new development and maintenance/improvement of existing transport infrastructure. Moreover, intensive follow-up work and cooperation will be necessary among all the concerned parties and donors. The results presented in this study provide a solid basis for the continuation and further strengthening of such cooperation. To this end, UNECE and UNESCAP have jointly prepared a proposal for the uninterrupted continuation of the Euro-Asian Transport Links Project, in the years of 2008-2011. For this to happen however, funds will need to be secured.

The study is part of a United Nations Development Account-funded project, and has been made possible thanks to the commitment, skills, and determination of designated National Focal Points from 18 participating countries in the Euro-Asian region as well as the dedicated work of staff and external consultants of UNECE and UNESCAP.

We now need to collectively intensify efforts to implement the recommendations for the sustainable development of efficient, safe and secure Euro-Asian transport links.

Marek Belka
Executive Secretary
United Nations
Economic Commission for Europe

Noeleen Heyzer
Executive Secretary
United Nations Economic and Social Commission
for Asia and the Pacific

EXECUTIVE SUMMARY AND RECOMMENDATIONS

Reflecting the challenges of international, integrated, intermodal transport between Europe and Asia that include, for example, missing links in the infrastructure networks and excessive administrative burdens, the United Nations-Development Account project on "Capacity-building in developing interregional land and land-cum sea transport linkages" aimed to strengthen national capacities for the development of transport linkages in the participating countries. The project was carried out between 2002 and 2007, jointly by the United Nations Economic Commission for Europe (UNECE), the Economic and Social Commission for Asia and the Pacific (UNESCAP), the Economic Commission for Latin America and the Caribbean (ECLAC), the Economic Commission for Africa (ECA) and the Economic and Social Commission for Western Asia (ESCWA). The present study summarizes the results of the Euro-Asian component of the project, which has been implemented jointly by UNECE and UNESCAP and 18 participating countries. The outcomes were presented at the final meeting in October 2007.

From the outset the in-house study provides a review of international transport networks and initiatives linking Asia and Europe and a discussion – based on analysing shortcomings of the existing networks – of identified and adopted routes as Euro-Asian Transport Links. With the support of nominated national focal points, a series of expert group meetings initiated and discussed the collection, as well as the analysis of data on the countries' infrastructure and traffic patterns. As a result, nine EATL rail routes, seven EATL road routes and 16 EATL inland waterway routes as well as 48 EATL inland ports were identified to be prioritized in terms of financing and development. One indicator used to determine the status and the problems of international transport in the EATL context is the status of countries'accession to/implementation of key United Nations transport agreements and conventions, since their participation in coherent networks influences the availability of infrastructure and reduces transport facilitation burdens at border crossings. The study also discusses the future development of the network and the critical success factors (e.g. technical and operational factors, non-physical obstacles), and provides insights on priority infrastructure projects of international importance both in terms of ongoing and planned projects concerning the Euro-Asian Transport Linkages. In total, 230 projects along selected EATL routes with an aggregate value of US$ 43.4 billion were explored with the proposed methodology for prioritization of investment projects along three analytical phases: 1) Identification of projects based on availability of funding, 2) Evaluation according to functionality/coherence and socio-economic efficiency and sustainability criteria, 3) Prioritization according to a project's total score. The study presents the detailed results of the exercise per country.

Besides the major trend of growing merchandise trade between Europe and Asia impacting transport, the economic and social development of transit and landlocked developing countries are considered. Long transport times due to poor existing infrastructure and the particular export structure (e.g. few bulk, low value commodities, predominate among least developed neighbouring countries) called for the adoption of the Almaty Programme of Action in 2003 that aims at helping landlocked countries to become land-linking countries. Ownership structures (public vs. private), technical (e.g. environmental, security and safety measures) and operational (e.g. non-existent, non-respected or non-enforced transport regulation, lack of international harmonization) standards impose additional barriers to trade, which require appropriate and internationally harmonized legislative and institutional frameworks to increase the efficiency of transport. Participating countries were equipped with the revised UNESCAP Time/Cost-Distance Methodology to analyse 18 EATL routes. The detailed route analysis will shed light on non-physical obstacles at border crossings by comparing time and cost at the various stops and it will allow the identification of infrastructure issues by using the average speed as an indicator. The study presents in detail the route analysis for "Bishkek to Novosibirsk" and for "Tashkent to Istanbul".

As a result, the participating countries agreed to foster intermodality, especially multimodal container transport, and to continue cooperation among them under already established institutions. The study carves out the responsibility of governments to develop a common set of regulations and reporting requirements (e.g. road traffic, licensing and vehicle standards, access of foreign companies, visa, national security purposes), as well as the involvement of the private sector in the setting of industry standards (e.g. definition of operational and legal responsibilities, dispute settlement, insurance) based on international agreements. Strengthened intermodality is expected to change the competition between transport modes and to promote a shift to the more environmentally friendly rail transport. The need to establish and/or to strengthen national facilitation coordination mechanisms is emphasized, as a number of obstacles were identified in terms of border crossing and transport facilitation issues (e.g. transit transport), despite

the fact that the majority of countries participating in the EATL project are Contracting Parties to the TIR Convention. These obstacles include complex border crossing procedures, unsuitable or insufficient capacity, as well as the proliferation of taxes, duties, etc. In response, UNECE and UNESCAP developed eight recommendations on national coordination mechanisms to advise on purpose, form and role, strategy, organization and membership, functions, work programmes, funding/financing, regional and sub-regional coordination with other bodies and on strengthening through national action plans. In addition, harmonized legal regimes in transport are deemed crucial.

The EATL in-house study closes with a summary and recommendations on infrastructure development, transport facilitation, as well as on policy for the participating countries.

Recommendations – Euro-Asian Transport Linkages In-house Study

Recommendations on Infrastructure Development

1. It is of utmost importance to expedite the implementation of identified priority projects with secured funding to improve the competitiveness of EATL routes and relieve the major infrastructure bottlenecks identified by the Expert Group.

2. Taking into account that work on definition and formalization of infrastructure network has been done by both the UNECE and UNESCAP in their respective regions, namely through the AGR, AGC, AGTC, AGN and the AH and TAR Intergovernmental Agreements, countries participating in the EATL should concentrate their efforts on incorporating all the identified EATL routes within these networks as well as increasing the degree of functionality and coherence within and between the existing European and Asian networks (e.g. alleviation of bottlenecks, interoperability). Efforts concerning network expansion should follow when a satisfactory level of demand, functionality and coherence has been reached.

3. The Euro-Asian infrastructure development strategy should be based on national Master Plans, elaborated by the EATL participating Governments based on the existing sub-regional and regional agreements on infrastructure. The national Master Plans and their funding possibilities would thereafter be considered in sub-regional, regional and interregional context, within the Euro-Asian infrastructure development strategy.

4. In order to ensure/provide realistic information on the actual level of the investment expenditure needed to modernize the EATL network, the reporting countries with incomplete data are encouraged to timely provide more detailed information so that the evaluation exercise can be completed with the existing resources.

5. With a view to seeking funding of priority infrastructure projects, it is strongly recommended that experts from participating countries submit EATL project data on a permanent and continuous basis to the UNECE and UNESCAP. Both regional commissions should, in collaboration with International Financial Institutions, explore systematically the funding possibilities available for the implementation of priority projects.

6. Political will and long-term commitment from the countries concerned are pre-requisites for a successful implementation of the EATL investment programme; it is therefore recommended that this programme be included in the long-term national plans for infrastructure development.

Recommendations on Facilitation

1. The obstacles to the smooth movement of goods across international borders should be addressed in an integrated manner by all the authorities concerned and in consultation with the private sector. Partnership between the public and private sectors is indispensable to accelerate progress in transport facilitation.

2. Countries participating in the EATL project should focus on capacity building. Particular emphasis on activities aimed at strengthening the capacities of national officials from the various agencies dealing with border-crossing formalities and procedures is advisable.

3. The UNESCAP time/cost-distance methodology should be used to identify and isolate the bottlenecks, as well as to assess the success of facilitation measures and the competitiveness of the identified routes with periodic snapshots.

4. Greater and more effective effort is needed to promote, accede to and implement the international legal instruments relating to transport facilitation in general and in the area of border-crossing facilitation in particular.

5. The establishment and strengthening of appropriate national trade and transport facilitation mechanisms with the participation of Government officials and representatives from the private sector, as appropriate, would be necessary in each of the EATL participating countries. This would also contribute to the coordination between the EATL Focal Points and other stakeholders.

6. Sharing experiences and best practices among concerned countries as well as regular assessment and monitoring of progress at the major border-crossing points along the Euro-Asian transport routes should be ongoing processes in the framework of the EATL project.

Recommendations on Policy

1. The project results of both infrastructure and facilitation exercises should be brought to the attention of the appropriate bodies in the UNECE and UNESCAP for consideration of potential follow-up actions in the framework of their regular legislative and normative work.

2. The establishment of a suitable mechanism ensuring efficient coordination and monitoring of activities related to Euro-Asian links should be considered.

3. The following activities, among others, should be considered “best practices” on developing transport infrastructure and facilitation of international transport in Europe and Asia:

   - the TEM and TER projects as well as their Master Plan;
   - the EU High Level Group;
   - the UNESCAP time/cost-distance methodology;
   - the development of freight villages concept;
   - the IRU (for road) and TER project (for rail) border crossing monitoring activities;
   - the co-financing of the development and upgrading of the AH network;
   - the demonstration runs of container block trains.

4. It is indispensable to build on the experiences gained from the implementation of the joint UNECE-UNESCAP Euro-Asian transport links project. These experiences include any outcomes of activities linked to the identification of priority routes, project prioritization, application of the time/cost-distance methodology, creation of a GIS database, new IT technologies, capacity building and continuation of the Euro-Asian transport links project.

5. The continuation of the EATL project in a new Phase II (2008-2011) is of outmost importance. UNECE and UNESCAP have jointly elaborated and submitted for funding a concrete proposal for Phase II of the project. Sufficient funds need to be ensured.

PART I

INTRODUCTION AND OVERVIEW OF THE STUDY

1.1 Introduction

The break-up of the former Soviet Union in 1991 has marked a period of significant transition for its fifteen former members as they have moved from exporting goods primarily within the Union and the COMECON block in the institutional context of central planning to a situation where these countries have been forced to restructure non-viable industries and search for new export markets. Wealthy economies of Western Europe have provided an attractive destination for exports in this regard. Moreover, three former Soviet Republics (Estonia, Latvia and Lithuania) joined the European Union in 2004.

The break-up also caused considerable economic hardship in the affected countries, partly due to the sharp reduction in exports as demand from traditional recipients within the former Soviet Union and the COMECON area fell or ceased completely. Aside from the three former Soviet Republics mentioned above, the macroeconomic shock of this size has not surprisingly taken considerable time to recover from, and most of the twelve countries in the Eastern Europe, Caucasus and Central Asia (EECCA) sub-region are now at output and trade levels which are at or above their 1991 benchmarks.

With Bulgaria and Romania having joined the EU on 1 January 2007, with Croatia and Turkey in accession negotiations, the frontiers of the European Union slowly move further east, and this presents greater opportunities for the EECCA nations to export inter-regionally and to gain access to new markets. Moreover, the EU enlargement also reduces the number of border crossing procedures that are required when exporting goods to European markets: the EU is a Customs Union where the border formalities are minimal, and the risk of unnecessary bureaucracy is diminished.

The success of the Euro-Asian land transport routes ultimately remains sensitive to numerous factors, including cost, reliability and time. However, much remains to be done to overcome the lack of appropriate infrastructure and transport equipment, non-harmonized legislation, and institutions and practices that are conducive to unofficial payments and red tape. The high transport costs and the longer time for goods to reach the markets make exports from EECCA countries relatively expensive, harming their competitiveness.

Promoting improvements to land transport connections necessitates a comprehensive, cooperative approach: financing their materialization must follow defining the infrastructure connections. Furthermore, good infrastructure alone is of small use if it is not accompanied by transport facilitation measures to boost trade and economic growth.

1.2 Common UNECE-UNESCAP strategic vision for Euro-Asian transport links

The desire of European and Asian countries to further connect and integrate their transport systems was first reflected in the declarations made by the International Euro-Asian Conference on Transport of May 1998 in St. Petersburg, Russian Federation; this desire was later elaborated upon in declarations in 2000 and 2003.

In 2000, UNECE and UNESCAP put forward their “Common UNECE-UNESCAP Strategic Vision for Euro-Asian transport links” at the second International Euro-Asian Conference on Transport, held in St. Petersburg in 2000. The vision was subsequently expanded and reviewed by the UNECE Working Party on Transport Trends and Economics (2001) and adopted by the UNECE Inland Transport Committee (2002).

Aiming to prioritize and focus the efforts on upgrading and improving important transport links between Europe and Asia, the Strategic Vision proposed four major Euro-Asian transport corridors (Trans-Siberian, TRACECA, Southern, and North-South), defined as follows:

- Trans-Siberian: Europe (PETC II, III and IX) – Russian Federation – Japan, with three branches from the Russian Federation to:
  - Kazakhstan-China
  - Korean Peninsula
  - Mongolia-China
- TRACECA: Eastern Europe (PETC IV, VII, VIII, IX) – across Black Sea – Caucasus – across Caspian Sea – Central Asia
- Southern route: South-Eastern Europe (PETC IV) – Turkey – Islamic Republic of Iran, with two branches to:
  - Central Asia – China
  - South Asia – South-East Asia/Southern China
- North-South: North Europe (PETC IX) – Russian Federation, with three branches to:
  - Caucasus – Persian Gulf
  - Central Asia – Persian Gulf
  - Across Caspian Sea – Islamic Republic of Iran – Persian Gulf

Defining these corridors has given policy makers a first planning framework for improvements in transport connectivity and operations between Europe and Asia, whilst leaving them some flexibility about the routes that are considered within the corridors. This work was further expanded by the Development Account project entitled “Capacity Building Through Cooperation in Developing Inter-Regional Land and Land-Cum-Sea Transport Linkages”, or in shorthand, the “Euro-Asian transport links Project”.

The Euro-Asian transport links Project

The project brings together the United Nations’ five regional commissions – UNESCAP, UNECE, ESCWA, ECLAC and ECA - ensuring that a truly comprehensive approach is taken. The UNECE-UNESCAP component was designed to follow-up on the “Common UNECE-UNESCAP Strategic Vision for Euro-Asian Transport Links.”

The project aims to assist Member States in strengthening their national capacities for developing inter-regional land and land-cum-sea transport linkages, and to assess their expected impact on regional and economic development. It also aims to strengthen the capacities of national officials in (inter alia) identifying major impediments to the smooth movement of goods internationally, including inefficient border crossing practices and poor implementation of international conventions; physical infrastructure provision and quality; non-physical obstacles to inter- and intra-regional trade.

Countries invited to participate are: Afghanistan, Armenia, Azerbaijan, Belarus, Bulgaria, China, Georgia, Islamic Republic of Iran, Kazakhstan, Kyrgyzstan, Moldova, Romania, Russian Federation, Tajikistan, Turkey, Turkmenistan, Ukraine and Uzbekistan.

The project complements other initiatives, particularly focused on the Central Asian sub-region, such as the United Nations Special Programme for the Economies of Central Asia (SPECA). This Programme has been initiated jointly by the UNECE and UNESCAP in 1998, after consultations with Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan (Afghanistan and Azerbaijan joined later). It concentrates on economic issues of concern to the Central Asian Republics, assisting the participating countries to strengthen cooperation for their economic development through more efficient use of resources and facilitating their integration into Europe and Asia respectively.

The implementation of the programme started from selecting priority areas and setting up project working groups in those areas. Currently SPECA is dealing with transport and border crossing; electrical energy production and distribution; water management; sub-regional cooperation on diversification of gas and oil pipeline routes; the International Economic Conference on Tajikistan; attraction of foreign direct investment into the countries of the sub-region; protection of the environment and development of small and medium enterprises.

1.3 Overview and objectives of the study, including its importance to landlocked countries

This study focuses primarily on the movement of tradable goods both within and between sub-regions – particularly those that are able to be consolidated and shipped via standard twenty or forty foot containers. Energy exports such as crude oil and natural gas – whilst of considerable economic importance – are not considered in this study because their delivery methods differ from those of standard goods exports. Agricultural exports are not necessarily excluded, given that often they can be moved by containers, which can be refrigerated as required in the case of perishable foodstuffs, for example.

Study Aims and Scope

The indentification of routes by experts from countries involved in the "Euro-Asian transport links Project" naturally raises questions as to the quality and condition of those routes, and on how well these routes are currently functioning as international connections (and by extension, how they could be further improved). However, given the size, diversity and number of transport issues in the Central Asian sub-region, this study does not envision covering all issues relating to transport, nor can it describe in detail the transport infrastructure of the region. Rather, the study focuses on three main objectives, which are to: examine the current status of Europe-Asian transport connections; evaluate land-based transport routes that may be viable alternatives to traditional maritime routes; and suggest ways by which those potential routes might be improved.

This study does not deal with the movement of people or with specific aspects of trade, but focuses on the movement of goods between countries, especially on those goods that are transported in standardised twenty and forty foot containers; it also considers other methods to transport goods. The smooth movement of freight across borders essentially depends on efficient border crossing procedures and formalities; therefore, the study also examines the issues related to border crossings.

Study Structure

The study is structured as follows:

Part II provides a review of international transport networks and initiatives linking Asia and Europe, divided into those networks that are supported by the United Nations System, and those networks that are supported by other international bodies.

Part III describes the routes that have been adopted as Euro-Asian Transport Linkages. This part also includes consideration of the status and problems of international transport in the region in the context of Euro-Asian Transport Links.

Part IV considers future development of the Euro-Asian transport linkages, and addresses the most important issues that will affect the progression of the network, including traffic flows, technical and operational aspects, and non-physical aspects (including border crossing issues).

Part V examines priority infrastructure projects of international importance that are ongoing, planned or newly proposed.

Part VI presents conclusions and recommendations.

Annex I consists of country reports that describe briefly national transport networks, border-crossing points and main infrastructure projects.

Annex II includes a summary list of international UNECE and UNESCAP legal instruments in the field of transport.

Annex III provides a summary list of EU legislation for transport infrastructure.

PART II

REVIEW OF INTERNATIONAL TRANSPORT NETWORKS AND INITIATIVES LINKING ASIA AND EUROPE

2.1 International transport networks supported by the United Nations system

2.1.1 The E-road network: UNECE European Agreement on Main International Traffic Arteries (AGR)

The European Agreement on Main International Traffic Arteries (AGR) provides all member Governments with the international legal framework for the construction and development of a coherent international road network, aiming to streamline international road transport and traffic throughout the UNECE region. The AGR defines the E road network, consisting of the arteries channelling major international road traffic flows in Europe, and the infrastructure parameters to which those arteries should conform. The AGR is constantly kept under review and updated whenever necessary to adapt it to new political and transport developments.

It underwent a major revision in the early 1990s following the fall of the Iron Curtain in order to take into account new East-West traffic flows. It has undergone another major revision in recent years in order to also include the international roads of the countries in the Caucasus and Central Asia. States that become Contracting Parties to the AGR commit themselves to its implementation, including the construction or upgrading of the E-roads in their territories, within the framework of their national investment programmes, although they are given complete latitude as to the timing for the completion of construction works. To date, 36 States have become Contracting Parties to the AGR.[1]

Annex II of the Agreement contains conditions to which the Main International Traffic Arteries should conform. It includes the classification of international roads as well as their geometric characteristics, equipment, environment, landscaping and maintenance. Maps of the AGR network and its recent extension to the Caucasus and Central Asia are presented below in Figures 2.1 and 2.2.

2.1.2 The E-rail network: UNECE European Agreement on Main International Railway Lines (AGC)

Resembling the AGR, the European Agreement on Main International Railway Lines (AGC) provides the international legal framework for the development of a coherent international rail network in Europe, aiming to facilitate international rail traffic throughout the continent. The AGC identifies the rail lines of major international importance, the E-rail network, and defines the infrastructure parameters to which they should conform. It defines infrastructure parameters for two categories of lines: those already existing and those to be newly constructed. The latter are again divided into the lines for freight and passenger traffic and those for passenger traffic only.

[1] Austria, Azerbaijan, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Denmark, Finland, France, Georgia, Germany, Greece, Hungary, Italy, Kazakhstan, Latvia, Lithuania, Luxembourg, Montenegro, Netherlands, Norway, Poland, Portugal, Romania, Russian Federation, Serbia, Slovakia, Slovenia, Sweden, Switzerland, The Former Yugoslav Republic of Macedonia, Turkey, Ukraine and United Kingdom.

The AGC is also revised whenever necessary to take due account of political and transport changes in Europe. It has undergone a major revision in recent years in order to include the international railroads of the countries in the Caucasus and Central Asia. In becoming Contracting Parties to the AGC, European States commit themselves to its implementation, including the construction or the upgrading of the E-rail lines in their territories, within the framework of their national programmes but without any time constraints. Until now 28 States have become Parties to the AGC.[2]

Annex II of the Agreement contains technical characteristics of Main International Railway Lines that include key infrastructure parameters and standards for tracks, railway crossings and stations. Maps of the AGC network and its recent extension to the Caucasus and Central Asia are presented below in Figures 2.3 and 2.4.

2.1.3 The E-Combined Transport network: UNECE European Agreement on Important International Combined Transport Lines and Related Installations (AGTC)

The European Agreement on Important International Combined Transport Lines and Related Installations (AGTC) provides the technical and legal framework for the development of efficient international combined road/rail transport infrastructure and services. Combined road/rail transport comprises the transport of containers, swap bodies and entire trucks on railway wagons to and from especially equipped terminals.

The AGTC determines all important European railway lines used for international combined transport, identifies all terminals, border crossing points, ferry links and other installations important for international combined transport services. It also establishes internationally acceptable infrastructure standards for those lines and related combined transport installations, and prescribes internationally acceptable performance parameters of trains and combined transport installations and equipment. European States that become Contracting Parties to the AGTC commit themselves to its implementation, including the construction or the upgrading of the railway lines and related combined transport installations in their territories, within the framework of their national programmes but without any time constraints.

The AGTC entered into force on 20 October 1993. To date, 29 States have become Parties to the AGTC.[3] In addition to the performance parameters of trains and minimum infrastructure standards required for efficient international combined transport services, the Agreement also contains technical characteristics of the network of Important International Combined Transport Lines as well as the list of terminals, border crossing points and the gauge interchange stations of importance for international combined transport. A map of the AGTC network is presented below. (Figure 2.5).

[2] Albania, Austria, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, France, Germany, Greece, Hungary, Italy, Latvia, Lithuania, Luxembourg, Moldova, Montenegro, Poland, Portugal, Romania, Russian Federation, Serbia, Slovakia, Slovenia, The Former Yugoslav Republic of Macedonia, Turkey and Ukraine.

[3] Austria, Belarus, Belgium, Bulgaria, Croatia, Czech Republic, Denmark, Finland, France, Georgia, Germany, Greece, Hungary, Italy, Kazakhstan, Luxembourg, Netherlands, Norway, Poland, Portugal, Moldova, Romania, Russian Federation, Serbia, Slovakia, Slovenia, Switzerland, Turkey and Ukraine.

FIGURE 2.1 AGR (E-ROAD) NETWORK

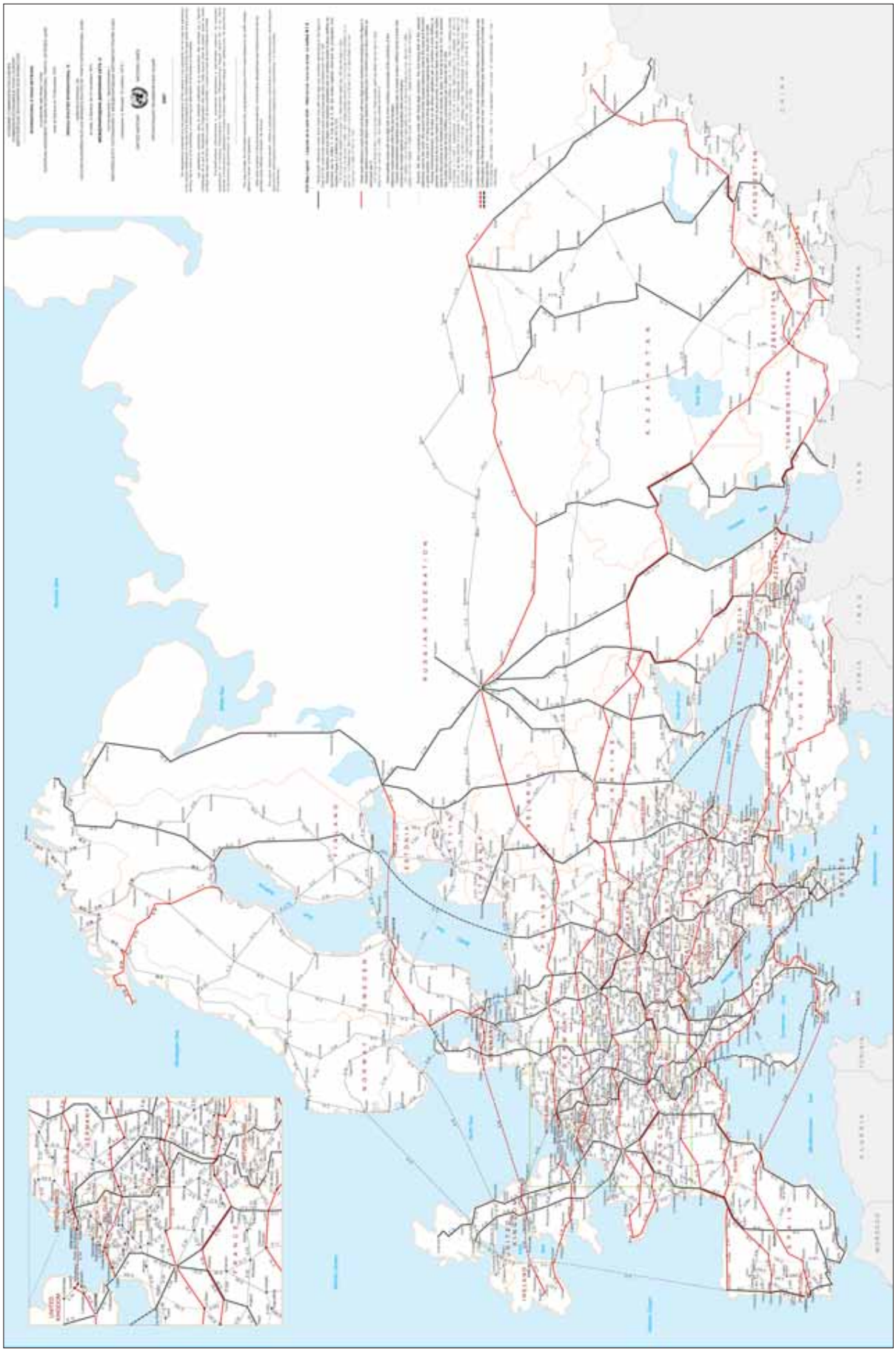


FIGURE 2.2 AGR (E-ROAD) NETWORK IN THE CAUCASUS AND CENTRAL ASIA

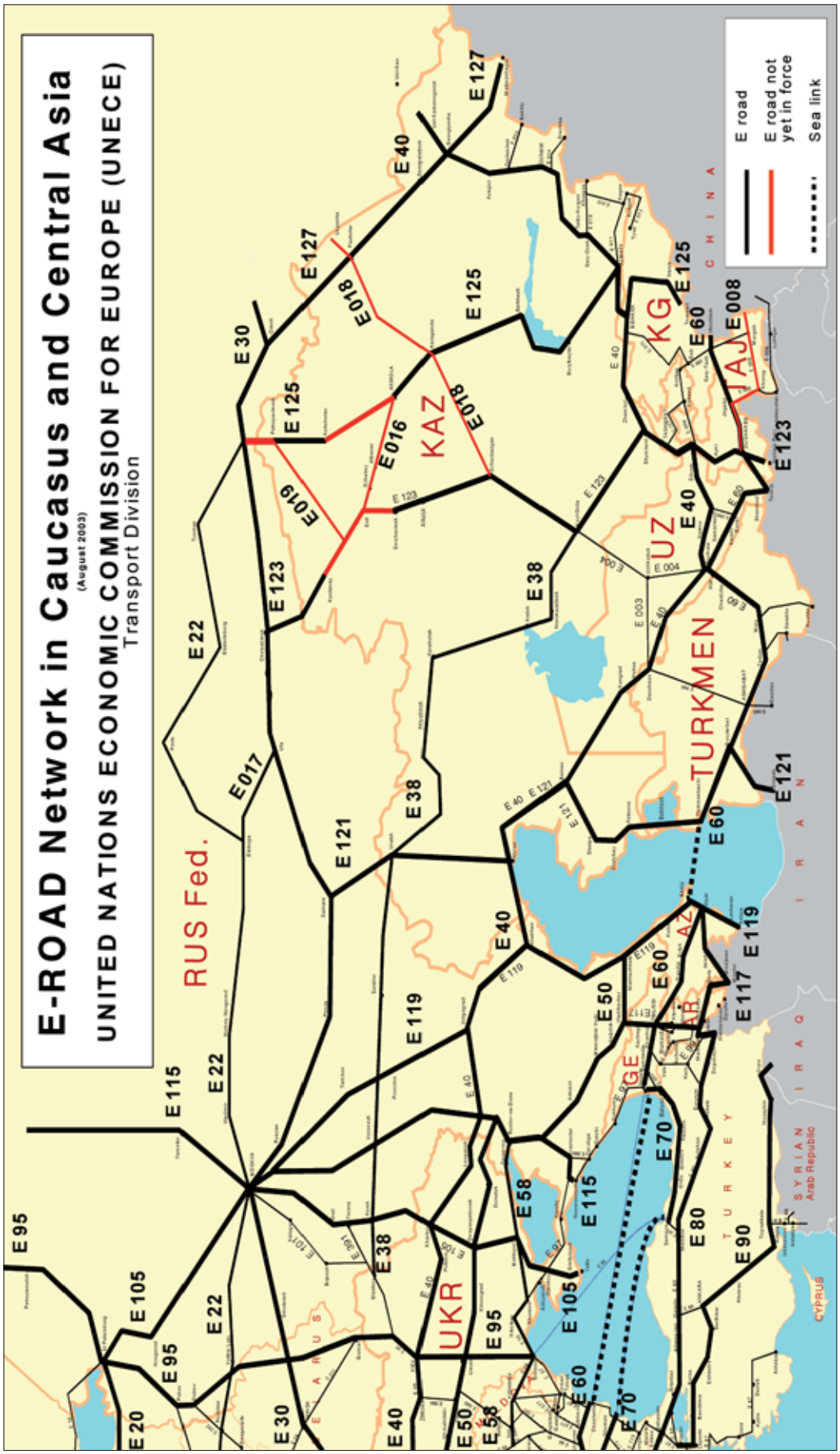


FIGURE 2.3 AGC (E-RAIL) NETWORK

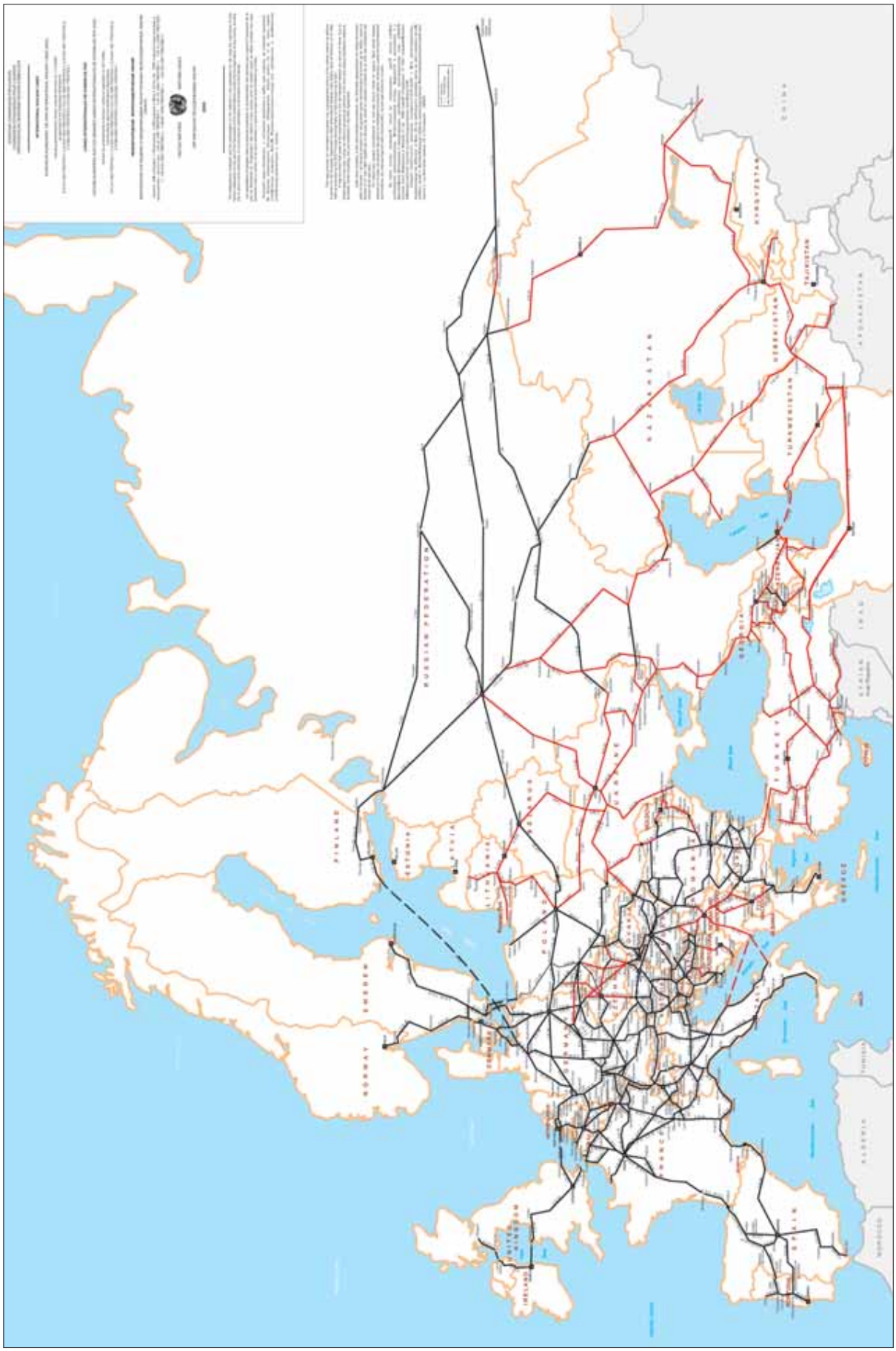


FIGURE 2.4 AGC (E-RAIL) NETWORK IN THE CAUCASUS AND CENTRAL ASIA

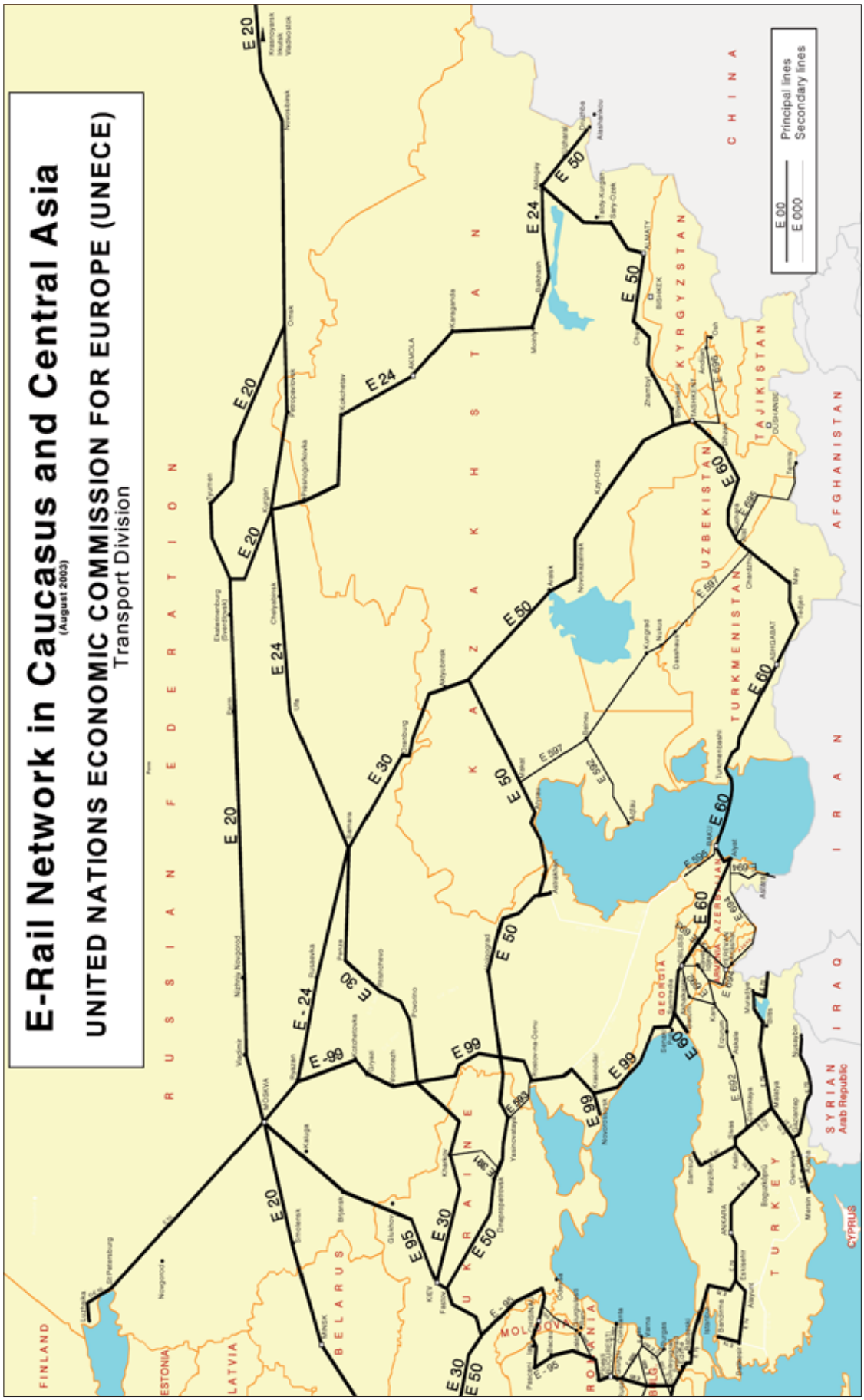


FIGURE 2.5 AGTC NETWORK

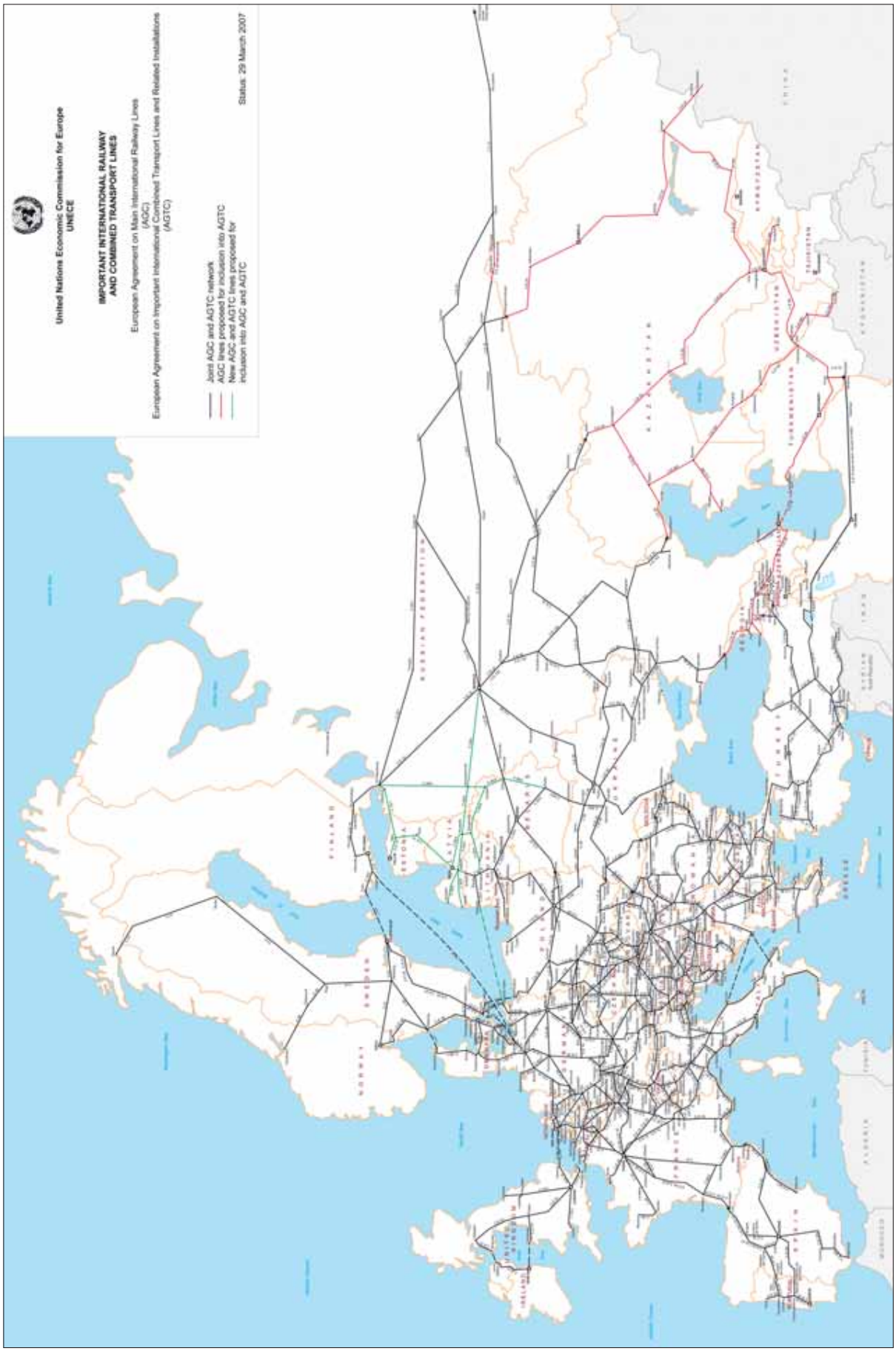


FIGURE 2.6 AGN NETWORK

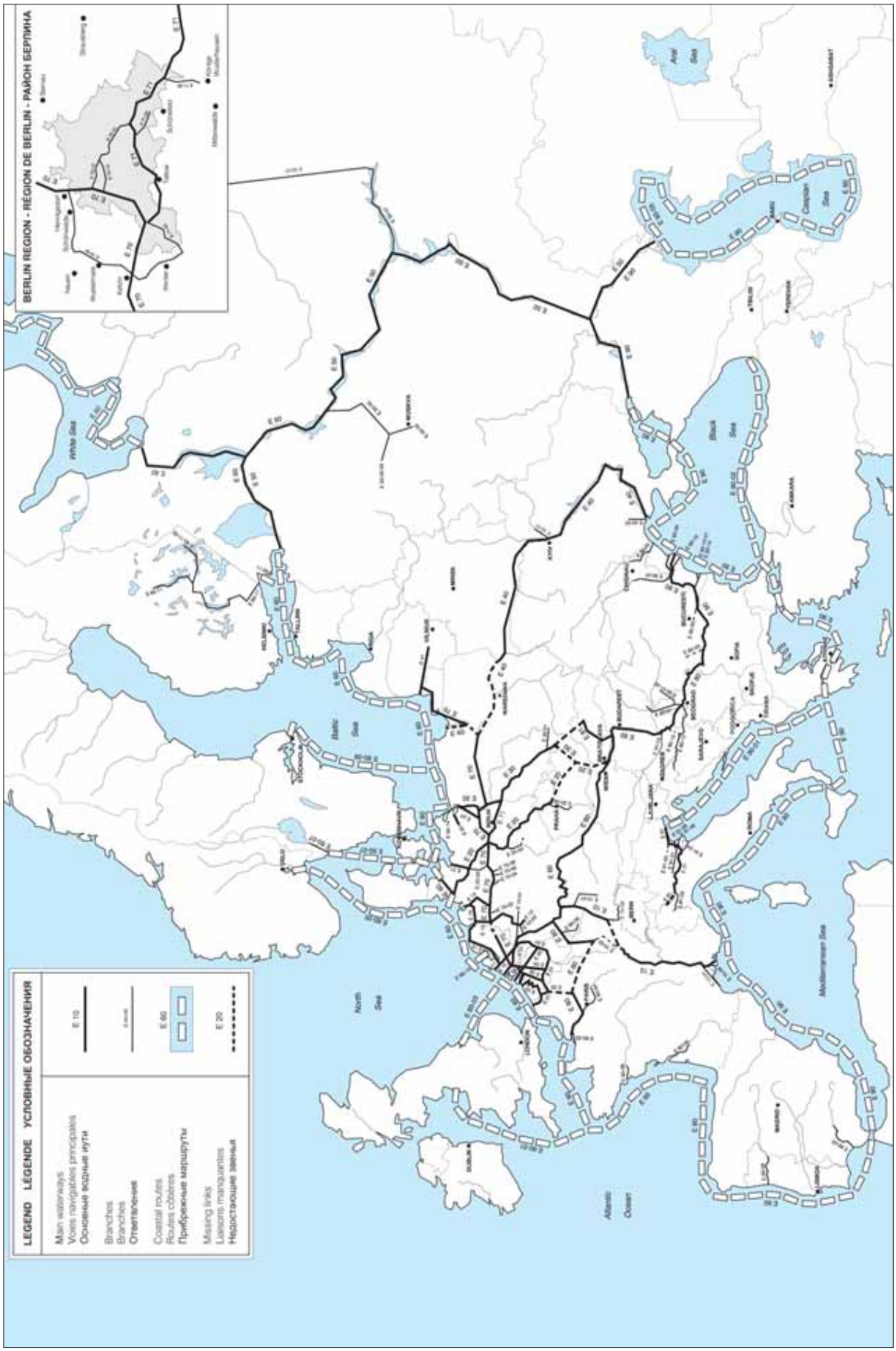


FIGURE 2.7 ASIAN HIGHWAY NETWORK

FIGURE 2.8 TRANS-ASIAN RAILWAY NETWORK

FIGURE 2.9 TEM MASTER PLAN BACKBONE NETWORK

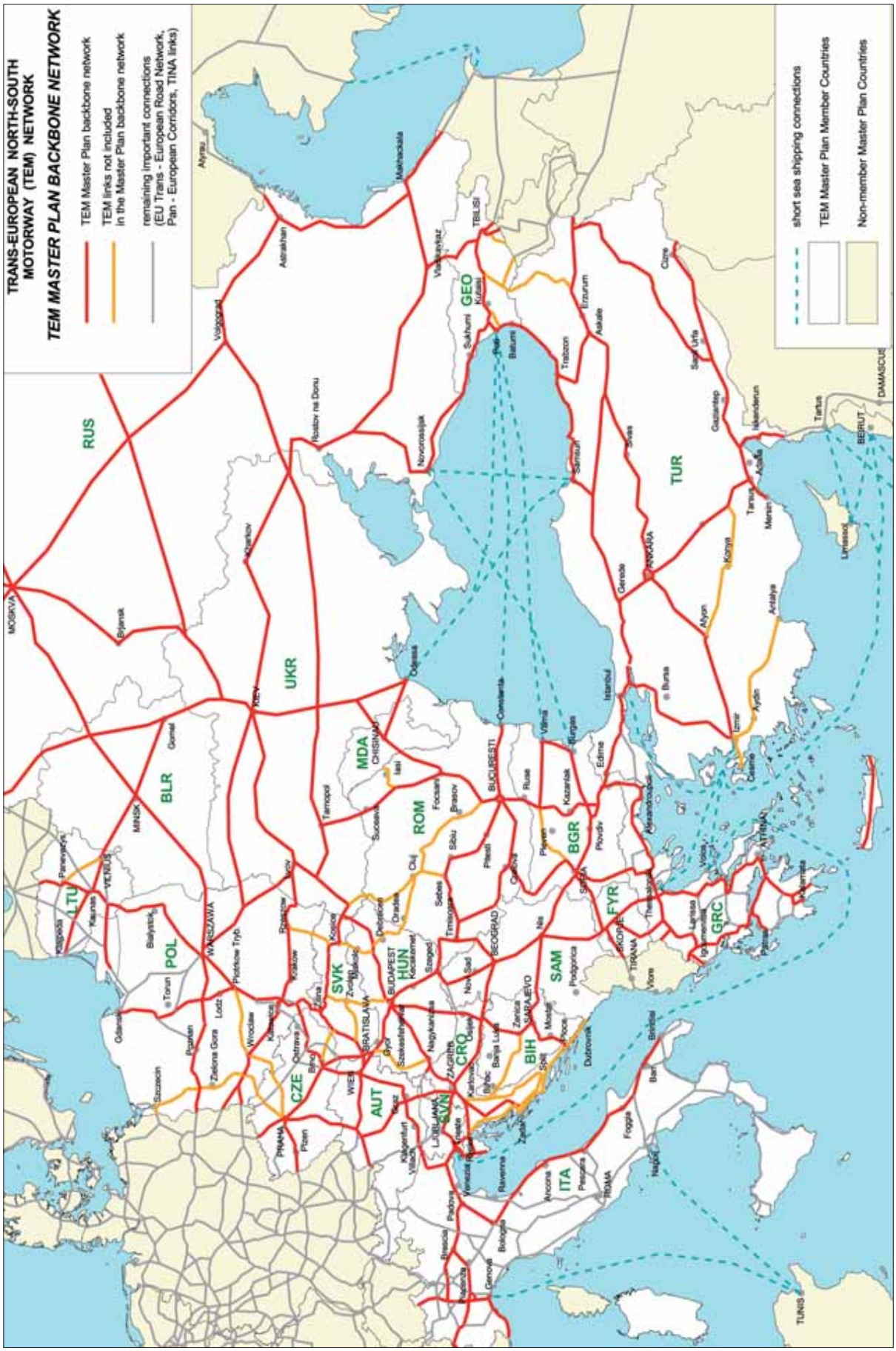


FIGURE 2.10 TER MASTER PLAN BACKBONE NETWORK

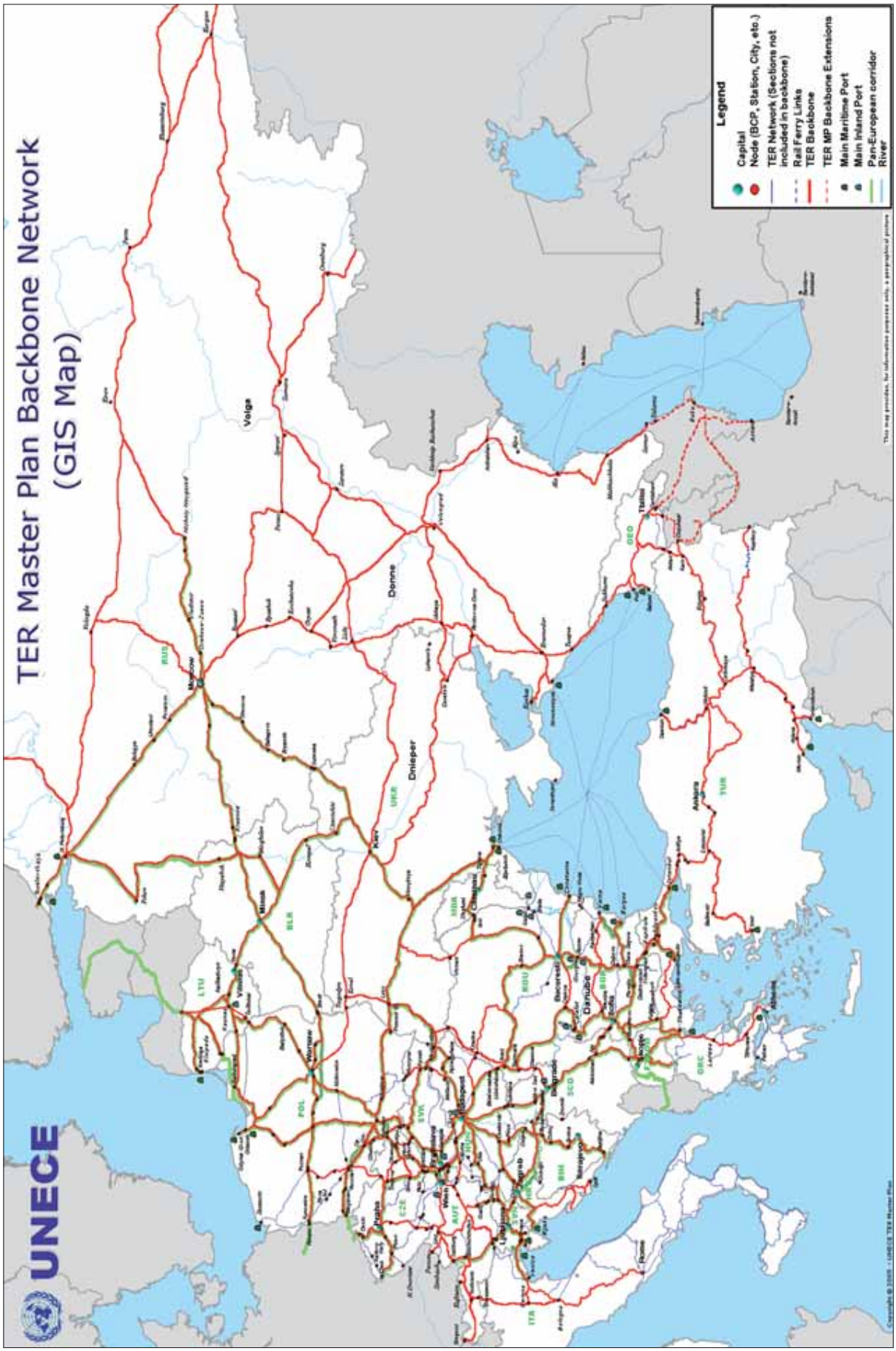


FIGURE 2.11 ROAD NETWORK IN THE SPECA REGION

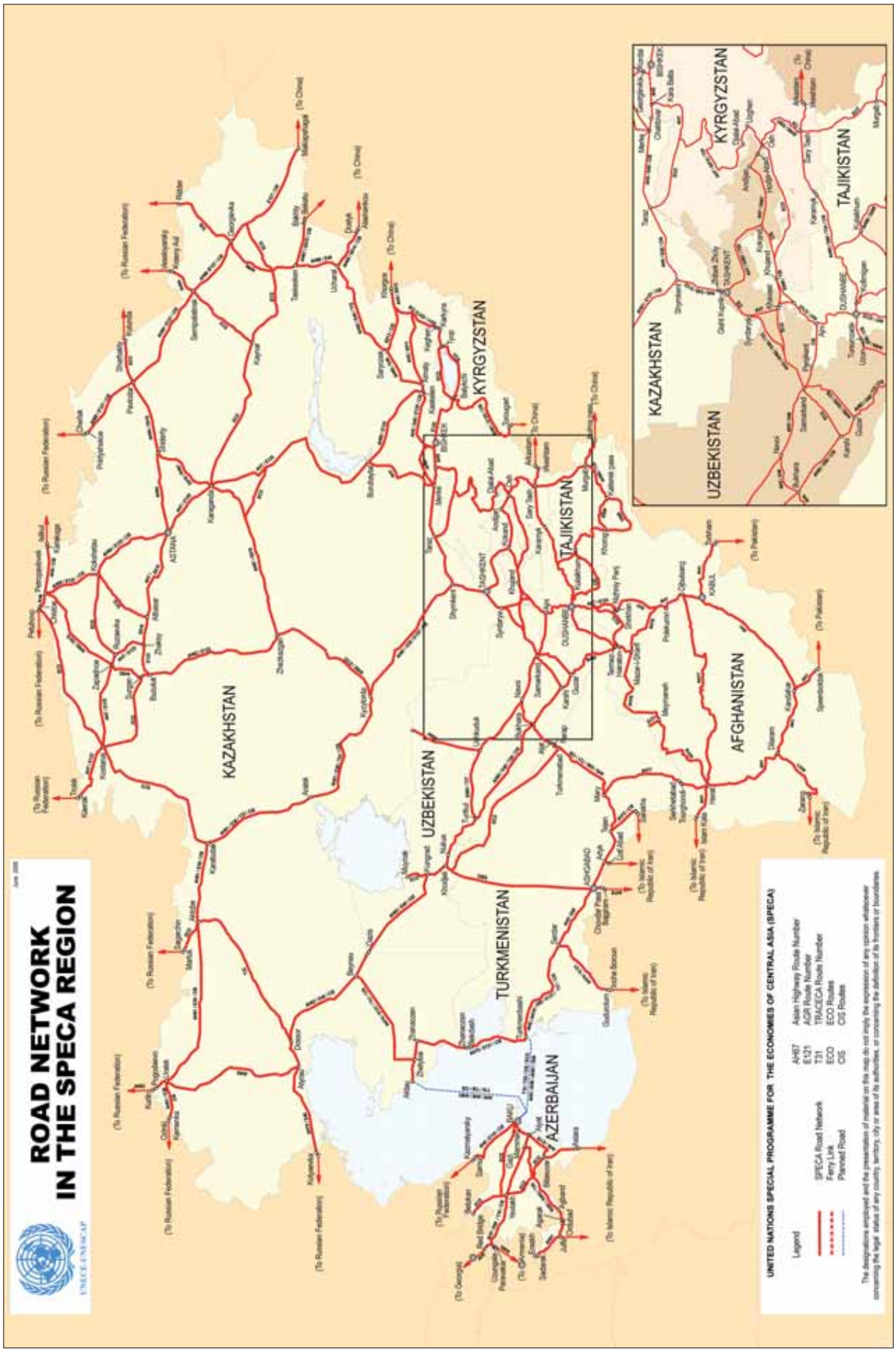
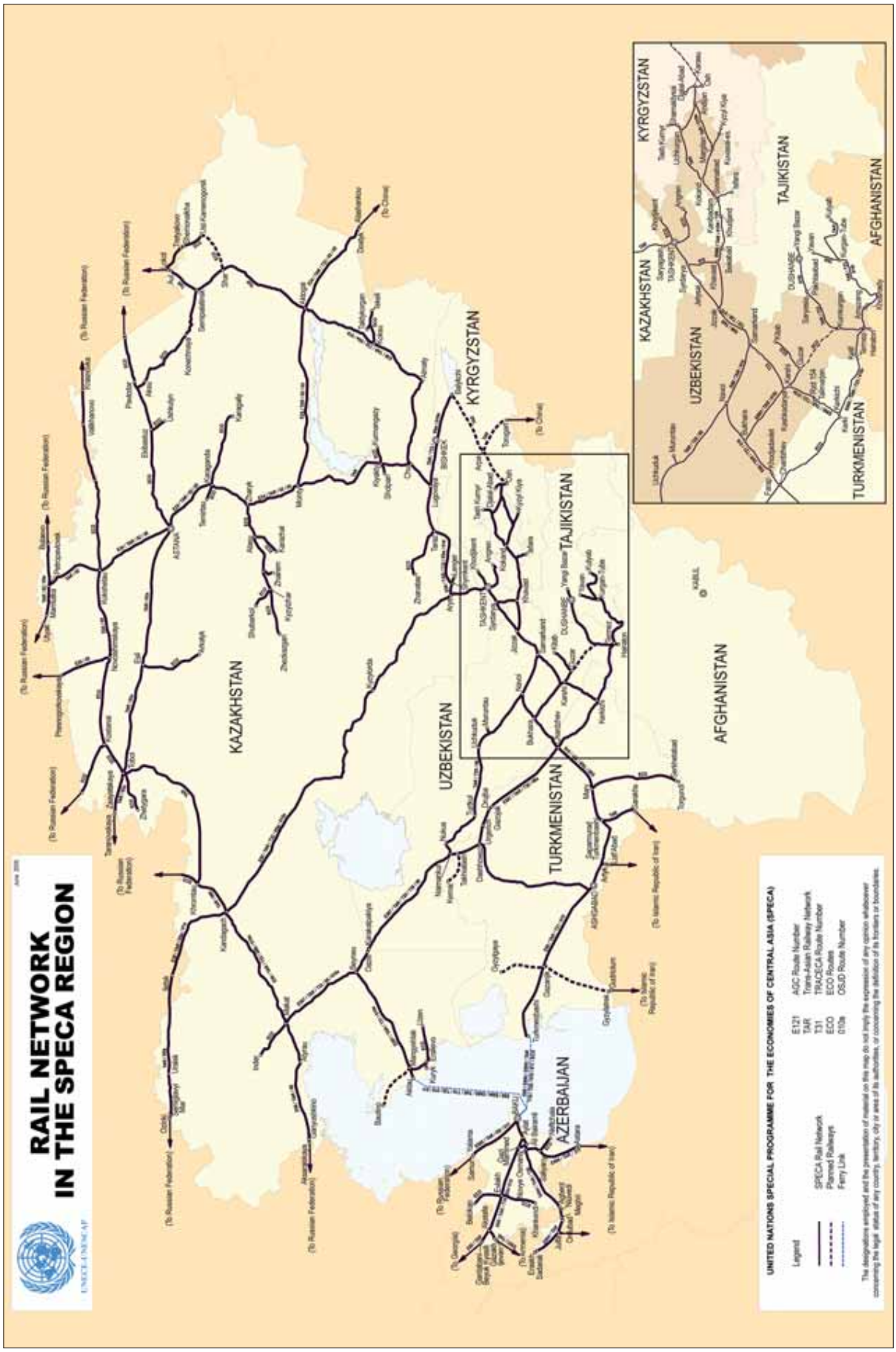


FIGURE 2.12 RAIL NETWORK IN THE SPECA REGION



2.1.4 The E-Inland Waterways network: UNECE European Agreement on Main Inland Waterways of International Importance (AGN)

The geographical scope of the E waterways network, consisting of navigable rivers, canals and coastal routes, extends from the Atlantic to the Urals, connecting 37 countries and reaching beyond the European region.

By acceding to the AGN, Governments commit themselves to the development and construction of their inland waterways and ports of international importance in accordance with the uniform conditions agreed upon and within their relevant investment programmes. The AGN entered into force on 26 July 1999. To date, 18 European States have become Parties to the AGN.[4]

The Protocol on Combined Transport on Inland Waterways to the European Agreement on Important International Combined Transport Lines and Related Installations (AGTC) establishes uniform requirements to be met by the infrastructures and services of combined transport using inland waterways. This Protocol has been signed by 12 States, of which 7 have already deposited an instrument of ratification or acceptance. The Protocol will come into force upon ratification or acceptance by five States, three of which are linked in a continuous manner by the waterways identified in the Protocol.

Annex II of the Agreement lists inland navigation ports of international importance, while Annex III sets out technical and operational characteristics of inland waterways of international importance.[5] A map of the AGN network is presented above in Figure 2.6.

2.1.5 Asian Highway network (AH)

In order to meet the increasing demand for reliable and efficient land transport linkages and services in the Asian Pacific region, the Asian Highway (AH) project was initiated to promote the development of international road transport. Under the Asian Land Transport Infrastructure Development (ALTID) project of UNESCAP, the member countries have adopted the Asian Highway Network of 141,000 km in 32 countries with coordinated alignment, unified standards and signage (see Figure 2.7).

The links forming the AH network (as well as Trans-Asian Railway network) were identified by the participating countries in accordance with agreed criteria. The link had to fulfil one or more of the following:

- capital to capital link (for international transport);
- connection to main industrial and agricultural centres (link to important origin and destination points);
- connection to major sea and river ports (integration of land and sea transport networks);
- connection to major container terminals and depots (integration of rail and road networks);

  and
- major tourist attractions.

[4] Austria, Bulgaria, Croatia, Czech Republic, Finland, France, Germany, Greece, Hungary, Italy, Lithuania, Luxembourg, Netherlands, Moldova, Romania, Russian Federation, Slovakia and Switzerland.

[5] Details of the AGR, AGC, AGTC and AGN Agreements as well as their Annexes are available at the following website: <http://www.unece.org/trans/conventn/legalinst.html>

The AH network was formalized through the Intergovernmental Agreement on the Asian Highway Network, which entered into force on 4 July 2005. As of February 2007, the Agreement has been signed by 28 countries, of which 20 are Parties[6] to the agreement.

The main obligations of the Contracting Parties within the Agreement are to: (a) adopt the Asian Highway network as a coordinated plan for the development of highway routes of international importance; (b) bring the network into conformity with the Asian Highway classification and design standards; and (c) place Asian Highway route signs along the network.[7]

The Asian Highway routes are classified into four types: (a) Primary (four or more lanes, access controlled); (b) Class I (four or more lanes); (c) Class II (two lanes); and (d) Class III (two lanes). Various technical parameters for type of Asian Highway depend on the classification, terrain and design speed. Table 1 provides a summary of Asian Highway classification and design standards. Currently, 15.8 per cent of the 141,000 km of the Asian Highway network is below the minimum Class III standard specified in the Agreement.

UNESCAP implemented a project to review the status of development as well as identify investment needs and priorities for the development of the Asian Highway network. The project revealed that about US$ 26 billion is currently being invested or committed to the development of 37,000 km of Asian Highway routes in member countries. A shortfall of US$ 18 billion was also identified in the investment required to upgrade and improve about 26,000 km of priority sections of the Asian Highway, of which the Central Asian and Caucasus countries account for around a third or US$ 6 billion.

TABLE 2.1 ASIAN HIGHWAY CLASSIFICATION AND DESIGN STANDARDS

Highway classification		PRIMARY (4 or more lanes)				Class I (4 or more lanes)				Class II (2 lanes)				Class III (2 lanes)			
Terrain classification		L	R	M	S	L	R	M	S	L	R	M	S	L	R	M	S
Design speed (km/h)		120	100	80	60	100	80		50	80	60	50	40	60	50	40	30
Width (m)	Right of way	(50)				(40)				(40)				(30)			
	Lane	3.50				3.50				3.50				3.00 (3.25)			
	Shoulder	3.00		2.50		3.00		2.50		2.50		2.00		1.5 (2.0)		0.75 (1.5)	
	Median strip	4.00		3.00		3.00		2.50		N/A		N/A		N/A		N/A	
Min. radii of horizontal curve (m)		520	350	210	115	350	210		80	210	115	80	50	115	80	50	30
Pavement slope (%)		2				2				2				2 - 5			
Shoulder slope (%)		3 - 6				3 – 6				3 – 6				3 - 6			
Type of pavement		Asphalt/cement concrete				Asphalt/cement concrete				Asphalt/cement concrete				Dbl. bituminous treatment			
Max. Super elevation (%)		10				10				10				10			
Max. vertical grade (%)		4	5	6	7	4	5	6	7	4	5	6	7	4	5	6	7
Structure loading (minimum)		HS20-44				HS20-44				HS20-44				HS20-44			

Notes: Figures in parentheses are desirable values.
Minimum radii of horizontal curve should be determined in conjunction with super elevation.
The recommended width of the median can be reduced with the proper type of guard fence.
The Parties should apply their national standards when constructing structures such as bridges, culverts and tunnels along the Asian Highway.

[6] Afghanistan, Armenia, Azerbaijan, Bhutan, Cambodia, China, Georgia, India, Japan, Kyrgyzstan, Mongolia, Myanmar, Pakistan, Republic of Korea, Russian Federation, Sri Lanka, Tajikistan, Thailand, Uzbekistan and Viet Nam.

[7] Details of the Asian Highway Agreement as well as its Annexes are available at the UNESCAP website: <http://www.unescap.org/ttdw/common/tis/AH/AH-Agreement-E.pdf>

As a follow-up project, UNESCAP is now undertaking pilot pre-feasibility studies of selected priority projects. UNESCAP continues to work to promote the development of the Asian Highway in collaboration with member States, bilateral and multilateral donors and other interested organizations.

The Agreement also provides for the establishment of a Working Group on the Asian Highway to consider its implementation and any proposed amendments as well as to discuss progress in development policies and issues relating to international road transport. The first meeting of the Working Group was held in Bangkok on 14 and 15 December 2005 and the second meeting is planned on 15 and 16 November 2007.

2.1.6 Trans-Asian Railway network

The Trans-Asian Railway (TAR) originally consisted of a Southern corridor going through South-East Asia, Bangladesh, India, the Islamic Republic of Iran, Pakistan and Turkey, but was later expanded under the Asian Land Transport Infrastructure Development (ALTID) project to cover the whole of Asia. It was made possible by a lessening of political tensions between some of the countries involved, the prospects of rapid economic development in the region and implicitly the possibility of greater economic exchanges within it.

Accordingly, UNESCAP concluded a feasibility study on connecting the railways of China, Mongolia, the Russian Federation and the Korean Peninsula with a view to identifying the TAR routes in the countries concerned. The study also considered route requirements and the border crossing facilitation measures required to assist in organizing efficient container land bridges between Asia and Europe that could compete with shipping services. The TAR network now covers 28 member countries (see Figure 2.8) and comprises 81,000 km of railways that are vital arteries for the development of the international trade and provide regional connectivity and linkages to the world.

The TAR network has been formalized through the Intergovernmental Agreement on the Trans-Asian Railway Network. The Agreement was adopted at the 62nd Commission session held in Jakarta, Indonesia in April 2006 and signed by 18 member States[8] on 10 November 2006 during the Ministerial Conference on Transport held in Busan, Republic of Korea. The Agreement has now been deposited with United Nations Headquarters where it will remain opened for signature until 31 December 2008.

The Agreement lays a framework for coordinated development of rail routes of international importance. Contracting Parties to the Agreement should bring the network into conformity with the guiding principles related to technical characteristics described in Annex II to the Agreement, such as line capacity, vehicle loading gauge, interoperability and standards for container terminals.[9]

The Agreement provides for the creation of a Working Group on the Trans-Asian Railway Network to consider its implementation and any proposed amendments. The Working Group will also be a forum for joint programmes of action.

In order to facilitate the operationalization of the TAR network, UNESCAP has implemented demonstration runs of container block-trains along the Trans-Asian Railway Northern Corridor linking China, the Korean Peninsula, Kazakhstan, Mongolia, and the Russian Federation. The demonstration runs have shown the capabilities of international freight rail corridors to serve international trade between Asia and Europe.

[8] Armenia, Azerbaijan, Cambodia, China, Indonesia, Islamic Republic of Iran, Kazakhstan, Lao People'sDemocratic Republic, Mongolia, Nepal, Republicof Korea, Russian Federation, Sri Lanka, Tajikistan, Thailand, Turkey, Uzbekistan, and Viet Nam.

[9] Details of the TAR Agreement as well as its Annexes are available at the UNESCAP website: <http://www.unescap.org/ttdw/common/TIS/TAR/TARintergovagreement.asp>.

2.1.7 UNECE Trans-European Motorway (TEM) and Trans-European Railway (TER) networks

The Trans-European North-South Motorway (TEM) and the Trans-European Railway (TER) Projects are sub-regional cooperation frameworks established in 1977 and 1990 respectively by the Governments of the Central, Eastern and South-Eastern European Countries under the aegis of the UNECE for the development of coherent road, rail and combined transport infrastructure networks and the facilitation of international traffic in Europe. At present, 17 countries are members of TER[10] and 15 countries are members of TEM.[11]

The Projects are self-sustainable, supported by direct contributions from member countries to a Trust Fund established by the UNECE for each Project. The members also contribute in kind by hosting the Project Central Offices, covering costs of the Project personnel, hosting events, offering the services of national experts, etc. The Projects have been instrumental in the development of international road and rail links in the participating countries and are designed to harmonize the management, maintenance and operational procedures of the motorways and railways in the region and their integration in the Pan-European context.

They have established and assisted in construction of the TEM Network extending 23,797 km, out of which 7,201 km are in operation, representing 30 per cent of TEM and 1,682 km under construction, despite the significant financial difficulties of most countries in the region. They also offered assistance in reconstruction and upgrade of national rail links among the TER member countries and between them and their immediate neighbours, the identification of the TER Network extending over 24,000 km, and contributed to the interoperability of the European railway system enabling the integration of respective national systems. Both project networks form backbones of the Pan-European Road and Rail Corridors in the CEE region (the TEN-T in the EU member countries that are also members of the UNECE), providing valuable contribution in the formation of the new strategic transport plans of Europe and for the extension of the TEN-T in the neighbouring countries and regions.

In September 2005, the TEM and TER Projects completed the elaboration of the Master Plan, including the identification of the backbone networks for road and rail transport in 21 Central, Eastern and South-Eastern European countries as well as a realistic investment strategy to gradually develop these networks. As many as 491 projects (319 road related and 172 rail related) with an aggregate estimated cost of EUR 102 billion (EUR 49.5 billion for road and EUR 52.5 billion for rail) were evaluated and prioritized. These results had taken duly into account alternative scenarios of growth, methodological aspects and assumptions, bottlenecks and missing links as well as problems of funding of transport infrastructure and border crossings.

The Master Plan was presented to the EU High Level Group chaired by Ms. Loyola de Palacio on 25 October 2005 and explicitly acknowledged in its final report. The TEM and TER backbone networks identified by the Master Plan are presented in Figures 2.9 and 2.10.

[10] TER member countries: Armenia, Austria, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Georgia, Greece, Hungary, Italy, Lithuania, Poland, Romania, Russian Federation, Slovakia, Slovenia and Turkey.

[11] TEM member countries: Armenia, Austria, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Georgia, Hungary, Italy, Lithuania, Poland, Romania, Slovakia, Slovenia and Turkey.

2.1.8 The United Nations Special Programme for the Economies of Central Asia (SPECA)

The UN Special Programme for the Economies of Central Asia (SPECA) has been initiated in 1998 jointly by the UNECE and UNESCAP (see Part I). At present, the participating countries include Afghanistan, Azerbaijan, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan. Project Working Groups were established in a number of key areas where it was thought that countries would benefit from greater regional cooperation. Under this framework, a Project Working Group on Transport and Border Crossing (PWG-TBC) was established with Kazakhstan as the lead country.

The PWG-TBC held its first session in 1998 and has met 11 times to date, implementing activities in line with its biennial Programmes of Work.[12] At the tenth session of the PWG-TBC held in March 2005 in Issyk-Kul, Kyrgyzstan, the formulation and adoption of SPECA road and rail networks was identified as one of the main thrust areas of the Programme of Work 2005-2006, in view of the need of SPECA countries for a comprehensive network that would include transport routes and networks defined in relevant international agreements and in the framework of sub-regional organizations, which involve SPECA countries.

In this regard, draft SPECA road and rail networks have been developed on the basis of regional agreements such as the Intergovernmental Agreement on the Asian Highway Network, the Intergovernmental Agreement on the Trans-Asian Railway Network, the European Agreement on Main International Traffic Arteries (AGR), the European Agreement on Main International Railway Lines (AGC), the European Agreement on Important International Combined Transport Lines and Related Installations (AGTC), as well as on the basis of routes / networks defined under the framework of ECO (Economic Cooperation Organization), CIS (Commonwealth of Independent States), TRACECA (Transport Corridor Europe Caucasus Asia), and OSJD (Organization for Cooperation of Railways). The SPECA road and rail networks and their respective maps (Figures 2.11 and 2.12) have been adopted at the 11th session of the PWG-TBC held in March 2006 in Almaty, Kazakhstan.

2.2 International transport networks supported by other international bodies

2.2.1 Trans-European Transport Networks (TEN-T)

The building of a trans-European transport network (TEN-T) in the European Union is fundamental for securing a single market with free movement of passengers and goods, as well as for reinforcing the economic and social cohesion and promoting economic competitiveness and sustainable development. The aim of the TEN-T is to ensure that national networks for all modes of transport are accessible, interconnected and interoperable.[13]

[12] For details, see the Working Group website <http://www.unece.org/speca/transp/transp.htm>.

[13] The EU legislation governing the development of Trans-European Transport Networks is comprehensive and rather voluminous. Details can be found at <http://ec.europa.eu/ten/transport/legislation/index_en.htm >.

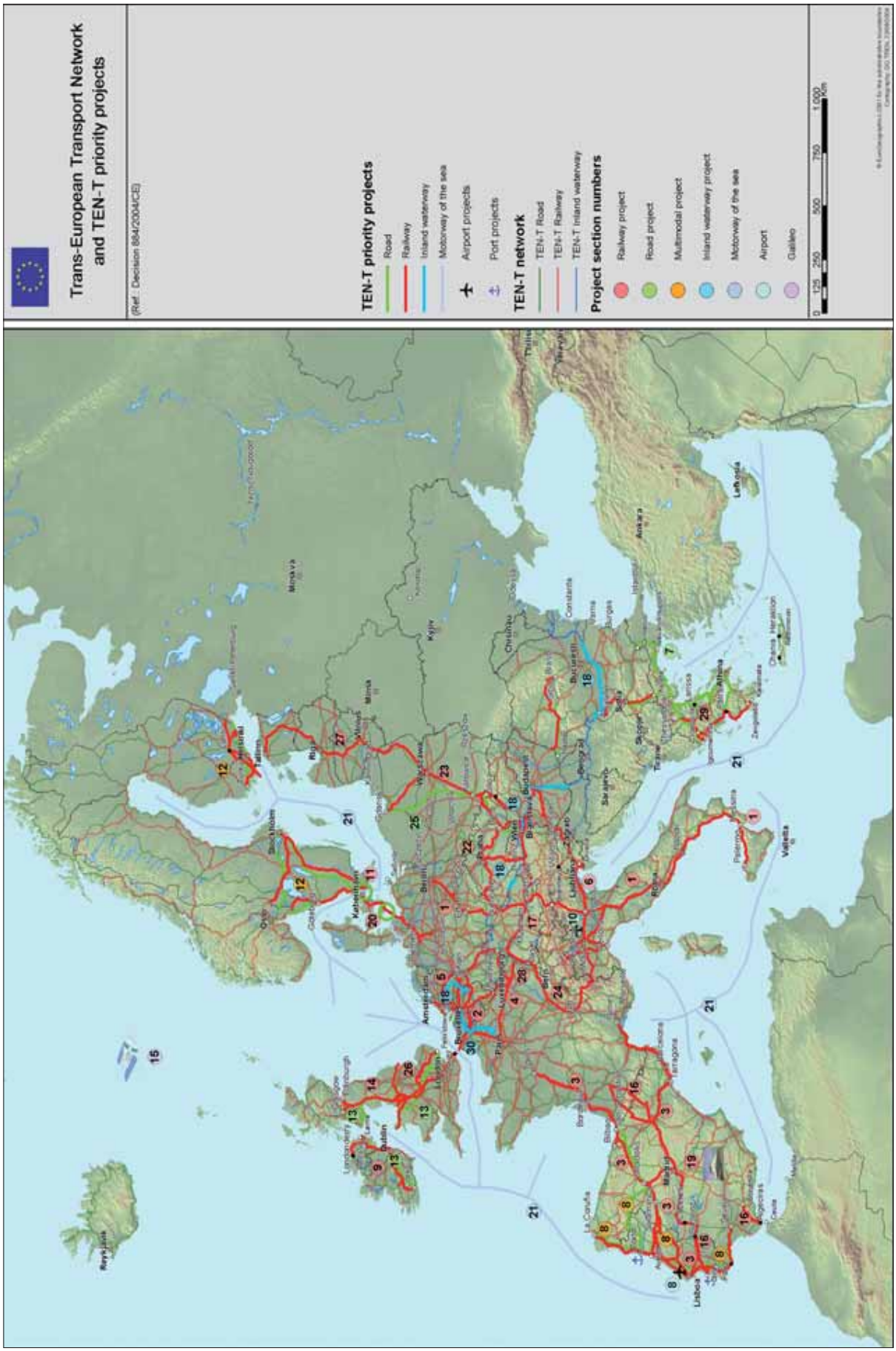
To achieve these objectives, the Community first established TEN-T guidelines in 1996 defining network objectives and priorities, and listing projects of common interest. A number of financial instruments to support Member States in implementing these projects were also established. The whole process is considered as being a continuous exercise: the first action plan was adopted in 1990, the list of 14 priority projects was adopted in 1994, the related financial regulation was adopted in 1995; in 2004, revised guidelines and financial regulations were adopted, to integrate the new EU Member States' infrastructures into the TEN-T. The number of priority projects was raised from 14 to 30, and rules for granting Community aid were modified to allow for a higher maximum co-funding rate (of 20 per cent rather than 10 per cent) for priority projects, which cross borders and natural barriers. The updated list of projects also aims to ensure the environment-friendly modal shift – described in the 2001 Transport White Paper as the key to a more sustainable transport policy – by focusing investments on rail and water transport sectors (Figure 2.13).

A 2004 study, entitled "Scenarios, traffic forecasts and analysis of corridors on the Trans-European Network" (TEN-STAC), analyzed traffic, bottlenecks and environmental issues on 25 corridors. The study shows that completing the networks would considerably shorten journey times for passengers and goods, through a 14 per cent reduction in road congestion and improved rail performance. For inter-regional traffic alone, the benefits are estimated to be almost EUR 8 billion per year. In addition, freight transport in the EU is expected to increase by more than two thirds between 2000 and 2020, and to double in the new Member States. Without TEN-T this increase in transport would be impossible to handle, and the rate of economic growth significantly slowed.

A large number of 'missing links'- amounting to around 4,800 km of roads and 12,500 km of railway lines - still have to be built before 2020. In addition, around 3 500 km of roads, 12,300 km of rail lines, and 1,740 km of inland waterways are to be substantially upgraded. The cost of the priority projects alone is estimated at EUR 225 billion by 2020 and if one includes projects of common interest not identified as priority projects, the cost would be EUR 600 billion. Although huge, this investment represents only around 0.16 per cent of the European GDP and it is estimated that it would generate additional economic growth of 0.23 per cent of GDP.

Nevertheless, the work on completing the TEN-T has repeatedly been delayed or hindered by the lack of funding as well as, for some projects, by problems of coordination between Member States, related to work timetables, the distribution of funds or the exact route to be followed. To improve the coordination of investment plans, the European Commission nominated European coordinators for individual cross-border sections, for groups of projects located on the same priority axis, or for the whole axis. Their main role is to advance projects that need a strong, often political, push in order to overcome difficulties in the planning and construction phases. They also promote the projects to private investors and financial institutions and keep the Commission informed of the progress achieved. In September 2006 the Commission has made public the main results of the activities of the coordinators.

FIGURE 2.13 TRANS-EUROPEAN TRANSPORT NETWORKS AND TEN-T PRIORITY PROJECTS



Aiming to reach the objective, set in the 2001 Transport White Paper, of significantly shifting part of the expected traffic increase from road to other modes of transport, the Commission has put forward the "motorways of the sea" initiative to promote short-sea-shipping routes as alternatives to road transport. Four corridors have been designated for the setting up of projects of European interest, the aim being to make them operational by 2010. So far three projects have been approved for financing.

In November 2005, a high-level group chaired by ex-Commissioner for Transport Lyola de Palacio published a report examining how best to extend the major trans-European transport axes to neighbouring countries and regions following the enlargement of the EU.[14] The Group identified five major trans-national axes, spreading in all directions, essential for fostering regional cooperation and integration and enhancing trade relations (see Box 1 and Figure 2.14 below).

BOX 1. FIVE MAJOR TRANSNATIONAL AXES IDENTIFIED BY THE HIGH-LEVEL GROUP CHAIRED BY LOYOLA DE PALACIO

- **Motorways of the Seas:** linking the Baltic, Barents, Atlantic, Mediterranean, Black and Caspian Sea areas as well as the littoral countries within the seas areas and with an extension through the Suez Canal towards the Red Sea.

- **Northern axis:** connecting the northern EU with Norway to the North and with Belarus and Russia and beyond to the East. A connection to the Barents region linking Norway through Sweden and Finland with Russia is also foreseen.

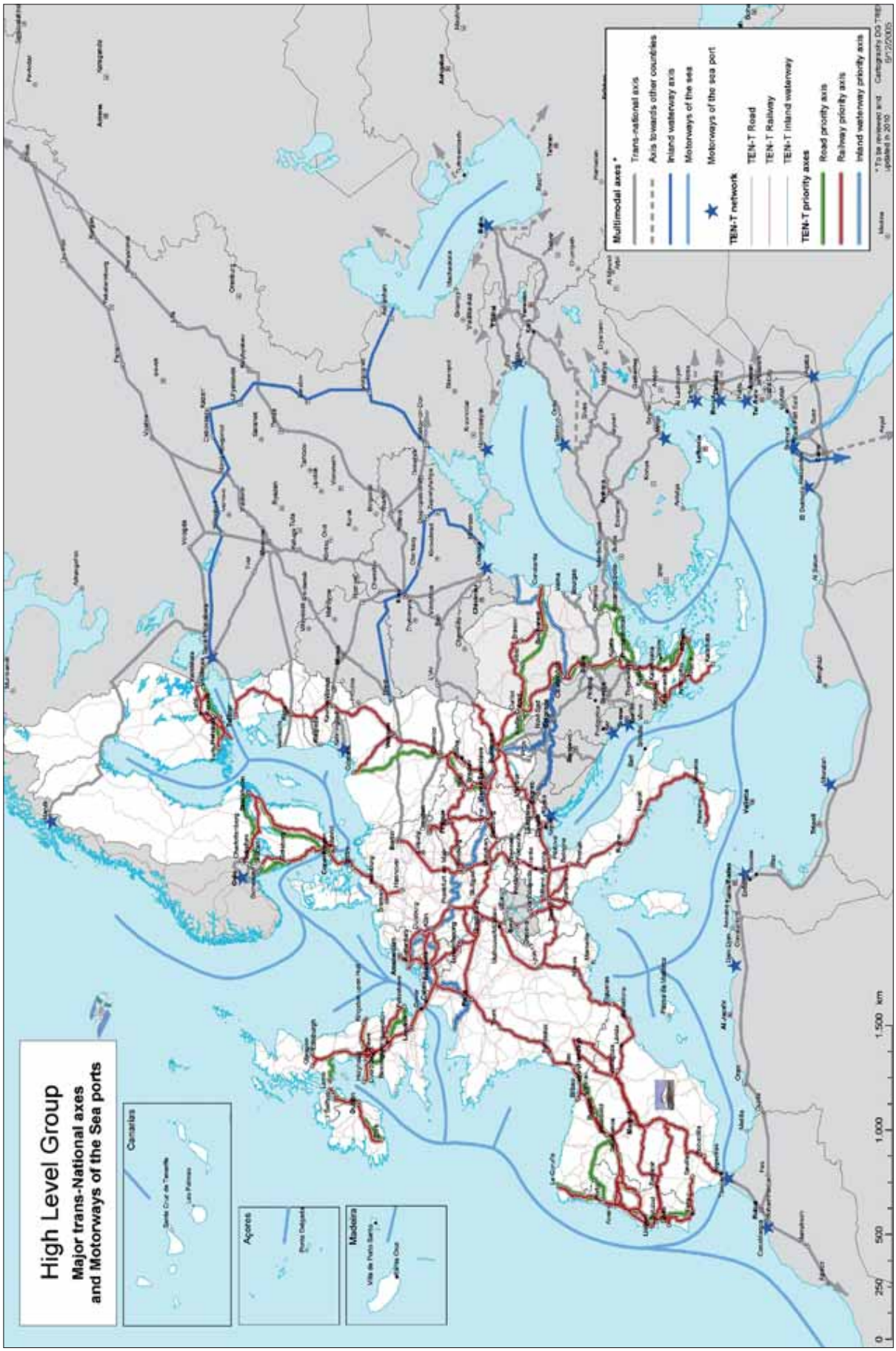
- **Central axis:** linking the centre of the EU to Ukraine and the Black Sea and through an inland waterway connection to the Caspian Sea. Connections towards Central Asia and the Caucasus are also foreseen, as well as direct connections to the Trans-Siberian railway and link from Don/Volga inland waterways to the Baltic Sea.

- **South-Eastern axis:** linking the EU through the Balkans and Turkey to the Caucasus and the Caspian Sea as well as Egypt and the Red Sea. Access links to the Balkan countries as well as connections towards Russia, Iran and Iraq and the Persian Gulf are also foreseen.

- **South-Western axis:** connecting the south-western EU with Switzerland and Morocco and beyond, including the trans-Maghrebin link connecting Morocco, Algeria and Tunisia. An extension of the trans-Maghrebin link to Egypt as well as a connection from Egypt to the South towards other African countries are also foreseen.

[14] European Commission, *Networks for Peace and Development-Extension of the major trans-European transport axes to the neighbouring countries and regions*, November 2005.

FIGURE 2.14 HIGH LEVEL GROUP: MAJOR TRANS-NATIONAL AXES AND MOTORWAYS OF THE SEA PORTS



2.2.2 Pan-European Transport Corridors and Areas

2.2.2.1 Pan-European Transport Conferences: Identification of the Pan-European Multimodal Transport Corridors/Areas

The **first Pan-European Transport Conference** was held in Prague in 1991 and adopted a Declaration, sponsored by the European Commission, ECMT and UNECE, on an "all European transport policy". The Declaration stated, among others, that "An efficient all-European transport system should be developed pursuant to the principles of market economy and fair competition by means of an integrated European transport concept which is well adapted to the objectives of social, environmental and energy policies as well as to safety requirements and which is liberated from unnecessary restrictions, like certain load conditions, or certain technical and administrative barriers".

The **second Pan-European Transport Conference** held in Crete, Greece, in 1994 endorsed the "Progress Report Towards Indicated Guidelines for further Development of Pan-European Transport Infrastructure"; the report was largely based on the Prague Declaration.

In this Progress Report, nine multimodal Pan-European transport links were identified as being of European interest and were considered to be a basis for future work on transport infrastructure development in Central and Eastern Europe. These Pan-European transport links are now commonly called the Crete Corridors. The Progress Report also introduced a three-layer concept for transport infrastructure development at Pan-European level:

- **The first layer** set long-term perspectives for infrastructure development at Pan-European level. These are reflected in the international instruments (AGR, AGC, AGTC) developed under the auspices of the UNECE.
- **The second layer** introduced a set of medium-term objectives in various parts of Europe running up to 2010. For the EU these objectives provided the guidelines for the development of the Trans-European Transport Networks (TENs) described above (section 2.2.1). Central and Eastern European countries have set medium-term objectives for the road and rail infrastructure that predominantly followed the TEM and TER networks (see section 2.1.7).
- **The third layer** introduced the short-term priority actions implementing the second layer.

The nine Crete Corridors consist of a set of eight road and rail links (which total 18,000 km for both modes) and one waterway link, the river Danube (other inland waterways, airports and ports were not included in the Corridor concept). It was accepted from the outset that the main focus for action would be to increase:

- The capacity of existing infrastructure in order to meet the expected traffic volumes
- Travel speeds (particularly on the railway network)

Some principles were clearly stated such as: economic viability is the main criterion for project selection; the construction of new transport links would only be considered in very exceptional cases; the organisational optimisation of transport operations, services and their inter-links across borders would continue to be an important area for action. There would, for example, be little point in investing in infrastructure to increase the travel speed while continuing to have long delays at border crossings.

The work on the Crete Corridors has progressed well over three years (until the 3rd Pan-European Conference) during which many positive developments have been realised: all participants have signed Memoranda of Understanding for the development of each of the nine Crete Corridors, and Steering Committees and technical secretariats have been established for each of them.

According to an estimate made in 1997, the investment requirements for the nine Crete Corridors amount to some EUR 50-70 billion, assuming completion dates between 2010 and 2015. At present, a substantial part of this investment is coming from the International Financial Institutions (IFIs). However, in the longer term, a major portion of this investment will need to be financed by the countries concerned through national budgets, domestic financial markets, revenues from users, etc. In this context, PPPs should play a role wherever feasible.

The **third Pan-European Transport Conference**, held in Helsinki in June 1997, following a detailed analysis by the parties concerned, confirmed by competent bodies of the UNECE (Steering Committee of TEM and TER Projects) and endorsed by the ECMT at its Ministerial Conference in Berlin in April 1997, came to the following conclusions:

The nine Pan-European transport corridors in the CEE region and the guidelines adopted for the development of the EU Trans-European Transport Network (TEN-T) continued to constitute a valid basis for coherent infrastructure development at Pan-European level. No fundamental changes or adjustments to the set of nine corridors appeared to be necessary, apart from cases which deal with further destinations, and a small number of missing links between the nine corridors. The Conference adopted the extension of Corridor V beyond Moscow towards the Volga region (Nizhny Novgorod) connecting to the Trans-Siberian route, which is of relevance in the context of Euro-Asian transport linkages.

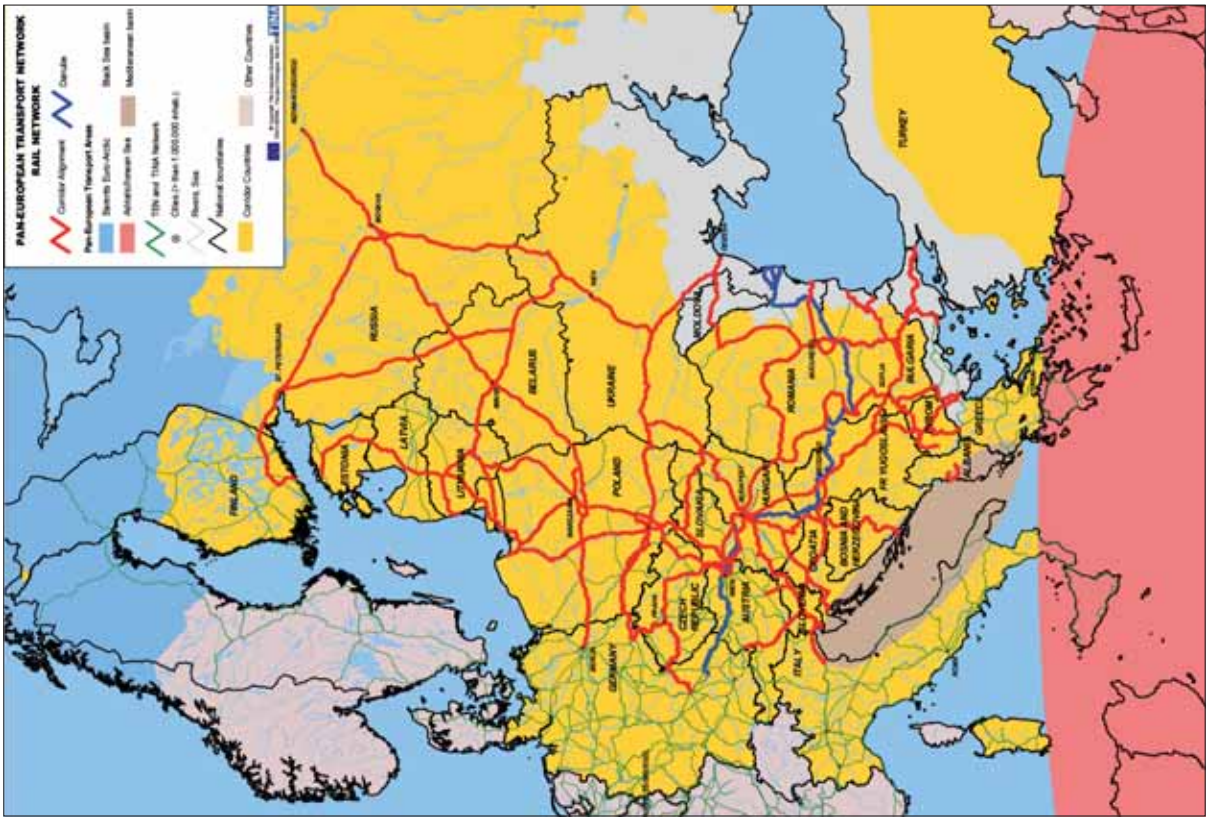
In the light of the peace process taking place in the successor states to the Socialist Federal Republic of Yugoslavia, the Conference adopted the establishment of a new corridor (Corridor X) that broadly follows the traditional transport route in south-eastern Europe, which was widely used before the outbreak of hostilities.

It has also become apparent that the corridor concept, based on the development of links between major activity centres, did not adequately address transport infrastructure needs in certain areas, particularly those surrounding or linked to sea basins. Therefore a more comprehensive approach, reflecting the complex structure of transport requirements needed to be adopted. The result was the adoption of the complementary concept of Pan-European Transport Areas (PETrA). It has been agreed that the countries concerned and appropriate regional co-operation organisations, where they exist, should work on infrastructure development plans for each area, and its links with the Pan-European Corridors, the EU Trans-European Networks as well as, where appropriate, with Central Asia. This work should also aim at complementing the Pan-European Transport Corridors to ensure their greatest possible integration with Areas in question. The up-to-date status of the Corridors is presented in Figure 2.15 and Table 2.2 on the following pages.

The PETrAs identified by the Conference are:

- The Barents Euro-Arctic Area
- The Black Sea Basin Area
- The Mediterranean Basin Area, and
- The Adriatic/ Ionian Seas Area.

FIGURE 2.15 PAN-EUROPEAN TRANSPORT CORRIDORS



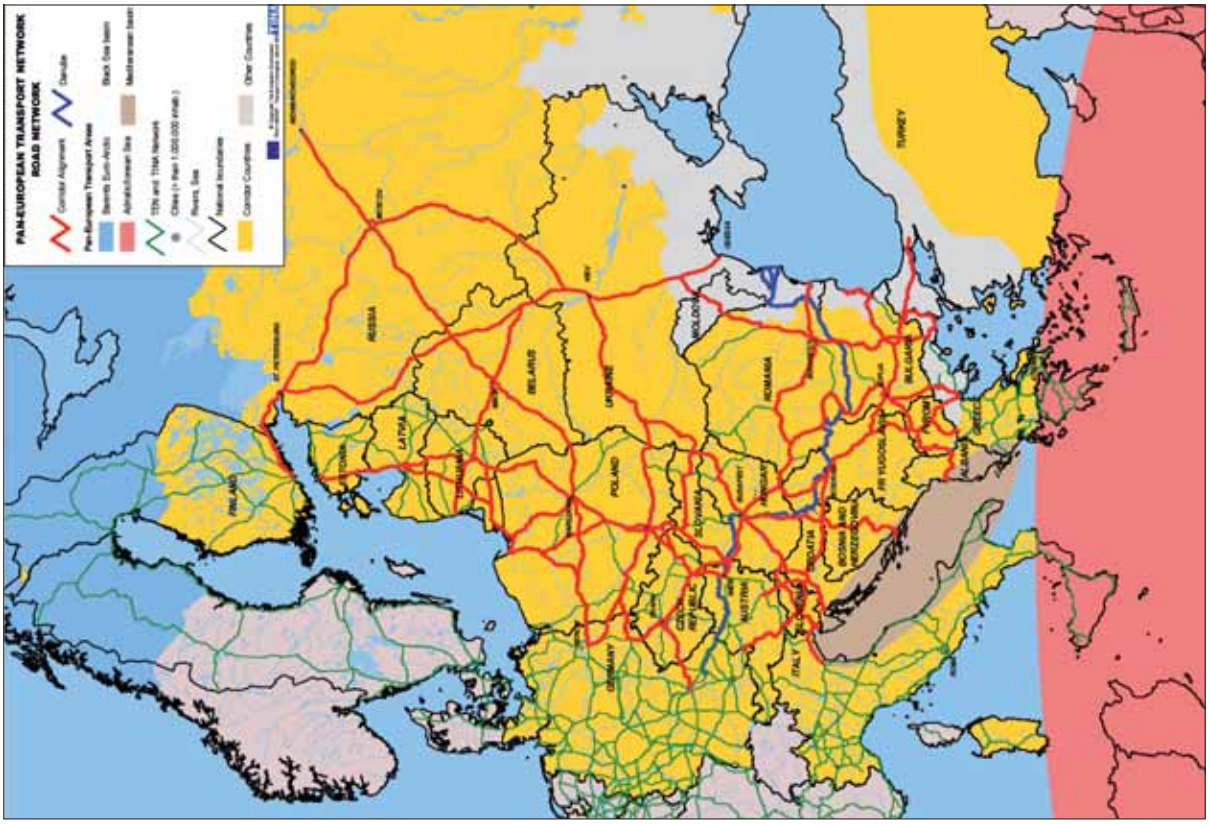


TABLE 2.2 PAN-EUROPEAN TRANSPORT CORRIDORS[a]

Corridor[b]	I		II		III		IV		V		VI		VII	VIII		IX		X	
Length (km) Road: 22 930 Rail: 25 310	1 630	1 655	2 200	2 213	1 700	1 650	3 640	4 379	2 850	3 000	1 880	1 800	2 415	960	1 270	5 820	6 500	2 300	2 529
Direction	North-South		West-East		West-East		N/West-S/East		S/West-N/East		North-South		West-East	West-East		North-South		N/West-S/East	
Itinerary	Helsinki-Tallinn-Riga-Kaunas-Warsaw		Berlin-Warsaw-Minsk-Moscow-Niz.Novgorod		Berlin/Dresden-Wroclaw-Katowice-Lviv-Kiev		Dresden-Prague-Bratislava-Vienna-Budapest-Arad		Venice-Trieeste-Koper-Ljubljana-Budapest-Uzgorod-Lviv		Gdans-Grudziadz-Warsaw-Katowice-Zilina		Rhine Main Dannube	Durres-Tirana-Skopje-Sofia-Varna/Burgas		Helsinki-S.Petersbourg-Pskov-Moscow-Kiev-Ljubase-Chisinau-Bucharest-Dimitrovgrad-Alexand.		Salzburg-Ljubljana-Zagreb-Beograd-Nis-Skopje-Veles-Thessaloniki	
Branch	Kaliningrad-Gdansk				From Berlin		Nürnberg-Constanta-Istanbul-Thessaloniki		Bratislava-Lviv-Rijeka-Cakoves-Rijeka-Dombovar-Ploce-Budapest		to Poznan to Brno		rivers			from Klaipeda-from Kaliningrad to Odessa		from Graz from Budap. to Sofia to Florina	
Countries Concerned	Finland-Estonia-Latvia-Lithuania-Poland-Russia		Belarus-Germany-Poland-Russia		Germany-Poland-Ukraine		Austria-Bulgaria-Czech R.-Germany-Greece-Hungary-Romania-Slovakia-Turkey		Bosnia &H.-Croatia-Italy-Hungary-Ukraine-Slovakia-Slovenia		Czech R.-Poland-Slovakia		Austria-Bulgaria-Croatia-Germany-Hungary-Moldova-Romania-Slovakia-Ukraina-Serbia	Albania-Bulgaria-FYROM-Greece-Italy-Turkey		Belarus-Bulgaria-Finland-Greece-Lithuania-Moldova-Romania-Russia-Ukraine		Austria-Bulgaria-Croatia-FYROM-Greece-Hungary-Slovenia-Serbia	
Chair	Estonian National Road Administ.		MOT Germany		MOT Germany		MOT Austria		MOT Italy		MOT Poland		TINA Austria	MOT Italy		North-Finland Mid-Lithuania South-Romania		MOT Greece	
Secretariat	Road-Lithuania MOT, Rail-Latvia, Lithuania, Branch-Russia		German		Germany		Germany		CEI-Italia		TEM-PCO		Greece	Italy				Greece	
MoU signed	3 July 1996		23 January 1995 12 Sept- 2000		3 oct. 1996		May 1999 Rail-Jan. 1997		16 dec. 1996 (exc. Croatia)		14 Oct.1999		6 Sept. 2001	9 Sept. 2002		March 1995		15 March 2001	

[a] From Pan-European Transport Corridors and Areas Status Report, Final Report, Developments and Activities between 1994 and 2003/Forecast until 2010.

[b] The scope of the Corridors is Multimodal. Only Corridor VII is for Inland Waterways.

2.2.2.2 *The Black Sea Pan – European Transport Area (PETrA)*

The Black Sea Pan-European Transport Area is a maritime link connecting the littoral countries of the Black Sea with each other, the Central and Eastern European countries through the Pan-European Transport Corridors, the Caucasian Isthmus, towards Central Asia through the Transport Corridor Europe Caucasus Asia (TRACECA) and the Mediterranean Pan – European Transport Area.

The parties concerned concluded a Memorandum of Understanding (MoU) on the development of the Black Sea PETrA in Tbilisi on 1 July 1999, its main objective being to strengthen the international co-operation in the development of Black Sea PETrA within and beyond the littoral countries. The MoU includes an action plan[15] the guiding principles of which are that the projects carried on within the PETrA should be of common interest and should:

- Integrate the Trans-European infrastructure Network;
- Facilitate administrative procedures amongst Parties (Legislative and Customs harmonisation);
- Take into account the multimodal aspect, wherever warranted;
- Be market-oriented;
- Help to reduce regional and social disparities;
- Take into account new transport technologies;
- Encourage the private sector involvement, including PPP initiatives, and loans from IFIs (EBRD, WB and BSTDB).[16]

The actual co-operation has been achieved with the aid of a **Steering Committee, Working Groups** and **Secretarial Support**.[17] The priority was to develop bankable projects in close co-operation with national budgetary authorities and the IFIs; to this end the first actions have been related to the development of a selected number of important ports that have both a large capacity and strong potential and focused on the following issues:

- Development of Ports infrastructure;
- Port access from the hinterland;
- Administrative procedures;
- Maritime Links and inland waterways;
- Transport services (Logistics, Safety, Telematics, Training);
- Environmental protection.

[15] Prepared by the Transport Infrastructures Needs Assessment (TINA) Secretariat, Vienna, on 11 November 1999.

[16] Black Sea Trade and Development Bank.

[17] The EC decided to provide during the start-up phase secretarial support through the TINA Secretariat. Its coordinates are as follows: TINA, Auerpergstr. 15, A-1080 Vienna, Austria; e-mail <office@tinasecretariat.at>; homepage: <www.tinasecretariat.at>.

2.2.3 Transport Infrastructure Needs Assessment (TINA)

The first structural dialogue between the Transport Council of the EU and the Transport Ministers of the EU-associated countries took place in September 1995, recommending a Transport Infrastructure Needs Assessment (TINA) for EU- accession candidates. On the basis of this recommendation, the Commission launched the TINA process, with the objective to define the future Trans-European Transport Infrastructure Network in the enlarged Union, using the criteria of Decision on Guidelines for the development of the Trans-European Transport Network.[18]

The TINA process has been designed to support the planning and development of a multi-modal transport network within the candidate countries for accession. The process was supervised by the EC and the project was partially financed under the PHARE Multi-Country Transport Programme. To advance and monitor the TINA process, the Commission established a Group of Senior Officials (the TINA Senior Officials Group) with representation from all Member States and from the (then) eleven candidate countries (Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, Slovenia and Cyprus). At the operational level, this high-level body worked in three subgroups focused on the Baltic Sea, Central Europe and Southern Central Europe sub-regions. The TINA Secretariat, set up as a technical support unit in Vienna in 1997, supported the whole process.

The starting point for the TINA process was the blueprint for the backbone network based on the Pan-European Transport Corridors confirmed with some adjustments at the third Pan-European Transport Conference in Helsinki. For this backbone network, construction costs have been estimated on a common basis using existing information and input from TINA countries. These investments cost estimates were made available per mode and per country and were also broken down for each section of the network.

The costs of answering the Transport Infrastructure Needs estimated for the eleven acceding countries, amounting to EUR 91.6 billion, were presented in the final Report of TINA in October 1999. The Report states among others that follow-up action should focus on monitoring the implementation of the network and, during the accession process, on adapting it to the changing transport flows and economic conditions. A consistent investment strategy, meeting a number of economic, financial and institutional criteria, was to be implemented over a period of 15 to 20 years so as to ensure a careful co-ordination between the relevant financial institutions and financial support tools before and after the accession of the countries concerned to the EU.

TINA was a useful forum for the joint development of coherent transport network strategies by the countries involved, grant agencies, the EC and financial institutions. In addition, through the establishment and development of common methodologies and organisational approaches, TINA permitted the identification and continuous development of projects.

With the 2004 EU enlargement, TINA networks were incorporated into the TEN-T networks. The process as a whole proved to have a positive impact on the integration of the candidate countries into the EU. Figures 2.16 and 2.17 present the TINA road and rail networks, according to the 1999 Final Report.

[18] Decision No. 1692/96/EC, OJ L228 September 1996.

FIGURE 2.16 TINA ROAD NETWORK

FIGURE 2.17 TINA RAIL NETWORK

2.2.4 Transport Corridor Europe-Caucasus-Asia (TRACECA)

The TRACECA Programme was launched at a conference in Brussels in May 1993, which brought together Trade and Transport Ministers from the original eight Caucasus and Central Asia countries. Its aim was to develop, with the EU assistance, a transport corridor on a West-East axis from Europe, across the Black Sea, through the Caucasus and the Caspian Sea to Central Asia. The EU has supported this programme to encourage the development of an additional corridor that would complement other routes. The project corresponds to the EU strategy towards these countries and entails the following objectives:

- To support the political and economic independence of the Central Asian and Caucasus republics by enhancing their capacity to access European and world markets through alternative transport routes;
- To encourage further regional co-operation among the republics;
- To increasingly use the TRACECA programme as a catalyst to attract the support of IFIs and private investors;
- To link the TRACECA route with the Trans - European Networks (TENs).

The Brussels Conference identified a number of problems and deficiencies in the regions' trade and transport systems that were translated into project proposals for the TRACECA programme. The programme plan was developed through four sectoral working groups (Trade Facilitation, Road, Rail and Maritime Transport) with representatives from all the participating states taking an active part. These working groups were responsible for project identification and for the endorsement of projects proposed for EU financing.

To date the TRACECA Programme has financed a number of technical assistance projects as well as investment projects for the rehabilitation of infrastructure with the total value of over EUR 100 million. The technical assistance provided through TRACECA has helped to attract large investments from the IFIs. The EBRD has made a number of commitments to finance capital projects in ports, railways and roads along the TRACECA route totalling over EUR 250 million. The World Bank has committed over EUR 40 million for new capital projects on roads in Armenia and Georgia while the Asian Development Bank (ADB) has also committed substantial funds for road and railway improvements. In addition, EU private investors are engaging in joint ventures with Caucasian and Central Asian transport companies. The EU is supporting the programme with additional TACIS projects to further enhance regional co-operation and economic sustainability in the region such as the Southern Ring Air Routes project and the Oil and Gas Pipeline project (INOGATE).

The TRACECA Programme has resulted in closer cooperation and dialogue among national authorities, which has led to agreements to keep transit fees at competitive levels and efforts to simplify border-crossing formalities. There have also been agreements to ship large volumes of cargo along the corridor, recognising that it is the shortest and potentially the fastest and cheapest route from Central Asia to deep-water ports linked with world markets. The East-West corridor from Central Asia through the Caucasus into the Black Sea PETrA, and their linking with the TEN and other worldwide destinations, has become functional, carrying substantial cargo. The integration and harmonisation of the region’s transport regulatory environment with European and international norms is an on-going process. TRACECA is the principal vector of the European and international agencies, including the UNECE and UNESCAP, for the introduction of best practices to reduce non-physical barriers to the movement of goods.

Over the years the participating states arrived at a common agreement on one specific route on which TRACECA should focus its actions. For all sections of the route each delegation made recommendations in areas, which required action in Trade Facilitation, Maintenance and Operations, Rehabilitation and Modernisation. The concept of TRACECA as a multimodal transport route was further developed and all ongoing projects were fully evaluated. The participating states agreed that Ukraine, Moldova and Mongolia join the TRACECA programme.

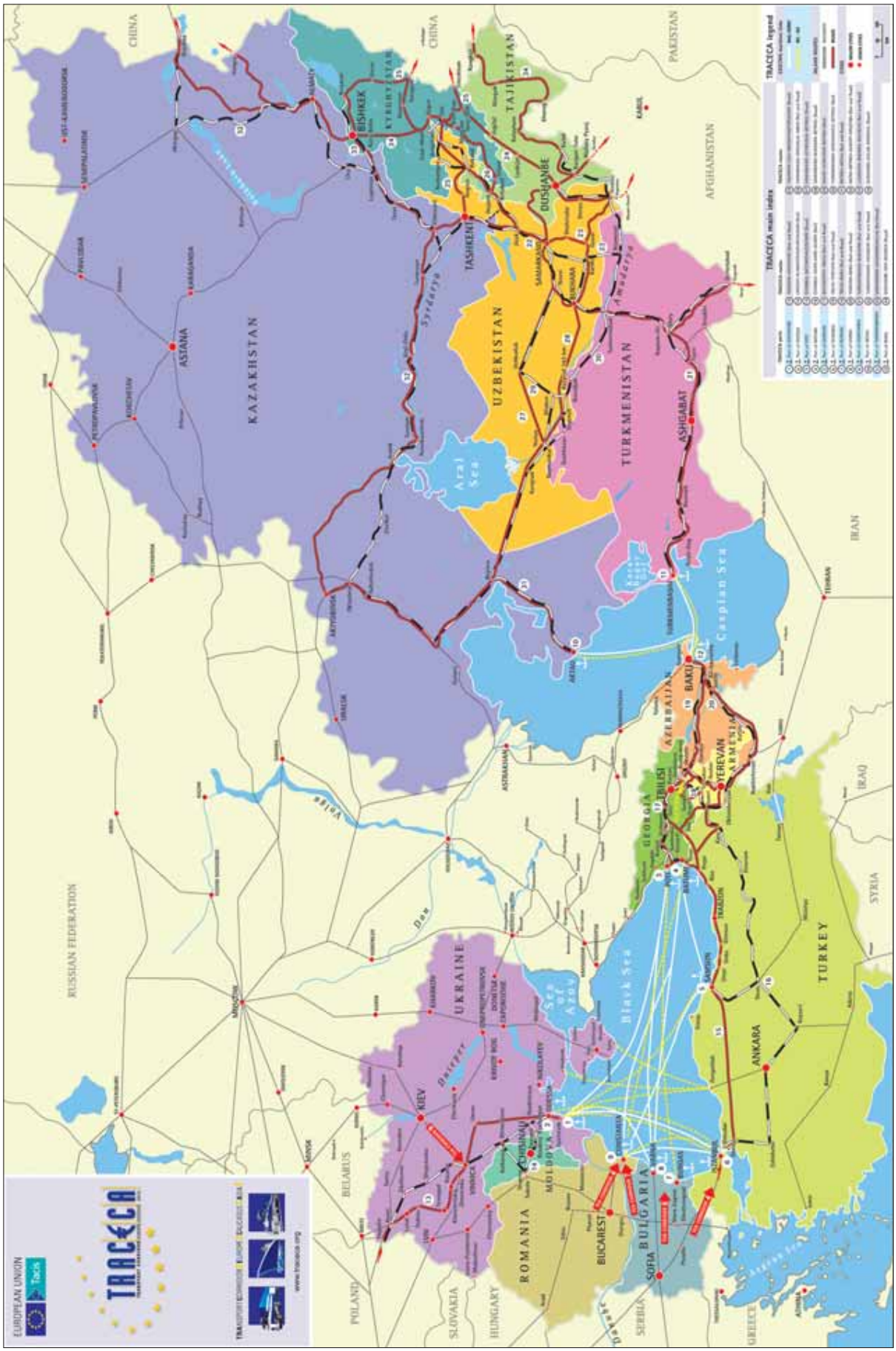
The influence of TRACECA in the region is tangible, by way of frequent organised regional conferences and seminars, close interaction with the IFI programmes, the activities of TRACECA consultancy and direct investment projects, and growing use of the corridor by commercial shippers, particularly in the Caucasus. Taking into account the necessity of linking the TRACECA route to the Crete Corridors that link the Black Sea region with the TENs, the EU organized a joint TRACECA/BSEC Conference in Tbilisi in April 1997. The Conference resulted in the establishment of a **Ministerial Committee** for the development of concrete projects and also served as a platform of 16 countries for the Pan European Transport Conference in Helsinki in June 1997. As a result the Helsinki Conference identified the Black Sea Region as a Pan-European Transport Area (PETrA) that will further develop the TENs to the East.

At the 5th Annual Meeting of the Intergovernmental Commission TRACECA in Sofia in May 2006, a new strategy for the development of the TRACECA up to 2015 was presented. This new strategy proposes the development of a number of actions and principles, which could be summarized as follows:

- Strengthening and modernizing the institutional dimensions of transport through organizational restructuring and reinforcement of human resources;
- Integration and cohesion of infrastructure networks through setting up the principles for development of such networks; planning methodology; traffic forecasts; establishment of key transport projects; and continuous refinement of the network;
- Development of sound multimodal chains through port modernization; motorways of the sea; modernized road transport industry; putting the railway system in perspective; border-crossing; and integrated multimodal transport plans, advanced logistics and sophisticated IT solutions;
- Exploring air transport and boosting air passenger traffic;
- Safe, secure and sustainable transport;
- Secure funding through developing national funding plans; mobilizing regional and international resources; promoting public private partnership;
- Enhancement of TRACECA as an international organization.

TRACECA map is presented in Figure 2.18.

FIGURE 2.18 TRANSPORT CORRIDOR EUROPE CAUCASUS ASIA (TRACECA)



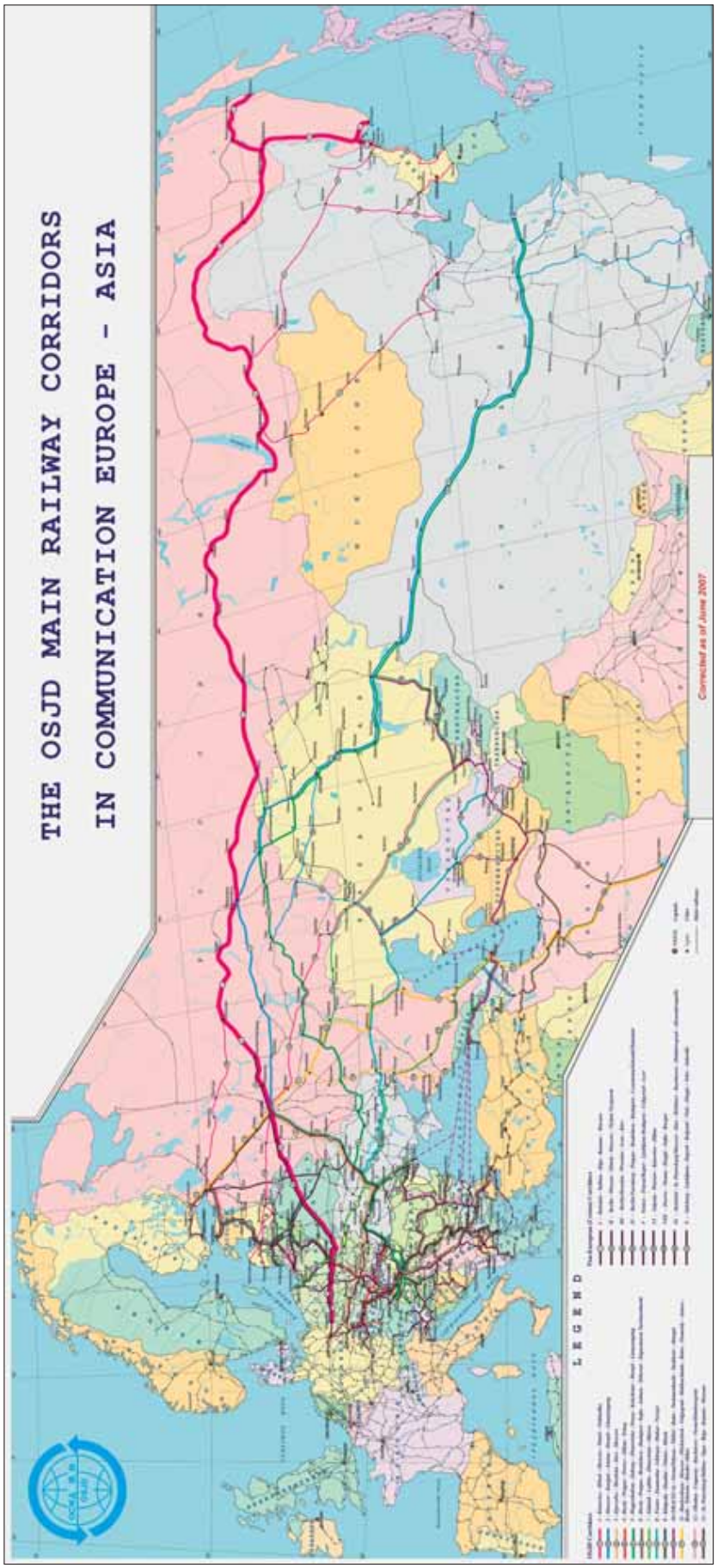
2.2.5 Euro-Asian rail transport corridors of the Organization for Cooperation of Railways (OSJD)

The railway links among the member countries of the OSJD are notable for lengthy routes (8,000 to 10,000 kilometres) with two changes of gauge during transport in a single direction (1,435mm-1,520mm-1,435mm) and a large number of border crossings en route. Moreover, transport operations on OSJD routes between Europe and Asia are governed by regulations, which differ somewhat from those prevailing in Western Europe (for details, see Box 2 in Part III).

In 1996, 13 main railway routes between Europe and Asia were identified by the OSJD on the basis of flows of goods between countries on the two continents. Between 1996 and 2001 the OSJD performed the analysis of technical and operational indicators and technical equipment of these 13 routes, collected data on infrastructure and border crossings and studied ways of improving the freight transport technology. This work resulted in comprehensive measures being drafted for improving the organization of international rail transport operations along the transport corridors between Europe and Asia. The interested countries signed Memoranda of Understanding for the development of these corridors, which served as a basis for coordinated actions by States to reorganize and modernize pertinent railway lines.

Taking into account that the geography of transport flows is continuously changing due to numerous factors, the OSJD is constantly adapting and refining its strategies for the development of intercontinental links along the main railway routes. For example, its programme of work for 2005-2010 calls for the development within the Organization of comprehensive plans for the improvement of transport and the development of transport corridors. The Comprehensive Plans for OSJD Corridors no. 1, 9 and 11 were completed in 2006 and endorsed by the 34th session of the OSJD Ministerial Meeting held in Sofia in June 2006. Comprehensive Plans for another six corridors were approved at the Ministerial meeting in 2007. The map of OSJD's 13 rail transport corridors is reproduced in Figure 2.19.

FIGURE 2.19 THE OSJD MAIN RAILWAY CORRIDORS



PART III

CONSOLIDATED EURO-ASIAN TRANSPORT LINKAGES (EATL)

3.1 Description of Euro-Asian Transport Linkages

In 2003 the Executive Secretaries of UNECE and UNESCAP signed a joint letter to the 18 beneficiary UNECE and UNESCAP member countries, inviting them to participate in the Project and to nominate a Focal Point. The World Bank (WB), the European Bank for Reconstruction and Development (EBRD) and the Asian Development Bank (ADB) were requested to support the implementation of the Project and nominate their Focal Points. The designated national Focal Points prepared country reports based on a uniform questionnaire.

The 1st Expert Group Meeting under the project was jointly organized by UNECE and UNESCAP in Almaty, in March 2004 and hosted by the Government of Kazakhstan. Designated national Focal Points from 16 countries together with experts from a great number of international organizations attended the meeting. The participants agreed on the main elements of a strategy for the development of Euro-Asian Transport Links, taking into account the major routes along the four main Euro-Asian Corridors that had been previously agreed upon at international level and that represent an extension of the Pan-European Transport Corridors further east. They also decided, on the one hand that major routes along these corridors should encompass intermodal aspects, including transhipment points, and, on the other hand that border crossing problems should be addressed. Based on this agreed strategy, and with inputs and proposals from the national Focal Points and the assistance of external consultants, the secretariats collected and processed related infrastructure and traffic data, consolidated and analyzed this data and prepared proposals for consideration by the participating countries.

The 2nd Expert Group Meeting under the project was jointly organized by UNECE and UNESCAP in Odessa, in November 2004, and hosted by the Government of Ukraine. Government representatives from 16 countries in the Euro-Asian region attending the meeting agreed on the main road and rail transport routes connecting Europe and Asia to be considered for priority development and on approaches to developing the routes. Furthermore, they agreed on the identification of main transhipment points along the routes, on the completion of a Geographic Information System (GIS) database and on the identification of priority projects along the selected routes.

The Turkish Government hosted the 3rd Expert Group meeting, jointly organized by UNECE and UNESCAP, in Istanbul in June 2005. Government representatives from 18 participating countries attending the meeting finalized and agreed with a few reservations on the main rail, road and inland water routes connecting Europe and Asia to be considered for priority development as well as on transhipment points along these routes. The consolidated rail, road and inland water transport routes and transhipment points are situated within the four major Euro-Asian land transport corridors described above (Part I). On the European side, the consolidated rail and road links connect or overlap with Pan-European Transport Corridors and Areas.

The 4th Expert Group Meeting was jointly organized by UNECE and UNESCAP in Thessaloniki in November 2006 and hosted by the Ministry of Transport of Greece. The Meeting was attended by the designated National Focal Points (NFP) and experts from 11 countries as well as by representatives of a number of international institutions, organizations, port authorities and transport operators.

The experts considered the Euro-Asian Transport routes maps, which have been elaborated on the basis of the decisions of the 3rd Expert Group Meeting and also some modifications proposed by countries and the secretariat. They agreed that the identified projects could serve as reference from the international perspective and emphasized the importance of national priorities attached by the individual governments; at the same time, the Meeting encouraged participating countries to implement priority projects along the selected routes.

The rail lines and highways selected include the Trans-Siberian routes linking the western borders of Belarus and Ukraine with the major Russian port of Vladivostok on the Pacific Ocean, with branches crossing Kazakhstan into China and continuing up to the Shanghai port. They also include the TRACECA routes linking the new EU member states Romania and Bulgaria through the Black Sea, the Caucasus countries and the Caspian Sea with Central Asian countries and China. Along the North-South axis, they include the routes connecting the Barents and Baltic Sea regions, through the Russian territory, with the Caucasus and Iran. Along the Southern corridor, the East-West routes link Southeast Europe with Iran, Afghanistan and China.

The inland water links adopted to date include the Danube river, linking Central and South-East Europe with the Black Sea and the Caucasus countries as well as the Volga-Don and the Dnepr, whilst the Ural river links the north-western parts of Kazakhstan with Caspian Sea. The rivers Ob and Irtysh link Russia and Kazakhstan in the East.

The priority rail, road and inland water routes and ports selected at the 4th Expert Group Meeting in November 2006 are presented at the end of this section in tabular form. The main EATL routes are described below.

3.2 EATL rail routes

Although the inland transport distances between major business centres of Europe and Asia are significantly shorter than comparable maritime routes, they are still thousands of kilometres long. Given the already existing extensive railway infrastructure and the growing importance of containerized freight shipments, the rail sector could provide the basis for a development of competitive Euro-Asian inland transport links as an additional alternative to that of the maritime links. The UNECE European Agreement on Main International Railway Lines (AGC) mentioned above (section 2.1.2) specifies a number of major routes in the West-East and North-South directions. The main international lines situated in the Caucasus and Central Asia have been integrated into the E-rail network in January 2002, thereby extending the trans-European routes to the borders of China, Iran and Afghanistan. The extended network connects western Europe with Asia through a number of major lines: E-20 from Oostende in Belgium through Germany, Poland, Belarus and the Russian Federation to Vladivostok on the Pacific Ocean; E-50 from Paris, France through Switzerland, Austria, Hungary, Ukraine and the Russian Federation to Druzhba (Dostyk) in Kazakhstan on the border with China; E-60 from Batumi (Georgia), via Baku (Azerbaijan), crossing the Caspian Sea to Ashgabat (Turkmenistan), Buchara and Tashkent (Uzbekistan) and connecting to E-50 in Arys (Kazakhstan). This entire network is further completed with a number of branches ensuring comprehensive North-South coverage.

From the Asian side, the Intergovernmental Agreement on the Trans-Asian Railway Network (as mentioned in the section 2.1.6) specifies major railway lines covering 28 Asian countries. TAR network stretches to Turkey and countries in Central Asia and the Caucasus, providing railway linkages to the borders of the European countries.

Table 3.1 shows that the E-rail lines established by the AGC and the Trans-Asian Railway routes predominate in the EATL rail network adopted by the UNECE-UNESCAP Expert Group.

The EATL **Rail Route 1** (known also as the Trans-Siberian route) is over 10 000 km long, its branches stretching from the eastern borders of the EU (Finland, Hungary, Poland, Lithuania) to the Russian Pacific port of Nakhodka and the Russian-Chinese border. Route 1 extends the Pan-European Transport Corridors (PETCs) II, V and IX eastwards. Its principal advantages include a small number of border crossings, the electrified traction and the uniform (1520 mm) gauge. Parts of the route situated within the European part of the Russian Federation belong to the E-rail and E-combined transport networks. Most of the route is also part of the TAR network. At present, Route 1 provides the backbone for the long-distance surface container transport between Europe and East Asia. One reported disadvantage of Route 1 are the comparatively high charges for container handling at the Nakhodka port.

The EATL **Rail Route 2** spans over more than 8 000 km from the eastern borders of the EU with Belarus and Ukraine across the Russian Federation, Kazakhstan and Eastern China to the ports of Lianyungang and Shanghai. Route 2 extends PETCs II and IX towards Asia with most parts of this route belonging to the TAR network. It coincides with Route 1 on the sections between the EU borders and the city of Yekaterinburg in central Russia. Compared to Route 1, there are some disadvantages: firstly, the broad 1520 mm gauge changes at the Kazakh-Chinese border to the 1435 mm standard prevailing in China; secondly, sections of Route 2 have not been electrified; thirdly, there are two additional border crossings and, lastly, the capacity of the section between Kazakhstan and the Chinese ports is limited.

The main branch of the EATL **Rail Route 3** leads from the south-eastern EU border (Hungary-Romania) to the Lianyungang and Shanghai ports. Route 3 extends PETCs IV, VIII and IX as well as the TRACECA to Eastern China; significant parts of the route belong to the TAR network. Route 3 includes two ferry crossings, from Constanta on the Romanian Black Sea coast to the Georgian ports of Batumi or Poti and from the Azeri port of Baku on the Caspian Sea to the Aktau port in Kazakhstan. Before reaching China, Route 3 and its branches pass through a significant number of countries and border crossings; gauge changes are necessary at the borders of EECCA countries with China and Romania.

The EATL **Rail Route 4** provides an alternative link between South-Eastern Europe and the Lianyungang and Shanghai ports, passing through Bulgaria, Turkey, Iran, Uzbekistan and Kazakhstan. It provides an extension to PETCs IV, VIII, X and the TRACECA route to the Chinese seaboard, also with parts of the route belonging to the TAR network. There are two limitations to that route: there are two gauge changes (Iran-Turkmen border and the Kazakh-Chinese border) and large sections of Route 4 have not been electrified. In principle, Route 4 could become a major artery for container shipments between Europe and China. In practice, only limited quantities (one container train per week) move between Turkey and Central Asia.

The EATL **Rail Route 5** connects northern Europe to Iran, extending from the Finnish-Russian border southward to the Caspian Sea and terminating at the port of Bandar Abbas in the Persian Golf. Almost the whole route is part of the TAR network. For the time being, the capacity of Route 5 is limited by the bottlenecks on the Iranian side of the Caspian Sea where major installations in the Anzali port and Rasht remain incomplete. When the construction work is completed, Route 5 could significantly reduce freight transport times between Iran and the EU.

The EATL **Rail Route 6** provides an alternative connection between the eastern borders of the EU (Hungary, Poland) with Russia's Pacific coast, while moving across Ukraine and Russian Federation (south of Route 1) towards the port of Vladivostok as well as traversing briefly the Kazakh territory. Route 6 provides an extension of PETCs III, V and IX towards the Pacific Ocean. Again, parts of the route belong to the TAR network.

The EATL **Rail Route 7** provides an alternative connection between the EU and the Lianyungang and Shanghai ports, passing through the territory of Ukraine, the Russian Federation, Kazakhstan, Uzbekistan and China. It extends PETCs III and V given that the whole route belongs to the TAR network. Large sections of Route 7 on the Kazakh, Uzbek and Chinese territory are not electrified.

The EATL **Rail Route 8** passes from Poland to Ukraine, southern Russia, Georgia and Azerbaijan to the Iranian border at Astara. Thus it provides another extension to PETCs III and V with most parts of the route belonging to the TAR network.

The EATL **Rail Route 9** provides a connection from the northern Europe through the Russian Federation to Central Asia (Kazakhstan, Uzbekistan and Tajikistan). Significant parts of the route belong to the TAR network. Since long sections of Route 9 are not electrified, the capacity of the route is subject to limitations.

3.3 EATL road routes

The UNECE European Agreement on Main International Traffic Arteries (AGR) described above (section 2.1.1) was extended in December 2001, incorporating major international roads into the Caucasus and Central Asia. The extended network includes major east-west reference roads such as the E-40 from Calais, France to Ridder, Kazakhstan, which follows roughly the path of the ancient Silk Road, the E-60 from Brest, France to Irkeshtam at the Kazakh-Chinese border or the E-80 from Lisbon, Portugal to Gürbulak on the Turkish-Iranian border. It also includes major north-south roads, e.g. the E-123 from Chelyabinsk in proximity to the Ural Mountains in the Russian Federation to Nizhniy Panj at the Tajik-Afghan border.

The Intergovernmental Agreement on the Asian Highway Network (as mentioned in the section 2.1.5) describes major road routes in 32 Asian countries. AH network covers extensive road network in Turkey and countries in Central Asia and the Caucasus, providing road transport linkages to the borders of the European countries.

Table 3.2 highlights the importance of E-roads and the Asian Highway in the EATL context.

The EATL **Road Route 1** starts on the eastern borders of the EU with Belarus as well as the Russian Federation and continues across the Russian territory to the nation's Pacific coast, extending PETCs II, V and IX. Parts of the route belong to the AH network. It runs parallel to the Trans-Siberian railway mentioned above. The uneven quality of road infrastructure as well as a lack of safety in some areas implies that Route 1 is unlikely to be used widely for transcontinental trucking or passenger car trips, especially during the winter months.

The EATL **Road Route 2** is parallel to the Rail Route 2 described above. It extends PETCs II and IX and almost the whole route belong to the AH network.

The EATL **Road Route 3** starts on the eastern borders of the EU with Ukraine and ends on the Chinese seaboard (Lianyungang and Shanghai ports), passing through the Ukraine, Russian Federation, Kazakhstan, Kyrgyzstan and eastern China. Route 3 extends PETCs II, IV, V, VIII and IX eastward and parts of the route belong to the AH network. Altogether, there are eight border crossings between the EU points of origin and final destinations in China. The road quality varies significantly, especially in Central Asia.

The EATL **Road Route 4** connects South-Eastern Europe to the Lianyungang and Shanghai ports, passing across Romania, Georgia, Azerbaijan, Kazakhstan, Uzbekistan, Kyrgyzstan and eastern China. It provides an extension to PETCs IV, V and IX. Route 4 involves two Ro-Ro ferry crossings (from Romania to Georgia and Azerbaijan to Kazakhstan) and eight border crossings. The quality of the route is uneven, changing from a broad four-lane highway to a narrow two-lane road in some parts.

The EATL **Road Route 5** connects South-East Europe to the Lianyungang and Shanghai ports, starting on the Serbian-Bulgarian border and continuing through Bulgaria, Turkey, Iran, Afghanistan, Uzbekistan and Kyrgyzstan. It extends PETCs IV, V, VIII and IX. Significant parts of the route belong to the AH network. There are eight border crossings and the road quality varies significantly in Central Asia.

The EATL **Road Route 6** connects northern Europe to Iran, extending from the Finnish-Russian border southward to the Caspian Sea and terminating at the port of Bandar Abbas in the Persian Golf. Almost the whole route belongs to the AH network and it runs in parallel to the EATL Rail Route 5.

The EATL **Road Route 7** connects the Murmansk port on the northern shore of the Kola Peninsula (in the proximity of Finland and Norway) with the Odessa port in southern Ukraine while passing through northwest Russia and Belarus. Between St Petersburg and Odessa, Route 7 coincides with the PETC IX.

3.4 EATL inland water routes and inland ports

The UNECE European Agreement on Main Inland Waterways of International Importance (AGN) mentioned above (section 2.1.4) covers around 28 000 km of main navigable rivers and canals as well as about 350 ports of international importance extending from the Atlantic Ocean to the Ural mountains and connecting 37 countries in Europe and beyond. Table 3.3 highlights the importance of E-waterways in the EATL context. Table 3.4 summarizes the inland river ports along selected IWT linkages.

A number of inland container depots and transhipment facilities assure the intermodal connectivity within the EATL network. The UNECE European Agreement on Important Combined Transport Lines and Related Installations (AGTC) described above (section 2.1.3) identifies all major European rail lines used in international combined (road/rail) transport as well as the terminals, border crossing points, ferry links and other installations relevant to international combined transport. The UNECE is currently considering the extension of the AGTC network into the Caucasus and Central Asia. Such an extension could enhance the economic feasibility and environmental sustainability of the EATL system.

3.5 Selected Euro-Asian rail, road and inland water transport routes and inland river ports for further development and cooperation

TABLE 3.1 RAIL ROUTES

		Comment	AGC*	TAR**
1.	Brest - Minsk - Moscow – Nizhniy Novgorod – Perm - Yekaterinburg - Omsk - Novosibirsk - Ulan Ude - Karimskaya - Vladivostok (Port)/Vostochny (Port)	PETC 2; OSJD 1	E20	Y
1.a.	Buslovskaya – St. Petersburg (Port) –Moscow - Yekaterinburg	PETC 9; OSJD 16	E10, E20	YI
1.b.	Mostiska/ Chop - Lvov – Moscow	PETC 5, 9; OSJD3	E30, E95	N
1.c.	Tavshet – Irkutsk – Ulan Ude – Naushki – *Border with Mongolia*		N	Y
1.d.	Karimskaya – Zabaykalsk – *Border with China*		N	Y
1.e.	Kaliningrad – *(Lithuania)* – Minsk		N	NA
1.f.	Novosibirsk – Lokot – Aktogai		N	Y
2.	Brest - Minsk - Moscow - Yekaterinburg – Kurgan - Astana - Drujba - *Urumqi - Lianyungang (Port)/Shanghai (Port)*	PETC 2; OSJD 1	E20, E24	Y
2.a.	Buslovskaya – St. Petersburg (Port) –Moscow - Yekaterinburg	PETC 9; OSJD 16	E10, E20	Y
2.b.	Kaliningrad – *(Lithuania)* – Minsk		N	NA
2.c.	Ekaterinburg – Chelyabinsk – Taranovskaya – Zaayatskaya – Tobol – Astana		N	Y

TABLE 3.1 (continued)

		Comment	AGC*	TAR**
3.	Curtici – Arad – Bucharest – Constanta (Port) – Poti/Batumi (Port) – Tbilisi – Baku (Port) – Aktau (Port) – Beineu – Nukus – Uchkuduk – Navoi – Tashkent – Shymkent – Almaty – Dostyk – *Alataw Shankou – Lianyungang (Port)/Shanghai (Port)*	PETC 4, TRACECA; OSJD 6a, 8, 10, 2, 5	E54, E562, E60, E50	Y
3.a.	Baku (Port) – Turkmenbashi (Port) – Ashgabat – Chardzhou – Bukhara – Navoi	TRACECA; OSJD 10	E60	Y
3.b.	Tbilisi – Sadakhlo – Gyumri - Yerevan - Gavar – Meghri – Nourdouz – Jolfa (Yerevan - Gavar – Meghri – Nourdouz – Jolfa under study)	TRACECA	E692	Y
3.c.	Balychi - Bishkek – Lugovaya	TRACECA	NA	Y
3.d.	Tashkent – Kanibadam – Andizhan - Jalalabad – Turugart – Kashi – Urumqi (Jalalabad – Turugart – Kashi section under construction)	TRACECA	E696	Y
3.e.	Dushanbe – Termez – [Turkmenistan] - Bukhara	TRACECA	E695	Y
3.f.	Mersin (Port) / Iskenderun (Port) – Malatya – Dogukapi – Gyumri – Sadakhlo – Tbilisi	TRACECA	E70, E692, E97	Y
3.g.	Ungheni - Chisinau – Bendery - Kuchurgan – Rozdil'na – Odessa (Port) / Ilyichevsk (Port) – Poti/Batumi (Port)	TRACECA; OSJD 5a, 7	E95	NA
3.h.	Border with FYROM - Sofia – Pleven – Varna (Port) – Poti/Batumi (Port)	PETC 8	E680	NA
3.i.	Curtici – Arad – Timisoara – Craiova – Bucharest – Giurgiu – Russe – Kaspichan – Varna (Port) – Poti/Batumi (Port)	PETC 10, 8	E66, E56, E95, E660, E680	NA
3.j.	Dragoman – Sofia – Gorna – Burgas (Port) – Poti/Batumi (Port)		E70, E720	NA
3.k.	Ungheni – Iasi – Bucharest – Giurgiu		E95	NA
3.l.	Bukhara - Karshi - [Turkmenistan] - Termez - Kurgan- T'ube - Kul'ab	TRACECA	E695	Y
3.m.	Kars – Akhalkalaki - Tbilisi (Kars – Akhalkalaki section under construction)		E692	Y
3.n.	Tashkent – Angren – Pap – Andijan (Angren – Pap section under construction)		E696	Y
3.o.	Chisinau – Revaca – Cainari – Giurgiulesti (river port) – Galati (port)		E95, E560	NA

TABLE 3.1 (continued)

		Comment	AGC*	TAR**
4.	Dragoman - Sofia - Svilengrad - Kapikule - Istanbul - Haydarpasa (Port) - Izmit - (Derince Port) - Ankara - Malatya - Kapikoye - Razi - Qazvin - Tehran - Sarakhs - Sarahs - Mary - Chardzou - Navoi - Tashkent - Shymkent - Almaty - Dostyk - Alataw Shankou - Lianyungang (Port)/Shanghai (Port)	PETC 4, 8, 10; OSJD 6, 10, 2, 5; TRACECA	E70, E60, E50	Y
4.a.	Mersin (Port) / Iskenderun (Port) - Malatya		E97	Y
4.b.	Ilyichevsk (Port) - Samsun (Port) - Kalin - Sivas - Bostankaya *(rail ferry planned)*		E97, E70	Y
4.c.	Tehran - Qom - Meybod - Yazd - Bafgh - Kerman - Zahedan - Mirjaveh - Koh-i-Taftan *(Border with Pakistan)* (Kerman - Zahedan under construction).		NA	Y
4.d.	Izmir (Port) - Balikesir - Eskisehir		E74	Y
4.e.	Izmir (Port) - Usak - Afyon - Yenice - Mersin (Port)/ Iskenderun (Port)		E97	N
4.f.	Pehlivankoy - Uzun-kopru - *Border with Greece*		NA	NA
4.g.	Ilychevsk (Port) - Derince (Port) - Izmit			NA
4.h.	Constanta (Port) - Derince (Port) - Izmit			NA
4.i.	Constanta (Port) - Samsun (Port) *(rail ferry planned)*			NA
5.	Buslovskaya - St. Petersburg (Port) - Volgograd - Astrakhan (Port) - Alya (Port) - Anzali (Port) - Rasht - Qazvin - Tehran - Qom - Meybod - Bafgh - Bandar Abbas (Port) (Anzali - Rasht - Qazvin section under construction)	PETC 9; OSJD 11	E10, E99, E50	Y
5.a.	Astrakhan (Port) - Alya (Port) - Amirabad (Port) - Garmsar - Tehran		NA	Y
5.b.	Astrakhan (Port) - Samur - Yalama - Baku - Astara (Azerbaijan) - Astara (Iran) - Rasht (Astara - Astara - Rasht section under study)	OSJD 11	E60, E694	Y
5.c.	Astrakhan (Port) - Askarayskaya - Ganyuchikino - Makat - Beineu - Nukus - Uchkuduk - Bukhara - Chardzhou - Sarahs - Sarakhs - Mashhad - Bafgh	TRACECA	E50, E597	Y
5.d.	Alya (Port) - Aktau (Port) - Beineu		E597	Y
5.e.	Tehran - Qom - Arak - Ahvaz - Bandar Emam (Port)		NA	Y
5.f.	Tehran - Kashan - Badrud - Esfahan - Shiraz - Bushehr (Port) (Esfahan - Shiraz - Bushehr planned)		NA	Y
5.g.	Bafgh - Kerman - Fahraj - Chabahar (Port) (Fahraj - Chabahar planned)		NA	Y
5.h.	Murmansk (Port) - St. Petersburg		NA	N

TABLE 3.1 (continued)

		Comment	AGC*	TAR**
6.	Mostiska/ Chop/Yagudin - Lvov - Kiev - Kharkov - Liski Samara - Ufa - Kurgan - Omsk - Novosibirsk - Ulan Ude Karimskaya - Vladivostok (Port)/Vostochny (Port)	PETC 3, 5	E30, E24	Y
6.a.	Chisinau - Bender - Rozdil'na - Zhmerynka	PETC 9	E95,	NA
6.b.	Tavshet - Irkutsk - Ulan Ude - Naushki - *Border with Mongolia*		E20	Y
6.c.	Karimskaya - Zabaykalsk - *Border with China*		NA	Y
6.d.	Aktau (port) - Beyneu - Makat - Kandagach - Nikeltay Chelyabinsk	TRACECA	E30, E50, E597	T
7.	Mostiska/ Chop - Lvov - Zhmerynka - Fastov - Donetsk Likhaya - Volgograd - Aksarayskaya - Makat - Beineu - Nukus Uchkuduk - Navoi - Tashkent - Shymkent - Almaty - Dostyk *Alataw Shankou - Lianyungang (Port)/Shanghai (Port)*	PETC 3, 5 ; TRACECA	E30, E50, E593, E597	Y
8.	Mostiska/ Chop - Lvov - Fastov - Krasnoarmeysk - Kvashino - Uspenskaya - Rostov-na-Donu - Veseloe - Gandtiadi - Senaki - Tbilisi - Alyat - Astara (Azerbaijan) - Astara (Iran) (Astara - Astara section under construction)	PETC 3, 5; TRACECA	E30, E50, E593, E99, E60	Y
8.a.	Tbilisi - Gyumri - Yerevan	TRACECA	E694	Y
8.b.	Kaliningrad (Port) - *(Lithuania)* - Minsk - Gornosaivka - Nizhyn - Kiev		E95	NA
8.c.	Kavkaz (Port) - Novorossiysk (Port) - Krasnodar		E99	Y
8.d.	Varna (Port) - Novorossiysk (Port) - Poti/Batumi (Port)		NA	N
9.	Buslovskaya - Moscow - Ryazan - Orenburg - Aktyubinsk - Kandagach - Aris - Tashkent - Bukhara - Karshi - Tashguzar - Baysun - Kumchurgan - Termez - Galaba - Hairatan (border of Afghanistan)	TRACECA	E10, E24, E30, E50, E695	Y
9.a.	Ryazan - Aksarayskaya - Makat - Karakalpakiya - Uchkuduck - Navoi - Bukhara	TRACECA	E50, E597	Y
9.b.	Rostov-na-Donu - Volgograd - Baskunchak - Aksarayskaya		E99, E50	Y
9.c.	Bukhara - Karshi - Tashguzar - Baysun - Kumchurgan - Sariacia - Dushanbe - Vaghdad		E695	Y

* UNECE European Agreement on Main International Railway Lines

** The Intergovernmental Agreement on the Trans-Asian Railway was adopted in 2005 and signed by 18 countries in 2006. It is now open for signature and accession by UNESCAP member countries. Those sections which are in the Agreement will be indicated.

Notes:

1. Italicized sections are located in countries which are not participating in the project or have not confirmed their inclusion.
2. Numbering is indicative only.
3. Turkey's border with Armenia is currently closed.

TABLE 3.2 ROAD ROUTES

		AGR*	AH**
1.	Torfyanovka - St. Petersburg (Port)- Moscow - Nizhniy Novgorod - Ekaterinburg - Omsk - Novosibirsk - Krasnoyarsk - Irkutsk - Ulan Ude - Chita - Belogorsk - Khabarovsk - Ussuriysk - Vladivostok (Port)/Vostochny (Port)/Nakhodka (Port)	E105, E22	AH8 AH6 AH30
1.a.	Brest - Minsk - Moscow	E85,E30	AH6
1.b.	Mostiska/Chop - Lvov - Kiev - Moscow	E40, E101	NA
1.c.	Moscow - Yaroslavl - Vologda - Archangelsk (Port)	E115	NA
1.d.	Semipalatinsk - Novossibirsk	N	N
2.	Brest - Minsk - Moscow - Nizhniy Novgorod - Ufa - Chelyabinsk - Kurgan - Petropavlovsk - Astana - Almaty - Khorgos - Jinghe - Urumqi - Xi'an - Lianyungang (Port) / Shanghai (Port)	E85, E30, E125	AH6, AH64, AH7, AH60
2.a.	Torfyanovka - St. Petersburg - Moscow	E18, E105	AH8
2.b.	Petropavlovsk - Omsk - Pavlodar - Semipalatinsk - Georgievka - Taskesken - Ucharal - Dostyk - Alatawshankou - Kuitun - Urumqi	E127	AH60, AH68, AH 5
2.c.	Moscow - Samara - Uralsk - Aktobe - Dossor - Makat - Beyneu - Nukus - Navoi - Tashkent - Almaty	E121, E38	AH 60, AH63, AH61
2.d.	Chelyabinsk - Kaerak - Kostani - Astana	E123, E016	AH7
2.e.	Archangelsk - Perm - Yekaterinburg - Kurgan - Petropavlovsk	N	N
3.	Mostiska - Lvov - Kiev - Guktov - Kursk - Saratov - Ozinki - Uralsk - Aktyubinsk - Karabutak - Aralsk - Kyzylorda - Shymkent - Almaty - Khorgos - Jinghe - Urumqi - Xi'an - Lianyungang (Port) / Shanghai (Port)	E40, E95, E101, E38	AH61
3.a.	Chop - Uzhgorod - Mukacevo - Stryei - Lvov - Kiev - Kharkov - Kamensk - Shahtinskiy - Volgograd - Astrakhan - Atyrau - Beyneu - Nukus - Bukhara - Navoi - Samarkand - Tashkent - Shymkent	E40	AH70, AH8, AH63, AH5
3.b.	Yagodyn - Kovel - Sarny - Kiev	E373	NA
3.c.	Kaliningrad (Port) - Tolpaki - Nesterov - (Lithuania) - Minsk - Gomel - Kiev	E28, E271, E95	NA
3.d.	Mostiska/Chop - Uzhgorod - Mukacevo - Stryei - Ternopol - Khmelnitski - Vinnitza - Uman - Kirovograd - Dnepropetrovsk - Donetsk - Rostov-na-Donu - Armavir - Mineralijnie Vodi - Vladikavkaz - (Tbilisi) - Makhachkala (Port) - Aktau (Port) - Beyneu	E50, E121	AH70
3.e.	Rostov-na-Donu - Krasnodar - Novorossijsk (Port) - Kavkaz (Port) - Samsun (Port) / Poti/Batumi (Port) / Burgas (Port)	E115, E97	NA
3.f.	Sofia - Popvica - Stara Zagora - Burgas (Port) - Kavkaz (Port) - Novorossysk (Port) - Poti/Batumi (Port)	E773	NA
4.	Nadlag - Arad - Bucharest - Constanta (Port) - Poti/Batumi (Port) - Tbilisi - Alat - Baku (Port) - Aktau (Port) - Beyneu - Nukus - Bukhara - Tashkent - Shymkent - Bishkek - Almaty - Sary-Ozek - Khorgos - Urumqi - Xi'an - Lianyungang (Port) / Shanghai (Port)	E68, E60, E121, E40, E60	AH5, AH70, AH63, AH62
4.a.	Tbilisi - Sadakho - Yerevan - Eraskh - Goris - Kapan - Megri - (Agarak) - Nourdouz - Jolfa (Iran) - Eyvoghli	E117	AH82

TABLE 3.2 (continued)

		AGR*	AH**
4.b.	Ruse - Giurgiu - Bucharest - Urziceni - Marasesti - Albita - Leucheni - Chisinau - Odessa (Port) - Poti/Batumi (Port)	E85, E581, E58	NA
4.c.	Kiev - Odessa (Port) / Ilyichevsk (Port) - Poti/Batumi (Port)	E95	NA
4.d.	Sofia - Pleven - Ruse - Varna (Port) - Poti/Batumi (Port)	E79, E83, E85, E70	NA
4.e.	Merzifon - Samsun (Port) - Trabzon (Port) - Sarp (Turkey) - Sarpi (Georgia) - Batumi (Port) - Poti (Port)	E95, E70	AH5
4.f.	Baku (Port) - Turkmenbashi (Port) - Ashgabhat - Mary - Bukhara	E60	AH5
4.g.	Bishkek - Naryn - Torugart - Kashi	E125	AH61
4.h.	Shymkent - Merket - Almaty	NA	AH5
4.i.	Brest - territory of Belarus - border with Ukraine - territory of Ukraine - border with Moldova - Chisinau - Odessa (Port) / Ilyichevsk (Port) - Poti (Port) / Batumi (Port)	E30, E85	NA
4.j.	Batumi (Port) - Hopa - Kars - Gyumri - Yerevan	E70	AH5***
4.k.	Chisinau - Giurgiulesti (river port)	E584	NA
4.l.	Gyumri - Erzurum	E691, E80	NA
4.m.	Odessa (Port) / Ilyichevsk (Port) - Samsun (port) / Trabzon (port)	NA	NA
4.n.	Samsun (Port) / Trabzon (Port) -- Poti/Batumi (Port)	NA	NA
4.o.	Djulfa (Azerbaijan) - Nakhichevan - Sadarak - Border with Turkey - Igdir (Turkey)	E99	N
5.	Border with Serbia /FYROM - Sofia - Kapikule - Istanbul - (Haydarpasa Port) - Izmit (Derince Port) - Merzifon - Refahiye - Gurbulak - Bazargan - Eyvoghli - Tabriz - Qazvin - Tehran - Semnan - Damghan - Sabzevar - Mashhad - Dogharoun - Islam Qala - Herat - Mazar-i-Sharif - Termez - Guzar - Samarkand - Tashkent - Andizhan - Osh - Sary-Tash - Irkeshtam - Kashi - Urumqi - Xi'an - Lianyungang (Port)/ Shanghai (Port)	E80	AH1, AH5, AH85, AH 77
5.a.	Tehran - (Saveh - Salafchegan) - Qom - Yazd - Anar - Kerman - Zahedan - Mirjaveh - Border of Pakistan	NA	AH 2
5.b.	Nadlag - Arad - Timisoara - Lugoj - Carasebes - Dr.-Turnu - Severin - Craiova - Calafat - Vidin - Botevgrad - Sofia	E70, E79	NA
5.c.	Istanbul (Kınalı Junction) - Silivri - Kesan - Kipi - Alexandroupolis (port) - Kommotini - Xanthi - Kavala (port) - Thessaloniki (port) - Veria - Metsovo - Igoumenitsa (port)	E90, E84	NA
5.d.	Kiev - Uman - Odessa (Port) / Ilyichevsk (Port) - Samsun (Port) - Merzifon	E95	AH5
5.e.	Mashhad - Sarakhs - Tejen	NA	AH75
5.f.	Mazar-i-Sharif - Polekhumri - Kabul - border with Pakistan	NA	AH76, AH7, AH1
5.g.	Mazar-i-Sharif - Polekhumri - Nizhniy Panj - Dushanbe - Sary-Tash	E123, E60	AH76, AH7, AH65
5.h.	Termez - Dushanbe - Vakhdat - Kulob - Khorugh - Murgab - Kashi	E60, E009, E008	AH65, AH66, AH4
5.i.	Constanta (Port) - Haydarpasa (Port)	NA	NA
5.j.	Ilyichevsk (Port) - Derince (Port)	NA	NA
5.k.	Tashkent - Aybek - Kodjent - Andarkhan - Kokand	E006	N

TABLE 3.2 (continued)

		AGR*	AH**
6.	Torfyanovka - St. Petersburg – Moscow – Volgograd – Astrakhan/Alya (Port) – Anzali (Port) – Qazvin - Tehran – Bandar Abbas (Port)	E105, E119, E40	AH8, AH1, AH2, AH70
6.a.	Astrakhan (Port) – Alya (Port) – Samur – Yalama - Baku (Port) – Astara (Azerbaijan) – Astara (Iran) – Qazvin – Tehran	E119	AH8
6.b.	Astrakhan (Port) – Amirabad (Port) – Sari	NA	AH70
6.c.	Astrakhan (Port) – Alya (Port) – Aktau (Port) – Beineu	E121	AH70
6.d.	Qazvin – Saveh – Ahvaz – Bandar Emam (Port)	NA	AH8
6.e.	Tehran – Qom – Esfahan – Shiraz – Bushehr (Port)	NA	AH72
6.f.	Eserdar – Gudurolum – Inche Boroun – Gorgan – Sari – Semnan – Damghan – Yazd – Anar Bandar Abbas (Port)	E 121	AH70
6.g.	Astrakhan – Atyrau (Port) – Makat – Beyneu – Aktau (Port) - Turkmenbashi (Port) – Ashgabat Tegen – Saras – Sarakhs – Mashhad – Birjand – Nehbandan – Dastak – Zahedan – Chabahar (Port)	E40, E121, E60	AH70, AH5, AH75
7.	Murmansk (Port) - Petrozavodsk – St. Petersburg (Port)– Pskov – Ostrov – Gomel – Kiev – Odessa (Port) / Ilyichevsk (Port)	E105, E95	NA

* UNECE European Agreement on Main International Traffic Arteries
** Asian Highway
*** Part of proposed Euro-Asian Roads in Turkey

Notes:

1. Italicized sections are located in countries which are not participating in the project or have not confirmed their inclusion.
2. Numbering is indicative only.
3. Turkey's border with Armenia is currently closed.

TABLE 3.3 INLAND WATER TRANSPORT LINKAGES

	Country	From - To	E- N°. or other international ref. N°.
1	Bulgaria	Danube Km 610 - Km 374	Corridor VII, E-80
2	Kazakhstan	Sr.Trekinskiy Yar – Peshnoi island – entering buoy of Uralo-Caspian channel (the Ural river)	E 80-07
3	Moldova	Prut river from the mouth to Ungheni (0 - 559 km)	E 90-03
4	Moldova	Dniester river from the port Belgorod-Dnestrovsky (Ukraine) to Bender (0 - 667 km)	Corridor VII E-80
5	Romania	Danube km. 1.075 – km. 863	Corridor VII E-80
6	Romania	Danube km. 863 - km. 175	Corridor VII E-80
7	Romania	Danube km. 175 - Mm. 0	E-80-14
8	Romania	Danube – Black Sea Canal	E-80-14-01
9	Romania	Poarta Alba – Midia – Navodari Canal	North-South Waterway
10	Russian Federation	St Petersburg - Svir - Cherepovets - Rybinsk - Nizhniy Novgorod - Kazan - Samara - Saratov - Volgograd - Krasnoarmeysk - Astrakhan (port) - Caspian Sea (includes Volgo-Baltiyskiy Vodniyput)	(NSW), E-50
11	Russian Federation	(Rybinsk) - Moskva - Riazan – Nizkhniy Novgorod (includes Kanal im. Moskvi)	NSW, E-50-02
12	Russian Federation	Azov - Rostov-na-Donu - Oust-Donetsk - Krasnoarmeysk – Astrakhan (port) – Caspian Sea	NSW4, NSW, E-90
13	Turkey	Lake Van (Tatvan – Van)	
14	Ukraine	Route No.9 Dniper river (on regulate condition)	E-40
15	Ukraine	River Danube, border between Ukraine/Moldova - cape Izmailskii Chatal	E – 80
16	Ukraine	Danube-Kilia Arm, cape Izmailskii Chatal - sea approach canal (Bistroe Arm Outlet)	E – 80 – 09

TABLE 3.4 INLAND RIVER PORTS ALONG SELECTED IWT LINKAGES

N°	Country	Name and Location
1	Bulgaria	Port Complex Rousse (P 80-56) Danube, km 489.300, km 496.050
2	Bulgaria	Rousse East
3	Bulgaria	Rousse West
4	Bulgaria	Port Complex Lom (P 80-53) Danube, km 742.300
5	Bulgaria	Port Vidin, Danube, from km 785 400 to 793 500
6	Kazakhstan	Atyrau River Port (Ural, km ...)
7	Kazakhstan	Pavlodar River Port (Ural, km ...)
8	Moldova	Bender (P 90-03-02) , Dniester, km 228.0
9	Moldova	Ribnița, Prut, km ...
10	Moldova	Ungheni, Prut, km ...

TABLE 3.4 (continued)

N°	Country	Name and Location
11	Moldova	Giurgiulești (P 80-62) Danube, km 133.0
12	Romania	Sulina, Danube, km 0
13	Romania	Tulcea (P 80-64), Danube, km.71
14	Romania	Galati (P 80-61), Danube, km.150
15	Romania	Braila (P 80-60), Danube, km.170
16	Romania	Giurgiu (P 80-57),Danube, km.493
17	Romania	Calafat, Danube, km.795
18	Romania	Drobeta Turnu Severin (P 80-51),Danube, km 931
19	Romania	Orsova (P 80-50),Danube, km.954
20	Romania	Moldova Veche, Danube, km.1048
21	Russian Federation	St. Peterburg River Port (P 50-02) Neva, km 1 385
22	Russian Federation	Yaroslavl River Port (P 50-05) Volga, km 520
23	Russian Federation	Nizhni Novgorod River Port (P 50-06) Volga, km 907
24	Russian Federation	Kazan River Port (P 50-07) Volga, km 1313
25	Russian Federation	Samara River Port (P 50-09) Volga, km 1746
26	Russian Federation	Volgograd River Port (P 50-11) Volga, km 2560
27	Russian Federation	Ust-Donetsk River Port (P 90-05) Don, km 2997
28	Russian Federation	Rostov-na-Donu River Port (P 90-05) Don, km 3134
29	Russian Federation	Azov River Port (P 90-03) Don, km 3168
30	Russian Federation	Yeysk River Port (P 90-02) Don, Taganrog Bay of the Azov Sea
31	Turkey	Tatvan Port (rail ferry port on Lake Van)
32	Turkey	Van Port (rail ferry port on Lake Van)
33	Ukraine	Reni (P 80-63) Danube, 128 km Danube
34	Ukraine	Izmail (P 80-09-01), Danube-Kilia Arm, km 93
35	Ukraine	Kiliia (P 80-09-02), Danube-Kilia Arm, km, 48
36	Ukraine	Ust'-Dunaisk (P 80-09-03), Danube-Kilia Arm, km 1.0
37	Ukraine	Belhorod-Dnestrovskii (P 90-03-01), Dnestrovskii Liman, Black sea
38	Ukraine	Kherson (P 40-12), Dniper, km 28
39	Ukraine	Kiev River Port
40	Ukraine	Odessa River Port, Black Sea
41	Ukraine	Cherkassy river port (P 40-06), Dniper, km 653
42	Ukraine	Kremechuk river port (P 40-07), Dniper, km 541
43	Ukraine	Dneprodzerzhinsk river port (P 40-08), Dniper, km 429
44	Ukraine	Dnepropetrovsk river port (P 40-09), Dniper, km 393
45	Ukraine	Zaporizhya river port Stock insurer company «Ukrrechflot» (P 40-10), Dniper, km 308
46	Ukraine	Nova Kakhovka river port (P 40-11), Dniper, km 96
47	Ukraine	Khersonskii river port, Stock insurer company «Ukrrechflot» Dniper, km ...

Notes:

1. Numbering is for reference only.
2. Where relevant, references to the International Agreement on Inland Waterways of International Importance (AGN) are indicated.

3.6 Presentation of the Euro-Asian transport links maps

The EATL maps have been prepared in schematic and GIS formats. The schematic maps have been designed to convey information of limited scope while highlighting the rail, road and inland water routes selected. The schematic map of EATL railroads identifies the individual routes by full lines, ferry links and missing links by datted lines, national capitals by special symbols and important cities by dots. The map is available in two versions: the colour version highlights each route in a specific colour (Figure 3.1) while the monochrome version shows the entire EATL rail network in one colour without route overlaps (Figure 3.2). The schematic map of EATL roads is also available in colour and monochrome version (Figures 3.3 and 3.4). The schematic map of EATL inland water routes is monochromatic, representing the EATL routes by thick lines and main rivers by thin lines in a different tint (Figure 3.5). It also shows national capitals and selected cities.

Three GIS (Geographic Information System) digital maps present EATL rail, road and inland water routes in more detail than the five schematic maps described above. The GIS map of EATL railroads provides an accurate monochromatic representation of the routes, ferry crossings and missing links (Fig. 3.6). The routes are identified by their respective numbers. The GIS map of EATL roads is similar; however, it does not show missing links (Fig. 3.7). The GIS map of EATL inland water routes identifies them as well as important rivers, inland ports, maritime ports, national capitals, and principal cities and nodes (Fig. 3.8).

Furthermore, there are 16 colour maps pertaining to the individual EATL rail and road routes. Each of the nine railroad maps shows in different colours the relevant EATL rail route, its overlaps with other EATL routes, relevant ferry links, stretches under construction or in the planning stage, other rail lines, rail border crossing points, inland and maritime ports, national capitals and selected cities (Figures 3.9 – 3.17). The seven EATL road maps are structured similarly but do not identify the links either under construction or in the planning stage (Figures 3.18 – 3.24).

Subsequently, there are 19 country maps covering the states participating in the EATL project (Figures 3.25 – 3.43). There is one map per country except for the Russian Federation that shows on two maps pertaining to its European and Asian parts respectively. Each country map uses different colours and symbols to denote EATL rail routes, rail ferry links, incomplete rail links, road routes, road ferry links, inland water transport routes, rivers, inland ports, maritime ports, inland container depots and intermodal freight terminals, rail and road border-crossing points, national capitals and other cities.

Last but not least, two maps compare the AGC, AGTC and AGR networks with EATL rail and road routes (Figures 3.44 – 3.45). On these maps, the overlapping network segments are shown in red while parts of the EATL routes that do not overlap or are situated outside the UNECE region are indicated by green and purple colours respectively. It is expected that the participating countries will strive to incorporate all the EATL rail and road routes identified within the UNECE region into the AGR, AGC and AGTC networks.

FIGURE 3.1 SCHEMATIC MAP OF EATL RAIL ROUTES

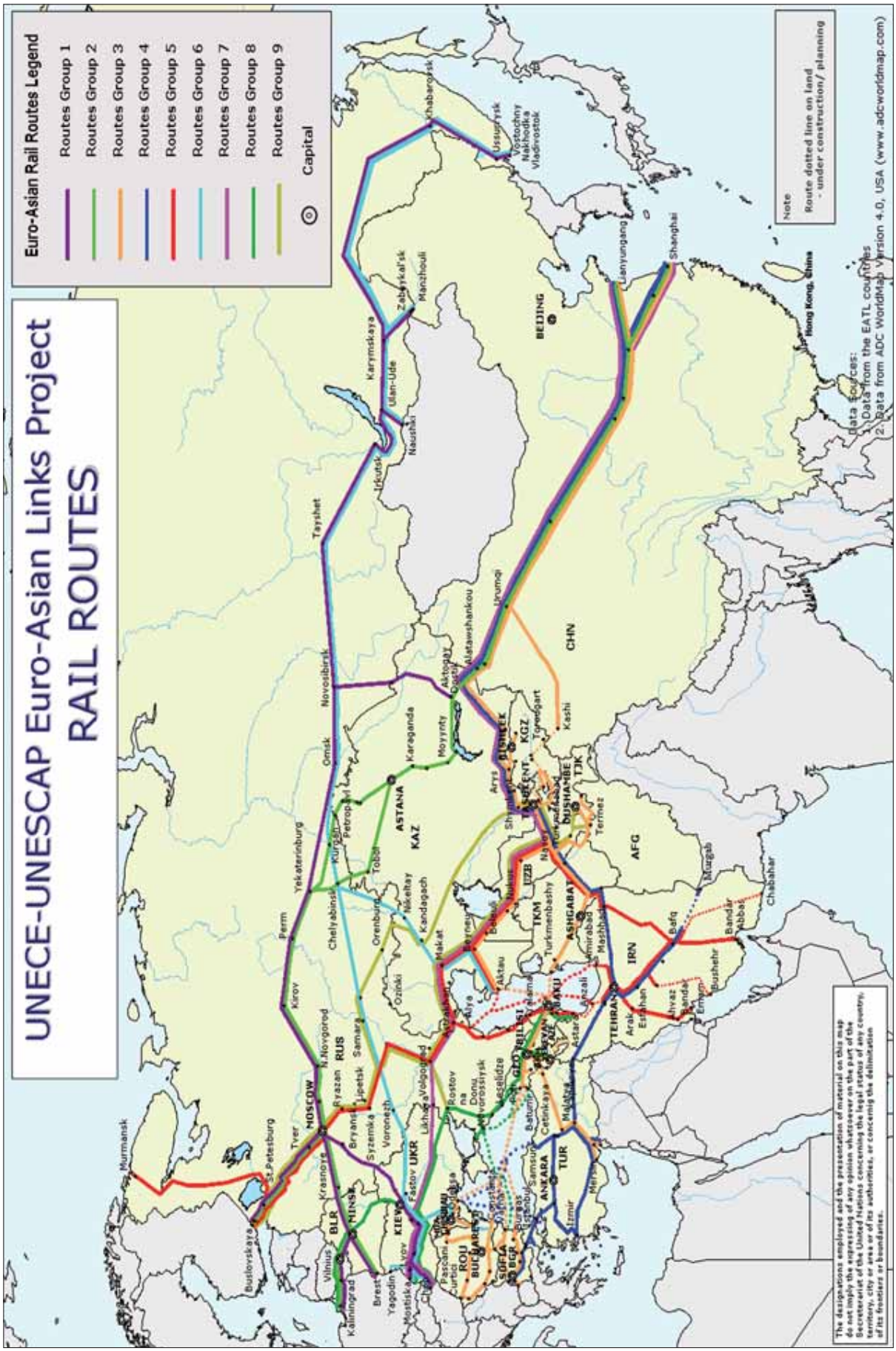


FIGURE 3.2 SCHEMATIC MAP OF THE EATL RAIL NETWORK

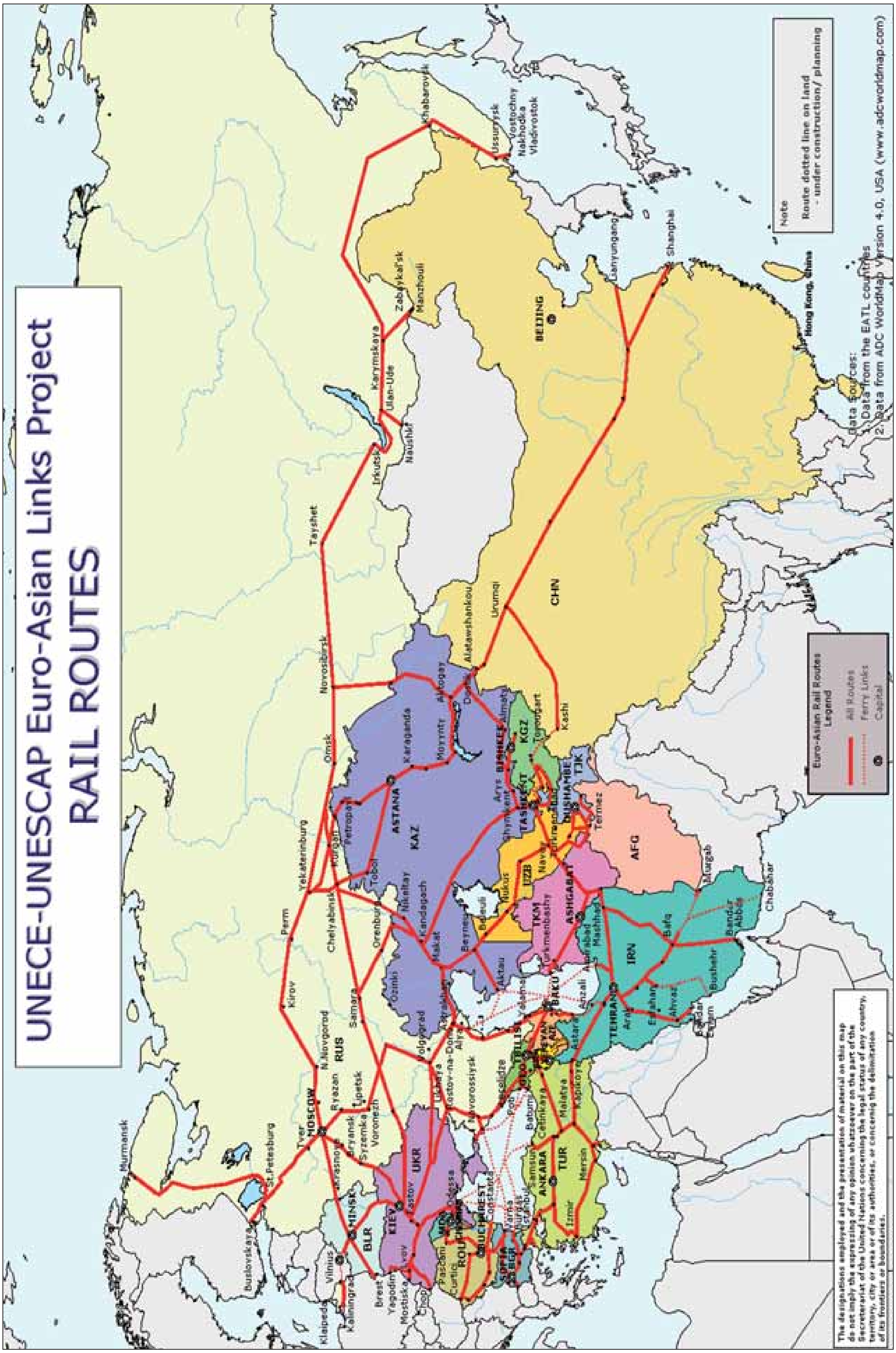


FIGURE 3.3 SCHEMATIC MAP OF EATL ROAD ROUTES

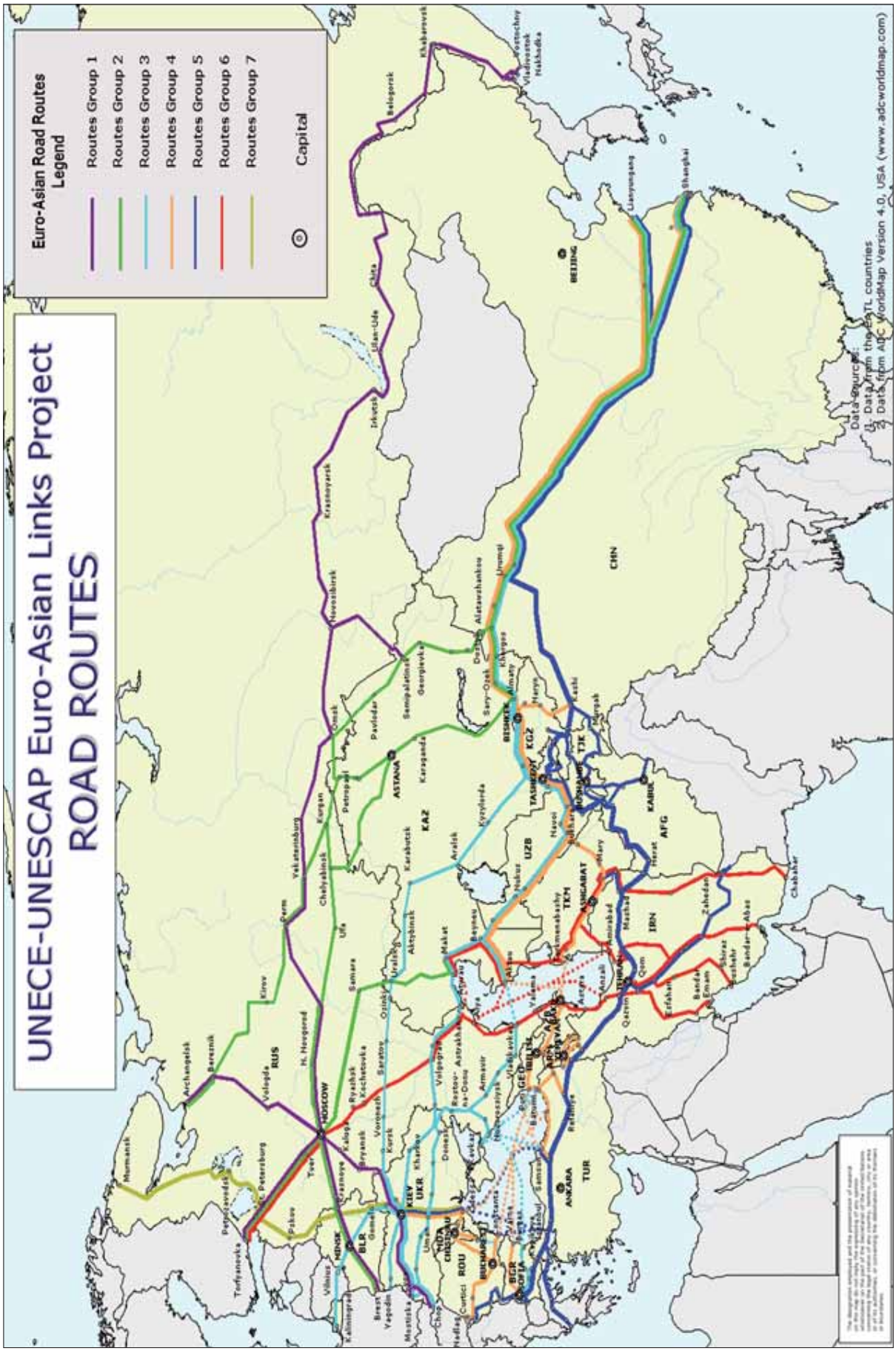


FIGURE 3.4 SCHEMATIC MAP OF THE EATL ROAD NETWORK

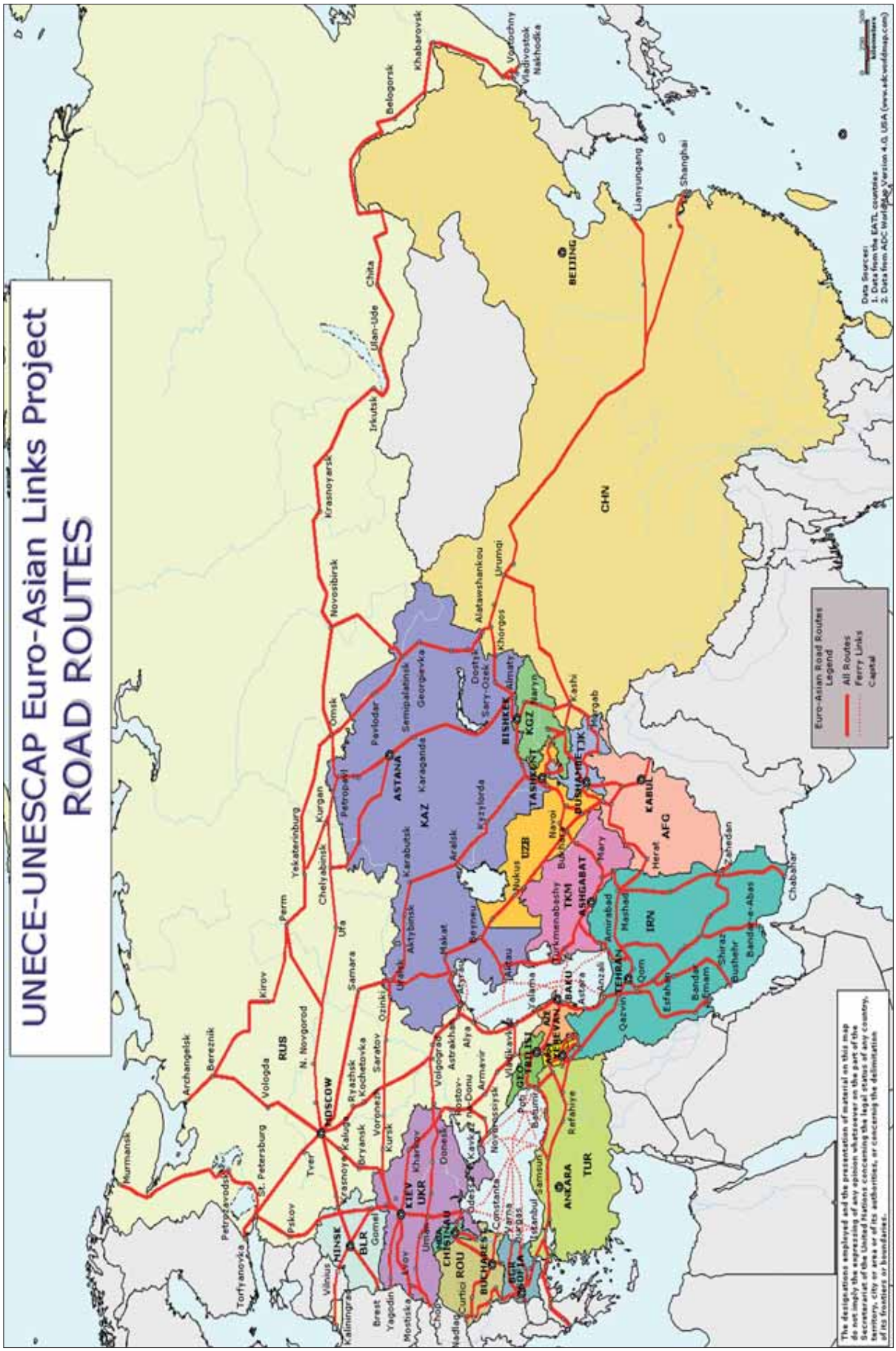


FIGURE 3.5 SCHEMATIC MAP OF EATL INLAND WATER ROUTES

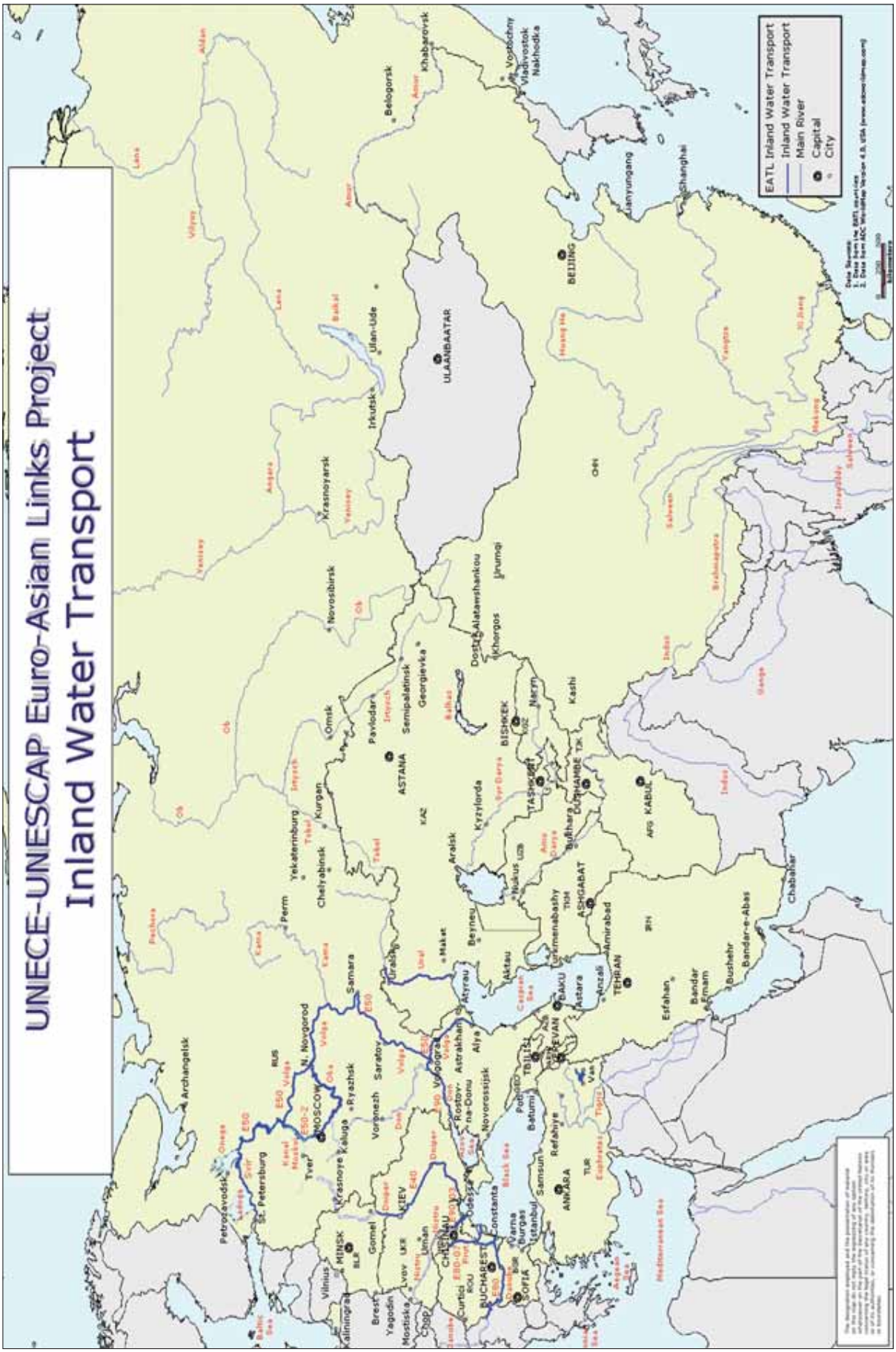


FIGURE 3.6 GIS MAP OF EATL RAIL ROUTES

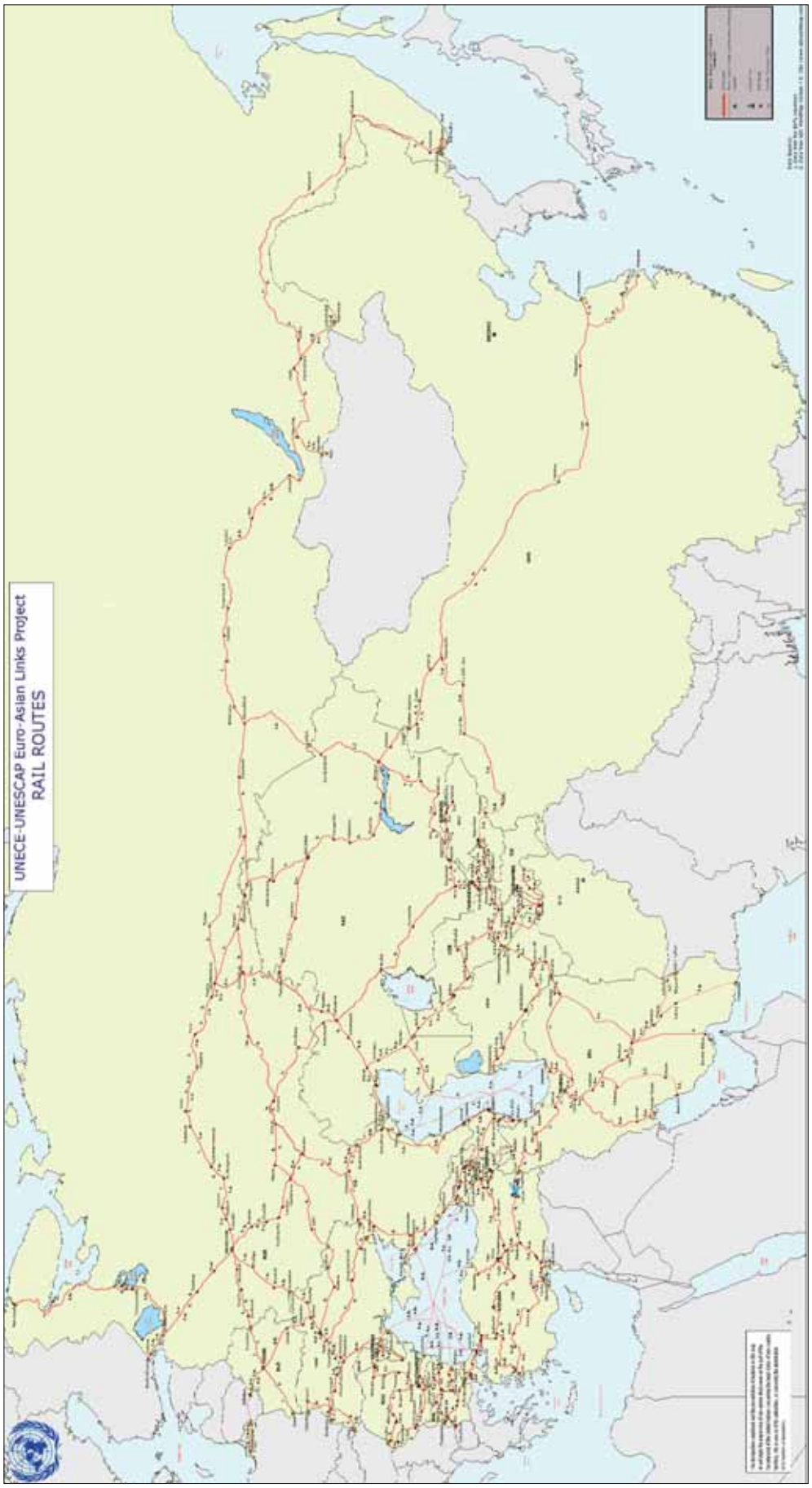


FIGURE 3.7 GIS MAP OF EATL ROAD ROUTES

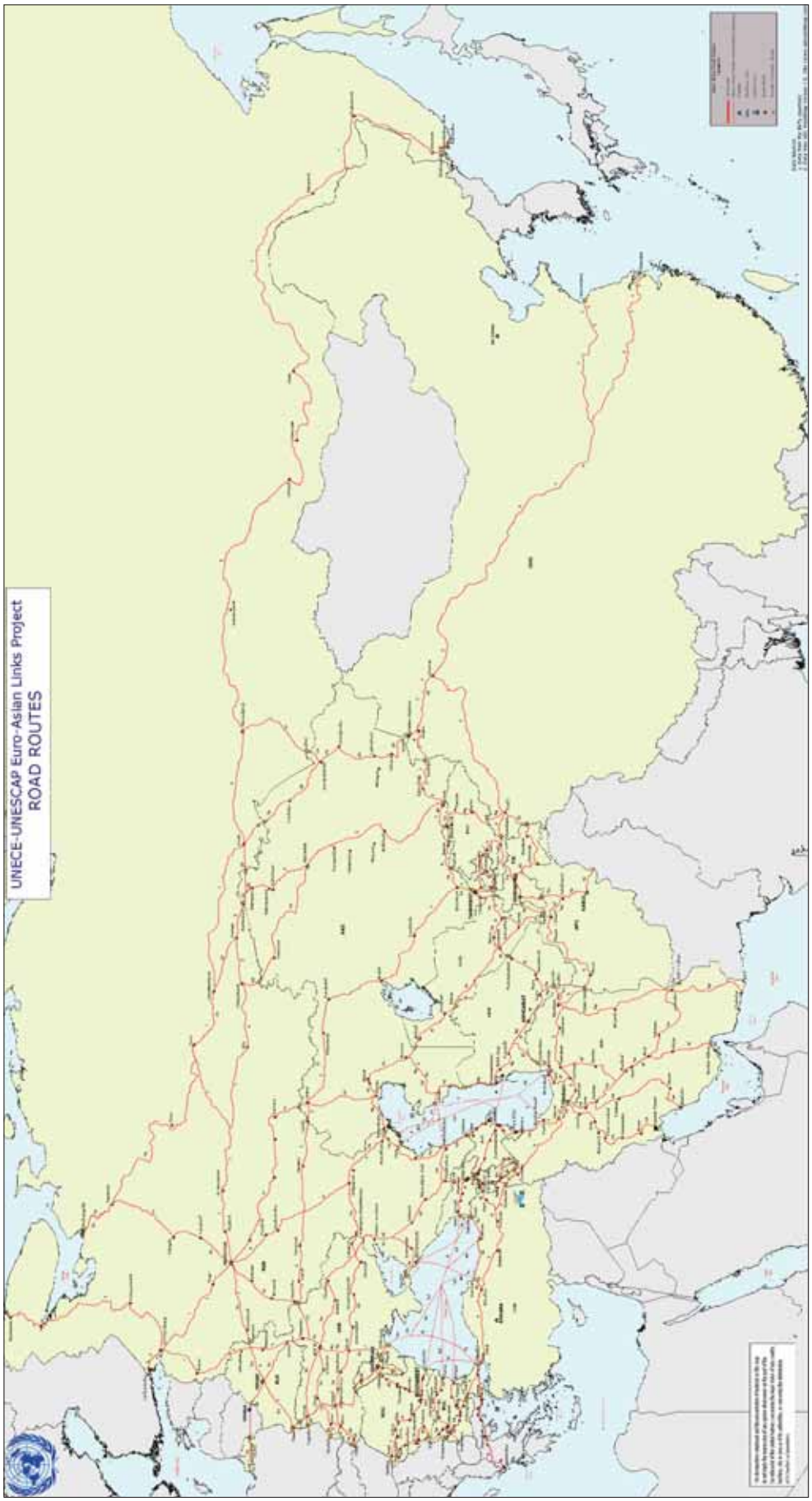


FIGURE 3.8 GIS MAP OF EATL INLAND WATER ROUTES

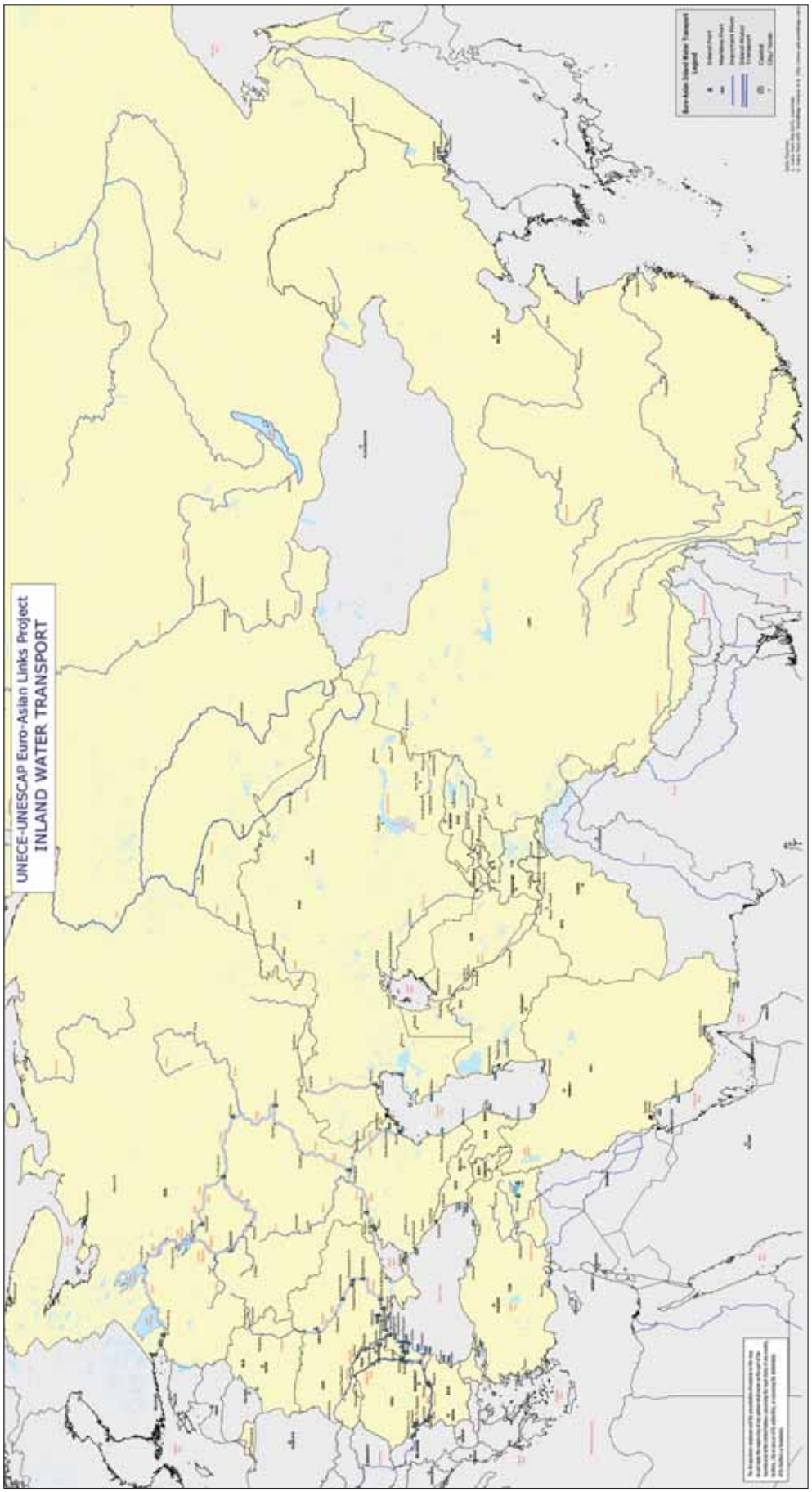


FIGURE 3.9 EATL RAIL ROUTE 1

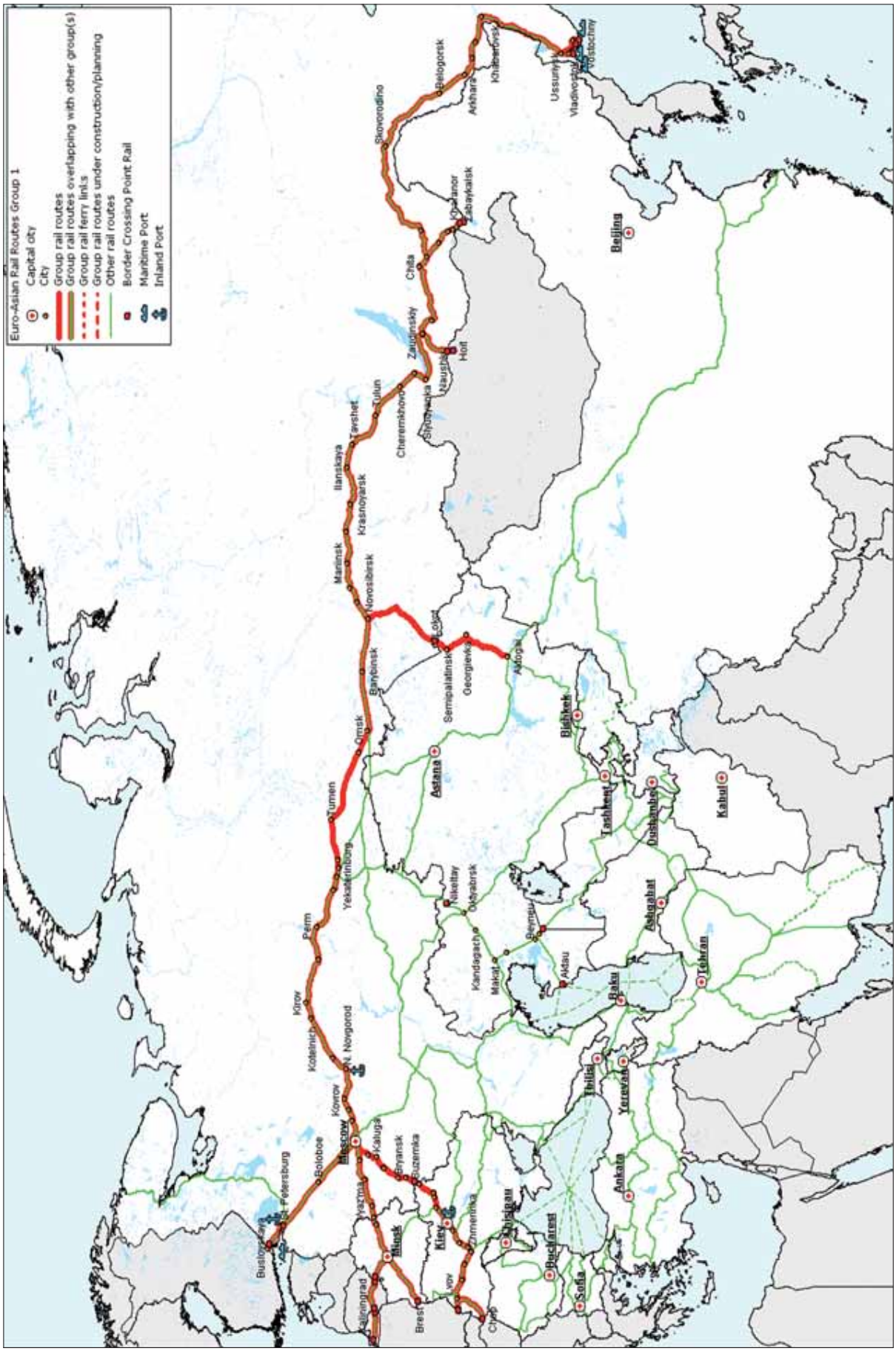


FIGURE 3.10 EATL RAIL ROUTE 2

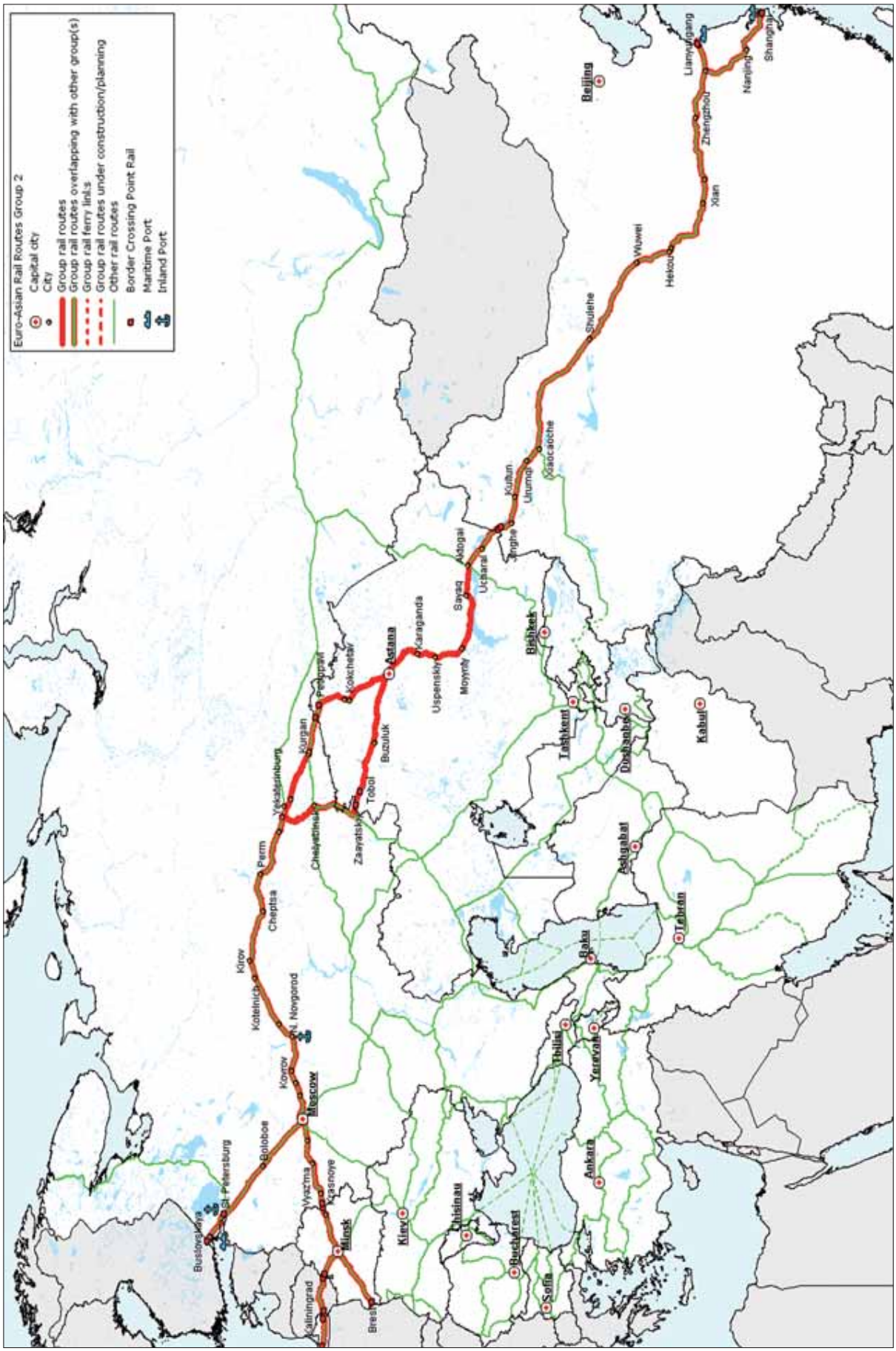


FIGURE 3.11 EATL RAIL ROUTE 3

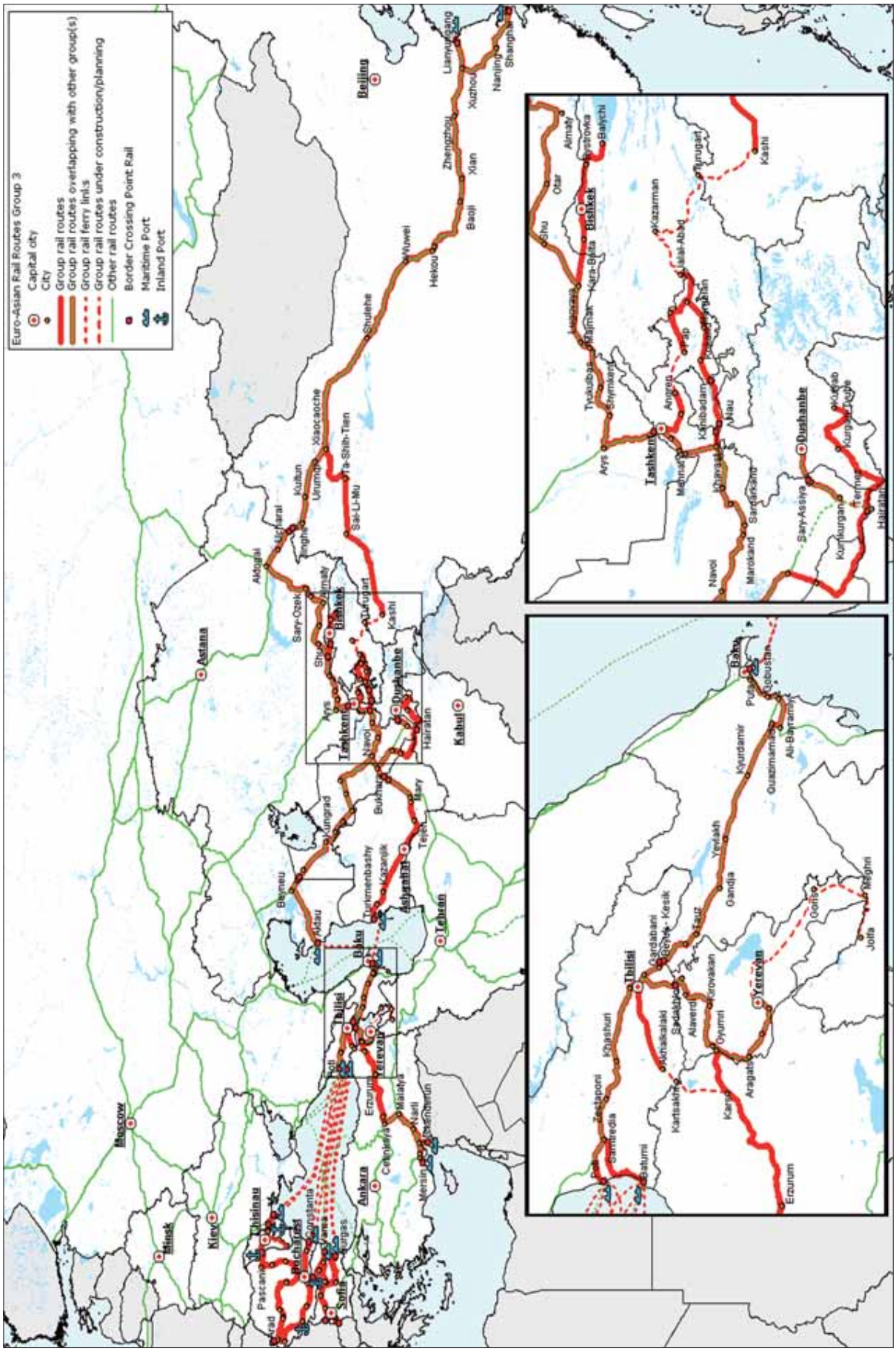


FIGURE 3.12 EATL RAIL ROUTE 4

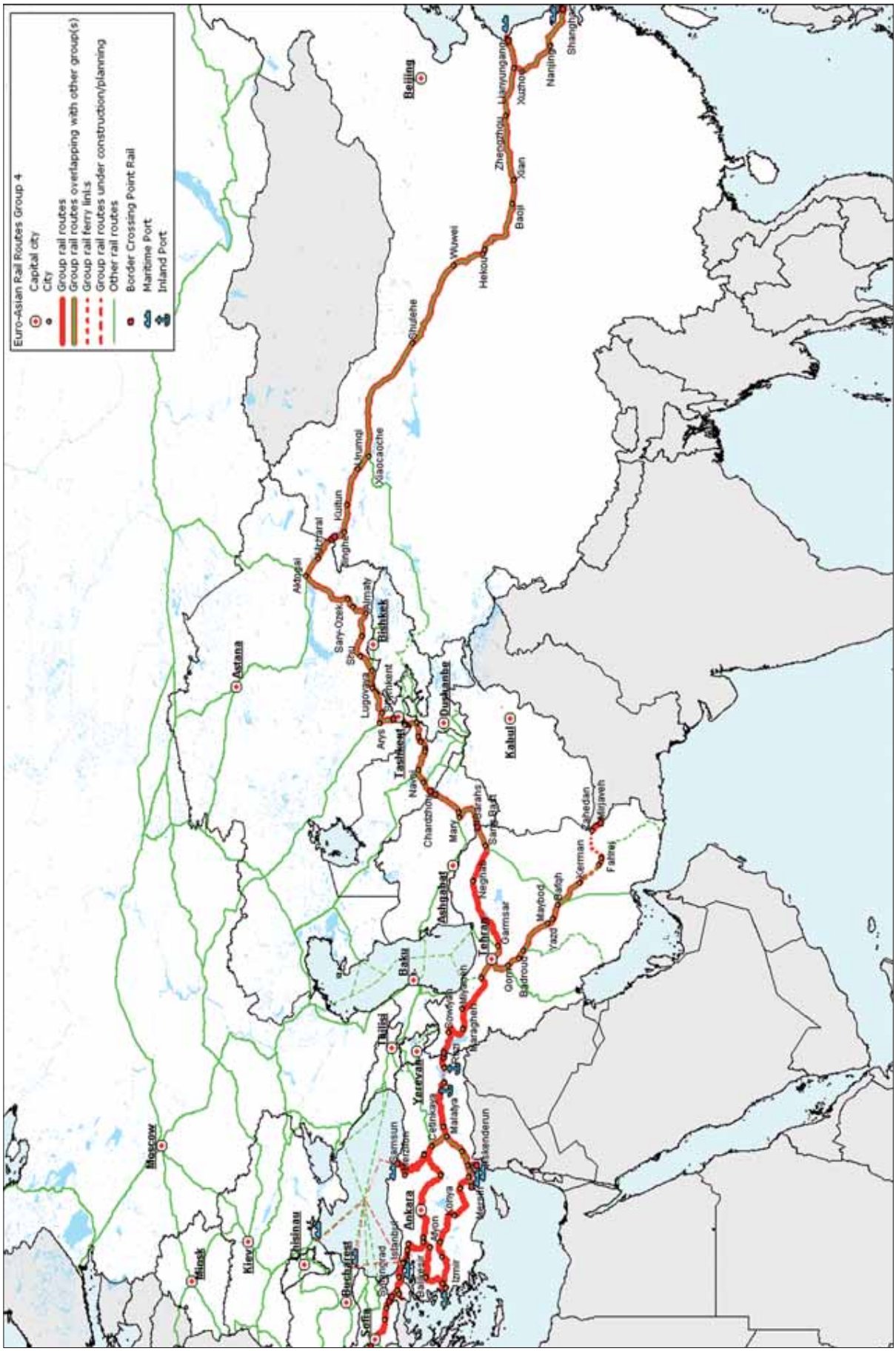


FIGURE 3.13 EATL RAIL ROUTE 5

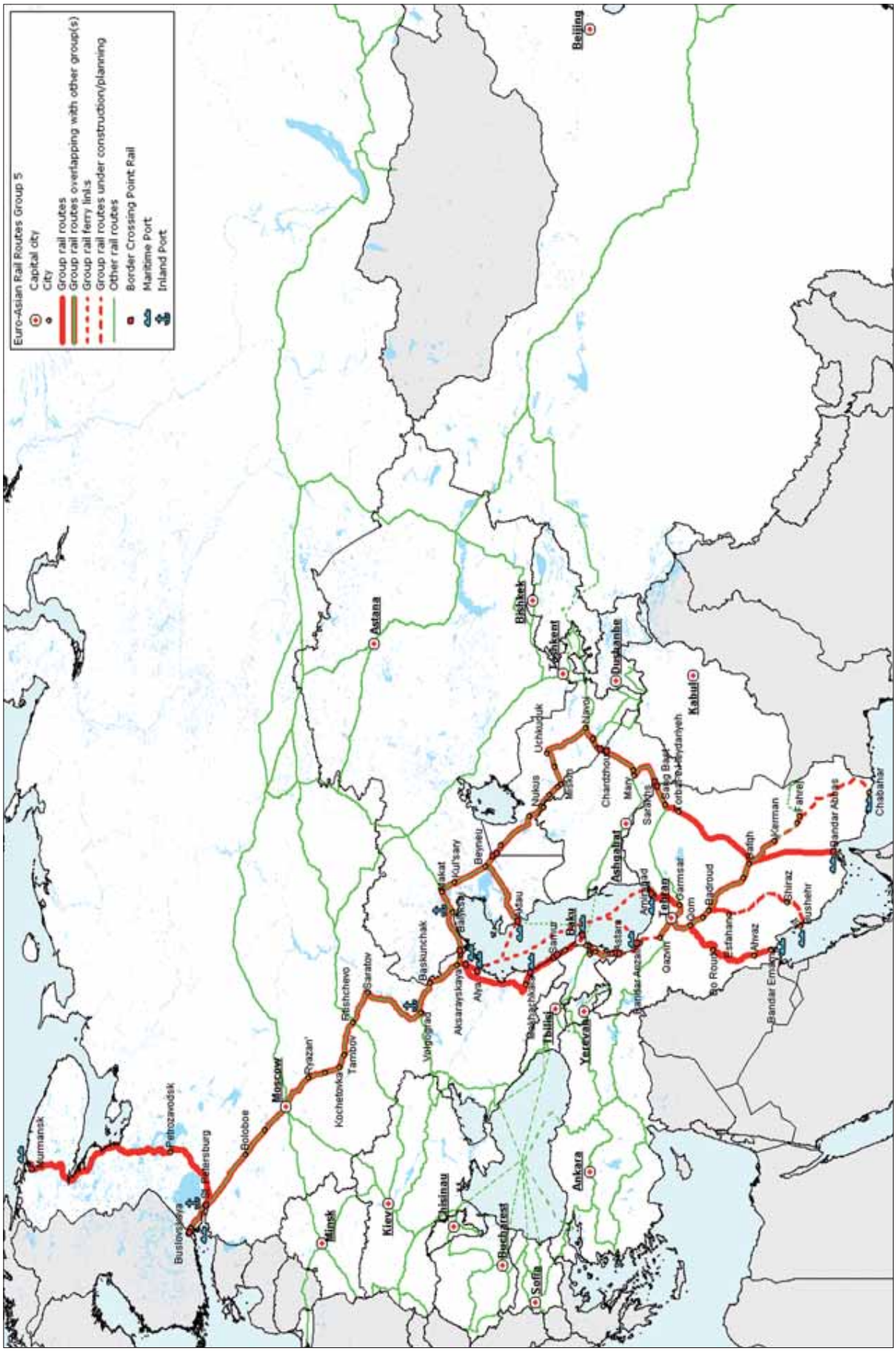


FIGURE 3.14 EATL RAIL ROUTE 6

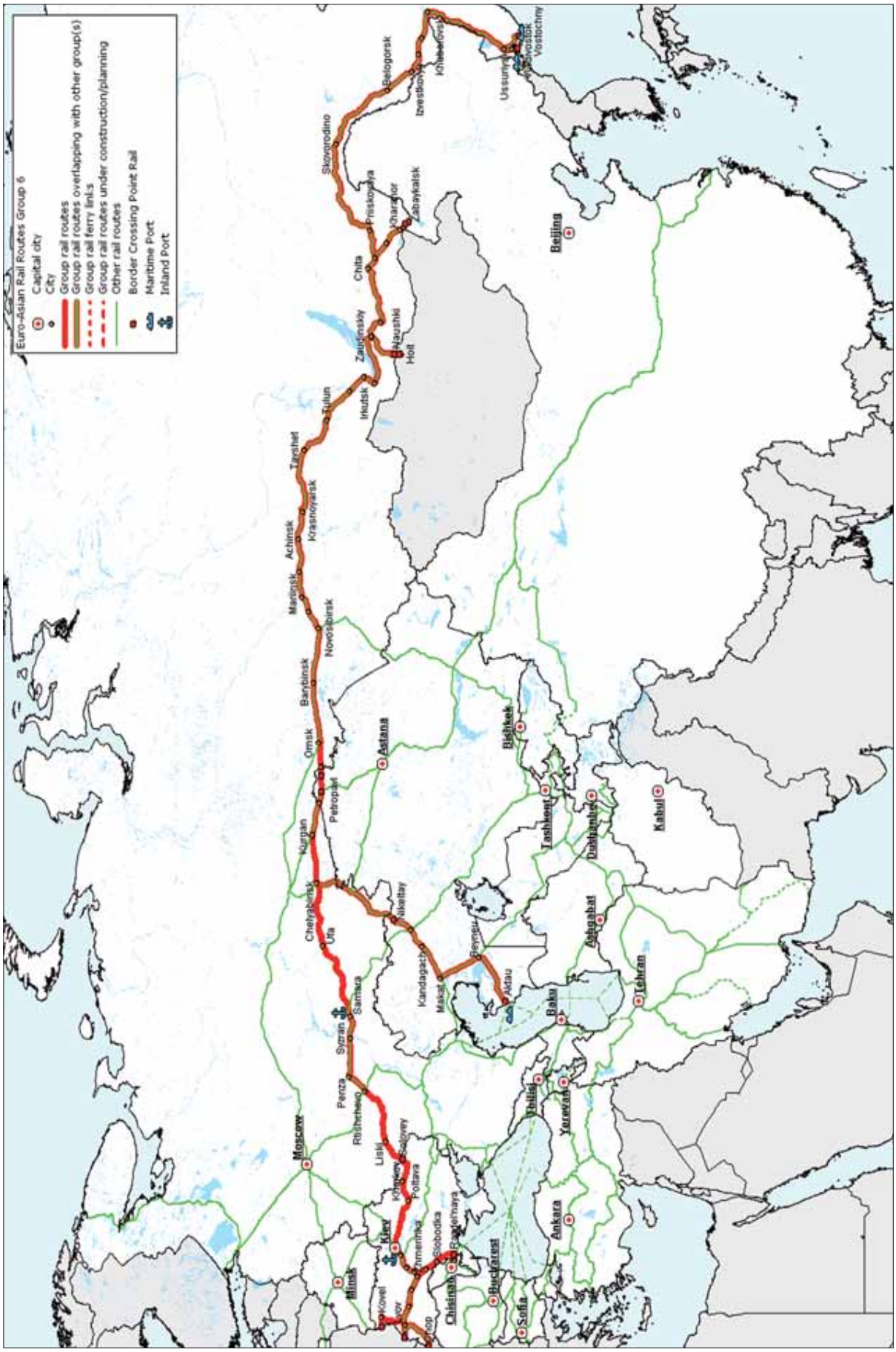


FIGURE 3.15 EATL RAIL ROUTE 7

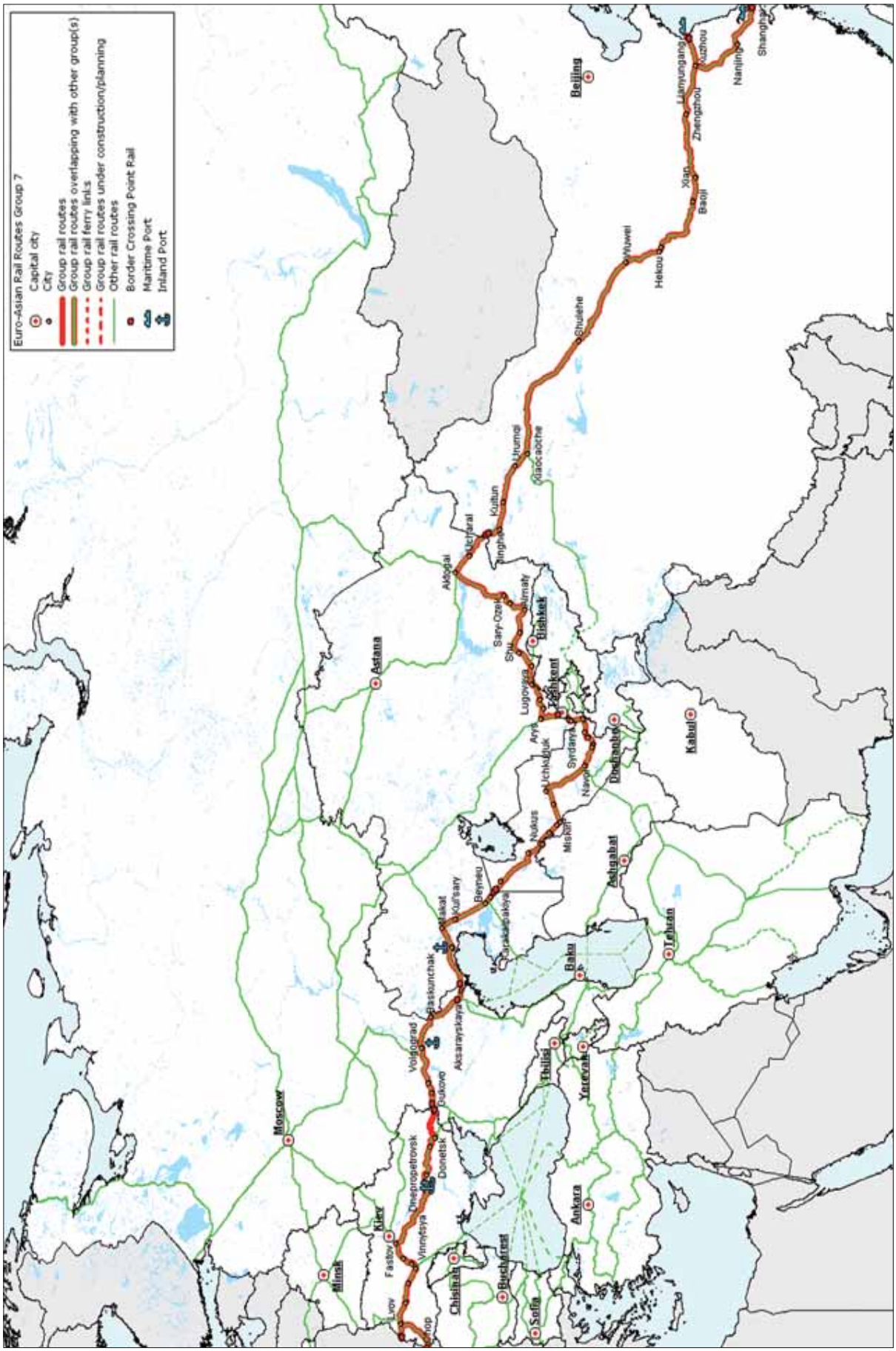


FIGURE 3.16 EATL RAIL ROUTE 8

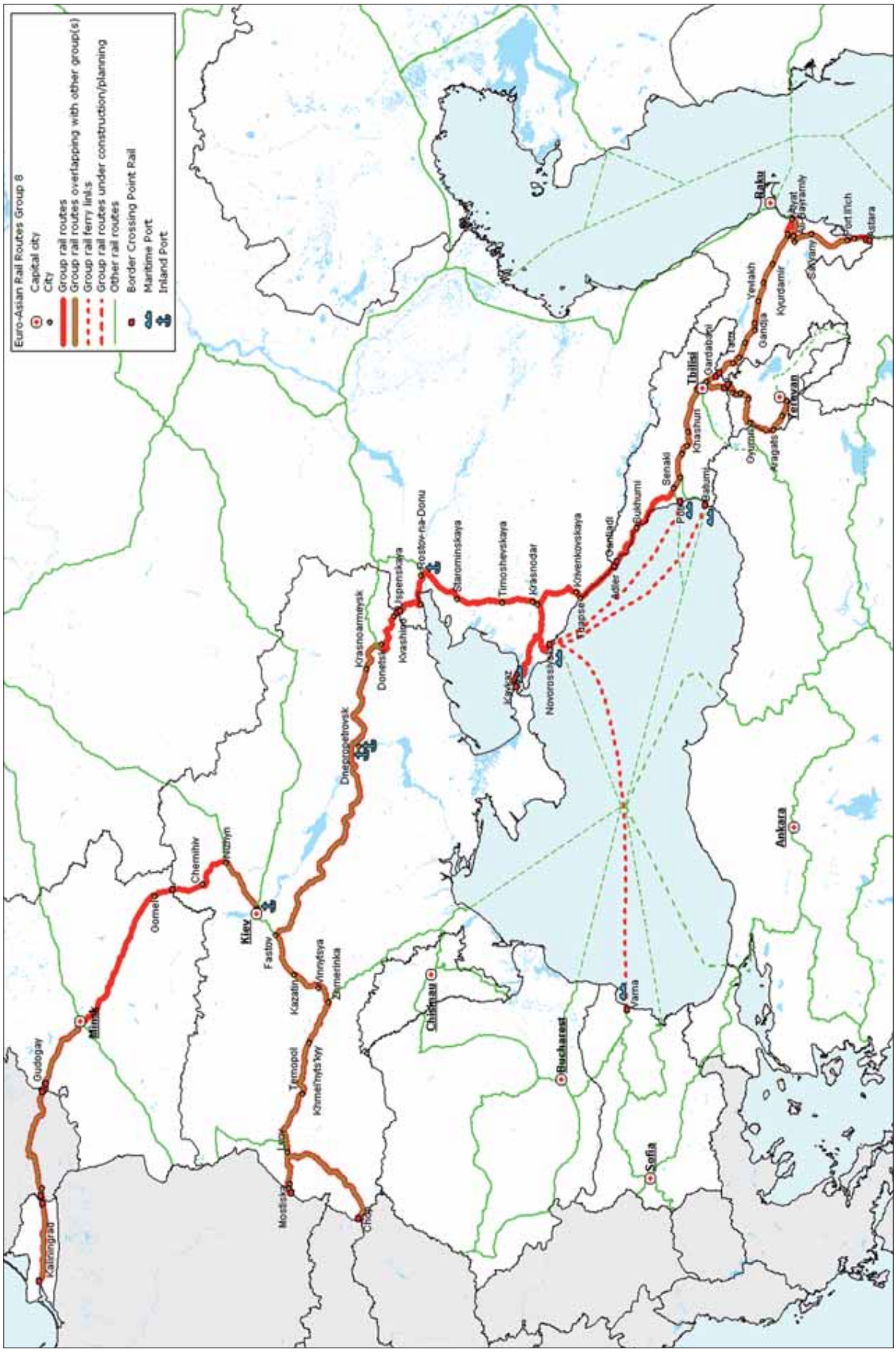


FIGURE 3.17 EATL RAIL ROUTE 9

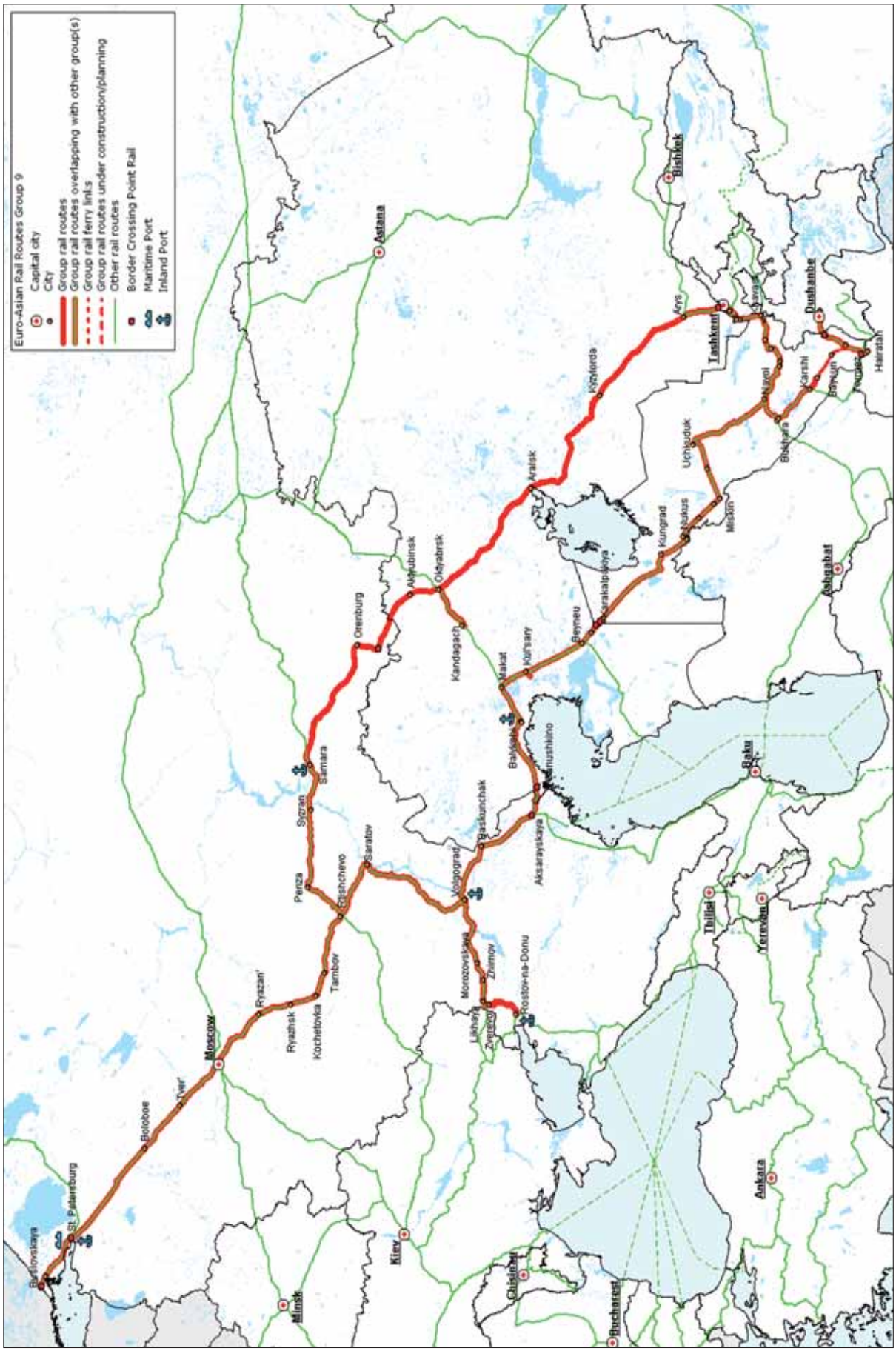


FIGURE 3.18 EATL ROAD ROUTE 1

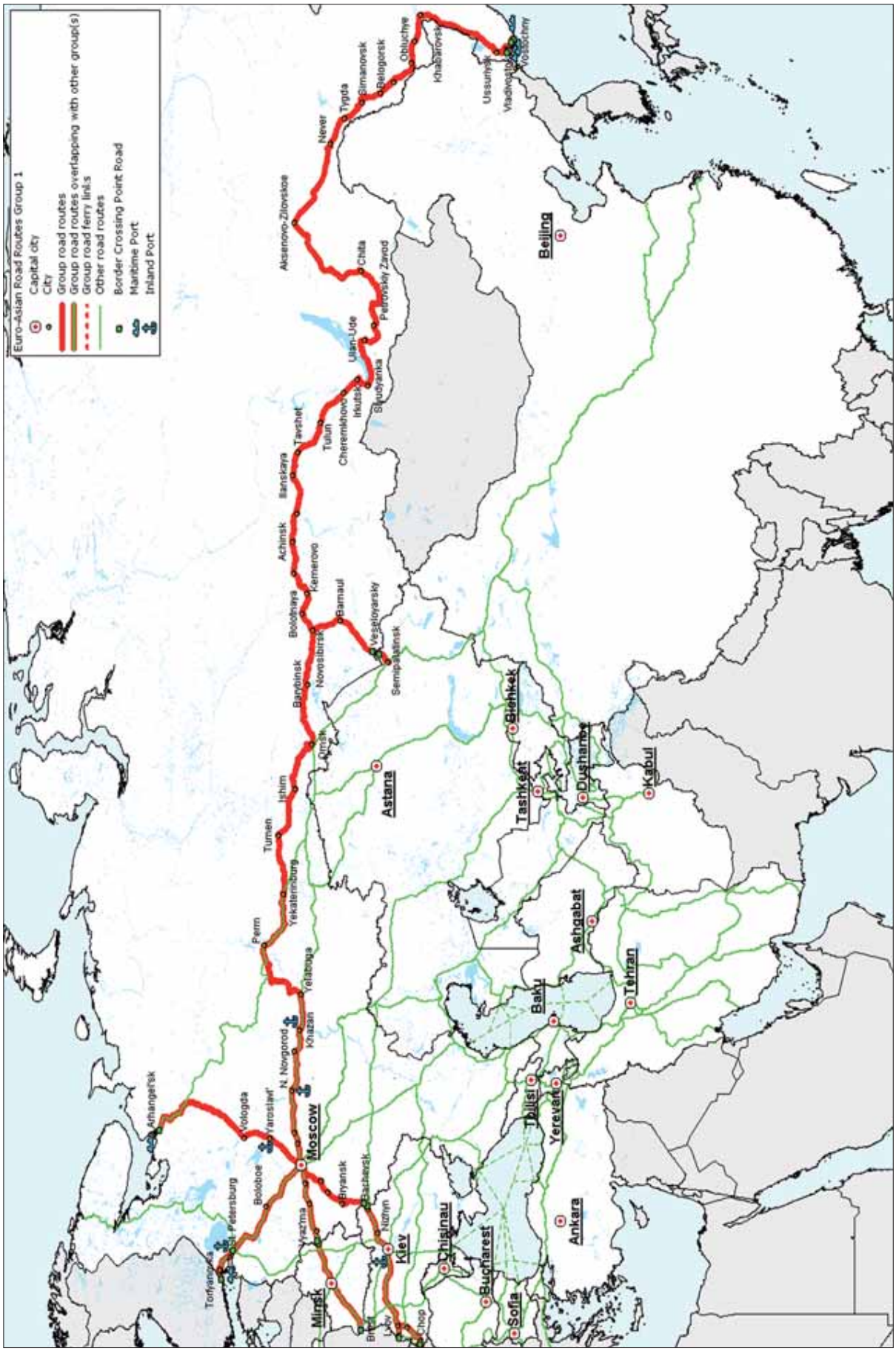


FIGURE 3.19 EATL ROAD ROUTE 2

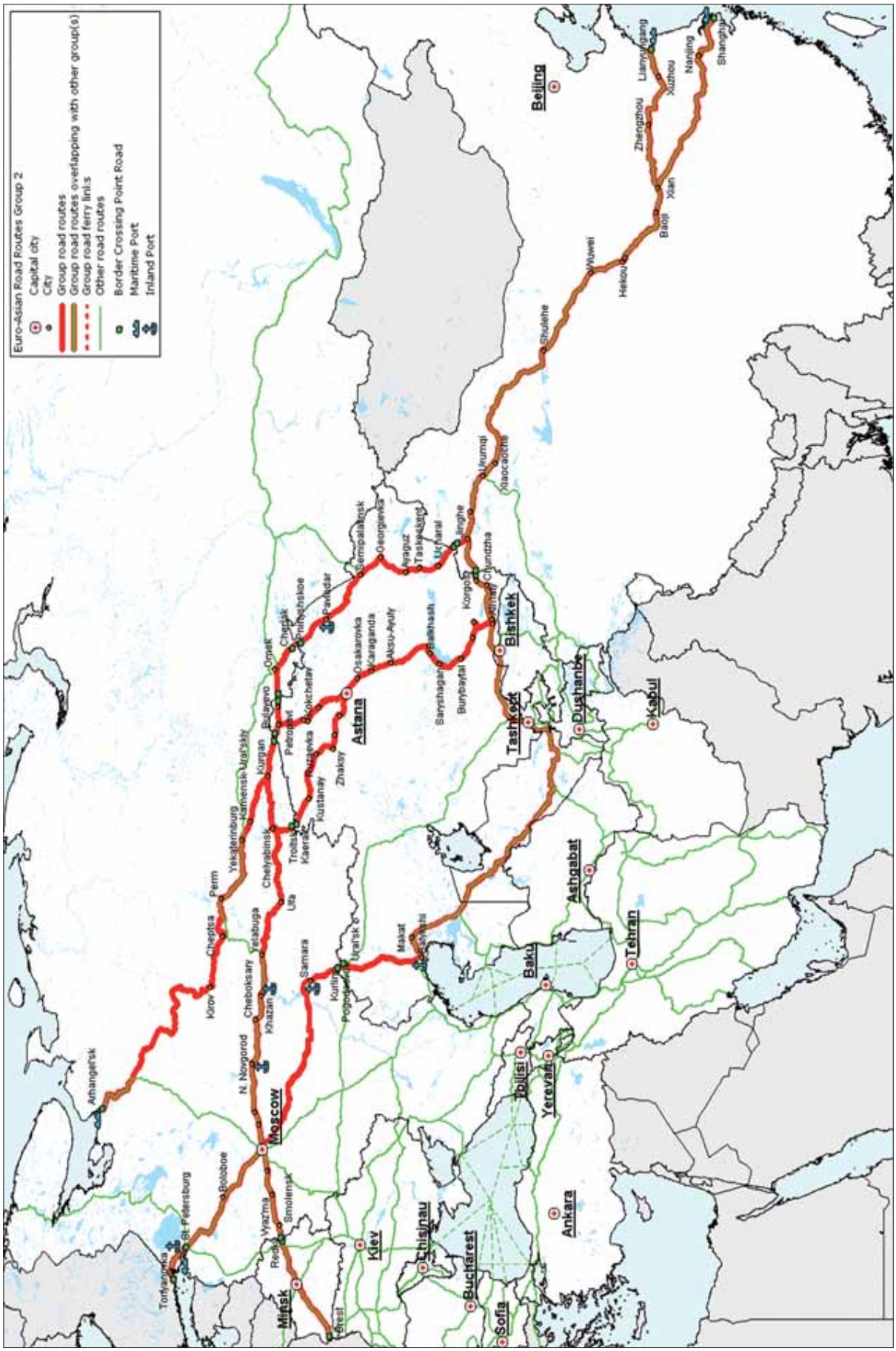


FIGURE 3.20 EATL ROAD ROUTE 3

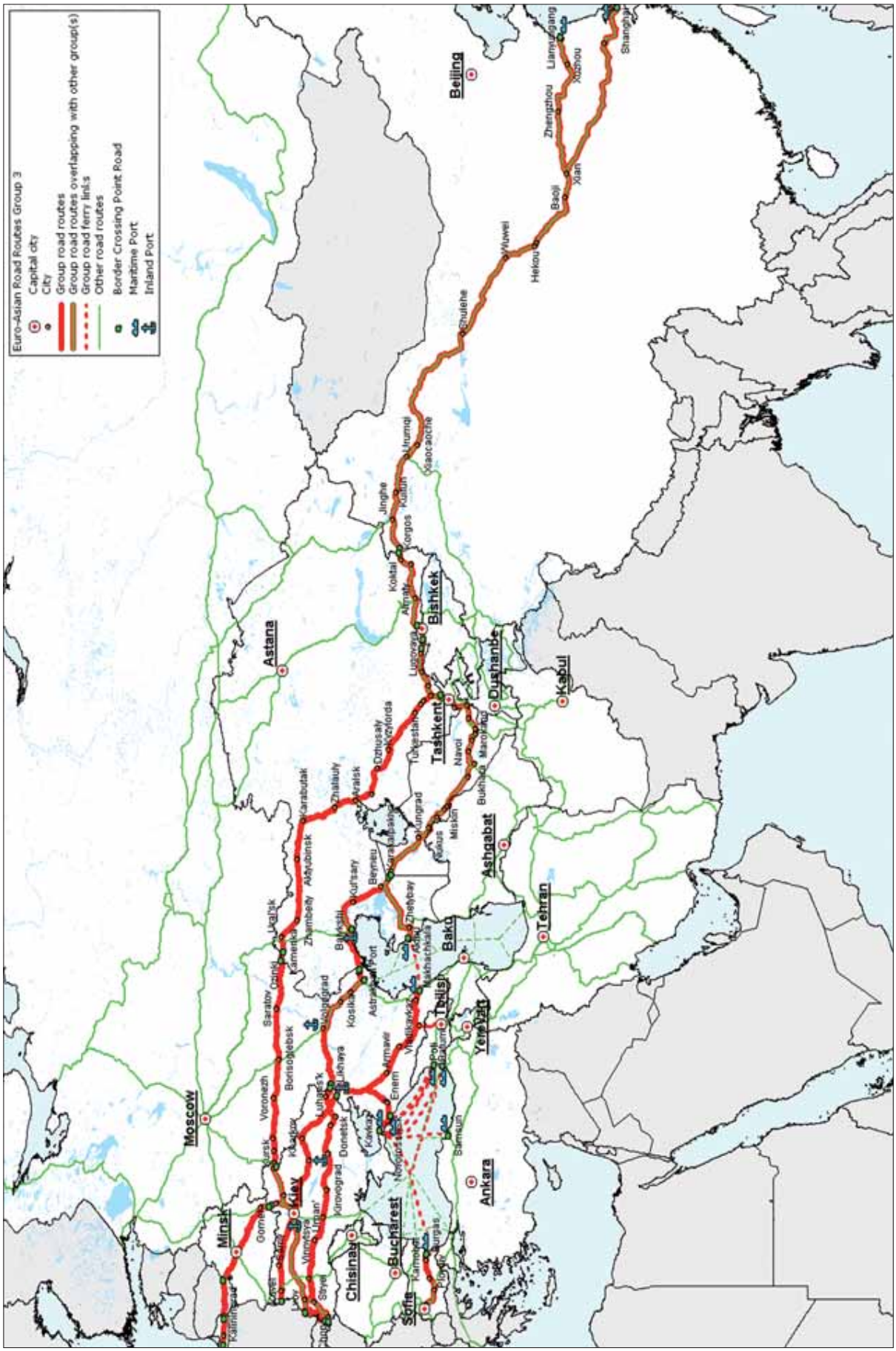


FIGURE 3.21 EATL ROAD ROUTE 4

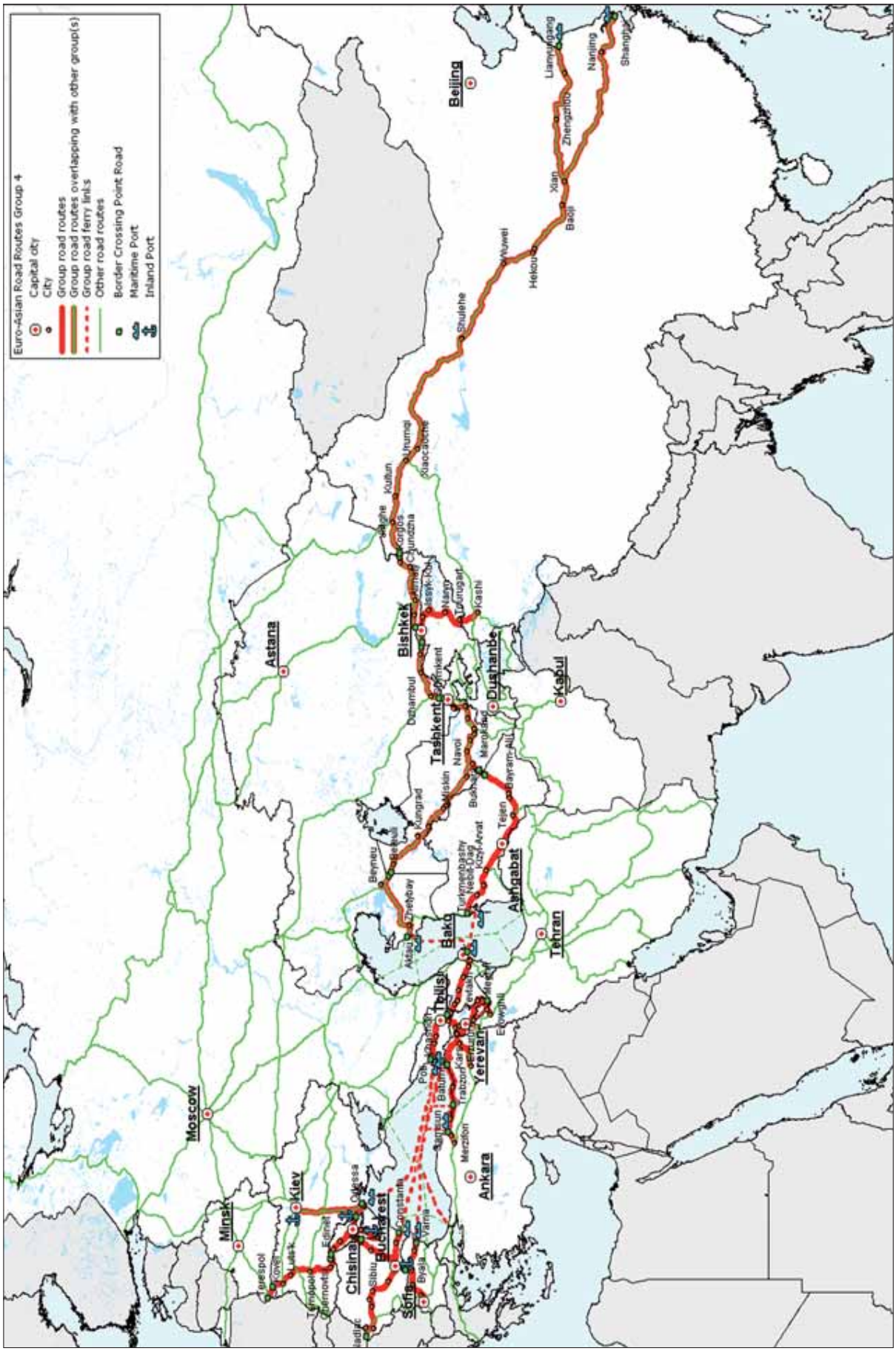


FIGURE 3.22 EATL ROAD ROUTE 5

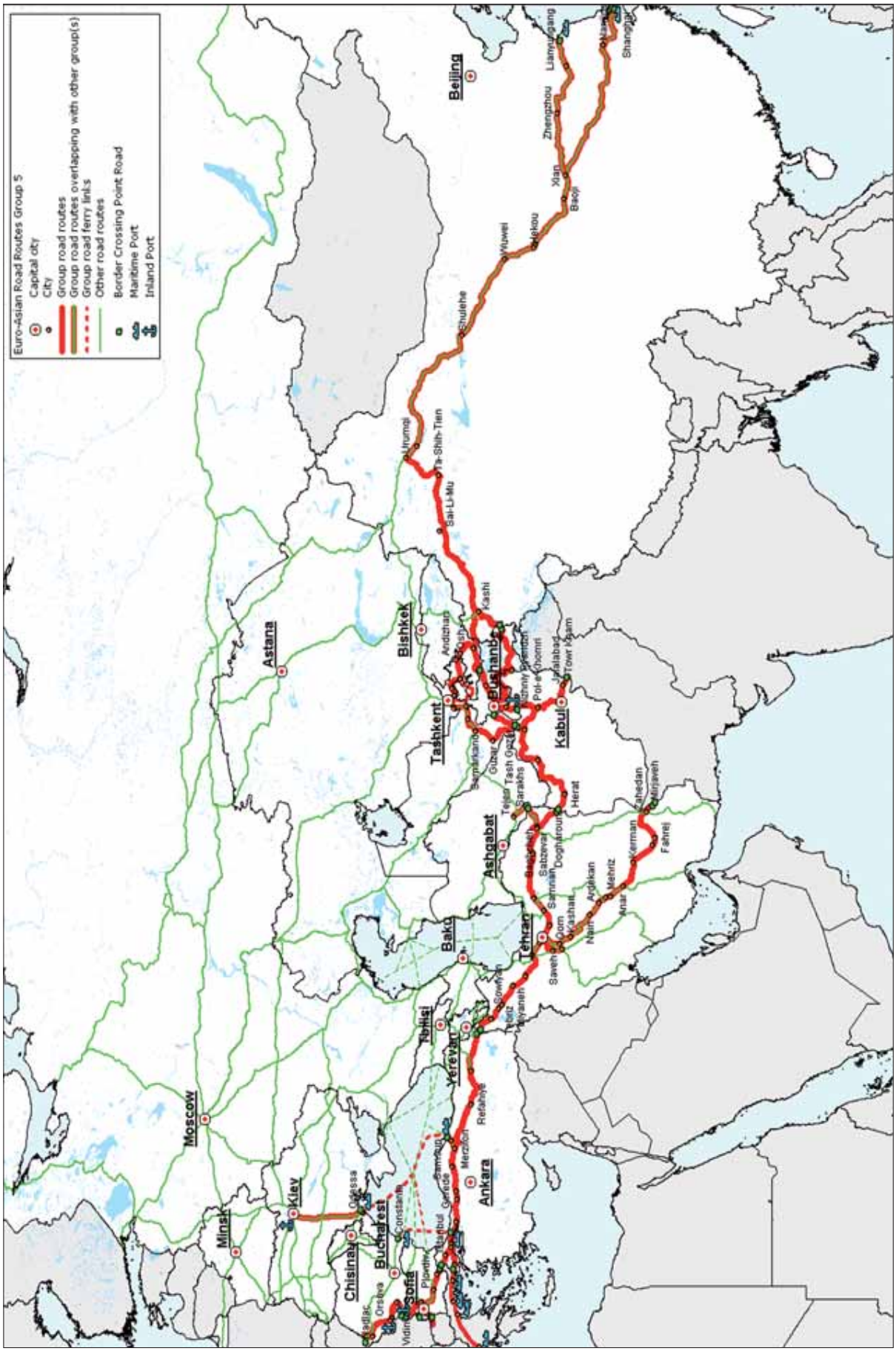


FIGURE 3.23 EATL ROAD ROUTE 6

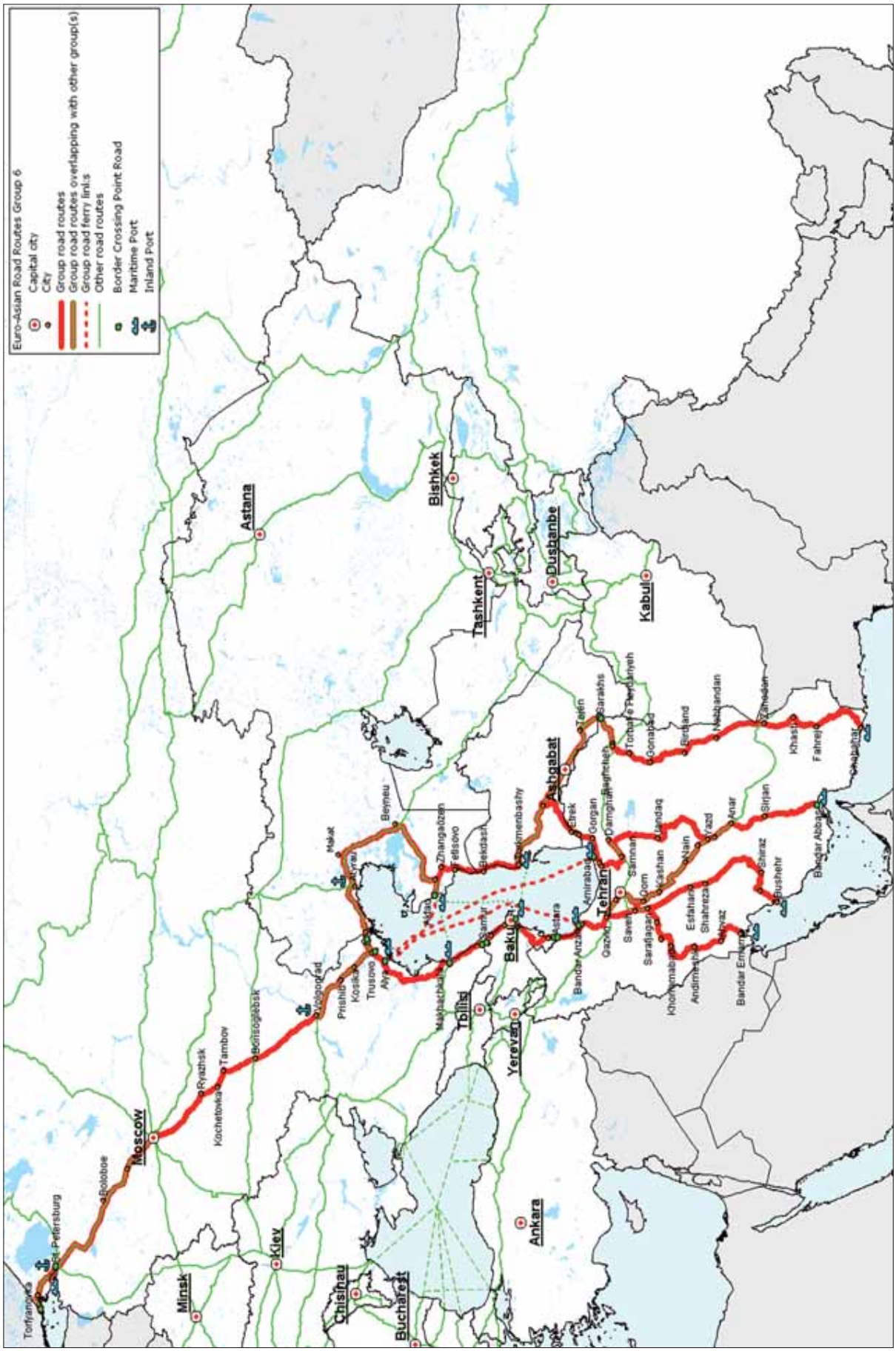


FIGURE 3.24 EATL ROAD ROUTE 7

FIGURE 3.25 EATL NETWORK IN AFGHANISTAN

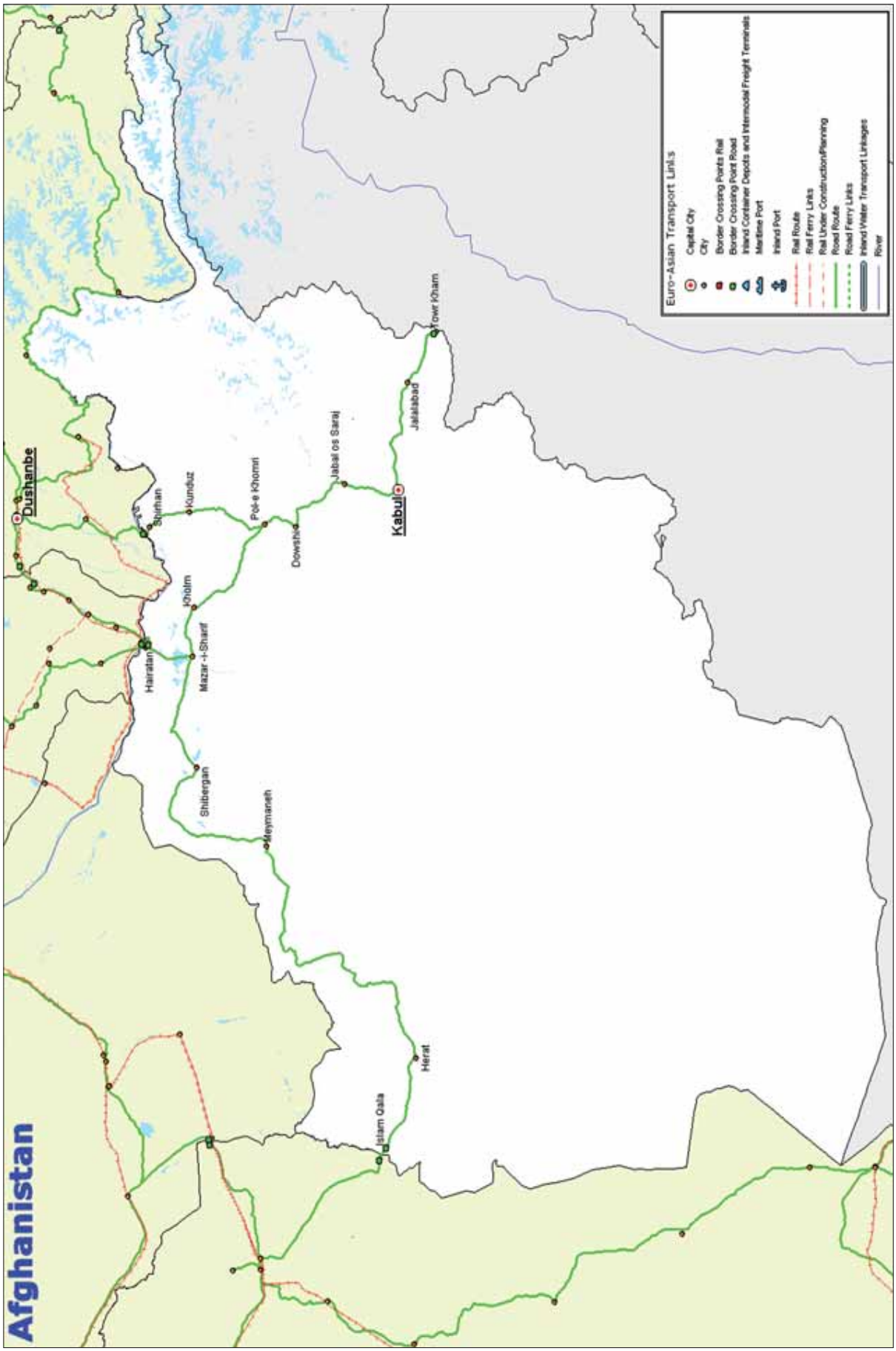


FIGURE 3.26 EATL NETWORK IN ARMENIA

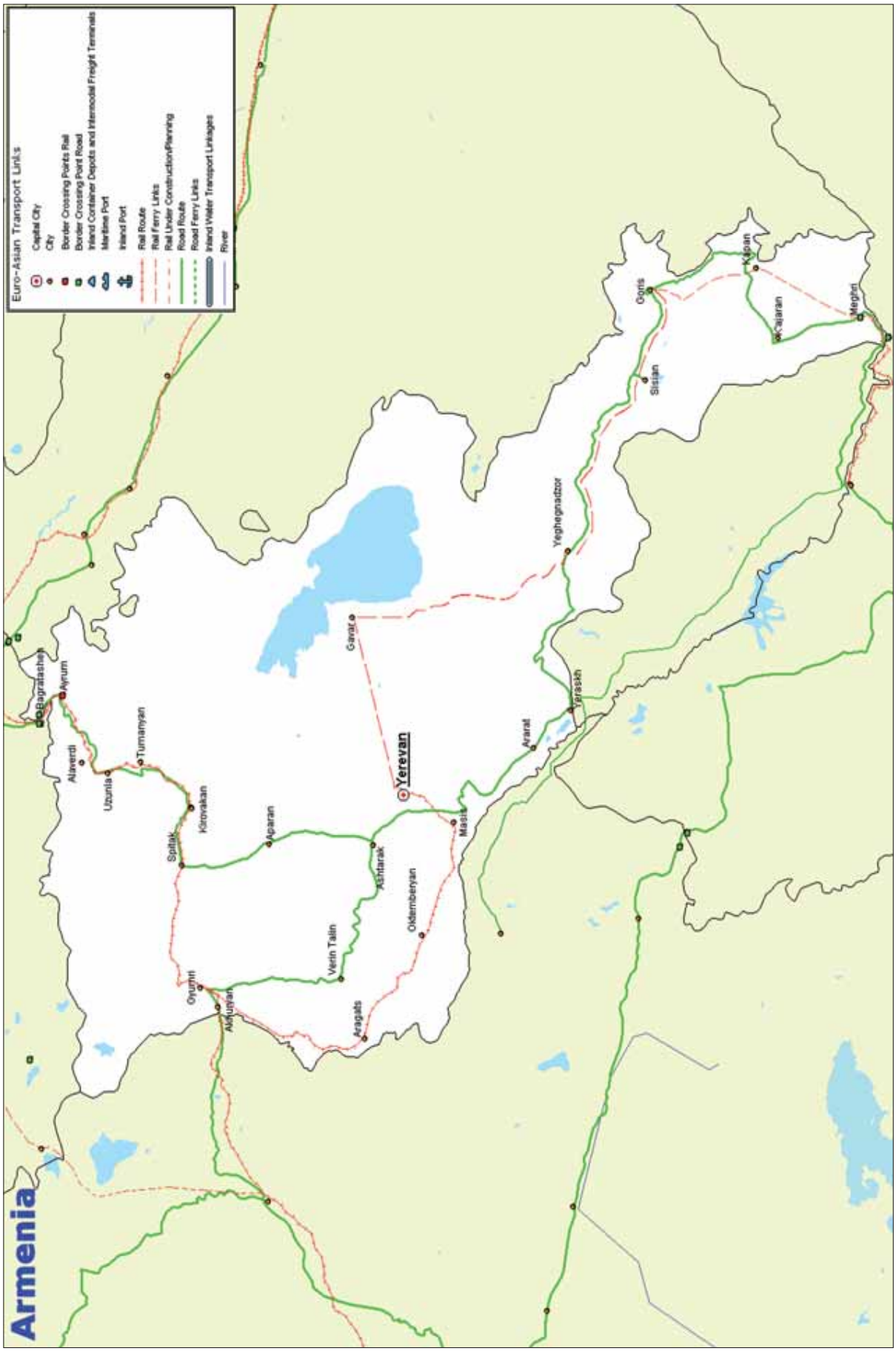


FIGURE 3.27 EATL NETWORK IN AZERBAIJAN

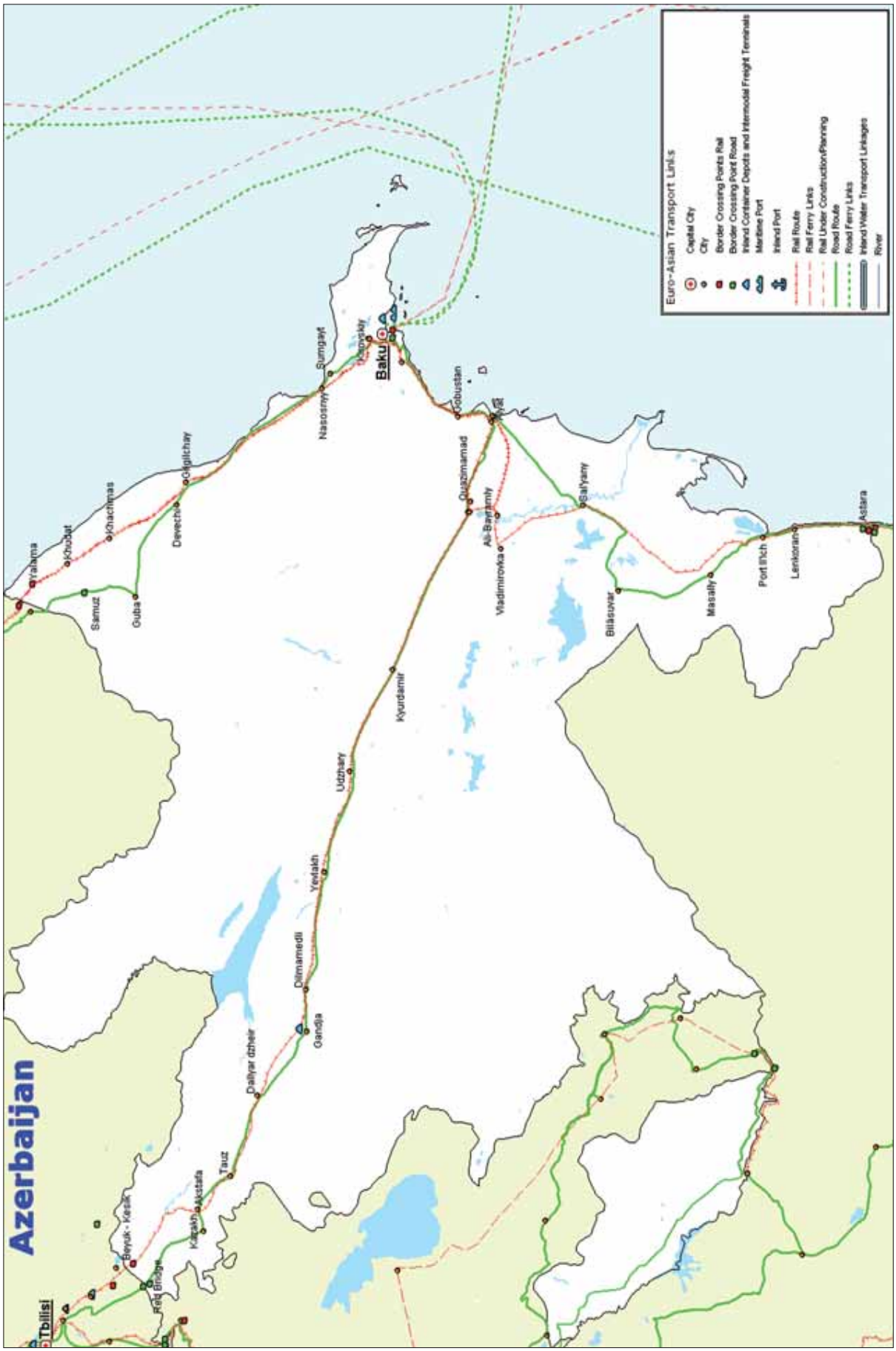


FIGURE 3.28 EATL NETWORK IN BELARUS

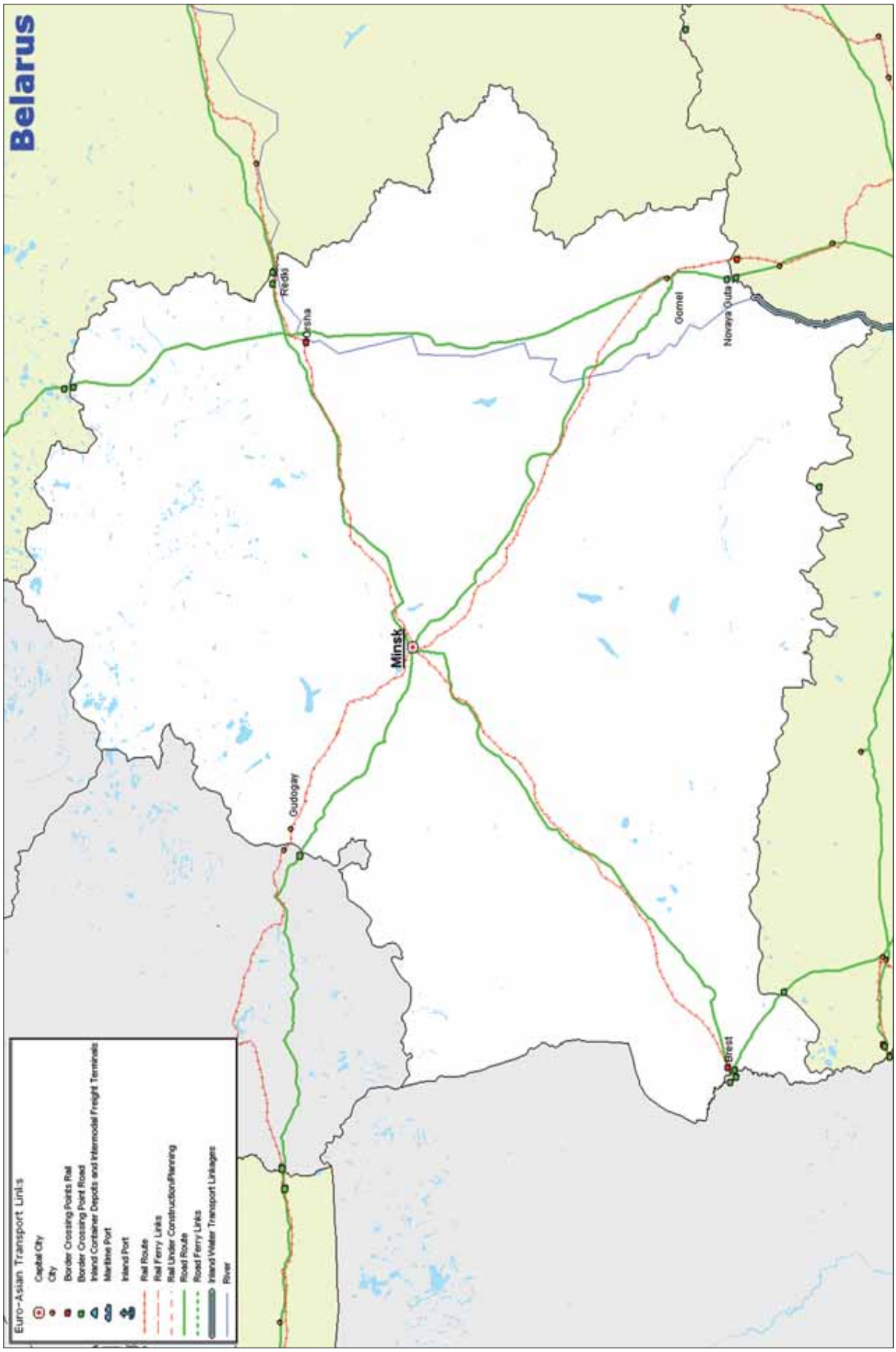


FIGURE 3.29 EATL NETWORK IN BULGARIA

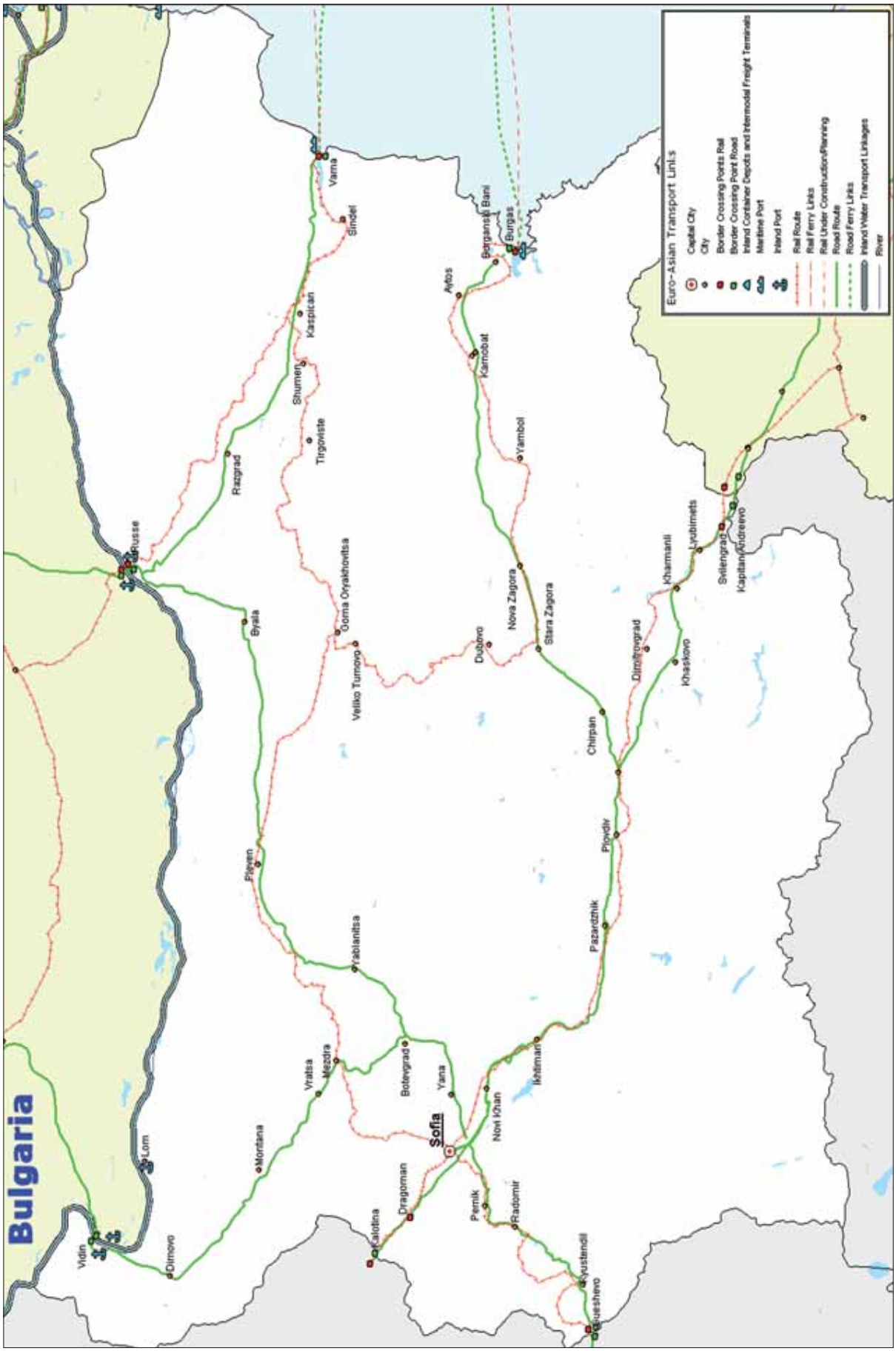


FIGURE 3.30 EATL NETWORK IN CHINA

FIGURE 3.31 EATL NETWORK IN GEORGIA

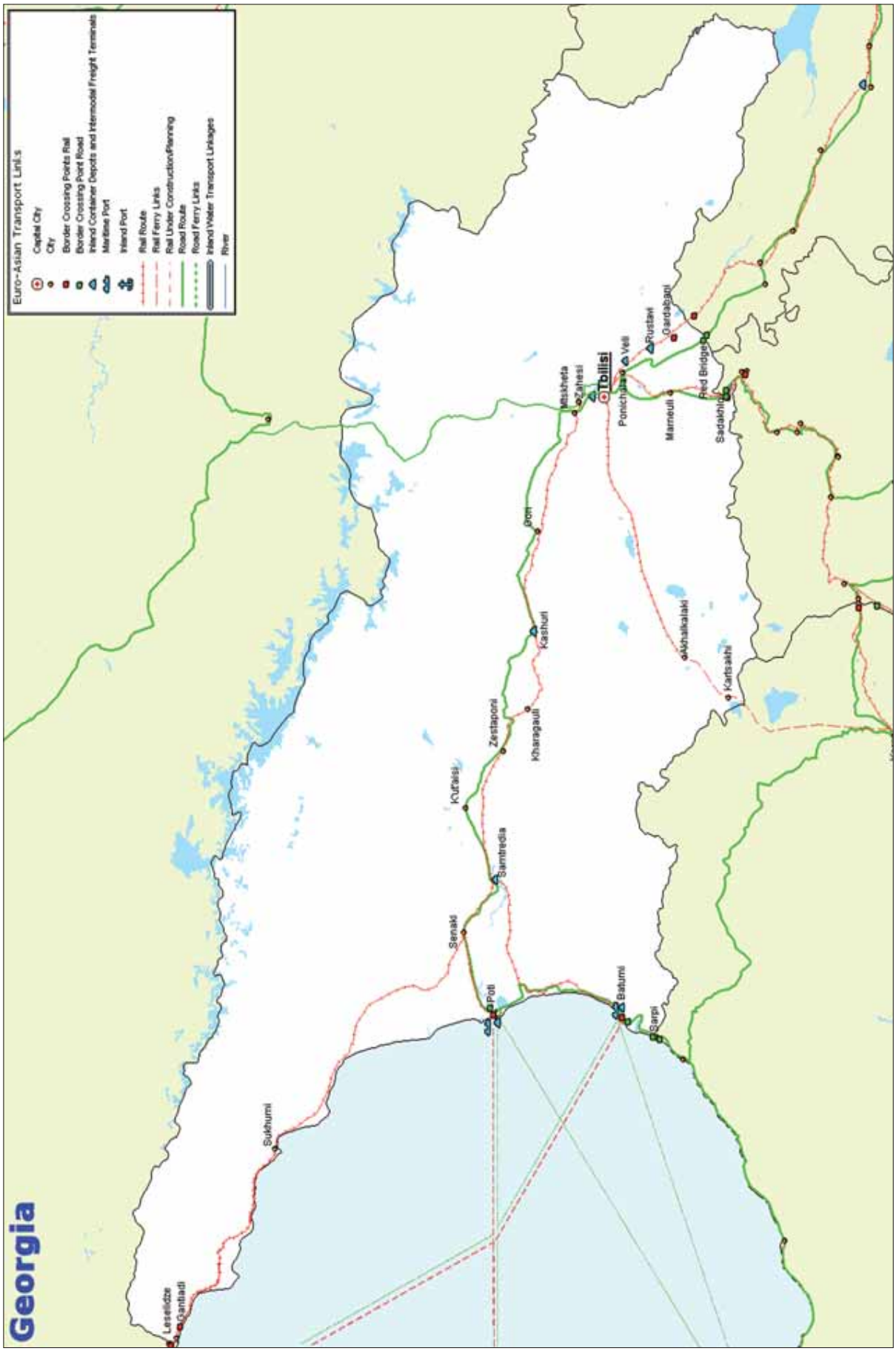


FIGURE 3.32 EATL NETWORK IN IRAN

FIGURE 3.33 EATL NETWORK IN KAZAKHSTAN

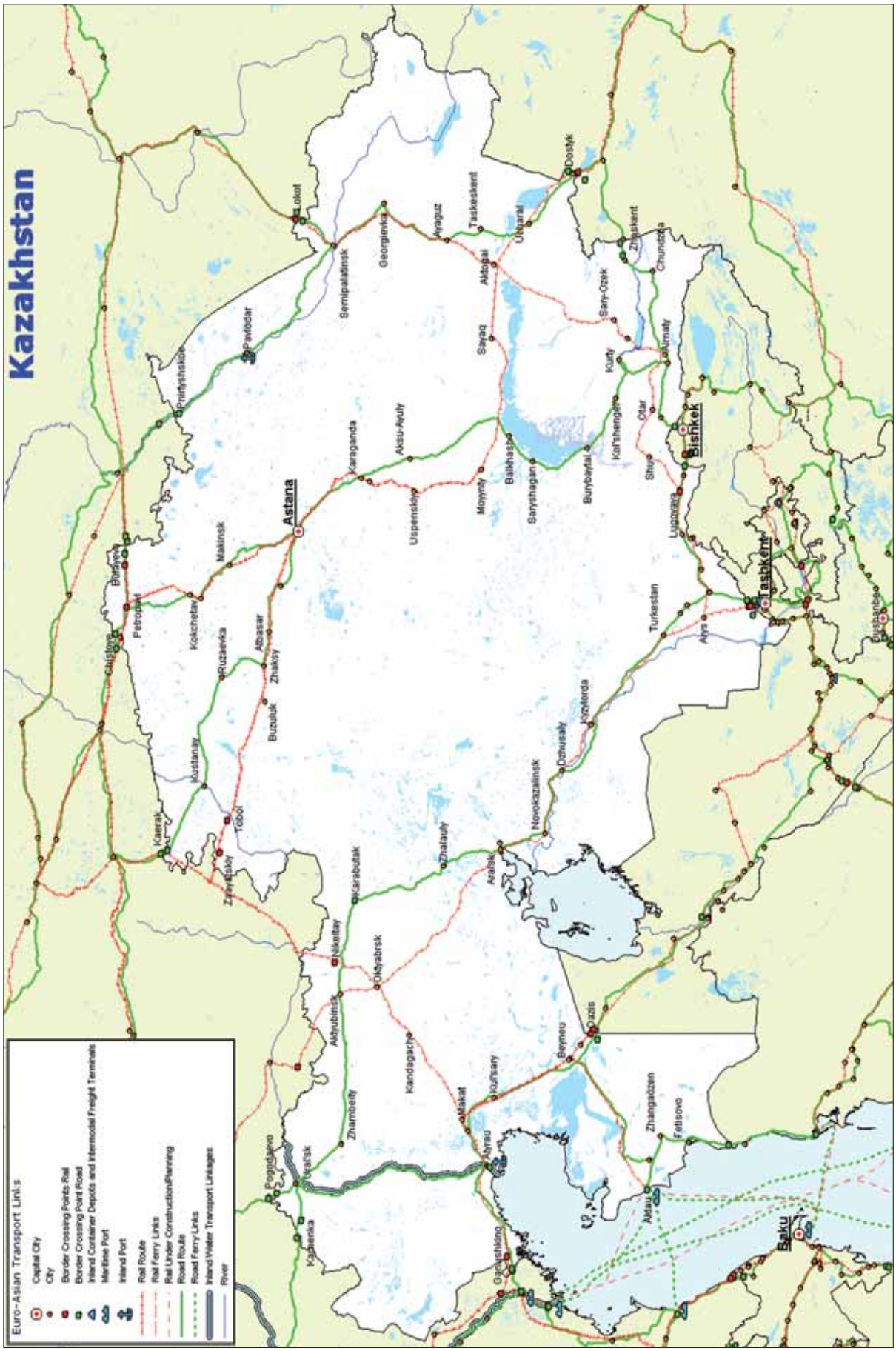


FIGURE 3.34 EATL NETWORK IN KYRGYZSTAN

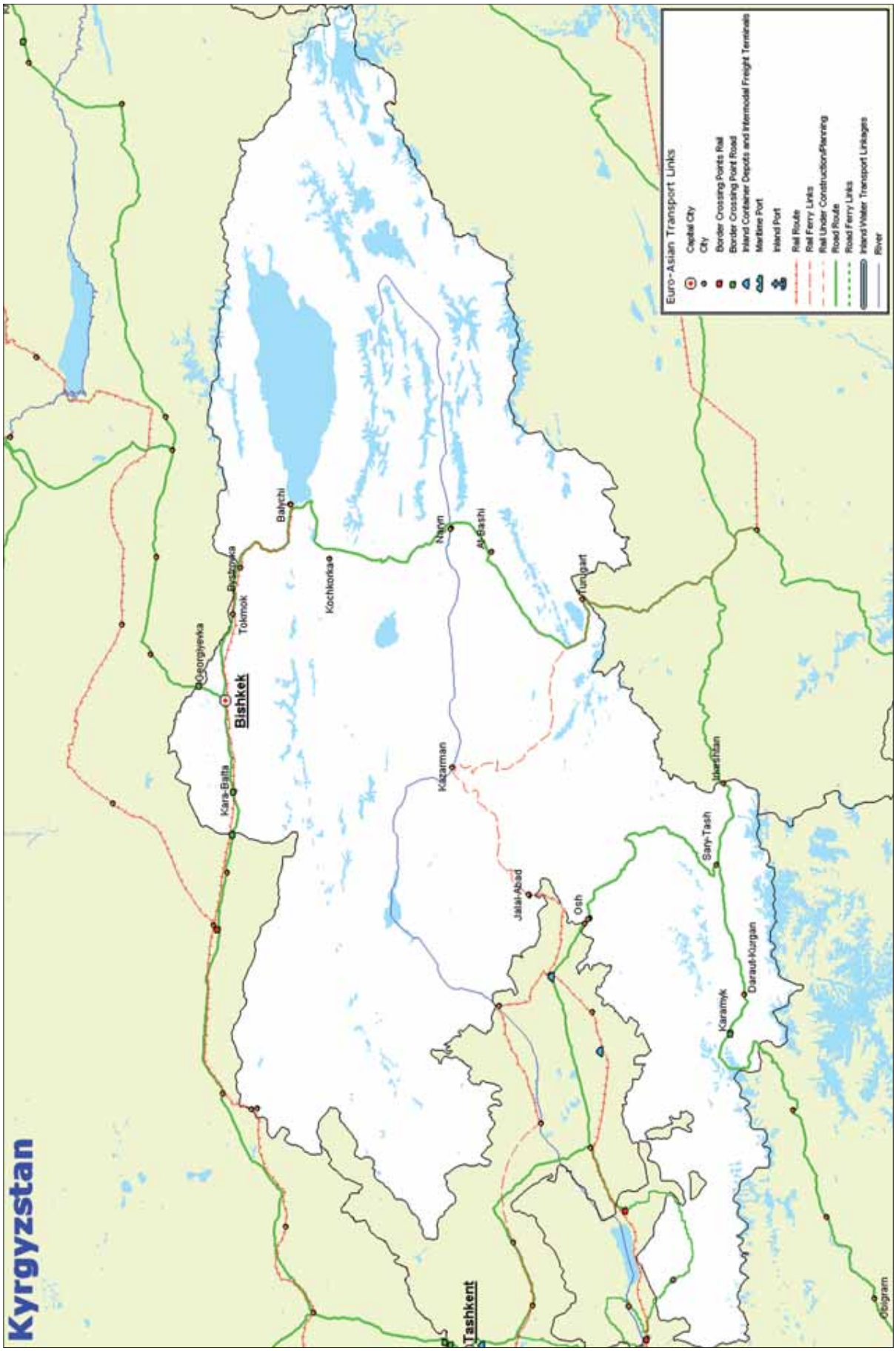


FIGURE 3.35 EATL NETWORK IN MOLDOVA

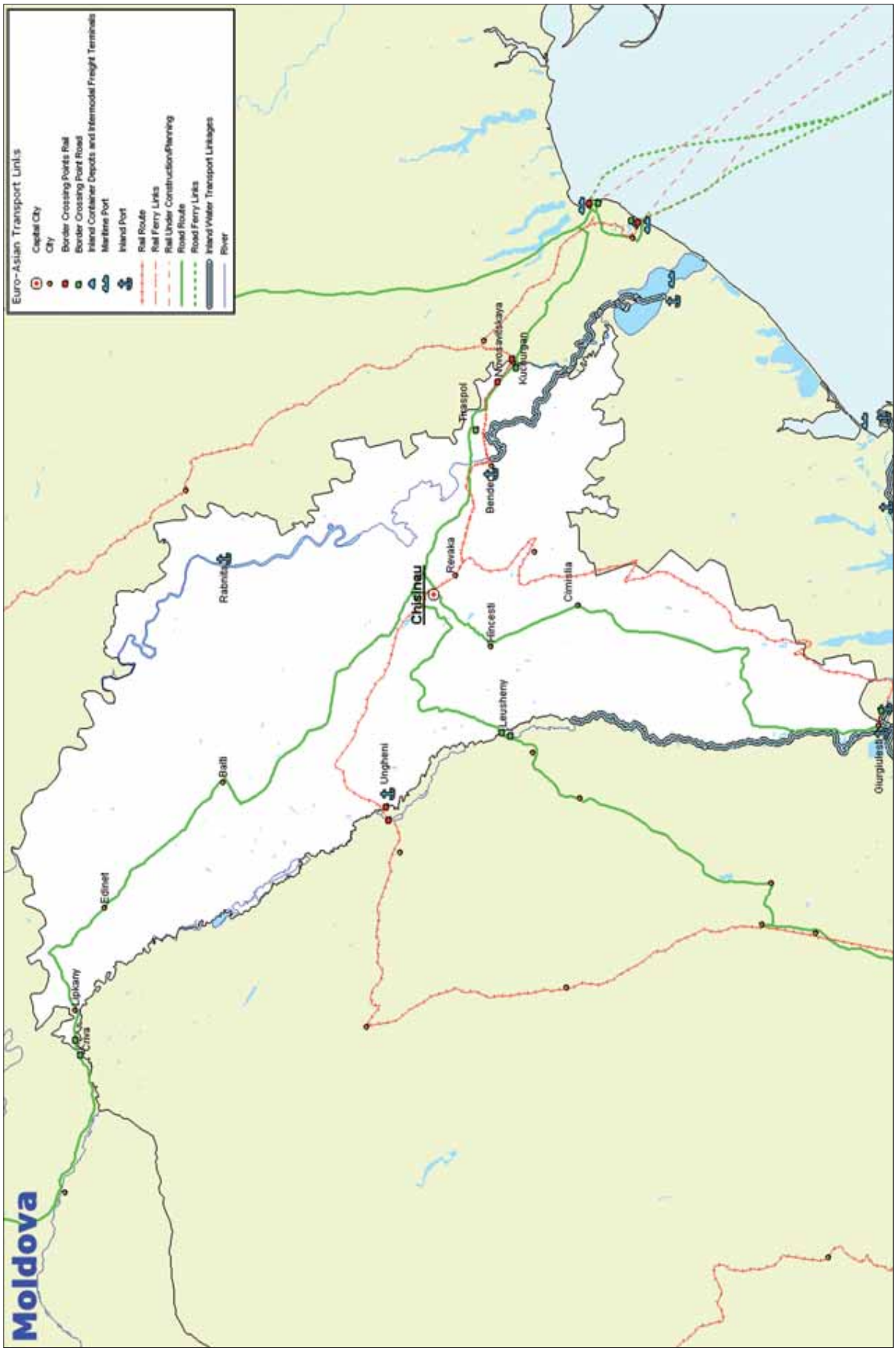


FIGURE 3.36 EATL NETWORK IN ROMANIA

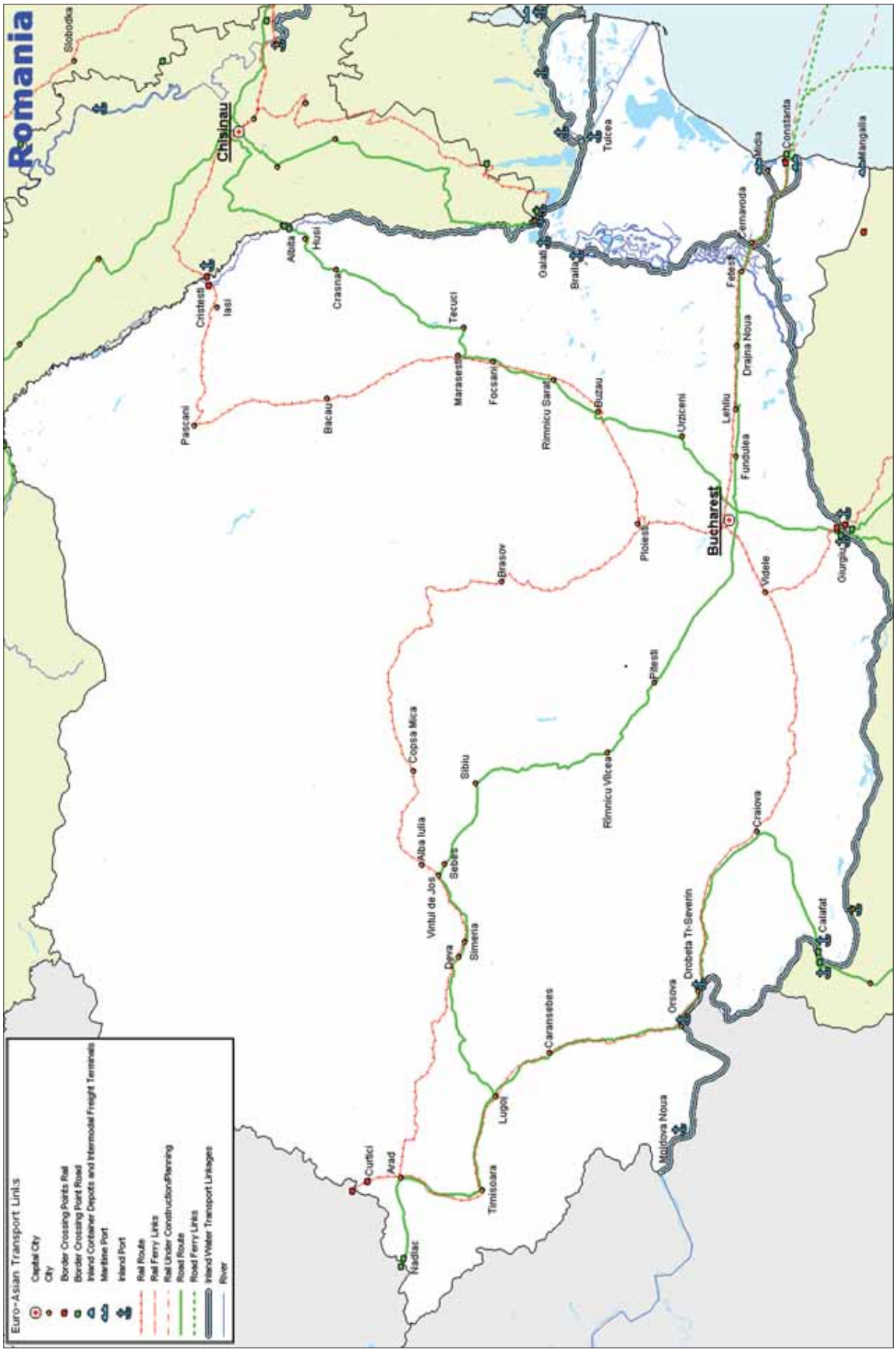


FIGURE 3.37 EATL NETWORK IN THE ASIAN PART OF THE RUSSIAN FEDERATION

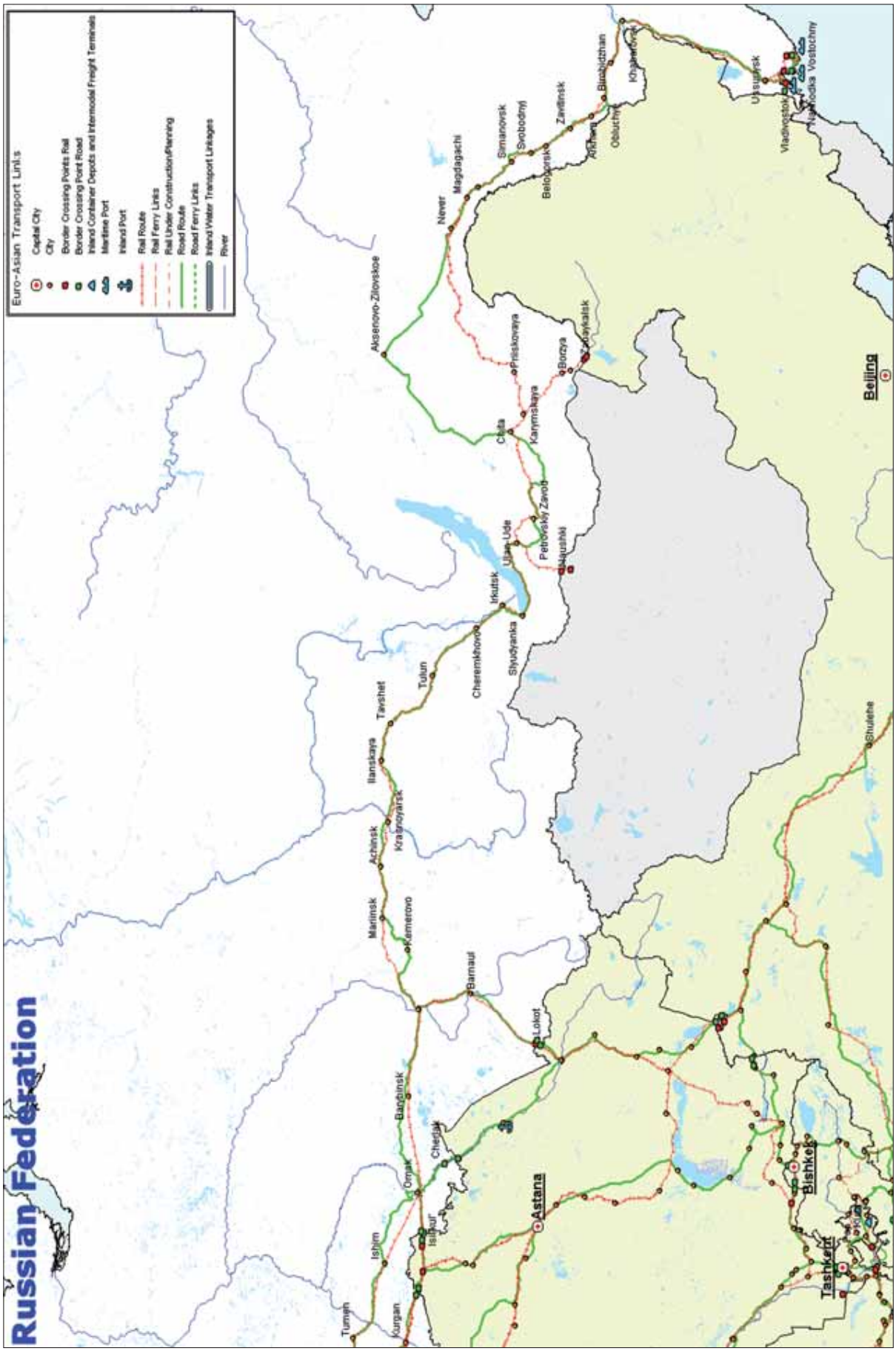


FIGURE 3.38 EATL NETWORK IN THE EUROPEAN PART OF THE RUSSIAN FEDERATION

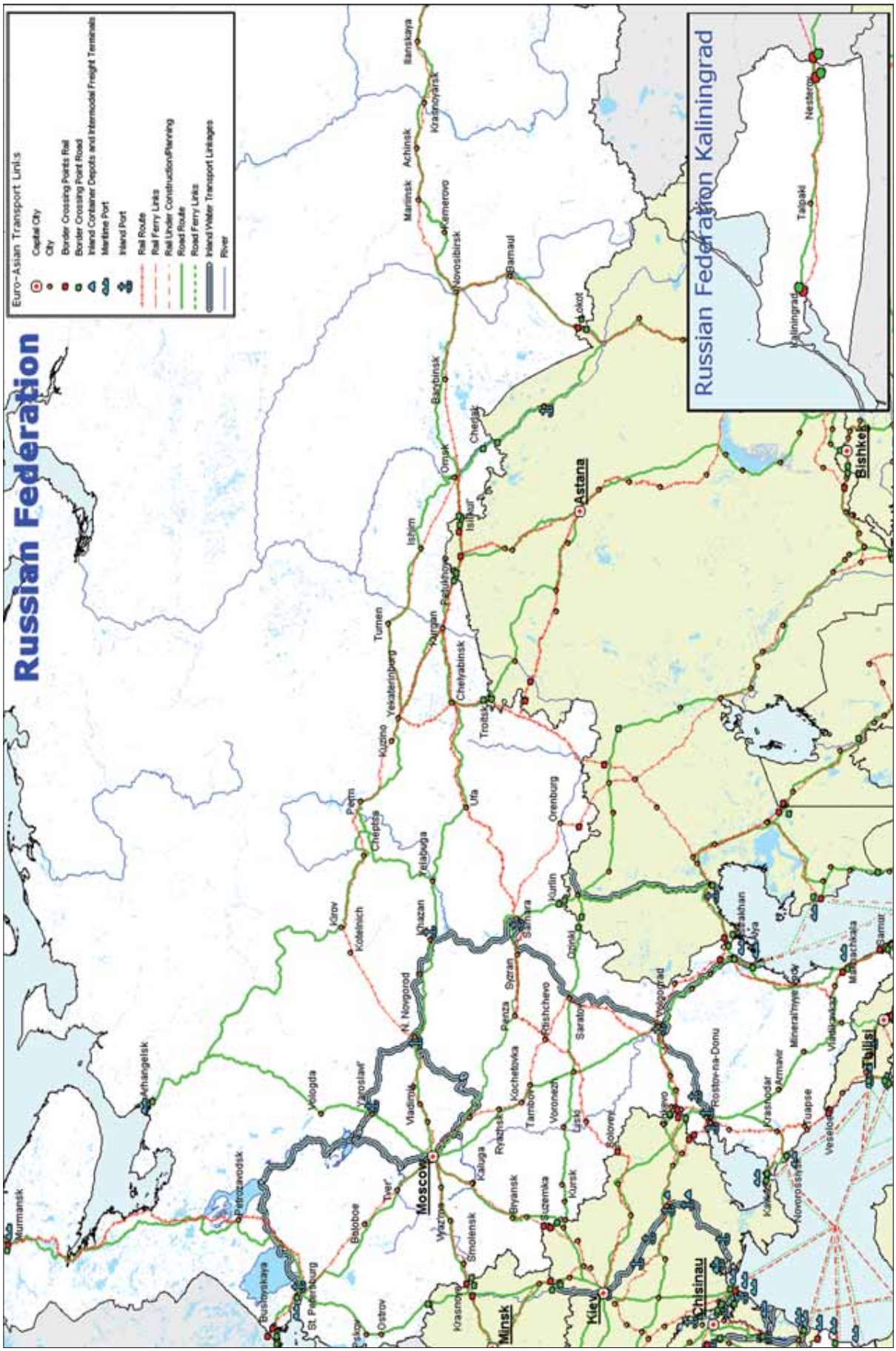
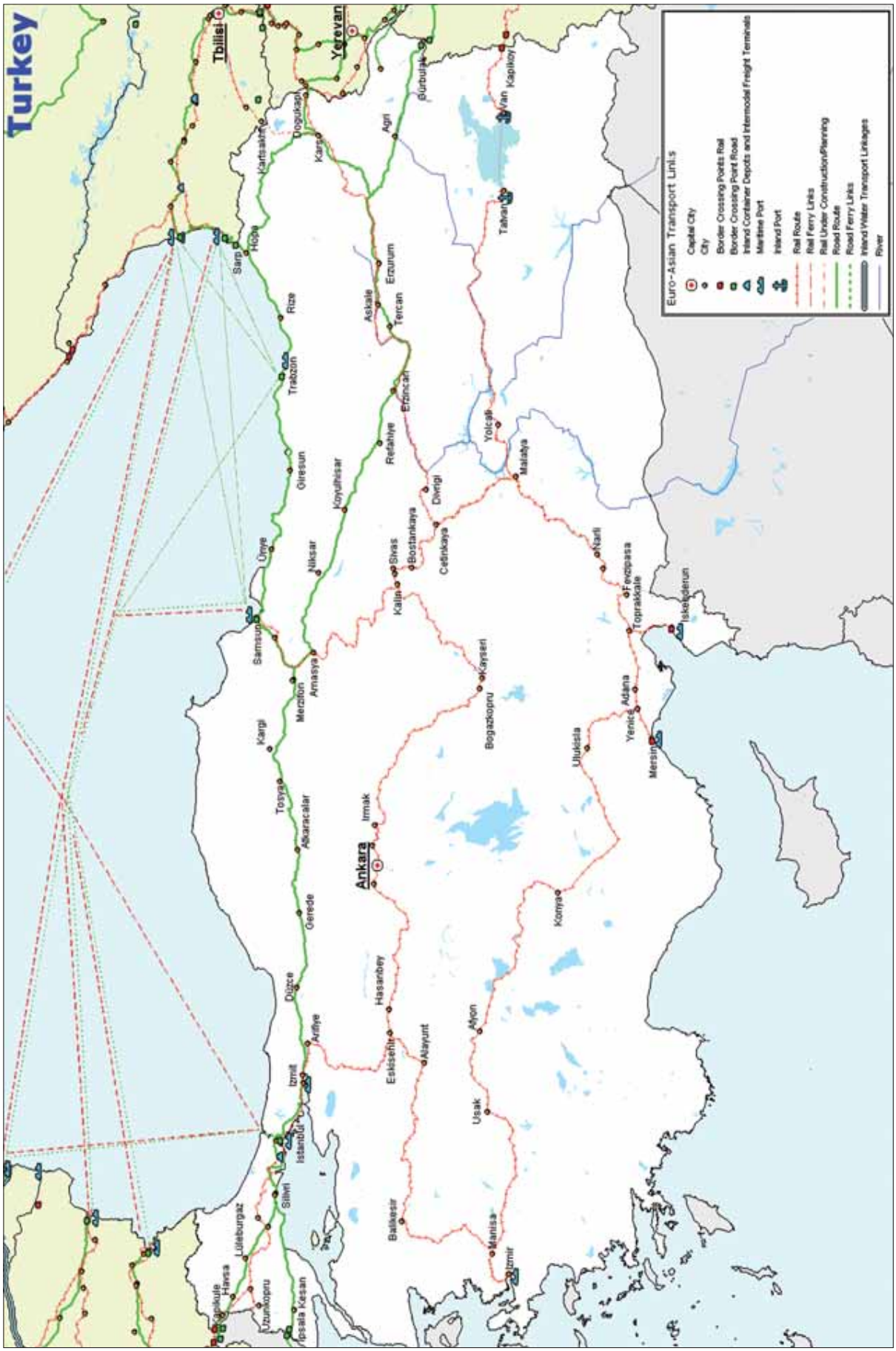


FIGURE 3.39 EATL NETWORK IN TAJIKISTAN

FIGURE 3.40 EATL NETWORK IN TURKEY



Turkey's border with Armenia is currently closed.

FIGURE 3.41 EATL NETWORK IN TURKMENISTAN

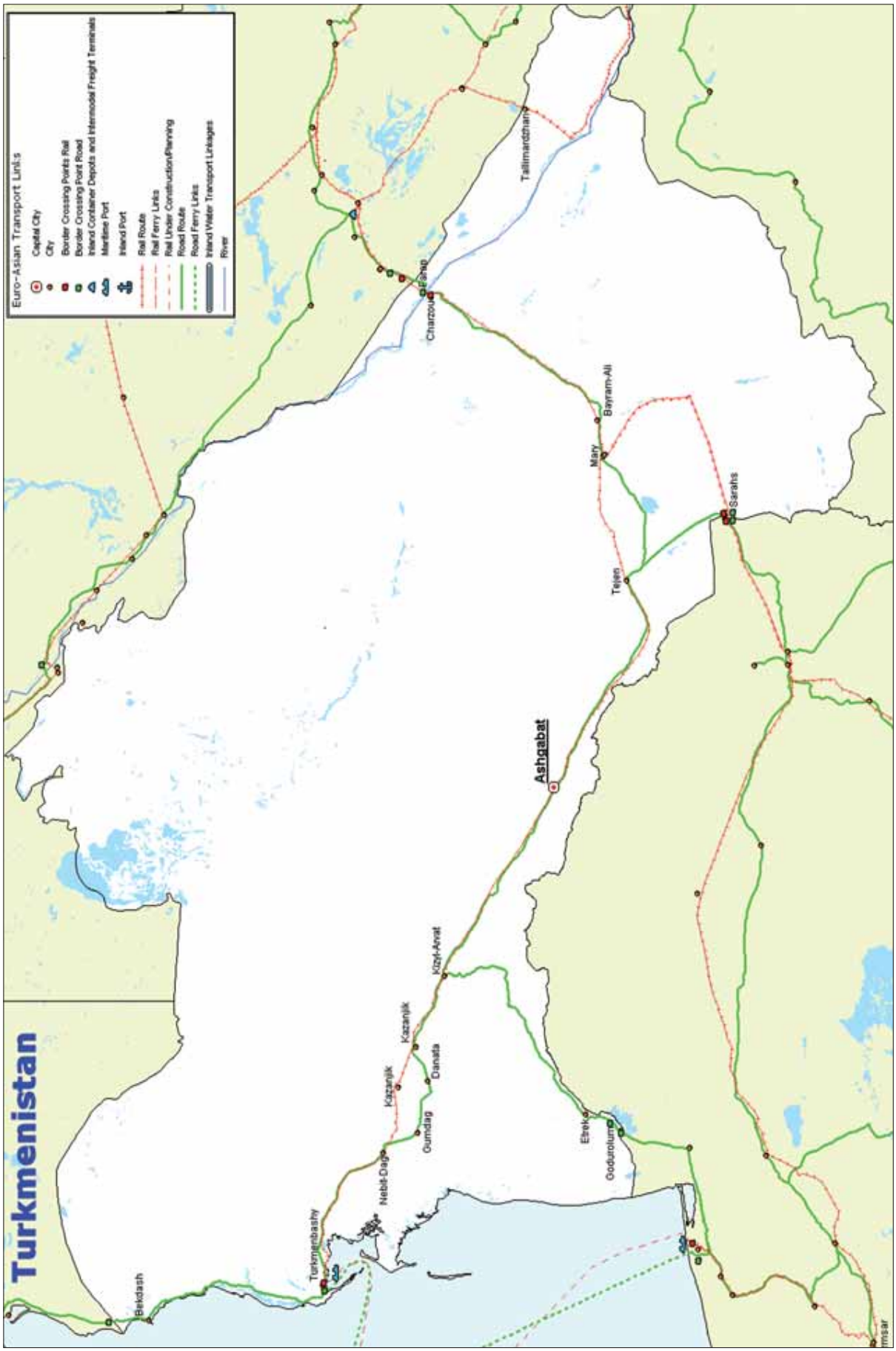


FIGURE 3.42 EATL NETWORK IN UKRAINE

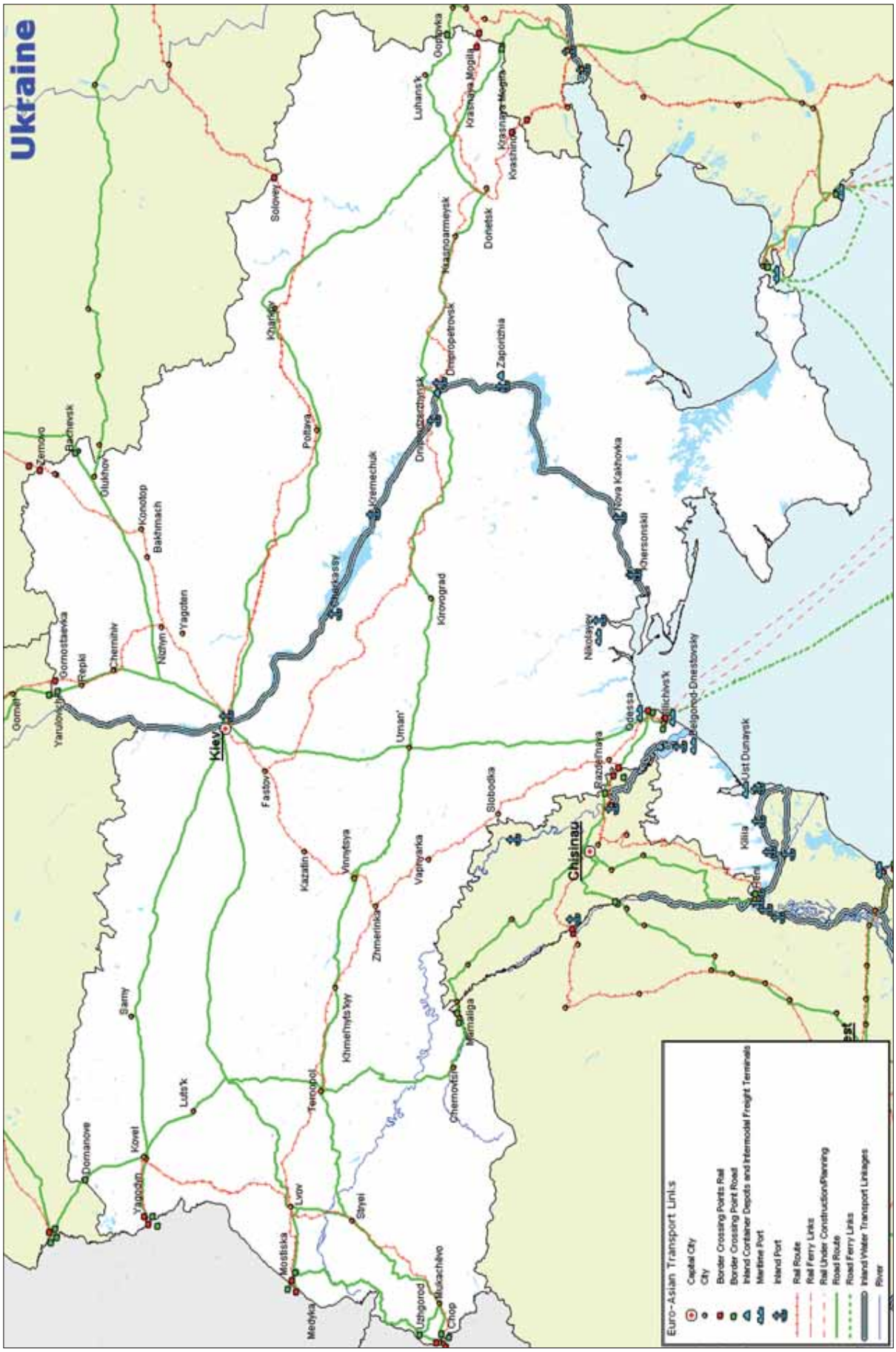


FIGURE 3.43 EATL NETWORK IN UZBEKISTAN

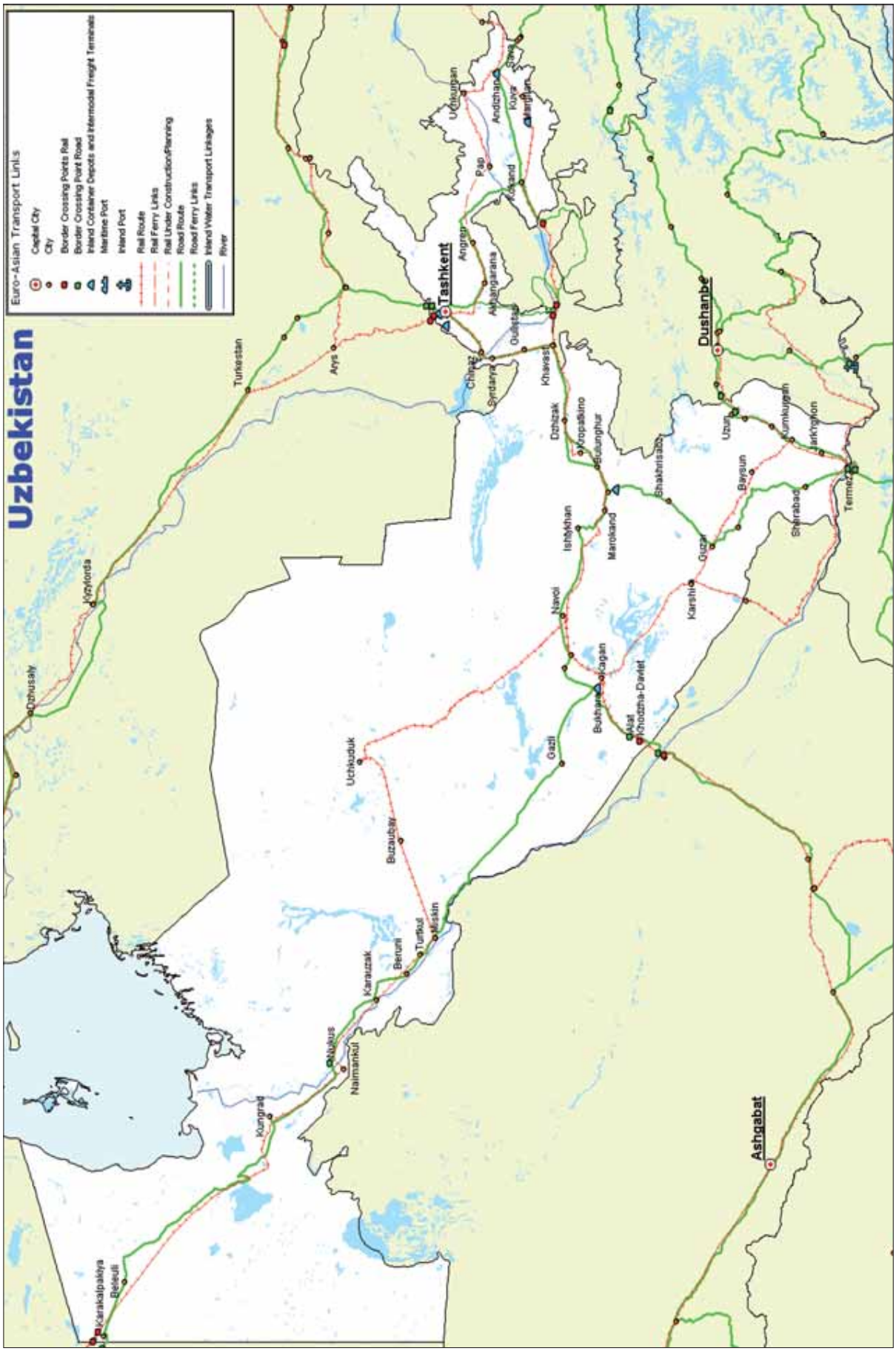


FIGURE 3.44 AGC, AGTC AND EATL RAIL ROUTES

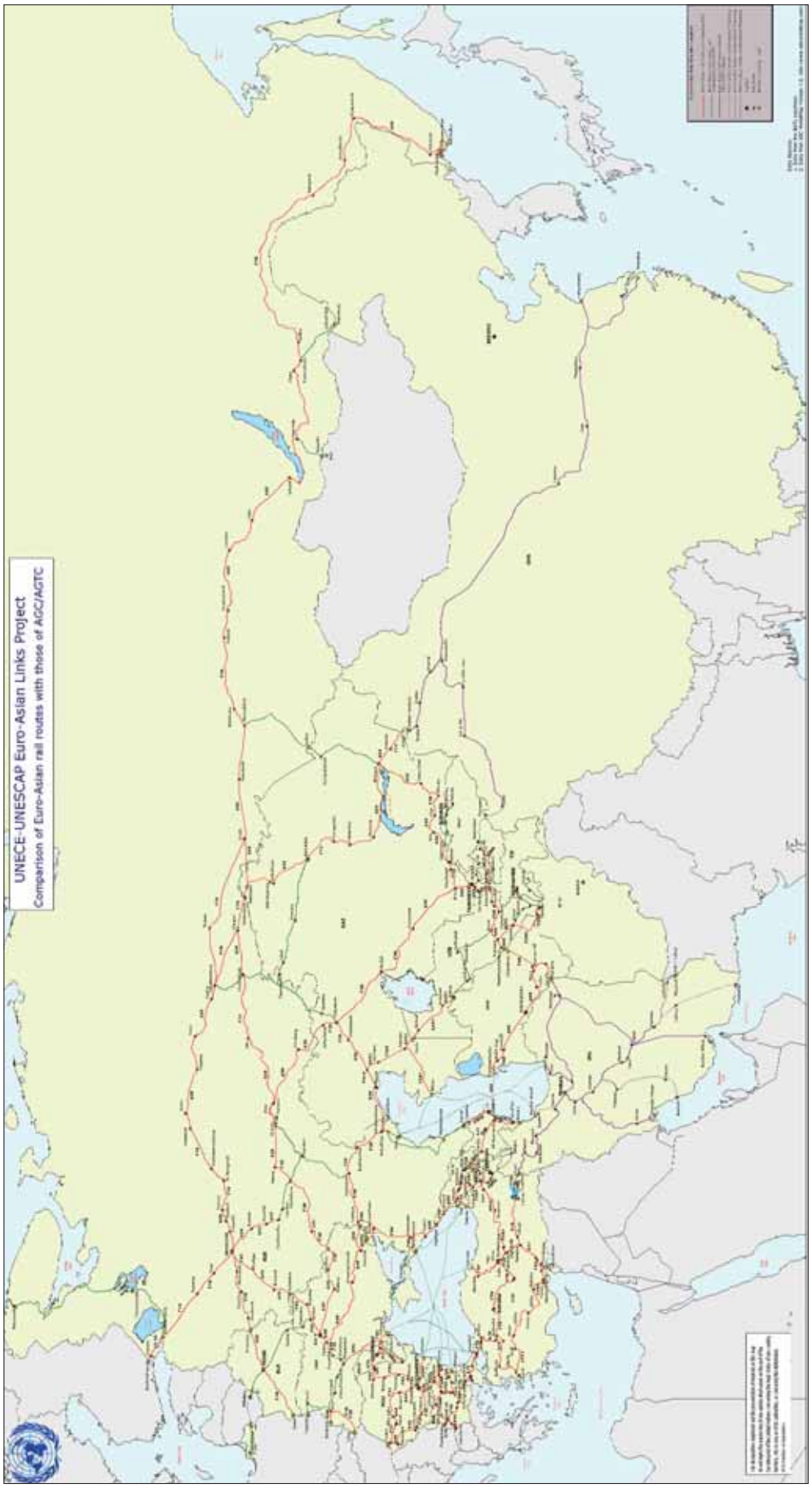
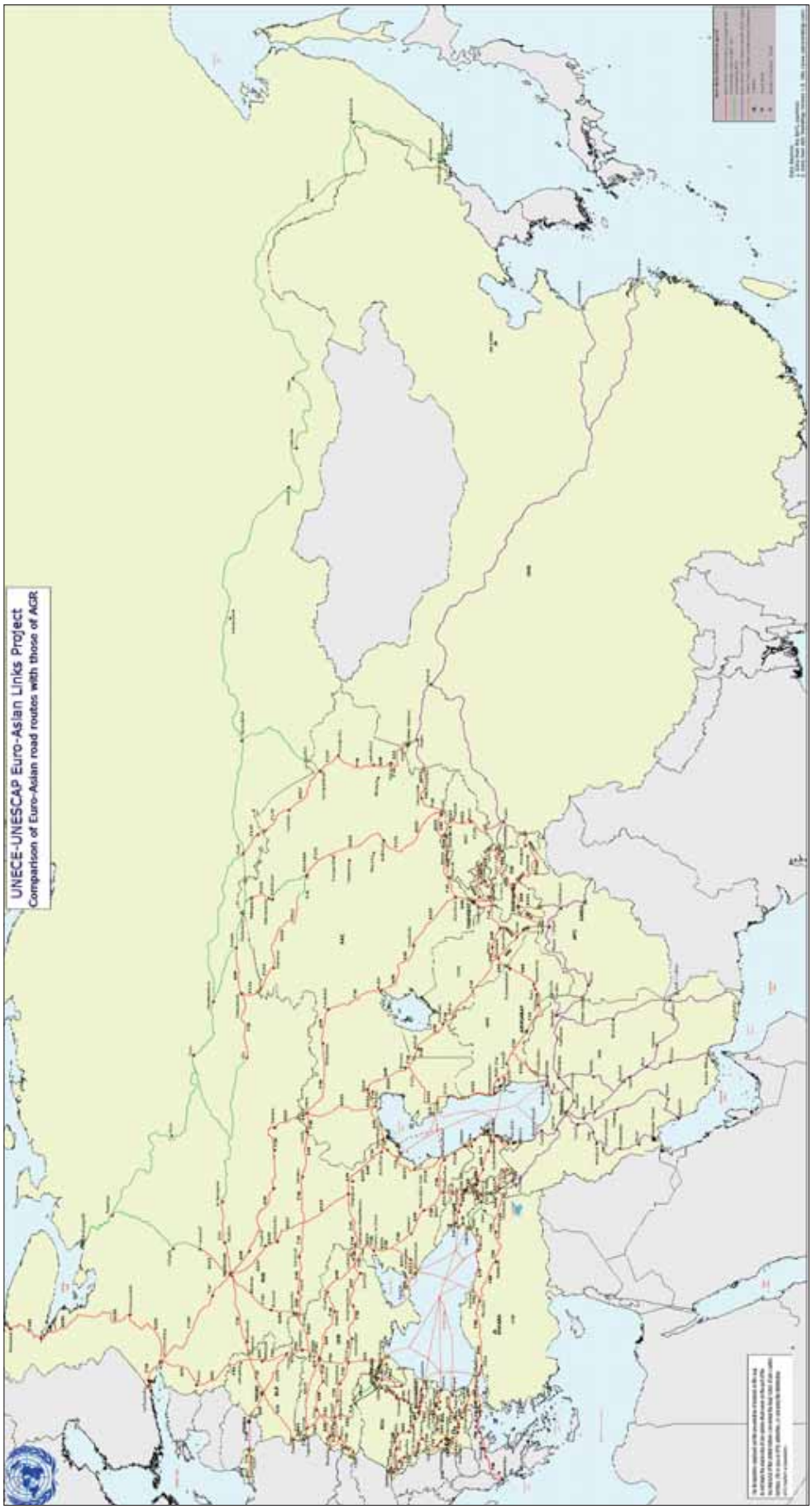


FIGURE 3.45 AGR AND EATL ROAD ROUTES



3.7 Conclusions on the status and problems of international transport in the region in the context of Euro-Asian Transport Linkages

3.7.1 Introduction

The ongoing catch-up of China, Korea, Russia and a number of other UNECE emerging market economies to per capita productivity and income levels of most advanced economies implies that their merchandise trade flows should rise rapidly albeit at a gradually diminishing pace over the next few decades. Economic activity in Western Europe is likely to increase at a comparatively slow pace while the outsourcing of manufacturing to low-cost Asian locations as well as strong demand for energy from resource-rich EECCA countries are likely to continue. Given these assumptions, the Euro-Asian trade and transport flows ought to keep expanding dynamically in the foreseeable future. Maritime transport will continue to play a predominant role in interregional freight traffic. Aside from the growing volume of flows of oil and gas through pipelines, surface transport operators could increase somewhat their market share in interregional shipments, providing that supportive policies result in the provision of adequate infrastructure and remove regulatory obstacles to efficient international transport across the Eurasian land bridge. This project has made a first step towards the elaboration of an investment strategy for the progressive development of the rail, road, inland water and combined EATL routes.

Both physical and non-physical obstacles to transit along the major Euro-Asian inland transport routes continue to hinder the development of the EATL network.[19] Aside from the natural obstacles such as high mountain ranges, the former entail inadequate or incompatible transport infrastructures, bottlenecks and missing links. The latter are posed by economic, political, administrative and regulatory barriers and entail also security as well as safety concerns. A number of physical and non-physical land transport issues have been addressed by various international agreements and conventions. Table 3.5 shows the uneven acceptance by the SEE, EECCA and Asian states participating in the project of 16 key UNECE legal instruments that, if properly implemented, would contribute significantly to a smooth functioning of the EATL system. These instruments include three agreements that establish common technical parameters for major rail, road and combined transport infrastructure networks (AGR, AGC, AGTC), nine agreements related to road transport, two agreements on border-crossing facilitation, and two legal instruments pertaining to dangerous goods and special cargoes (for details, see section 4.3.5). Experts of the UNECE and other organizations have often recommended the implementation of these 16 international conventions.[20]

[19] The valuable assistance provided by reports of various international organizations and fora that have analysed such issues (ECMT, IRU, UIC, UIRR, UNECE WP.5) is gratefully acknowledged.

[20] For instance, the Project Working Group on Transport and Border Crossing (PWG-TBC) has continued to recommend the adoption of all 16 legal instruments to SPECA countries since its 2nd session in June 1999. The following countries participate in the United Nations Special Programme for the Economies of Central Asia (SPECA): Afghanistan, Azerbaijan, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan.

TABLE 3.5 ACCEPTANCE OF KEY UNECE TRANSPORT AGREEMENTS AND CONVENTIONS
STATUS AT 31 DECEMBER 2007

	AGR E-road network 1975	AGC E-rail network 1985	AGTC combined traffic network 1991	Road traffic 1968	Suppl. road traffic 1971	Road signs & signals 1968	Suppl. road signs & signals 1971	Customs Container Convention (1972)	AETR work of crews int. transport 1970	CMR contract road transport 1956	Temp. import private road vehicles 1954	Temp. import comm. road vehicles 1956	TIR convention 1975	Harmonized frontier control of goods 1982	ADR dangerous goods by road 1957	ATP perishable food-stuffs 1970
SE Europe																
Bulgaria	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Romania	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Turkey	X	X	X					X	X	X	X	X	X	X		
EECCA																
Armenia	X			X				X	X	X			X	X		
Azerbaijan	X			X				X	X	X		X	X	X	X	X
Belarus	X	X	X	X	X	X	X	X	X	X			X	X	X	X
Georgia	X		X	X		X	X	X		X			X	X		X
Kazakhstan	X		X	X		X		X	X	X			X	X	X	X
Kyrgyzstan			X		X			X	X		X	X	X			
Moldova	X	X	X	X	X				X	X			X		X	X
Russian																
Federation	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X
Tajikistan				X		X				X			X			
Turkmenistan			X		X			X	X			X				
Ukraine	X	X	X	X	X	X	X	X	X	X			X	X	X	X
Uzbekistan				X		X		X	X	X		X	X	X		X
Asia																
Afghanistan											X	X				
China								X								
Iran				X		X				X	X		X			

Sources: UNECE.

The following assessment of the main physical and non-physical obstacles along EATL routes is based partly on the elaboration of the TEM and TER Master Plans (for details, see section 2.1.7). Such obstacles often reflect the problems specific to the EECCA region, for instance the multiple border crossings between adjacent countries that result from the road and rail infrastructure built originally within a unified state (Soviet Union).[21]

Experts agree that Euro-Asian transport links could be developed best if the UNECE transport legal instruments mentioned above were adopted and implemented fully as soon as possible by all countries that participate in the EATL project.[22] Figure 3.44 shows that this would be a major task for all but five of these countries (Belarus, Bulgaria, Romania, Russian Federation and Ukraine) that already ratified all or nearly all of the key legal instruments. Seven countries ratified less than one half of them. Furthermore, various surveys show that effective implementation of the conventions mentioned above cannot be taken for granted. For instance, the TIR Convention and the International Convention on the Harmonization of Frontier Controls of Goods were adopted by four Central Asian countries to date. However, long delays at their border crossings have continued which suggests that the implementation of these two key conventions has been ineffective.[23]

3.7.2 Making adequate infrastructure available

Inadequate infrastructure and incompatible logistical networks undermine the ambitious plans to develop EATL land transport axes. Some of these problems have been partly addressed with the adoption of the UNECE infrastructure agreements by the EECCA transit countries situated along the EATL routes. However, serious infrastructure bottlenecks remain.

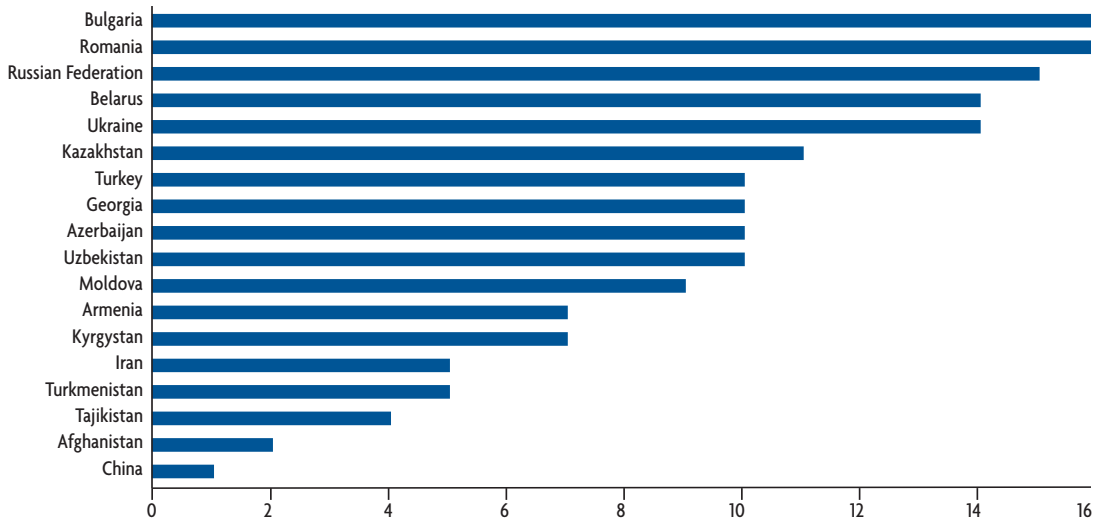
In the rail sector, although the main international railway lines in the Caucasus and Central Asia countries have been formally integrated since 2002 into the E-rail network by the European Agreement on Main International Railway Lines (AGC), their infrastructure parameters do not fully meet the AGC requirements. Nevertheless, the E-railway lines as part of Euro-Asian transport links could enhance international transport and trade with all EECCA countries, thereby facilitating their further integration into the European and the world economy, even before being developed up to the technical and operational standards foreseen in the AGC agreement.

[21] A train from Astrakhan in the Russian Federation to Dushanbe in Tajikistan passes through three countries (Kazakhstan, Turkmenistan and Uzbekistan) while crossing state borders nine times during the three-day long trip. Such multiplicity of border crossings can be also observed on rail routes between Moldova and Ukraine or Kazakhstan and the Russian Federation.

[22] See for example the presentation of the IRU delegate at the 3rd Expert Group meeting <www.unece.org/trans/main/eatl/docs/3rd_EGM_Presentation_IRU_Obstacles_and_Risks.pdf>.

[23] See the UNECE note on the accession to international conventions by SPECA countries up to March 2007 <www.unece.org/speca/pdf/tbs/12ses/accession_2e.pdf>.

FIGURE 3.46 ACCESSION TO KEY UNECE TRANSPORT AGREEMENTS AND CONVENTIONS AS AT 31 DECEMBER 2007



AGC aims at creating a fully coherent and homogeneous E-rail network. However, it does not specify any time limits concerning the implementation of harmonized technical standards. Given the relatively recent acceptance of the Agreement by EECCA countries and the huge amount of investment that would be required for the adaptation of their track and structure gauges to AGC standards, full technical interoperability can be achieved only in the very long run. Nevertheless, it is possible to minimize border-crossing times by adopting specific measures to address differences in the gauge and other technical parameters. Such measures include the extension of EECCA track to the nearest multimodal logistic centres in neighbouring countries, transhipment of containers, the use of rolling stock with gauge-adjustable bogies and other special devices.[24]

In the road sector, the E-road network was extended as far as the borders of Afghanistan and China in December 2001 when all the countries concerned have agreed to designate as E-roads a set of newly identified international roads in the Caucasus and Central Asia. The E-road network, which now extends over 150 000 kilometres, comprises all roads of international importance in Europe as well as in the Caucasus and Central Asia. When developed up to the infrastructure standards foreseen in the AGR, these E-roads will greatly facilitate international transport and trade.

Despite some progress on the infrastructural front, especially in South-Eastern Europe and the Russian Federation, a considerable amount of investment expenditure would be needed to assure smooth functioning of the Euro-Asian transport corridors (for details, see Part V). Furthermore, the relevant national authorities need to harmonize as far as possible the standards governing the E-rail and E-rail networks with those of their Asian counterparts, i.e. the adjacent Trans-Asian Railway and Trans-Asian Highway routes.

To overcome the obstacles mentioned above through productive investment, a planning process on an international scale is called for. Policy makers in EATL countries ought to assure that national investment programmes are compatible with a coherent development of the land transport routes that have been agreed to date. In the countries with relatively mature legal systems and competitive markets, the authorities might want to consider long-term concessions and other forms of public-private partnership to finance the most urgent infrastructure projects. In most EATL countries, however, such projects may have to be financed or guaranteed by the government. Whenever possible, such publicly financed projects ought to utilize competitive tenders to assure the provision of adequate infrastructure at least cost.

[24] For more details, see *Networks for peace and development: Extension of the major trans-European transport axes to the neighbouring countries and regions*, Report from the High Level Group chaired by Loyola de Palacio, Brussels, November 2005, p. 35.

3.7.3 Reforming the railways

Despite their modest share of the intercontinental transport market, railways continue to play an important role in regional transport within China, Russia and a number of other EECCA countries where they typically carry over one-half of long-distance freight and have at least one-third of the intercity passenger market. Experts agree that a market-oriented restructuring of the former railway monopolies is a precondition for rapid productivity advance, resulting in competitive international and national services. A number of countries participating in the EATL project have achieved noticeable progress in the commercialisation of railways, transforming former unwieldy monopolies that were directly controlled by line ministries into profit-driven crown corporations with core business in the transport sector, creating meaningful accounting systems, and liberalising gradually network access. However, inefficient practices such as cross-subsidies of passenger services by profitable freight operations have remained in place. Despite the shedding of some social functions, the dominant state-owned rail companies remain among the largest national employers, providing e.g. 1.2 million jobs in the Russian Federation and 1.5 million jobs in China.[25] Such vast over-employment, co-existing with inefficient labour markets, constitutes a major political economy constraint on deeper reforms that are urgently needed, if the rail freight sector is to compete successfully with other modes while providing an efficient backbone for combined transport.

In the EATL context, it is particularly important that the once centrally administered Russian Railways have been restructured in recent years into a vertically integrated state-owned corporation focussed on the key activity,[26] which offers interregional freight transport services in cooperation with foreign partners.

Trunk lines along the Pan-European Transport Corridors II and IX play a key role in the Euro-Asian land transport. Corridor II originates in Germany and extends through Poland, Belarus and the Russian Federation to the port Nachodka on the Pacific coast. This corridor shortens the sea route from Germany to Japan from 21 000 km and 28 days to 15 600 km and 13 days. Being almost entirely electrified and having practically no international borders to cross, the Trans-Siberian route offers the shortest link between Europe and Japan and Korea. With its branches through Central Asia it also makes possible connections to China and South-East Asia. In turn, the North-South route along the PET Corridor IX passes from Finland into the Russian Federation and then southward to the Caspian Sea region, Iran and ports in the Persian Gulf. This corridor cuts the length of sea trip between Iran and Germany from 13 500 km to 5000 km and from 25 to 14 days.

In spite of the progress achieved to date, policy makers in the Russian Federation and other EATL countries need to pursue further reforms to establish a level playing field in the transport sector so that rail companies can compete for business with other transport operators. The abolition of cross-subsidies and their replacement by explicit budgetary outlays for rail passenger services as well as the increased use of market-oriented regulatory instruments and a gradual deregulation of labour markets that protect excessively ‘insiders’ should be initiated by competent authorities as soon as possible. Rail prices in the Russian Federation still favour certain routes from and to Russian seaports, creating price distortions and unequal conditions for rail transport users. In order to create competitive conditions, the price structure for rail transport should not be biased in relation to any transport route. The experience of UNECE members in North America and Western Europe shows that a progressive liberalization of the railway market improves service quality and competitiveness. Otherwise, profit margins of rail and combined transport operators may well be eroded by excessive cost pressures, resulting in losses of market shares in both regional and interregional services. This would ultimately increase economic costs and negative environmental effects of land transport between Europe and Asia.

[25] In contrast, employment in the US rail transportation sector with roughly comparable output amounts to some 230 thousand persons. See the US Bureau of Labor Statistics data on employment by industry <http://data.bls.gov/PDQ/servlet/SurveyOutputServlet>.

[26] Non-core service providers such as hospitals and schools for employees were split from the Russian Railways during the first stage of restructuring. For details, see OECD Reviews of Regulatory Reform: Russian Federation, Paris, 2005, chapter 5.

3.7.4 Facilitating border crossings

The competitiveness of the Euro-Asian inland transport routes vis-à-vis the maritime and air transport modes continues to be impeded by inefficient and costly border procedures. In some cases, the least-cost routes are inaccessible due to protracted territorial conflicts that have closed key transport links. But even in parts of the EATL region that are not affected by political instability, interregional surface transport suffers from excessive administrative and regulatory burdens. Lack of harmonization of the trade-facilitating norms or their improper applications as well as diverse legal regimes manifest themselves in cumbersome and time-consuming border controls, discriminatory transit taxes and other (often illegal) charges that increase considerably rail transport costs. Important obstacles also disturb road transport operations between Europe and Asia. Based on the experience of a number of trucking companies operating throughout the region, the most persistent obstacles include the absence or poor implementation of international road transport conventions, excessive restrictions on vehicle movements, unnecessary trans-loading, inspections and off-loading of freight at borders, cumbersome country-specific custom regulations along the route, unwarranted inspections of goods in transit, double taxation of vehicles, lack of harmonized vehicle standards, lack of elementary security for truck drivers and their freight along many routes, and widespread corruption.

The previous UNECE work pertaining to the development of Trans-European Railway (TER) and Motorway (TEM) projects implies that an effective implementation of the main international conventions that facilitate transit trade could considerably reduce the heavy burden imposed on EATL transport operators by lack of legal harmonization. In addition to the adoption and effective use of the key UNECE conventions mentioned above, national authorities ought to assure the interoperability of the national and international transport laws pertaining to railways to improve the feasibility of Euro-Asian surface transport of containers over long distances. At present, two legal systems define rules for international railway and multimodal transport, including consignment notes and other documentation (Box 2). The interoperability of national transport laws is difficult to achieve but the recent development of a joint CIM/SMGS consignment note demonstrates that non-physical obstacles can be overcome through patient negotiations.[27] Nevertheless, important differences between the two legal regimes continue to exist. For instance, the liability clauses in the CIM and SMGS are almost identical but compensation levels differ significantly.[28] The adoption of a unified rail transport law by all countries along the major Euro-Asian corridors would be conducive to the development of competitive interregional services.

3.7.5 Addressing safety and security risks

International surface transport along Europe-Asian routes is particularly vulnerable to safety and security threats, resulting to some extent from political instability and the still weak enforcement of law as well as strong organized crime activity in a number of EATL countries or regions. The most common security risks entail a theft of dangerous substances in transit, illegal border crossings of persons, drugs and arms, attacks on physical infrastructure, vehicle theft and misuse. While it is understandable that governments strive to control illegal transport of goods and persons across national borders, the security procedures increase costs of transport operators. Unduly detailed controls of international traffic generate prohibitive social costs, just like the absence of any controls. Appropriate security procedures should not be overly disruptive and allow for trade facilitation based on international trade and transport agreements.

UNECE governments have elaborated over the years a comprehensive set of agreements that facilitate transport while providing an appropriate level of safety and security. These include above all the 1975 Customs Convention on the International Transport of Goods under Cover of TIR Carnets (TIR Convention) and the 1982 International Convention on the Harmonization of Frontier Controls of Goods that aims to remove non-physical obstacles at border crossings.

[27] The new CIM/SMGS consignment note is comparable to the widely used CMR waybill for the international carriage of goods by road. The rules pertaining to the waybill are specified by the UNECE CMR convention, ratified by the majority of EATL countries (see Table 3.6).

[28] The CIM rules set the compensation for exceeding the contractual transit period at four times the freight charge. The SMGS rules provide for no more than 30% of the charge.

They also include the 1968 Vienna Conventions on Road Traffic and on Road Signs and Signals as well as the European Agreement concerning the Work of Crews of Vehicles engaged in International Road Transport (AETR), which harmonize the rules of road traffic and improve road safety. In addition, the European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR) sets up special safety and security rules for the transport of dangerous substances. An annex to the COTIF Convention mentioned above specifies the Regulations Concerning the International Carriage of Dangerous Goods by Rail (RID). Both ADR and RID rules have been fully harmonized by joint meetings of OTIF and UNECE experts and largely harmonized with OSJD rules for transport of dangerous rail cargoes. Euro-Asian inland transport and all countries participating in the EATL project would benefit from a full and effective implementation of all agreements and conventions mentioned above.

Given the safety concerns of exporters and importers (especially theft of cargo) and the ongoing containerization of freight transport, EATL countries might want to focus on modernizing container services, particularly on rail routes. Container transport remains relatively underdeveloped in some participating countries. However, it may be possible for countries to overcome weaknesses in the supply chain, particularly by addressing problems at transhipment points (borders, break-of-gauge stations, ports). Towards this end, the authorities may wish to enlist the cooperation of other stakeholders such as freight forwarders, transport operators and export/import businesses.

BOX 2. INTERNATIONAL CONVENTIONS FOR CARRIAGE BY RAIL

The 1980 Convention Concerning International Carriage by Rail (COTIF) and the 1990 Protocol on supplementary road and maritime lines regulate carriage by rail and combined transport organized by railways in Western Europe. The Intergovernmental Organisation for International Carriage by Rail (OTIF), based in Berne (Switzerland), administers the Convention. The 1980 Convention as well as the 1990 Protocol have been adopted by four EATL countries (Bulgaria, Romania, Iran and Turkey) in the 1990s. Except for Afghanistan, the remaining EATL partners, including China, have adopted the alternative Agreement on International Railway Freight Communications (SMGS) that is administered by the Organization for the Cooperation of Railways (OSJD) based in Warsaw (Poland). Bulgaria, Romania and Iran belong to both organizations while using either legal regime, depending on the direction of traffic.

Rail transport between Europe and Asia is adversely affected by diverse infrastructure parameters. The narrow 1435 mm gauge is in use in OTIF countries (except Finland), including Bulgaria, Romania, Iran and Turkey, but also in China. The broad 1520 mm gauge is utilized in all EECCA countries. The differences in track can be overcome with the aid of relatively simple technical solutions; however, the multiplicity of documents required for international rail transport resulting from the dual legal regimes has proved much more difficult to resolve. For instance, the customs authorities in the European Union simplified border procedures for freight trains by accepting under certain conditions the CIM consignment note that conforms to the COTIF Convention as a customs document. In contrast, the CIM note has not been accepted by customs authorities outside the EU that have required that SMGS consignment notes and additional customs documentation be presented at their borders.

To reduce the delays resulting from incompatible regulations, a common CIM/SMGS consignment note was introduced recently. The first international freight train consigned with the common note left Ukraine on 25 July 2006. The first consignment from Germany to Russia using the CIM/SMGS consignment note was shipped at the end of 2006. Since January 2007 regular container trains operate between Mainz (Germany) and Zaporoje (eastern Ukraine). It remains to be seen whether the new note will be accepted as a customs document by the authorities in all non-EU EATL countries. However, even if the joint consignment note proves to be successful, the legal regime for international freight transport by rail will remain complex and more burdensome than the comparable regime for road

PART IV

FUTURE DEVELOPMENT OF THE EURO-ASIAN TRANSPORT LINKAGES: MAJOR ISSUES

4.1 Euro-Asian traffic flows

4.1.2 Current traffic moving between Europe and Asia

International transport of goods on the Euro-Asian air, land and maritime routes has expanded rapidly since the late 1990s both in physical and value terms. However, the EU imports from Asia continued to be roughly twice as large as exports in the opposite direction. Figure 4.1 compares the value of merchandise trade (exports plus imports) between the EU and East Asia from 1999 and 2005. The rapid pace of trade expansion with China is particularly noteworthy. The related transport needs have been accommodated through rapidly growing container terminals on the Chinese seaboard and, hence, Shanghai emerged fast as one of the world's most important ports. In 2005 the Shanghai port had a turnover of 18.1 million TEU, thereby increasing its throughput by 24% compared to the figures from 2004.

According to data available from the EU statistical agency (Eurostat), the bulk of merchandise exports and imports between the EU and East Asia continues to be transported by ocean shipping (Table 4.1). Air transport accounts for a relatively small proportion of shipments in terms of volume but the second largest share in terms of value, due to its dominant role in high value shipments. The market share of the rail sector remains marginal, despite a slow increase since the late 1990s, while the corresponding share of road transport is significantly higher. The share of inland water transport decreased in both value and volume terms over the 1999-2005 time period.

These results are tentative, because the EU merchandise trade statistics by transport mode do not identify the predominant carrier between the origin and destination of international routes. The mode is defined for exports as the active means of transport with which the goods leave the EU territory. For imports the mode is defined as the active means of transport with which the goods enter the EU territory. Therefore, it is probable that on the long distance Euro-Asian routes the actual share of road transport is somewhat lower, while that of rail and maritime shipping may well be somewhat higher than indicated by the EU merchandise trade statistics by transport mode. However, Eurostat intends to publish in the near future additional data on transport means, nationality and commodity transport for containers. Once these data are available, it should be possible to obtain a more accurate picture of the Euro-Asian merchandise trade by transport mode.

FIGURE 4.1 THE EU-25 MERCHANDISE TRADE WITH EAST ASIA, 1999-2005 (BILLION EUROS)

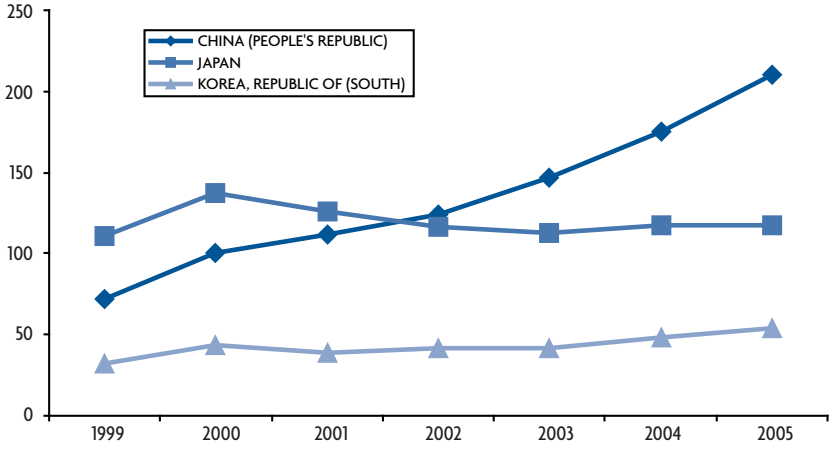


TABLE 4.1 THE EU TRADE WITH EAST ASIA BY TRANSPORT MODE, 1999 AND 2005

Per cent of merchandise trade flows in tons

Transport mode	1999 EU-25 imports	2005 EU-25 imports	1999 EU-25 exports	2005 EU-25 exports
Unknown	7.3	25.5	0.4	2.8
Sea	77.8	66.3	89.8	87.1
Rail	0.4	0.5	0.9	2.0
Road	7.0	4.3	6.3	5.8
Air	1.6	1.5	1.6	1.6
Post	0.0	0.0	0.1	0.0
Fixed mechanism	0.0	0.0	0.0	0.0
Inland waterway	5.2	1.3	0.9	0.8
Self propulsion	0.6	0.6	0.1	0.0
All modes	100	100	100	100

Per cent of merchandise trade flows in euros

Transport mode	1999 EU-25 imports	2005 EU-25 imports	1999 EU-25 exports	2005 EU-25 exports
Unknown	13.4	15.0	1.0	3.7
Sea	53.1	50.9	50.8	52.2
Rail	0.3	0.3	0.5	0.6
Road	9.8	8.7	5.9	5.5
Air	22.7	23.8	39.0	34.6
Post	0.1	0.1	0.2	0.0
Fixed mechanism	0.0	0.0	0.0	0.0
Inland waterway	0.4	0.2	0.4	0.4
Self propulsion	0.3	0.9	2.1	2.8
All modes	100	100	100	100

Source: Eurostat.

Note: East Asia is represented by China, Japan and South Korea.

Table 4.2 shows the changing pattern of surface freight shipments between the EU and a number of its trading partners in Asia and the EECCA region by comparing the years 1999 and 2005. In most cases road transport seems to be the predominant overland mode, followed by rail and inland waterways. As one would expect, the share of road transport tends to decline with the distance between the EU and trading partner. Rail transport has reached an impressive market share in surface traffic between the EU and neighbouring EECCA economies as well as those situated in Central Asia (Kazakhstan, Uzbekistan).

TABLE 4.2 THE EU TRADE WITH SELECTED PARTNERS BY LAND TRANSPORT MODE, 1999 AND 2005

Per cent of flow in tons

Trading partner	Transport mode	EU-25 imports 1999	EU-25 imports 2005	EU-25 exports 1999	EU-25 exports 2005
China	Rail	0.3	0.5	0.4	1.7
China	Road	6.0	4.2	5.4	5.9
China	Inland waterway	7.4	1.6	0.6	0.9
Iran	Rail	0.0	0.0	2.3	9.3
Iran	Road	0.2	0.2	3.9	7.2
Iran	Inland waterway	0.0	0.0	2.2	1.1
Japan	Rail	0.6	0.2	1.6	2.2
Japan	Road	11.6	3.5	7.2	5.2
Japan	Inland waterway	1.3	0.4	1.5	0.4
Korea (South)	Rail	0.4	0.8	0.6	2.5
Korea (South)	Road	5.4	7.4	6.8	6.2
Korea (South)	Inland waterway	1.5	0.7	0.8	1.1
Belarus	Rail	6.2	51.6	39.6	31.6
Belarus	Road	39.5	17.2	49.8	58.7
Belarus	Inland waterway	0.5	0.4	0.5	0.0
Kazakhstan	Rail	4.7	5.7	50.2	49.0
Kazakhstan	Road	0.9	0.7	26.8	30.0
Kazakhstan	Inland waterway	0.2	0.1	0.0	0.0
Russian Federation	Rail	6.9	8.1	10.1	13.1
Russia Federation	Road	2.8	2.6	41.7	56.5
Russia Federation	Inland waterway	0.8	0.6	0.6	0.5
Ukraine	Rail	4.4	46.3	6.1	32.9
Ukraine	Road	7.1	8.7	44.5	54.6
Ukraine	Inland waterway	16.8	6.0	0.1	0.1
Uzbekistan	Rail	0.7	5.9	27.9	79.0
Uzbekistan	Road	51.5	6.6	19.0	12.1
Uzbekistan	Inland waterway	0.0	0.0	0.0	0.0

Source: Eurostat.

In volume terms, the shipments along the Trans-Siberian lines dominated other routes. Rail freight shipments on the North-South EATL routes that shorten considerably the distance between Central Asia as well as Western Europe and the Persian Gulf region remain relatively small, despite the noticeable growth of traffic between the EU and Iran. They could expand further while taking advantage of the continued upgrading of railway infrastructure in Iran and the Russian Federation. According to various sources, road freight transport along the TRACECA and Southern corridors, particularly between Central Asia and Turkey as well as Iran, picked up noticeably while the volume of international rail traffic continued to be relatively modest. Growth of freight transport was observed not only on Euro-Asian routes but within the EECCA region as well while its economies continued to recover rapidly from the 1998 financial crisis.

The interregional surface transport between Europe and Asia takes advantage of the available infrastructure, albeit not to the maximum extent possible. The Russian Trans-Siberian transport corridor from Moscow to Vladivostok is a two-way electrified railroad stretching about 10 thousand kilometres and capable of moving roughly 100 million tonnes annually, which includes about 200 thousand 20-feet containers (TEU). Its recent transport volume reached 55 million tonnes (including 155 thousand containers), thereby indicating a significant spare capacity.[29] Time of delivery of block container trains from Russia's Pacific coast to Brest (border between Belarus and Poland) is about two weeks. This route has the potential to halve the time of container cargo delivery to Europe from the Asia-Pacific region (which takes currently about 30 days by sea). The Trans-Siberian route offers safety, relatively efficient customs procedures at sea ports and the availability of a reliable information system to track cargo movement. There are no gauge breaks.

The Trans-Siberian route, connecting the Pan-European Transport Corridor II with destinations in Asia, is the only functioning interregional surface link at present. Container shipments by rail are now also regularly (once a week) available between Istanbul (Turkey) in South-East Europe and Almaty (Kazakhstan) in Central Asia. However, the transported volumes remain significantly smaller than those on the Trans-Siberian line. An extension of the Istanbul-Almaty container service to China could eventually match the volumes transported on the Trans-Siberian route. But even in this case, combined transport of containers on EATL routes would reach at most some 3 to 4 per cent of maritime container traffic between Asia and Europe over the next decade.

4.1.3 Status of sea transport between Asia and Europe and viability of inland routes as a supplement or a complement to maritime transport

Maritime transport is the most prevalent means of moving cargo within and beyond Asia.[30] This is so because inland transport services are currently not efficient and reliable enough in most Asian countries. In contrast, shipping by sea is highly reliable as 80 per cent of ships arrive on time and about 10 per cent two to three days late, while only the remainder arrives four or more days later than scheduled. Nevertheless, as already noted, the railways have the potential to offer much faster transit times than maritime shipping, especially from Asia to Europe.

According to Drewry Shipping Consultants the overall ship capacity in the Asia-Europe trade was to increase year-on-year by almost 20 per cent in 2006 due to the expected deployment of 87 new container ships. In consequence, after two years of relatively balanced containership capacity, the market has shifted to overall overcapacity. As a result of this and intense competition, pricing will remain low. For example, in January 2006, freight rates from Hong Kong to the United Kingdom were $1,250 per 20-foot container ($2,170 for a 40-foot box), including terminal charges. This implies that freight rates from Asia to Europe have fallen dramatically since 2005 (by 40 per cent excluding terminal charges). From Europe to the Far East, all-in freight rates were equally low at $900 - $1,100 per 40-foot container from Northern Europe and about $500 from the Mediterranean.

Since 2000, container traffic from the Far East to Northern Europe has increased by over 80 per cent and reached about 7.5 million TEU in 2006. Cargo volumes in the opposite direction have risen by half, topping 4 million TEU in 2006. Container traffic volumes from the Far East to Mediterranean Europe are lower (at about 3 million TEU and about one million in the opposite direction).

[29] The volume of international container traffic on the Trans-Siberian railway reached record levels in recent years, exceeding the Soviet-era peak in 2004 when 155 400 twenty-foot containers (TEU) were delivered. In contrast, only 15 000 containers were transported on Trans-Siberian international lines in 1998.

[30] It is estimated that Asian ports currently handle approximately half of the global container throughput, up from 25 per cent in 1980.

Inland cargo movements within particular Europe-Asia corridors are difficult to estimate precisely. However, it is expected that any new inland cargo movements across Asia will be diverted away from maritime shipping and the level of diverted traffic will depend on the net benefits to freight customers offered by the railways over sea carriers. In addition to the already mentioned challenges related to inland transport infrastructure, there will likely be other constraints. In Asia, the demand for inland transport services frequently outstrips the available supply. For example, China's railways carry more passengers and cargo than any other form of transport does, but - despite an ongoing infrastructure programme - the country's inland transport has been unable to meet the heavy demands induced by its rapid economic growth. Nonetheless, with coastal areas becoming increasingly congested and with several countries driving economic development to the interior regions this could change.

4.1.4 Perspectives of landlocked developing countries along the Euro-Asian transport linkages

Location is an important determinant of transport costs, since it determines the distance from major markets and is frequently perceived as a significant factor in economic development. International transport has the potential to reduce the economic importance of distance, but high costs of transport infrastructure make it difficult to establish efficient transport links between distant producers and markets. In many cases, the existing physical infrastructure is not complemented by the necessary legal instruments, by smooth customs procedures and/or by secure transit.[31]

In addition to distance from markets, region specific adverse geographical features such as landlocked locations create additional economic challenges. There are 43 landlocked countries in the world (Table 4.3) and more than half of them are located either in Europe or in Asia (countries participating in the EATL project are marked in bold).

TABLE 4.3 LANDLOCKED COUNTRIES

Afghanistan	Burkina Faso	Lao PDR	Nepal	**Tajikistan**
Andorra	Burundi	Lesotho	Niger	**Turkmenistan***
Armenia	Central African Republic	Liechtenstein	Paraguay	Uganda
Austria	Chad	Luxembourg	Rwanda	**Uzbekistan**
Azerbaijan*	Czech Republic	FYR Macedonia	San Marino	Vatican City
Belarus	Ethiopia	Malawi	Serbia	Zambia
Bhutan	Hungary	Mali	Slovakia	Zimbabwe
Bolivia	**Kazakhstan***	**Moldova**	Swaziland	
Botswana	**Kyrgyzstan**	Mongolia	Switzerland	

** Each of these countries has a coast on the Caspian Sea.*

EATL countries are marked in bold

In these locations, transport time, particularly outside of Europe, is excessively long. This is due to a variety of factors that may include isolation, adverse climatic conditions, inhospitable terrain, challenging road and railway conditions and unfavourable structure of exports. In addition, many landlocked countries have low per capita incomes and/or grow slowly. That gives rise to a vicious cycle where infrastructure investment is not viable due to little demand for transport services and consequently less economic activity taking place because there is no transport infrastructure. All of these factors substantially increase the total cost of transport. It is estimated that transport costs for goods originating in landlocked locations are, on average, about 50 per cent higher than in the countries with sea access.

[31] Good governance is not only required to make transport networks more efficient. Good governance is also needed to encourage private investment in physical infrastructure. As transport infrastructure is immobile, long-lived and requiring large financial outlays, a better than "average" investment climate is needed.

The export structure of landlocked locations plays a particularly important role. First, landlocked countries typically rely on exports of a few bulky and low value commodities. As transport costs for some of these commodities may account for up to 40 per cent of the final price, the attempt to reduce the costs of shipping goods abroad is crucial. Second, landlocked countries often trade with neighbour countries that have similar economic features with, in most cases, comparable poorly developed transport systems. Moreover, their mutual trade tends to be relatively insignificant due to reliance on production and sales of identical natural resources. That is why trading with adjacent countries does not appear as sufficient to respond to the need for openness of landlocked countries.

The general level of development of both landlocked and transit countries – which often determines the quantity and quality of transport infrastructure – is also important. It is estimated that transport costs are, on average, 70 per cent higher in developing countries.[32] Although these higher costs are mostly linked to inadequate physical transport infrastructure, cumbersome border crossing procedures, customs procedures and extensive documentation requirements are additional and important sources of avoidable costs. Corruption is frequently cited by truck operators as rampant at many border crossings. In case of railways, corruption is believed to be of lesser concern, but border-crossing times are measured not in hours but in days, mainly because of non-harmonized technical and operational standards. One of the negative consequences is that, by some estimates, more than half of transit time in road transport from Central Asia to Europe is spent waiting at borders.

TABLE 4. 4 LANDLOCKED DEVELOPING COUNTRIES

Afghanistan	Central African Republic	Mali	**Tajikistan**
Armenia	Chad	**Moldova**	FYR Macedonia
Azerbaijan	Ethiopia	Mongolia	**Turkmenistan**
Bhutan	**Kazakhstan**	Nepal	Uganda
Bolivia	**Kyrgyzstan**	Niger	**Uzbekistan**
Botswana	Lao PDR	Paraguay	Zambia
Burkina Faso	Lesotho	Rwanda	Zimbabwe
Burundi	Malawi	Swaziland	

Source: UNCTAD.

Transport costs vary across countries (i.e. due to specific locations) and depend on factors such as the level of development (through links to quality of physical infrastructure and regulatory framework) or the type of products shipped. Goods with a high-value-to-weight ratio are cheaper to move and that is why producers of agricultural and mining products or raw materials generally incur higher shipping costs. As noted above, in many landlocked developing countries natural resources and commodity sales dominate exports.[33]

In sum, poor physical infrastructure makes transport inefficient and more costly, because it extends the actual shipping time. So do extended amounts of time spent at border crossings (which often double the shipping time). High transport costs, in turn, erode the competitiveness of landlocked countries and reduce the volumes traded. Together these factors reduce the potential economic growth.[34]

[32] The United Nations has classified 31 landlocked countries as "landlocked developing countries" (Table 4.4, EATL countries are marked in bold).

[33] High transport costs also increase the prices for imports: not only for consumer products, but also raw materials and intermediate inputs making the domestic production less competitive.

[34] Empirically, even small improvements to physical transport infrastructure lead to higher trade. Recent research results, based on an econometric analysis of a sample consisting of 98 countries, indicate that a 10 per cent cut in the length of export procedures increases exports of goods by about 4 per cent. See S. Djankov, C. Freund and C.S. Pham, 'Trading on Time,' December 2006 <www.doingbusiness.org/Documents/TradingOnTime_DEC06.pdf>.

According to the United Nations Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island Developing States, the remoteness and the difficulty to reach world markets are the major reasons why the economies of many landlocked countries (outside Europe) have not been very successful.[35] It is often argued that the high transport costs faced by landlocked developing countries are a more restrictive barrier to trade than tariffs.[36] Consequently, the adverse impact on economic growth is greater.

In this context, the development of efficient transport networks such as the Euro-Asian transport links offers a tool to overcome location disadvantages. In 2003, the United Nations convened in Almaty for an international ministerial conference to enhance transit transport cooperation between landlocked and transit developing countries. The conference adopted the Almaty Programme of Action that establishes objectives and priorities aimed at helping landlocked countries become land-linking countries (see Box 3). Since 2003, the actions adopted in Almaty were incorporated in the work programmes of the UN regional commissions including the UNECE and, in particular, the UNESCAP.

BOX 3. OBJECTIVES AND PRIORITIES OF THE ALMATY PROGRAMME OF ACTION

The objectives of the Almaty Programme of Action are:

a) To secure access to and from the sea by all means of transport according to applicable rules of international law;

b) To reduce costs and improve services so as to increase the competitiveness of their landlocked countries] exports;

c) To reduce the delivered costs of imports;

d) To address problems of delays and uncertainties in trade routes;

e) To develop adequate national networks;

f) To reduce loss, damage and deterioration en route;

g) To open the way for export expansion;

h) To improve safety of road transport and security of people along the corridors.

Priorities of the Almaty Programme of Action

Priority 1: Fundamental transit policy issues

Priority 2: Infrastructure development and maintenance

Priority 3: International trade and trade facilitation

Priority 4: International support measures

Priority 5: Implementation and review

[35] In contrast, landlocked developed countries in Europe are located not far from seaports and are typically surrounded by wealthy countries. This has allowed them to focus on exports of higher value added products mostly to neighbouring or closely located countries.

[36] According to UNCTAD estimates, landlocked developing countries spend on average almost two times more of their export earnings for the payment of transport and insurance services than developing countries and three times more than developed economies.

4.2 Technical and operational aspects of future EATL development

4.2.1 Technical and operational standards

Inadequate or deteriorating infrastructure is a major – and obvious – obstacle to establishing efficient transport systems, but it is not the only one. Increased economic interdependence, arising among other factors from the liberalization of international trade and investment regimes and/or from technological change, has expanded international market opportunities, in transport no less than in markets for goods. However, as firms providing transport services have moved into new markets, they have increasingly encountered barriers to entry, which arise more from country specific rules and regulations than from tariffs or quotas. Issues range from legal restrictions imposed on the operations of foreign firms by government policies regarding access to the profession (authorization/licensing system) to a lack of recognition for standards and procedures used in other countries.

A common method to restrict the operations of foreign firms is to establish a **technical barrier to trade**. This includes a wide variety of environmental, security and safety measures that may have their origin in genuine concerns over the negative effects of particular technologies, products or practices, but which operate in such a way that trade in goods or services is restricted and competition is prevented. There has also been a rise in the use of security protocols to impede the flow of goods, leading sometimes to imbalances between facilitation and security measures.

There are other transport-specific practical, technical and operational aspects that may impede the development of efficient networks, for example, non-existent, non-respected or non-enforced transport rules and regulations, as well as those that remain un-harmonized and vary from country to country. Among these rules are legal instruments or standards that stipulate road traffic rules, road signs and signals, conditions for the issuance of driving permits, how to put in place and administer a customs transit system, etc.

Addressing the obstacles to efficient transport requires both development and implementation of appropriate and internationally harmonized legislative and institutional frameworks and practices. To this end, many governments, under the auspices of the UNECE, have worked on developing a comprehensive set of agreements and conventions regulating transport[37] and ancillary areas. The early implementation of these legal instruments by European countries, as well as their constant adaptation to political and economic developments, contributed to the creation of the most integrated entity in the world, the European Union. The vast majority of legal instruments elaborated under the auspices of the UNECE are open for accession to any Member State of the UN, without charges or fees and irrespective of their geographical location or membership with one or another regional commission of the UN.

4.2.2 Rail transport

Rail transport is environmentally friendly and offers relatively low freight rates for long haul transport of bulk commodities. In many countries, however, rail transport has been losing a significant market share in favour of road transport, which is mostly due to the comparatively low competitiveness of this mode of transport because of a number of more or less specific constraints.

First, in most if not all of the countries participating in the EATL project, railway infrastructure belongs to the State and is therefore largely financed by the public budget. In some countries parts of the assets, operations and/or ancillary activities have been privatized, but that does not mean they are performing in a fully liberalized market. Rather it means governments try to find ways to gradually stop subsidizing them. Consequences of the poor financial conditions in the rail sector are a lack of resources to build

[37] These include the Customs Convention on the International Transport of Goods under Cover of TIR Carnets (TIR Convention), of 1975, and the International Convention on the Harmonization of Frontier Controls of Goods, of 1982, for removing non-physical obstacles at border crossings. They also include the Conventions on Road Traffic and on Road Signs and Signals, of 1968, as well as many other international legal instruments that contribute to the facilitation of transport and, implicitly, of trade.

new infrastructure and missing links, and to renew or upgrade the rolling stock. Moreover, due to the weak maintenance record the existing infrastructure is deteriorating. These factors effectively reduce train speed, thus increasing transport time and costs, and accelerate rolling stock breakdowns, which cause railways to be slow, unreliable and uncompetitive.

Second, in an international context, there are numerous technical, legal, regulatory, commercial and organizational issues that prevent full interoperability of rail transport.

The challenge of making railways more interoperable applies not only to rail companies operating across Asia and Europe, but also to countries within these two continents. In fact, even the highly integrated European Union has had difficulties in harmonizing its members' national rail operations on an international scale. Despite decades of regulatory work, political pressure and coordinated efforts, it cannot yet be affirmed that railway transport in the EU is fully integrated and that the market is liberalized.

Interoperability of rail services refers to the harmonization of specifications for rolling stock, command and control; signalling and telecommunications systems; noise emissions; operational rules; maintenance and repair. Interoperability improves rail services and fosters technical and operational innovations by providing seamless, cross country connections and cost effective rail-based transport with optimized fleets and load ratios.

Some of the technical constraints to more efficient international rail services are posed by diverse track and structure gauges (tunnel widths, track clearances, platform levels) as well as braking and signalling systems. While many of those may be very difficult to eliminate because of prohibitive costs, there exists affordable technical solutions. For example, so-called gauge breaks may be overcome by using a transhipment for border crossings with high share of container traffic, whereas for non-containerized traffic special bogie changing devices could be adopted.

Many adjoining railways are not interconnected because they do not operate "common" rail services due to the absence or weak enforcement of inter-railway agreements. In general, such agreements establish common procedures with respect to rolling stock acceptance based on mutual recognition and standardization of inspection and maintenance of rolling stock. Agreements are also needed to establish, for example, practical procedures of obtaining and retrieving cargo containers.

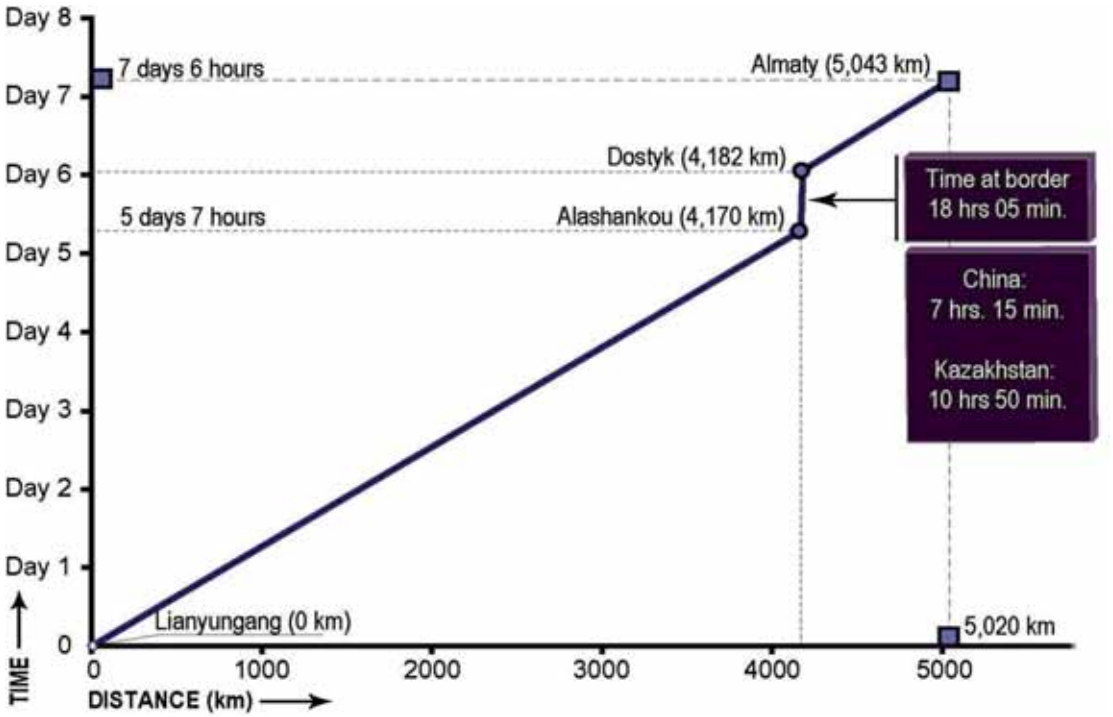
In the area of telecommunications and electronic data interchange, the interoperability is impeded by the generally low level, or even lack, of computerization, the insufficient advance notifications, and the co-existence of various non-standardized EDI systems. More advanced information and communication technologies are needed, in addition to better operational coordination and management, to ensure integrated train operations as well as quicker turnaround times and availability of cargo location data.

In some countries in Europe, progress is underway to improve safety while at the same time making the trains run faster. For example, a variety of national signalling systems has encouraged the development of the European rail traffic management system (ERTMS). The system consists of control-command, signalling and voice and data communication.

In the area of legal interoperability, there is often insufficient legal basis for establishing rules and relations between railway administrations and all other stakeholders. Domestic railway legislation determines the liability of railways, but international components of this liability are often lacking. At international level, in the area concerned by the EATL project, there are two legal regimes in force: firstly, in Western European countries, the regime defined by the Intergovernmental Organization for International Carriage by Rail (OTIF, French acronym), using the CIM consignment note; secondly, in EECCA and some Asian countries, the regime defined by the OSJD, using the SMGS consignment note (which is not accepted in Western Europe). The existence of two different legal regimes causes substantial delays in the movement of trains across borders. However, after lengthy efforts, a common, unified CIM/SMGS consignment note has been agreed upon and its introduction on some EATL routes started in late 2006 (for details, see Box 2). Despite this apparent success, more effort is required to make the OTIF and OSJD railway zones more coherent and convergent. Regional or international agreements that establish uniform rules concerning the international carriage of goods are needed, including the common tariff for international cargo movements.

Based on its time/cost-distance methodology, UNESCAP analysed several international routes, including the rail route from Lianyungang (China) to Almaty (Kazakhstan). The case studied, a container block train carrying thirty-eight 40 foot containers of TV components, cars, etc., took seven days and hours to complete the 5 020 km distance with an average speed of 29.2 km/h. Average transit speed was 788 km per day in China and 696 km per day in Kazakhstan. The time spent at the border to complete overall customs and other border-crossing formalities and railways procedures amounted to 18 hours 5 min, out of which 7 hrs 15 min. were spent on the Chinese side of the border and 10 hrs 50 min on the Kazakh side.

FIGURE 4.2 TIME - DISTANCE DIAGRAM (RAIL ROUTE LIANYUNGANG – ALMATY)



4.2.3 Road transport

Road transport has outpaced railways as the leading means of overland transport. This is due to the development of infrastructure, technological improvements and the possibility of providing efficient and timely door-to-door services. In almost all countries participating in the EATL project, state-owned road transport services were rapidly and, in most cases, successfully liberalized. At present, many of the newly emerged private companies compete on Euro-Asian markets. In the context of global economic growth, the growing volumes of trade to be transported could generate significant progress in the road transport area. However, the lack of traffic rights (permits); cumbersome procedures at border crossings and en route; absence or bad functioning transit systems; and the lack of adequate infrastructure and facilities prevent road transport from performing at full capacity. In some of the countries participating in the EATL project, the truck fleets are obsolete and highly polluting, and private companies do not have the financial resources to invest in new trucks or specialized vehicles (e.g. for transport of perishable foodstuffs). In addition, Governments have not put in place measures/incentives to support them in this respect. As the consequence the national economy as a whole is penalized, because – for example – transport operators are not granted access in countries with more severe technical standards for vehicles and national producers cannot sell their products on foreign markets.

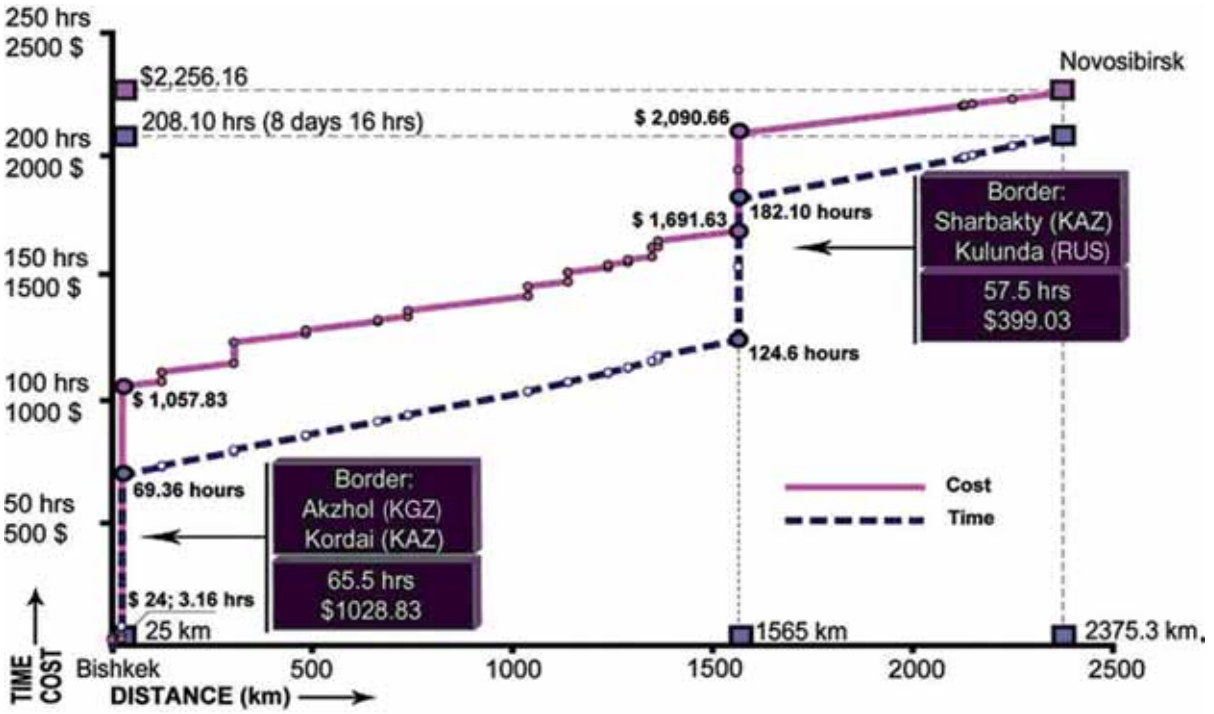
Financial efforts, political will and strong commitment are required to minimize the existing physical and non-physical obstacles to the smooth movement of goods in general and to road transport in particular. National infrastructure development plans should give high priority to the integration of sub-regional and regional networks, while ensuring high quality, safe and secure infrastructure networks in EATL countries. Moreover, transport facilitation should become a priority objective at national, sub-regional

and regional levels, taking into account its impact on other economic sectors (e.g. trade). Actions are required to improve transit traffic in general and at border crossings in particular, while expanding the use of modern information technology as well as implementing efficient customs control systems that are based on risk assessment and management and that simplify documents and procedures.

Based on its time/cost-distance methodology, UNESCAP analysed several international routes, amongst which the road routes from Bishkek (Kyrgyzstan) to Novosibirsk (Russian Federation), and from Tashkent (Uzbekistan) to Istanbul (Turkey). The time/cost – distance diagram below (Figure 4.3) illustrates the road transport from Bishkek to Novosibirsk: it shows that it takes 8 days and 16 hours (208 hours) and costs US$ 2,256 to deliver a loaded truck from Bishkek to Novosibirsk. It is noted that in most cases cost increases coincide with delays in time.[38]

A quick glance at the diagram would suggest that the two major bottlenecks are at the border crossing points Akzhol (Kyrgyzstan)/Kordai (Kazakhstan) and Sharbakhty (Kazakhstan)/Kulunda (Russian Federation). These border crossings account for 59 per cent of total time and 63 per cent of total costs (see Figure 4.4 and Table 4.5). Besides the border crossings, vehicles are stopped for checking and inspection as shown by many small steps in the diagram below. The data used for analysis indicate that there are 16 stops, totalling 6 hours 15 minutes, for document checks and cargo/truck inspections during the road transport from Bishkek to Novosibirsk.

FIGURE 4.3 TIME - COST DIAGRAM (ROAD ROUTE BISHKEK – NOVOSIBIRSK)



[38] The data for the analysis were provided by Pragma/USAID based on one case only. The data/information was presented in great detail for each stop along the trip.

FIGURE 4.4 PORTION OF TIME AND COST AT THE BORDER CROSSINGS (ROAD ROUTE BISHKEK – NOVOSIBIRSK)

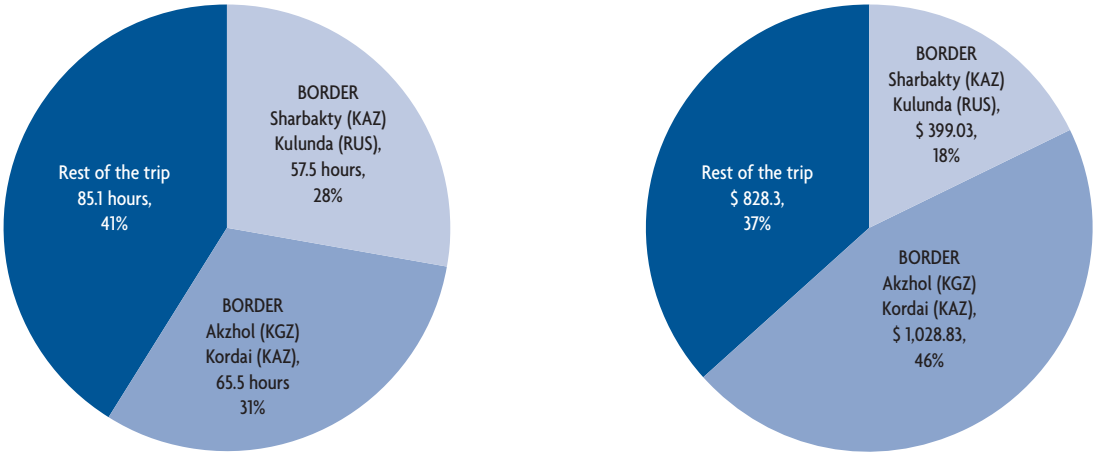


TABLE 4.5 TIME AND COST DATA (ROAD ROUTE BISHKEK – NOVOSIBIRSK)

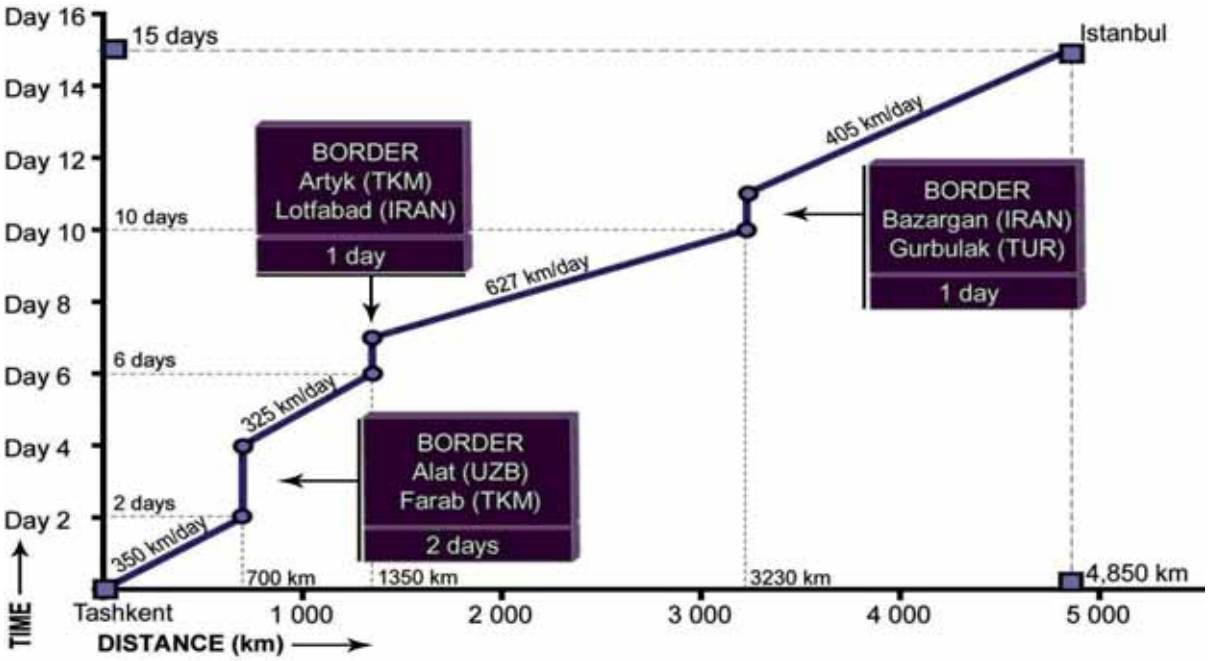
Border crossings	Time (hours)	Time (% of total)	Cost (US$)	Cost (% of total)
Akzhol / Kordai	65.5	31	1,028.83	46
Sharbakhty / Kulunda	57.5	28	399.03	18
Rest of the trip	85.1	41	828.30	37
Total	**208.1**	**100**	**2,256.16**	**100**

The time spent at the Akzhol/Kordai and at the Sharbakhty/Kulunda border crossings differs by 8 hours only (65.5 and 57.5 hours respectively, of a total time of 208.1 hours). The costs lost at the two border crossings are US$ 1,028.83 at the Kyrgyz/Kazakh border, and US$ 399.03 at the border between Kazakhstan and the Russian Federation (total cost is US$ 2,256.16).

The costs and time associated with border crossings can be further broken down to a greater level of detail, and this could be particularly useful to policy makers in focusing their policy approaches on the most critical issues.

Another example is that of an international road transport from Tashkent to Istanbul; the information for this analysis was provided by the Uzbek Association for Road and River Transport. The diagram below (Figure 4.5) shows that it takes a truck approximately 15 days to get from Tashkent to Istanbul. The 4,850 km long journey is completed with an average speed of 323 km per day. However, as time is expressed in days, which may have resulted in significant rounding, the estimates of the average speed should be treated with caution. The route lies within the territories of four countries (Uzbekistan, Turkmenistan, Iran and Turkey) and involves three border crossings: Alat (Uzbekistan)/Farab (Turkmenistan), Artyk (Turkmenistan)/Lotfabad (Iran), and Bazargan (Iran)/Gurbulak (Turkey). Cumulative time spent at the border crossings amounts to 4 days, which constitutes approximately 27% of the total time (15 days).

FIGURE 4.5 TIME - DISTANCE DIAGRAM (ROAD ROUTE TASHKENT – ISTANBUL)



4.2.4. Intermodal aspects

Intermodal transport may play an increasingly important role in the EATL context, given the large distances and geographical constraints. In some instances multimodal transport is the only option. For example, beyond the Chinese rail station in Kashi transport would have to move by road through Kyrgyzstan or Tajikistan to Uzbekistan or Afghanistan. In Turkey, there are two points on the EATL rail routes that are currently served by Ro-Ro ferries (across Lake Van and the Bosphorus). For both the TRACECA and North-South corridors described above, the routes selected involve ferry crossings (Black Sea and Caspian Sea). Further, connections to the PETC VII (Danube river) could be served either directly from the Black Sea (Romania) or by road and rail via ports in Bulgaria and Romania. For several landlocked countries, the usual option appears to be a combination of road (to major railway stations on the EATL routes) and rail (for the main part of the journey).

In spite of the potential advantages of intermodal transport, its success cannot be taken for granted. Compared to freight transport by road, rail and inland waterways traffic is slower and require complex multi-modal solutions. Therefore, the latter two modes will be used less frequently unless improved infrastructure and structural reforms make intermodal transport more attractive. Within the EECCA region situated between Western Europe and Asia, road transport has become increasingly competitive, gaining market shares in both freight and passenger traffic from the traditionally predominant rail sector. Comparatively low labour costs and shorter border handling and control times are important factors working in favour of road transport. Railways seem to be able to preserve their market share only on very long routes (over 3,000 km) and in the northern territories of Kazakhstan and the Russian Federation where the harsh climate makes the construction and operation of all-weather road networks extremely expensive.

Until now, productivity problems in the state-controlled rail sector, heterogeneous infrastructure and documentation standards as well as poor cooperation between diverse mode operator have hindered the development of overland multimodal transport. The majority of interregional links nominated by participating countries is based on the AGR, AH and AGC networks, and the blueprint of the TAR network. A number of countries also indicate where these links are part of the Pan-European Transport Corridors (PETCs), OSJD's Euro-Asian routes and the TRACECA. Unfortunately, the current technical standards of the networks mentioned above are not necessarily uniform. A number of serious border-crossing problems have been discussed in previous parts of this report.

EATL experts agree that multimodal container transport ought to be encouraged. In the context of interregional container traffic, the key question is how to achieve technical and institutional interoperability at minimum cost. One possible solution is provided by the joint ECMT/UNECE recommendation on "model" action plans and partnership agreements for the development of intermodal transport at the pan-European level.[39] Such initiatives would involve Contracting Parties to the AGTC Agreement and improve the competitiveness of intermodal transport services between Europe and Asia on the basis of a development of "good practices" and performance "benchmarks." Once such practices and benchmarks have been identified, the responsibilities of the individual actors within the intermodal transport chain, as well as penalties for non-performance are to be established. The imposition of penalties for non-adherence to performance standards makes this approach more stringent and result oriented than the current forms of looser cooperation in the framework of specific corridor-based institutional arrangements that are discussed below.

The future development of EATL depends to a large extent on the continued cooperation between the involved European and Asian Governments and businesses in the framework of specialized institutions that have been created to cope with the most pressing technical and operational issues on specific routes. The International Coordinating Council on Trans-Siberian Transportation was established in 1993 by more than 80 founding members, including the Ministry of Transport and the State Customs Committee of the Russian Federation, the railways of Belarus, Estonia, Finland, Germany, Hungary, Russian Federation, Kazakhstan, Poland, Slovakia, Mongolia, Latvia, Lithuania, Ukraine, and associations of freight forwarders from Europe, Japan, the Republic of Korea and Russian Federation. The main task of the Council is to enhance the economic feasibility of the Trans-Siberian rail lines by ensuring reliable transit times, security of cargo, and so on.

The North-South Corridor Coordination Council was set up in 2003 with the aim to accelerate the development of rail lines in this direction. Evaluating its potential importance for the future, Belarus, Kazakhstan, Tajikistan and Oman joined the three founding countries of the Inter-Governmental Agreement on North – South International Transport Corridor (India, Iran and Russian Federation). In addition, several other Governments have requested membership to this Agreement (Armenia, Bulgaria, Azerbaijan, Syria, Ukraine and Turkey).

The Southern corridor's development has been promoted for a number of years by the Economic Cooperation Organization (ECO). Some technical issues related to the operation of passenger and container trains between Istanbul in Turkey and Almaty in Kazakhstan were addressed at the first meeting of the Working Group for the Implementation of the Trans-Asian Railway Mainline.[40] The participants also decided to initiate a process of negotiations with Turkmenistan and Uzbekistan to encourage their closer cooperation in implementing the project.

The development of the TRACECA has been described above (section 2.2.4). This regional cooperation project was institutionalised in 2000 when the Intergovernmental Commission IGC TRACECA was set up in Tbilisi, Georgia. The executive body of the IGC TRACECA is the Permanent Secretariat based in Baku, Azerbaijan.[41]

[39] For details, see European Conference of Ministers of Transport, 'Intermodal Transport and Logistics: "Model" Action Plans and Partnership Agreements for the Development of Intermodal Transport at the Pan-European Level', <http://www.cemt.org/online/council/2005/CM200510e.pdf>.

[40] The First Working Group Meeting was held at the ECO Secretariat in Tehran on 19-20 June 2006. Delegates from Azerbaijan, Islamic Republic of Iran, Kazakhstan, Kyrgyz Republic, Pakistan, and Turkey participated in the meeting.

[41] For detailed information, consult the TRACECA website <www.traceca-org.org>.

Current delays, resulting from the difficulties of dealing with a plethora of complicated requirements for the movement of goods, could be reduced if governments were to establish a common set of requirements and a common process for completing inbound and outbound clearances of goods. Taking existing international agreements that relate to individual modes of transport and translating these into a single multimodal, multilateral code would enhance the efficiency of cross border cargo movement. These clearance requirements and the accompanying processes should cover the border crossing and extend to the whole intermodal journey of the cargo, between point of departure and point of destination. This means that they should include a common set of regulations and reporting requirements for, amongst others, the following:

- The efficient movement of vessels in and out of ports;
- Improved access of foreign transport companies;
- Road traffic, driver licensing and vehicle standards;
- Fees related to the border crossing;
- Visas needed by professional drivers; and
- The carriage of hazardous goods.

These regulations could be based on the IMO Convention on the Facilitation of International Traffic (FAL) and on the work done by the leading body for the development of international standards, the International Organization for Standardization (ISO). ISO standards contribute to making the development, manufacturing and supply of products and services more efficient, safer and cleaner. They provide governments with a technical base for health, safety and environmental legislation. The use and acceptance of ISO or other international standards could reduce barriers to trade and speed up, or even obviate, many customs procedures, thus making trade between countries easier and fairer.

The lack of suitable and affordable liability insurance cover for multimodal transport operators in the region has been a serious constraint on the growth of multimodal transport. Many countries covered by the EATL project still need to determine whether liability rules and limits should be established through a mandatory or voluntary regime of liability.

Governments can promote appropriate industry standards among intermodal operators by establishing international agreements with trading nations on:

- Definitions of responsibilities that fall on operators and consignors of cargo;
- The use of an agreed multimodal transport document as *prima facie* evidence of the multimodal transport operator taking charge of the cargo specified in the document;
- The information that is required on cargo consignments, including the nature, weight and apparent condition of goods, and details about the consignee, the intended journey route, mode of transport, places of transhipment and place of delivery of the goods;
- The assignment of legal responsibility to the multimodal operator for the actions and omissions of any person acting on its behalf, and making multimodal operators liable for any loss or damage resulting from these acts or omissions;
- The establishment of a time period after which goods not delivered would be deemed lost and the consignee would be entitled to claim for loss on the basis of the current commodity exchange value or according to the current market price; and
- Mechanisms for resolving disputes between consignors, consignees and the multimodal operator, as well as giving the plaintiff the option of initiating action in a court which, according to the law of the country where the court is located, is competent and within the jurisdiction of the place of business, the plaintiff, the multimodal operator or the consignee or the consignor.

In addition to these elements of a legal framework for multimodal operators and their customers, Governments can provide a range of supports for national and international forwarder organizations in the form of sponsorship of educational programmes and research and development. Governments can assist the development of a vigorous intermodal industry by encouraging private sector participation in intermodal activities, ensuring that:

- Viable commercial operations are practical;
- Private sector control does not lead to undesirable monopolization of key infrastructure; and
- Government-owned organizations compete with private sector companies on a level playing field.

The licensing of operators in many areas of intermodal operation is necessary to protect public safety and the environment, and it may be necessary, in some sectors, to ensure appropriate standards of service quality are maintained. However, licensing requirements can be applied inappropriately and can lead to significant inefficiencies in the supply chain. The potential impact of inefficient or inconsistent licensing arrangements can be severe. Yet inconsistent, cumbersome or unnecessarily restrictive licensing arrangements can significantly inhibit the development of intermodal systems. Governments can control this risk by ensuring that:

- All licensing requirements relating to intermodal transport are subject to periodical review to ensure that licences continue to be necessary on economic, social or environmental grounds;
- Where licensing continues to apply, the requirements for the issue of a licence focus on the objectives of the licensing arrangement and do not include unnecessary conditions, especially where these conditions would have the effect of limiting competition or inhibiting entry into the industry;
- Licence application procedures are as simple and straightforward as possible; and
- Licence criteria are clear, unambiguous and readily available to potential applicants.

In fostering development of the intermodal sector, the challenge for any Government is to generate a series of appropriate measures and policies that are both consistent with its overall aims and objectives, and meet the challenges posed by developing an integrated multimodal logistics system. The private sector needs a degree of certainty when making investment decisions, particularly those involving infrastructure construction which have long lead times, significant capital investment, limited salvage value and long payback periods.

4.2.5 Environmental, safety and security issues, especially with regard to international freight movements

The expansion of interregional freight traffic across the Eurasian land bridge may well result in adverse environmental effects due to the increased energy consumption and higher emissions of greenhouse gases. This adverse impact should be partly offset by the significantly shorter distances of EATL rail and road routes between major economic centres in Asia and Europe in comparison to the length of sea-lanes. Another offsetting factor could result from growth of inland water transport that, compared with other modes, presents economic and environmental advantages and may thus contribute to a reduction of congestion, traffic accidents and negative environmental impacts within the EATL region. However, the volumes of freight traffic within the network are likely to be dominated by rail and road transport so that the ultimate extent of environmental externalities depends on the evolving modal split between these two modes.

The 2005 Report from the EU High Level Group chaired by Loyola de Palacio states that it is of utmost importance to assess the environmental impact of transport activities early, i.e. at the stage of project definition and analysis rather than *ex post*. As a general principle, projects should be designed so that any severe or dangerous environmental effects are offset by mitigating measures.[42] In the context of strategic environmental assessment, the policy option of promoting alternative modes of transport to road ought to be considered *a priori*.

The UNECE 1991 Convention on Environmental Impact Assessment in a Transboundary Context stipulates that Contracting Parties shall undertake environmental impact assessments at the project level of planned activities, including construction of motorways, express roads, lines for long-distance railway traffic, trading ports, inland waterways and ports for inland waterway traffic.[43] If the proposed activity is likely to cause a significant adverse transboundary impact, the Party of origin should notify any affected Party as early as possible and enter without undue delay into consultations concerning measures to reduce or eliminate the adverse impact. Ten EATL countries are Contracting Parties to the Convention (Armenia, Azerbaijan, Belarus, Bulgaria, Kazakhstan, Kyrgyzstan, Moldova, Romania, Russian Federation and Ukraine). Bulgaria also ratified the 2003 Kiev Protocol that mandates its Parties to analyze the environmental consequences of their infrastructure development programmes much earlier than the 1991 Convention, while providing for extensive public participation.[44] The environmental performance of the EATL network could be significantly improved if all participating countries would adopt and implement the 2003 Protocol as soon as feasible.

According to expert studies, freight movements by rail cause less environmental disruption and accidents per unit of service (e.g. tkm) than road transport. Hence, it would be desirable from the environmental and safety perspective to increase the share of the rail sector and the share of combined traffic along EATL routes. However, in most of the countries covered by the project, road transport was the first to be liberalized and to contribute to the creation of a market economy, as it is a very dynamic sector and its development supports economic growth. Especially, the horizontal positive influences of road transport cannot be neglected in emerging economies. It remains thus unclear whether the objective of shifting freight from road to more environmental-friendly modes is feasible in the medium term and even in the long run. Unless the serious legal and regulatory impediments to a dynamic market-driven development of rail transport are removed, it is probable that the continued expansion of road transport at the expense of railways will continue to generate significant negative externalities. This conclusion is valid even though the EATL project evaluation criteria include the environmental dimension (cluster B – socioeconomic efficiency and sustainability criteria). The projects with secured funding are often financed with the aid of international financial institutions and are therefore subject to their standard environmental impact assessment procedures. While carrying out such assessments, development banks consider not only the narrowly defined environmental criteria but also occupational health and safety, public health and cultural heritage concerns.

The principal factors motivating decisions regarding the choice of freight transport modes include considering the quality of alternatives, price performance and other market-relevant quality characteristics. The most relevant quality characteristics of the market are reliability, frequency of departure, duration of the trip, position of departure and arrival times, information available, safety and security. Improvements in rail intermodality as well as improvements in combined transport infrastructure within the Euro-Asian corridors (e.g. modern terminals, new loading technologies) could support the desirable decoupling of environmental pressures associated with transport activity from economic growth.

Stronger intermodality would change the competitive situation between transport modes, because railways' overall competitiveness would then be more directly linked to other modes and it would ultimately promote increased shifting from road to (more environmentally friendly) rail. Given the strong economic and transport links that exist among countries, the realization of environmental benefits associated with intermodality would require a co-ordinated action at the international level. Aside from unexpected technological advances, the extension and improvement of rail infrastructure, accompanied by market-oriented economic reforms in the rail sector, would provide the most promising basis for an environmentally benign development of the EATL network. Significant shifts to this mode will only take place when the rail infrastructure represents a viable economic alternative.

[42] For more details, see UNECE, *Cost Benefit Analysis of Transport Infrastructure Projects*, New York and Geneva, 2003.

[43] For details, see the text of the Convention at <http://www.unece.org/env/eia/eia_text.htm>.

[44] Armenia, Georgia, Moldova, Romania and Ukraine are EATL countries that have signed, but not yet ratified, the 2003 Kiev Protocol.

A strategic approach to national security would also emphasize improvements in the infrastructure and the regulatory environment influencing the rail sector. Following the terrorist attacks on 11 September 2001, security concerns have become increasingly prominent in international transport and, in spite of the considerable tightening of security in container transport, international trade remains vulnerable to terrorist attacks that could seriously disrupt or close a key link in one of the major sea-based freight corridors. Therefore, the development along the rail lines advocated by the EATL Expert Group would reduce the negative economic impact of such attacks by providing supplementary or alternative interregional routes in Europe, Asia and beyond. As a means to address the security issue as soon as possible, parts of the alternative Northern East West (N.E.W.) corridor are already operational (Box 4).

BOX 4. THE NORTHERN EAST WEST (N.E.W.) FREIGHT CORRIDOR

The N.E.W. project was launched by the International Union of Railways (UIC) in 2004. The N.E.W. corridor links the North American East Coast to the Russian Federation and eastern China via the port of Narvik in Norway and the railway system of the Nordic countries. This corridor is considerably shorter than the existing maritime transport routes and passes through only a few borders without unduly complicated procedures. N.E.W. is already partly in operation along the Trans-Siberian segment that figures prominently in the EATL framework. The large spare capacity implies that N.E.W. could be used as an alternative or supplement to the existing maritime routes for container shipments from China to North America and *vice versa*.

National authorities, railway companies and cargo operators from China, Finland, Iceland, Kazakhstan, Norway, Russian Federation, Sweden and the United States have been involved in this strategic project. These business firms and national authorities demanded that a single entity (one-stop-shop) be established to organize a demonstration run and develop a permanent, commercially viable intermodal transport link. This one-stop-shop entity was incorporated in June 2005 as *NEW Corridor AS*, a limited liability company based in Norway. The market prospects for the development of the N.E.W. corridor seem to be promising and the project enjoys solid political support in all Nordic countries and other participating states. Given its potential that exceeds considerably the current low volumes of traffic, N.E.W. could become a new EU long-term transport axis.

4.3 Border crossing and transport facilitation issues

4.3.1 Introduction

While there are many economic and social benefits to be gained from smooth international transport, there are also a number of challenges, the most important of which is to reconcile differences and bridge gaps in both infrastructure and operational areas. There is a range of reasons why governments need to control and monitor the flow of goods across their borders, and it is generally accepted that there will always be a range of measures which, either by accident or design, impede the cross border movement of goods. These include legitimate restrictive practices, such as those related to quarantine and security, as well as increased application of a variety of other rules and regulations, for example, anti-dumping procedures such as the WTO safeguard rules. However, it is in the interests of all concerned that these restrictions be the minimum required to achieve their economic, social and environmental goals. A comment on some of these issues by the secretariat of a WTO Trade Facilitation Symposium held in 1998, captures well the complexity of the challenges faced by cargo owners wishing to move their trade across borders in Asian countries:

Innumerable documentation requirements and official regulations exist for the import and often also the export of goods. Approximately 60 documents are used in an average international trade transaction. Although these documents have different purposes, around 80 per cent of the information contained within them is the same. Frequently, documentation requirements are ill-defined and traders are not adequately informed on how to comply with them, thus increasing the potential for errors. The resulting lack of transparency of formalities creates an environment conducive to irregularities and malpractice. Non-harmonized and excessive documentation requirements in certain countries increase paperwork four-fold, while the time lost waiting for border release in many regions accounts for up to 20 per cent of total transport time and up to 25 per cent of total transport costs. At the same time, it is questionable whether the large number of information requirements is effective in curtailing dishonest practices.

Over the past decade countries bordering Europe and Asia have made considerable efforts to facilitate international transport by upgrading and interconnecting physical infrastructure, and by further liberalizing trade regimes. Nevertheless, the level of facilitation remains below expectations, hampered by the non-physical barriers to trade and transport, which include complicated and frequently changing administrative procedures and documentation, duplicated inspections, high charges, varying legal requirements in different countries, the lack of inter-agency coordination and limited application of information and communication technology (ICT). Not all these impediments can be addressed through the simple modification of documentation and procedures. Some may require adjustments to policies and legal regimes.

Several countries in Europe and Asia are landlocked and rely on transit access to international markets through neighbouring countries. While transport processes have been streamlined in countries within the European Union, for many other countries the removal of transport barriers still carnies a crucial importance. They have to move their goods across several borders and as a consequence face transport costs that may threaten the competitiveness of their goods in foreign markets. Economic development in both Europe and Asia as well as emerging opportunities for inter-regional and intra-regional trade are creating a demand for landlocked countries to become “land-linking” countries and to provide important transit services to their transit neighbours. In this regard, both landlocked and transit countries can benefit from actions taken to increase the efficiency of transit transport.

In the area covered by the EATL project some progress is being made at the national, sub-regional and international levels to reduce the delays and costs associated with cross-border and transit transport. At the national level, some countries have made progress towards improving cooperation among government authorities to provide coordinated controls at borders, streamline and harmonize documentation, simplify formalities and procedures and improve border-crossing facilities. At the more sensitive international level, progress has been slower, particularly with respect to granting traffic rights and reaching agreements concerning transit transport operations. For example, joint border controls between neighbouring countries are at the stage of expression of intention. As a result, opportunities for increased intraregional trade are being lost.

In cases where transport rules and processes are not harmonized, transport operators undertaking international transport have to face many challenges at border crossings and abroad. Due to the lack of transparency and poor communication and information they often need to comply with unfamiliar national laws, rules and regulations, as well as formalities and procedures for border crossing. In many cases transport operators are not aware of the requirements of multilateral and bilateral arrangements relevant for their activities. Thus, insufficient knowledge of international transport on the part of operators may lead to infringements upon local rules and regulations, resulting in conflicting situations between competent authorities.

Despite the fact that most of the countries participating in the EATL project are Contracting Parties to the TIR Convention (all except China) and to the Harmonization Convention, obstacles of a more practical nature still exist that prevent transports from being performed smoothly. The following examples are the most frequently mentioned:

- Border crossings with unsuitable or insufficient capacity, without separate lanes for transit traffic and empty vehicles;
- Insufficient or non-secure parking spaces at borders and en route;
- Sophisticated or complex border crossing procedures;
- Low level or lack of computerization;
- Systematic control of vehicles and goods instead of controls based on risk assessment/ management techniques;
- Complex and often contentious procedures for weighing commercial vehicles;
- Insufficient cooperation and coordination between the authorities responsible for controls both at national and international levels;
- Change of procedures without notice;
- Proliferation of taxes, duties and fees;
- Compulsory convoys of vehicles with customs or police escorts are imposed even in countries with an international transit system in place.

The EECCA, ECO, and TRACECA countries have commenced the implementation of their sub-regional agreements on cross-border or transit transport. Each sub-regional agreement constitutes a particular system of transport and border-crossing arrangements. Implementation of the agreements requires extensive training of transport operators and drivers, as the systems adopted in the sub-regional agreements are often complex.

International land transport, in particular international road transport, is an evolving business for most countries at the cross-roads of Europe and Asia. Thus there is a need for formal comprehensive training programmes in raising awareness of policy makers as well as skills development in the transport industry. For example, following the further development of international land transport, special cargoes such as perishable foodstuffs and dangerous goods will be carried by road to many regions. The carriage of dangerous goods by incompetent drivers would represent a high risk to people and the environment, while the transport of perishable foodstuffs in inappropriate conditions would lead to significant financial losses. The use of standards which are weaker than international norms for such cargoes would make the situation even worse.

The Almaty Programme of Action emphasized that efforts should be made to promote integrated training programmes encompassing all transport-related levels, from the top management to low-level operators, in both the public and private sectors, and requested international support for establishing training programmes.[45] UNESCAP has developed a sustainable training programme (including the training of trainers, and training notes) for the freight forwarding and multimodal transport industry, which is being used in the ASEAN countries and can be extended to the EATL countries. The coverage of the training can be extended to improve the skills of transport operators too.

4.3.2 National facilitation coordination mechanisms for international transport

For many countries international transport is most heavily constrained by the excessive delays and costs incurred at border crossings. Time-consuming border-crossing includes customs procedures, complicated non-standard documentation, poor organization and the lack of skills in the transport sector as some of the major aggravating factors. The overlapping obligations brought about by several bilateral, trilateral and sub-regional agreements, the need to comply with multiple bilateral agreements in order to have traffic rights and the lack of well functioning transit systems further compound the complexity of the transport process.

[45] See the Almaty Programme of Action, paragraph 14g <www.un.org/special-rep/ohrlls/lldc/Almaty_PoA.pdf>.

Customs clearance of a trade consignment under the supervision of customs inspection officers located at the border constitutes just one of the processes to be completed in order to allow the passage of goods and vehicles across borders. Others may include the inspection of the passports and visas of drivers by the border police or immigration officials; the inspection of vehicles and drivers by transport or police officials in order to ensure compliance with national transport regulations; as well as the sanitary, phyto-sanitary, and veterinary inspections carried out by officials of the relevant government agencies to ensure compliance with national quarantine and public health regulations. If only the administrative processes at borders are considered, it is possible to identify a list of up to 20 separate procedures required by up to eight separate government authorities that must be completed before cargo-carrying vehicles and transport-operating staff may move across national frontiers.

For transport facilitation issues to be addressed effectively, a comprehensive and integrated approach is required involving the relevant government ministries and agencies concerned with trade and transport, along with the private sector. Good collaboration between the public and private sectors is crucial for the formulation and implementation of facilitation measures.

4.3.3 Coordinating mechanisms

In most cases national mechanisms for the coordination of transport facilitation have taken the following forms:

- A joint trade and transport facilitation body
- A transport facilitation body
- A coordination body for a specific transport related project
- A meeting for the coordination of specific initiatives

The three countries in the South Caucasus, namely Armenia, Azerbaijan and Georgia, have established national trade and transport facilitation bodies based on public-private partnerships in accordance with Recommendation no. 4 on national trade facilitation bodies adopted by the United Nations Centre for Trade Facilitation and Electronic Business in 2001. These countries, together with others in Central Asia, have also established national coordinating bodies for the implementation of the project on the development of the Transport Corridor Europe-Caucasus-Asia (TRACECA). Some Central Asian countries have established coordination arrangements for the facilitation of international transport under the existing structures, such as the overall national transport commissions.

In North-East Asia, China has established a national transport facilitation committee following the arrangement in the GMS Cross-border Transport Agreement. Mongolia has also established a national committee for trade and transport facilitation.

4.3.4 Recommendations by UNECE and UNESCAP on national coordination mechanisms

Several international organizations have for many years been actively promoting programmes and measures to eliminate the barriers to international trade and transport. Mainly through the establishment and operation of multi-agency oversight and coordinating committees, a number of these organizations have focused their attention on developing an interest and capacity among national governments to coordinate the actions necessary to improve the flow of international trade and transport across their borders.

United Nations Economic Commission for Europe

Recommendation 4 was first adopted by UNECE in 1970, and its latest revision was done by the United Nations Centre for Trade Facilitation and Electronic Business (UN/CEFACT) in March 1999 (see www.unece.org/). This Recommendation provides for the establishment of a public-private forum for discussing problems and offering solutions for trade facilitation in a given country. The proposed format of a PPP mechanism in the guidelines to the Recommendation is a National Trade and Transport Facilitation Committee (NTTFC) as a forum for discussing problems and solutions among various stakeholders. The essence of the recommendation is that governments "establish and support national trade facilitation bodies with balanced private and public sector participation, in order to:

- improve dialogue between different bodies involved in trade and international transport;
- define solutions to remove impediments to trade and transport at operational level;
- identify issues affecting the cost and efficiency of their country's international trade;
- develop measures to reduce the cost and improve the efficiency of international trade;
- assist in the implementation of those measures;
- provide a national focal point for the collection and dissemination of information on best practices in international trade facilitation; and
- participate in international efforts to improve trade facilitation and efficiency."[46]

The adoption of this recommendation reflected the fact that many countries in Europe, North America and Japan had developed such public-private mechanisms, e.g. SWEPRO (Sweden), SITPRO (UK) or JASTPRO (Japan), primarily dealing with streamlining information and documentation flows as a key element in facilitating trade. This included work on both trade and transport documents. Recommendation 4 was subsequently adopted by UNECE in its work on the Southeast-European Cooperative Initiative (SECI) together with the World Bank for application in its Trade and Transport Facilitation Programmes for South-Eastern Europe (TTFSE). As the primary problems for trade facilitation in these economies in transition included border-crossing facilitation in addition to the streamlining of trade information flows, the link between trade and transport facilitation became even more obvious.

The UNECE Guidelines pertaining to the implementation of Recommendation 4, "Creating an Efficient Environment for Trade and Transport", <http://www.unece.org/cefact/recommendations/rec04/rec04_ecetr256e.pdf> emphasise the link between trade and transport facilitation and make specific reference throughout the text to National Trade and Transport Facilitation Committees ("NTTFC"). The organizations created in many countries were thus called "PRO committees" in order to stress (1) the link to the issue of "procedures" and the need to facilitate, harmonize and automate them; and (2) the cross-sectoral essence of the work on trade facilitation throughout the supply chain, involving trade, transport, freight forwarding, etc.

The Recommendation, worked out in collaboration between UNECE and UNCTAD, was proposed by the World Bank as the basis for the creation of trade and transport facilitation committees, or so-called PRO Committees, in the three countries of the South Caucasus. It also provided the basis for the establishment of national trade and transport facilitation committees in the region of the Economic and Social Commission for West Asia (ESCWA). Other regions and organizations have also contributed to its development.

[46] United Nations Economic Commission for Europe, *National Trade Facilitation Bodies*, Geneva, October 2001, page 2.

Trade facilitation, for the purposes of Recommendation 4, was defined in terms of covering the formalities, procedures, documents and operations related to international trade transactions. The goals of trade facilitation were defined as:

- **Simplification** of formalities, processes and procedures related to the flow of trade across national borders (one example being the combination of several administrative documents into one, based on a pre-established format such as the United Nations Layout Key and the European Union Single Administrative Document);

- **Harmonization**, or alignment, among member countries, of national border-crossing formalities, processes and procedures with international conventions, standards and practices (examples being adherence to the IMO's convention on the Facilitation of International Maritime Traffic or to the UNECE International Convention on the Harmonization of the Frontier Control of Goods (1982)); and

- **Standardization**, or the process of developing internationally agreed formats for practices, procedures, documentation and information (examples being the UN Layout Key for Trade Documents and the UN standard for Electronic Data Interchange for Administration, Commerce and Transport (EDIFACT)).

Recommendation 4 stressed the importance of national trade facilitation bodies as forums allowing private sector managers, public sector administrators and policy makers to work together towards the effective implementation of jointly agreed facilitation measures. It also emphasized that the composition of such bodies should include representatives of all companies and institutions which participate in international trade transactions, including manufacturers, importers, exporters, freight forwarders, carriers, banks, insurance companies, and public administrations. It was observed that it is only with the active involvement of these parties that impediments can be analyzed meaningfully, and cooperative solutions devised.

In recent years and as part of its technical assistance programmes in the fields of international trade and transport (especially multimodal transport), the United Nations Conference on Trade and Development (UNCTAD) has been actively involved in the creation of National Trade and Transport Facilitation Committees (NTTFCs) in several countries.

Within the UNESCAP region, UNCTAD, with financial support from the World Bank, is executing trade and transport facilitation projects in Nepal and Pakistan. The establishment of NTTFCs in both countries has been a major initiative within these projects.

The NTTFC model developed by UNCTAD was based on Recommendation 4, as described above. However, the UNCTAD model extends the recommended (by UN/CEFACT) functional scope of the committees – namely trade facilitation – to include transport facilitation. In addition, it specifies a more prominent role for the private sector members of the committee.

UNECE in collaboration with UNCTAD is planning further improvements to Recommendation 4 as the basic UN document on trade and transport facilitation mechanisms. Taking into account recent developments in trade and transport facilitation, it is necessary to look more into the modern functions of public-private mechanisms providing for trade facilitation, rather than the structure of the NTTFC, on which earlier documents, including the Guidelines to Recommendation 4 and a recent UNESCAP study have focused. UNESCAP and other organizations are also invited to join this work.

United Nations Economic and Social Commission for Asia and the Pacific

The Almaty Programme of Action recommended that landlocked and transit developing countries should consider establishing (where appropriate) and/or strengthening existing national trade and transport boards or committees involving all major stakeholders, including the private sector.[47] The Commission, at its fifty-ninth session, held in Bangkok in 2003, expressed support for the framework of recommendations and the action plan on transit transport issues in landlocked and transit developing countries,[48] which include the provision of information on and analysis of examples of best practices in the establishment and operation of trade and transport facilitation committees with the support of advisory services.[49]

In many countries in the UNESCAP region the existing facilitation coordinating bodies suffer from difficulties that undermine the effectiveness and sustainability of their operations. Those difficulties result, among others, from a lack of support from Governments, insufficient financing sources, inadequate recognition of their role and functions, inadequate organizational structure and incomplete representation of key stakeholders.

While international experience and good practices are useful for countries in establishing and strengthening national coordinating mechanisms, they have to be adapted, to a reasonable extent, to meet specific needs according to national conditions. Assuming that specific guidelines, taking into account the regional, sub-regional and national circumstances, will be helpful for countries in establishing and strengthening their national facilitation coordinating mechanisms, UNESCAP undertook in 2005 - 2006 a "Study on National Coordination Mechanisms for Trade and Transport Facilitation in the UNESCAP region". The study draws on UN/CEFACT Recommendation 4, but also takes into account the difficulties of countries in establishing and strengthening national facilitation coordination mechanisms and makes the following specific recommendations.

Recommendation 1: Purpose

It is recommended that the national facilitation coordinating mechanisms cooperate, coordinate, propose and implement arrangements for improvement of effectiveness and efficiency of international trade and transport.

Recommendation 2: Form and role

(I) Form

Recommendation 2.1:

It is recommended that national coordination mechanisms take the form of regulatory/executive and advisory bodies, which are charged with the coordination of actions to facilitate efficient international trade and transport and propose facilitation measures to government.

(II) Role

Recommendation 2.2:

Ideally, national coordinating mechanisms should be established with a role to review, assess, propose and take actions for the facilitation of international trade and transport.

[47] Almaty Programme of Action: Addressing the Special Needs of Landlocked Developing Countries within a New Global Framework for Transit Transport Cooperation for Landlocked and Transit Developing Countries (Report of the International Ministerial Conference of Landlocked and Transit Developing Countries and Donor Countries and International Financial and Development Institutions on Transit Transport Cooperation, Almaty, Kazakhstan, 28 and 29 August 2003 (A/CONF.202/3), annex I), para. 37(f).

[48] See Official Records of the Economic and Social Council, 2003, Supplement No. 19 (E/2003/39-E/ESCAP/1298), para. 111.

[49] See E/ESCAP/SB/LDC(6)/1, transmitted under E/ESCAP/1282/Rev.1, para. 52.

Recommendation 3: Organization, membership, direction/accountability, staffing and meeting frequency

(I) Organization

Recommendation 3.1:

It is recommended that the organizational structure of national trade/transport facilitation coordinating mechanisms be adapted from the structures as shown in Figures 6.1 or 6.2 of the UNESCAP Study mentioned above.

(II) Membership Composition

Recommendation 3.2:

It is recommended that the membership of the coordinating mechanism comprise representatives of all organizations involved in international trade and transport. These organizations could include (but not necessarily be restricted to):

- Trade regulatory authority (most often, Ministry of Commerce or Trade);
- Transport regulatory authority (most often, Ministry of Transport);
- Other government regulatory or planning authorities (e.g. Ministry of Finance, Ministry of Planning, Ministry of Interior, Ministry of Defence, Ministry of Agriculture, Ministry of Industry, Customs Authority, Immigration Authority, Border Guards, Traffic Police, Transport Management Authority, Authorities for Quarantine/Product Quality Control, Central Bank);
- Business sector (chambers of commerce, transport associations, trading banks, association of insurance companies, association of Customs agents, association of freight forwarders).

(III) Direction and accountability

Recommendation 3.3:

It is recommended that national coordinating mechanisms be made accountable to officials at the high level of national Governments, be they Deputy Prime Minister or Minister. The mechanism would ideally be chaired by Deputy Minister, Permanent Secretary, Secretary or other adequate senior official of trade/commerce or transport.

(IV) Staffing

Recommendation 3.4:

Each body should staff its offices and secretariat with persons recruited through a competitive recruitment process and with experience in the fields of trade/transport regulation, exporting or importing, transport operation, or trade service provision.

(V) Meeting frequency

Recommendation 3.5:

It is recommended that the joint facilitation body or inter-agency bodies and advisory body meet quarterly. Additional special meetings should be convened if necessary. The working groups may meet monthly. The task forces meet on an “as required” basis determined by the specific requests of their working groups.

Recommendation 4: Functions

The main functions of national trade/transport facilitation coordinating mechanisms should include, but not necessarily be limited to, the following:

(a) To continuously monitor and assess the quantity flows of trade and transport across national borders;

(b) To identify bottlenecks in the entire process of international trade and transport (using the UNESCAP Trade Facilitation Framework and Time/Cost-Distance Model, as appropriate)

(c) To review and assess the adequacy of international trade and transport-related infrastructure (including seaports, airports, roads, railways, river ports and inland cargo storage facilities), and propose investment projects, as necessary;

(d) To study and propose measures for improving the operational performance of international trade and transport;

(e) To coordinate to establish harmonized documentation and procedures for cross-border trade and transport;

(f) To identify, propose and follow through changes to border control procedures and documentation needed to improve trade/transport efficiency and reduce costs;

(g) To coordinate and cooperate for implementation of Single Window clearances and Single Stop Inspections at border crossings;

(h) To promote the application of information and communications technology to documentation and procedures in the management of international trade and transport operations;

(i) To coordinate the national positions in negotiation of agreements on international trade and transport of a multi-sectoral nature;

(j) To identify, propose and follow through changes in trade and/or transport policies and in the bilateral or multilateral agreements through which these policies are enforced, when such changes are required to improve trade/transport performance;

(k) To coordinate the implementation of agreements on international trade and transport of a multi-sectoral nature;

(l) To review the international conventions relating to trade and transport facilitation and provide advice to national governments on accession to the conventions;

(m) To monitor and coordinate the implementation of the acceded international conventions relating to trade and transport facilitation;

(n) To monitor the dissemination of information to the trading and transport communities on changes or revisions to border control procedures and documentation;

(o) To organize workshops and seminars on the facilitation of international trade and transport; and

(p) To serve as national focal points for international facilitation programmes and assistance.

Recommendation 5: Work programme

It is recommended that each body have a detailed annual work programme setting out the objectives, expected outputs and schedule for its major activities.

Recommendation 6: Financing sources

It is recommended that the joint trade and transport facilitation body be co-financed by the Government and business sector in case of Option 1 for the organizational structure taken, and the inter-agency bodies be financed from the state budget as they are part of the government sector and the advisory body be co-financed by the Government and business sector in case of Option 2.

It is also recommended that the inter-agency bodies assign necessary work to the advisory body with appropriate project funding support.

It is further recommended that the national coordinating mechanisms be used as national focal points for implementation of trade/transport facilitation projects financed by international organizations and financing institutions.

Recommendation 7: Coordination with other national trade and transport facilitation coordinating mechanisms of the region/sub-region

Recommendation 7.1:

In order to ensure the smooth movement of goods and people and the harmonization and standardization of border crossing documentation and procedures between the countries, it is recommended that national bodies establish permanent links and a schedule of meetings with their counterpart bodies in other countries.

Recommendation 7.2:

Where sub-regional facilitation mechanisms are in place, it is recommended that these mechanisms be used as forums for the exchange of information and experience in relation to trade and transport facilitation, and also as a means of achieving the harmonization of documentation and procedures.

Recommendation 7.3

It is recommended that a regional forum on trade and transport facilitation be established to provide an opportunity for the national facilitation bodies to meet and exchange information, compare experience and explore international assistance possibilities. The forum may meet every two years. These meetings will involve the participation of all national trade/transport facilitation bodies from the region, all international, regional and subregional organizations and international financial institutions, as well as selected countries outside the region with expertise in the field of trade and transport facilitation.

It is further recommended that the UNESCAP secretariat provide its assistance and services to the regional trade and transport facilitation forum.

Recommendation 8: Strengthening of national trade and transport coordinating mechanisms

It is recommended that the member countries prepare national action plans to enhance the existing national trade and transport coordinating mechanisms in accordance with the recommendations of the study.

4.3.5 Improving legal frameworks for international transport and international facilitation conventions

Few commercial activities have been more subject to over-regulation than (international) transport. This is partly due to its international nature and partly due to its impact on almost all components of society: the social, economic, environmental, and political dimensions, and others. International transport is a means to enable free movement of goods and people, which can only be achieved in an accessible and open environment. Not all countries, however, are prepared for this to the same extent at the same time, which could explain why countries developed customs, immigration, and other standards independently of each other. A transport means (truck, ship, plane) crossing several countries during the course of a journey could expect to be presented with numerous forms to fill in, often asking for exactly the same information but in a slightly different way. As trade and transport developed so did the paperwork involved: the number of separate documents required varied from border to border, and the number of copies required for some of these documents often became excessive.

Land transport, by its nature, requires that countries make arrangements for the passage of goods and people across national boundaries. These arrangements could relate to cross-border transport, where two countries trade with each other, and they could also relate to transit transport, where goods and people move through third countries along international transport routes. Such arrangements are usually covered by international legal instruments, sub-regional agreements and bilateral agreements.

4.3.5.1 International legal instruments

International treaties (conventions, agreements, etc.) with worldwide coverage are the most effective legal instruments for harmonizing legal regimes that would facilitate trade and transport within a region or between regions. With the development of trade, new transport routes emerge, cutting across several sub-regions. Thus, international legal instruments can also contribute to the harmonization of the institutional frameworks, practices, standards and rules required to ensure the facilitation of intraregional trade. While several other international organizations, including the World Customs Organization (WCO), have formulated legal instruments important for facilitation and with global applicability by taking into account individual states' interests, the transport legal instruments initiated by UNECE provide a common set of standards that would go a long way in particularly facilitating trade and transport between Europe and Asia.

In the UNESCAP region, Resolution 48/11 on road and rail transport modes in relation to facilitation measures was adopted at the forty-eighth session of the UNESCAP Commission on 23 April 1992, as a component of the Asian Land Transport Infrastructure Development (ALTID) project. UNESCAP and UNECE selected seven international conventions elaborated under the auspices of UNECE for inclusion in the resolution. It was envisaged that these seven conventions would provide a basis for the harmonization of standards and processes relating to land transport and that they facilitate interregional and intra-regional trade. At its fifty-sixth session, in 2000, the Commission decided to extend the validity of resolution 48/11, and requested that reports on its implementation be submitted every two years.[50] The main objective was to give an impetus to transport facilitation in the region, pursuing a step-by-step approach in accordance with developments in the transport sector and taking into account the needs of the member countries. Thus, in resolution 48/11, the Commission recommends that countries in the region consider the possibility of acceding to the following seven conventions:

- Convention on Road Traffic, 1968
- Convention on Road Signs and Signals, 1968
- Customs Convention on the International Transport of Goods under Cover of TIR Carnets (TIR Convention), 1975
- Customs Convention on the Temporary Importation of Commercial Road Vehicles, 1956
- Customs Convention on Containers, 1972
- International Convention on the Harmonization of Frontier Controls of Goods, 1982
- Convention on the Contract for the International Carriage of Goods by Road (CMR), 1956

At its fifty-fourth session, the Commission endorsed the refined strategy for the implementation of the ALTID project,[51] an important component of which was the "facilitation of land transport at border crossings and maritime transport at ports through the promotion of the relevant international conventions and agreements in Asia to improve the efficiency of international transport along land and land-cum-sea routes".[52] In the deliberations on that subject, it was stressed that while accession to the conventions listed in resolution 48/11 was important, their implementation was the key to the improvement of international traffic at border crossings and ports, hence facilitating transport and trade between countries.

[50] Ibid., *2000, Supplement No. 19* (E/2000/39-E/ESCAP/1197), para. 242.

[51] See *Official Records of the Economic and Social Council, 1998, Supplement No. 20* (E/1998/40-E/ESCAP/1117), para. 230.

[52] See E/ESCAP/CTC(3)/2, para. 37.

The refined strategy also suggested several additional conventions to consider for accession of UNESCAP member countries:

- Convention and Statute on Freedom of Transit, 1921 (Barcelona Transit Convention)
- Convention on Transit Trade of Landlocked States, 1965 (New York Transit Convention)
- Convention on Facilitation of International Maritime Traffic, 1965 (FAL Convention), as amended
- Conventions and agreements aimed at facilitating rail traffic

In 1999, the SPECA Working Group on Transport and Border Crossing indicated that for SPECA countries it would be useful to expand the content of resolution 48/11 to include additional legal instruments, as follows:

- European Agreement supplementing the Convention on Road Traffic, 1971
- European Agreement supplementing the Convention on Road Signs and Signals, 1971
- European Agreement concerning the Work of Crews of Vehicles Engaged in International Road Traffic (AETR), 1970
- Customs Convention on the Temporary Importation of Private Road Vehicles, 1954
- European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR), 1957
- Agreement on the International Carriage of Perishable Foodstuffs and on the Special Equipment to be used for such Carriage (ATP), 1970
- European Agreement on Main International Traffic Arteries (AGR), 1975
- European Agreement on Main International Railway Lines (AGC), 1985
- European Agreement on Important International Combined Transport Lines and Related Installations (AGTC), 1991

More than a decade has passed since the adoption of Commission resolution 48/11, during which countries in the UNESCAP region - profoundly influenced by the process of globalization - have undergone significant political and economic transformation. Some countries experienced major structural changes, opening their domestic markets to imports and enabling the key export-oriented sectors to thrive, while others took on the enormous task of transformation from centrally planned to market-oriented economic systems. Legal and institutional harmonization and enforcement have not yet been achieved at the level that had been expected when resolution 48/11 was adopted.

With the signing of the Intergovernmental Agreement on the Trans-Asian Railway Network,[53] international conventions on the facilitation of rail transport will become increasingly important for countries of the UNESCAP region.[54] Some international conventions with potential benefits for transport facilitation, such as the World Customs Organization's International Convention on the Simplification and Harmonization of Customs Procedures (Revised Kyoto Convention) of 1999, were developed subsequent to the adoption of resolution 48/11 and were thus not included. Resolution 48/11 therefore needs to be reviewed to explore the possible inclusion of additional conventions that would facilitate both road and rail transport.

[53] See Commission resolution 62/4 of 12 April 2006, annex.

[54] The focus of resolution 48/11 was on road transport, and conventions on rail transport were not included.

Accession to international conventions may call for adaptation of national laws and institutions, the adoption of new technical standards in transport infrastructure and equipment, as well as acceptance of new organizational and operational systems. Accession to international legal instruments is a serious matter requiring careful analysis and evaluation of national interests. Almost all stages of the process concern both the public and private sectors. Thus, the assessments and evaluation, preceding a decision to accede to a legal instrument as well as the implementation plan, should be made jointly. While the decision to accede to/implement the legal instruments belongs to governments, it is the role of the United Nations to assist Governments in making their decision as well as to provide them with the information and support needed to undertake an assessment of the legal instruments and to successfully move towards accession where appropriate.

Both UNESCAP and UNECE have conducted seminars and workshops in order to foster a better understanding of the international legal instruments and of the benefits brought by the implementation of resolution 48/11 and the accession to other key UNECE transport conventions that have not been included in the resolution. At the 3rd and 4th Expert Group Meetings on Euro-Asian Transport Linkages, UNESCAP and UNECE raised the awareness of participants about important international conventions, including the conventions in resolution 48/11. UNESCAP and UNECE also conducted national workshops where policy makers and industry were briefed on the most important international conventions on transport facilitation. However, it appears that more needs to be done to support the progress of transport facilitation. For example, governments need user-friendly information that facilitate the understanding of the objectives of the legal instruments and that give them a preliminary idea of their benefits and the basic implications for their country. Countries would also benefit from step-by-step guidelines on the accession procedures. For Asia and the Pacific, UNESCAP has a successful and longstanding track record compared to other institutions in identifying and analyzing economic and social trends in the region and in providing advisory services to governments at their request.

4.3.5.2 Sub-regional agreements

Amongst the countries participating in the current project are parties to two sub-regional agreements facilitating international transport, namely: the Economic Cooperation Organization (ECO) and the Transport Corridor Europe-Caucasus-Asia (TRACECA), both of which have entered into sub-regional agreements on international transport in the region. In addition, the Shanghai Cooperation Organization (SCO) is currently negotiating an agreement to facilitate international road transport.

The Basic Multilateral Agreement on International Transport for Development of TRACECA was signed in 1998 by the countries in Central Asia and South Caucasus as well as some countries in South-Eastern Europe. The ECO's Transit Transport Framework Agreement was signed in 1998.

The above sub-regional agreements consist of framework agreements with supporting annexes and protocols. While sub-regional agreements can make a valuable contribution in addressing issues that are not covered by bilateral agreements or international conventions, at times they relate to issues already dealt with through bilateral agreements, thereby creating difficulties for countries in the implementation process. The sub-regional agreements might indirectly facilitate the implementation of international conventions through the incorporation of the convention provisions into their annexes and protocols. However, in cases where the sub-regional agreements simplify and modify the provisions of international conventions, there could be difficulties for the countries when it comes to accession to/implementation of the international conventions.

The existence of several sub-regional agreements with differing standards and procedures along particular transport routes can cause difficulties in implementation and creates confusion among border authorities and trade and transport operators. In cases where countries are parties to sub-regional agreements developed within two different sub-regions, caution is needed to avoid overlapping obligations resulting in difficulties in implementation. In an ideal scenario, sub-regional agreements would be stepping stones to the accession to international conventions and would lead to the harmonization of legal regimes relating to transport facilitation.

4.3.5.3 *Bilateral agreements*

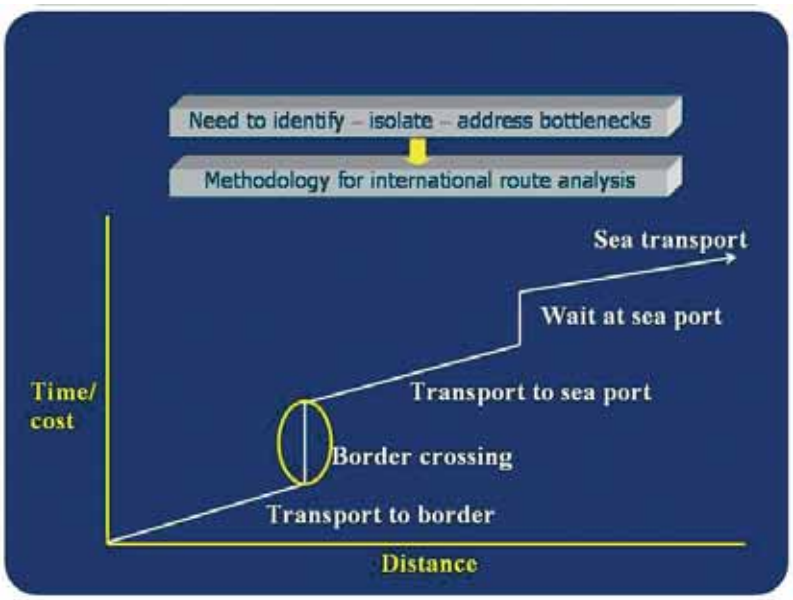
The common features of most bilateral agreements are basic arrangements for transport across borders, such as traffic rights, transport routes, transport permits, charges and taxes and mutual recognition of documents such as driving permits. Bilateral transport agreements usually refer to other bilateral or domestic legislation for customs and other controls. These agreements usually rely on designated competent authorities to work out the details of implementation and require authorities to consult with each other to resolve any problems in implementation.

Some countries in the region have signed a multitude of bilateral agreements on international land transport with neighbouring and transit countries and as a result government officials face difficulties in monitoring and managing the implementation of a large number of agreements. This is particularly so in cases where there would be an overlap or an inconsistency between the bilateral agreements, the sub-regional agreements and the international conventions. At a practical level, these conflicts create uncertainty for transport operators in their day-to-day work. While some countries have well-informed legal teams dealing with the preparation and implementation of legal instruments, the majority of the countries in Asia would benefit from regional guidelines, in the form of a Model Bilateral Land Transport Agreement.

4.3.6 *Border crossing procedures and identification of non-physical bottlenecks*

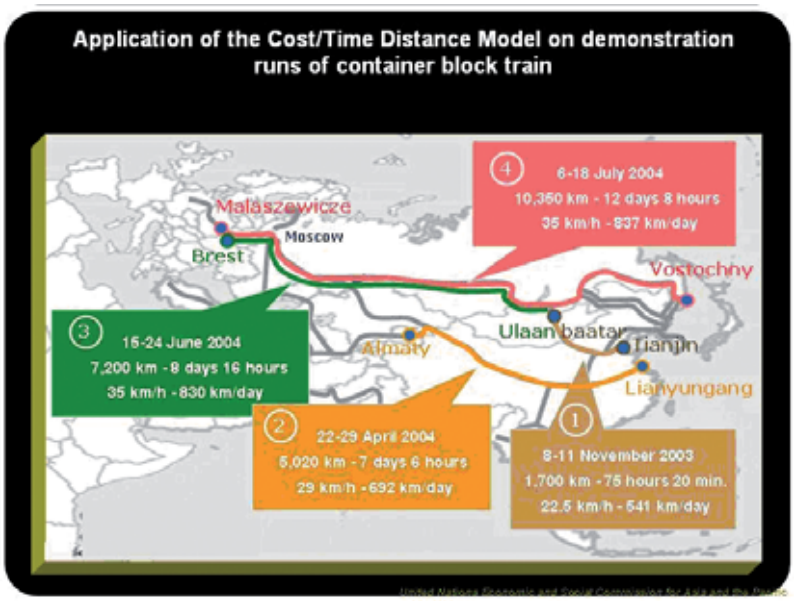
While countries are increasingly aware of the need to identify, isolate and address friction points on international routes, they have faced a lack of simple and effective tools. In response to this need, UNESCAP developed the "Cost/Time Distance Methodology", which quantitatively illustrates the time and cost spent in each segment of a route, including border-crossing points, as well as pinpointing the bottlenecks that need to be addressed. The methodology was initially applied in 2002 to several transit routes in selected landlocked countries in the UNESCAP region. It was later applied to the demonstration runs of container block-trains along the northern corridor of the Trans-Asian Railway and it was further used in projects conducted in collaboration with other organizations. Recently, the methodology was widely introduced through the project on "Institutional Capacity-Building for Facilitation of International Trade and Transport in the Landlocked and Transit Countries", as it contains extensive analysis of trade flows, transport routes, structured questionnaires for data collection, an implementation plan and transfer of ownership to the countries.

FIGURE 4.6 COST/TIME DISTANCE METHODOLOGY



Providing snapshots of an entire route, the "Time/Cost-Distance Methodology" is compatible with methodologies that were developed by other international organizations to analyse cost and time associated with one particular segment of a transport route, that is, the clearance of goods. A methodology to undertake micro studies on the time consumed at a port or border crossing has been undertaken by the World Bank with its "Trade and Transport Facilitation Toolkit", which was first published in 2001 and applied in several World Bank projects in developing countries. It measures the average crossing time, customs clearance time, percentage of physical control and time for additional clearances as indicators of facilitation at inland border crossings. A guidebook has been prepared to assist the users in collecting data, from various stakeholders through a set of standard questionnaires, and in analysing the data.

FIGURE 4.7 APPLICATION OF THE COST/TIME DISTANCE MODEL



Another methodology, the "Time Release Study", was adopted by the World Customs Organization in 1994 based on a similar initiative undertaken by Japan and the United States. The Study measures the average times consumed at each step of management control by the different authorities from ship arrival to final release of goods. The methodology can be used to identify both the problem areas and potential corrective actions to increase the efficiency of customs. A guidebook was published in 2002, and WCO, in cooperation with the World Bank, developed software in 2005 for the application of the methodology. This methodology has been used extensively in Japan and is now being applied in some developing countries.

The UNESCAP Time/Cost-Distance Methodology has received wide acceptance among countries and international organizations. The secretariat has prepared preliminary guidelines on the application of the methodology and published a compendium of the transport route analysis undertaken so far on the UNESCAP website. In the 3rd and 4th Euro-Asian transport links Expert Group Meetings, countries agreed to apply the UNESCAP model on selected Euro-Asia routes to identify and isolate the physical and non-physical bottlenecks on these routes. Furthermore, training courses need to be organized to assist countries in addressing the institutional and technical problems inhibiting the application of the "Time/Cost-Distance Methodology". Further cooperation with donors, international financial institutions and other organizations is also required to assist the countries financially in continuously applying the methodology and maintaining a database with information for major international transport routes, which is accessible upon request.

PART V

EURO-ASIAN TRANSPORT PRIORITY INFRASTRUCTURE PROJECTS OF INTERNATIONAL IMPORTANCE

5.1 Methodology and assumptions

Introduction

According to the analysis presented in **Document 7 (Proposed methodology for prioritization of investment projects along selected Euro-Asian routes)** of the 3rd Expert Group Meeting on Developing Euro-Asian Transport Links,[55] all projects to be considered should be subjected to a structured evaluation based on a strict prioritization methodology.

The methodology has three main phases:

PHASE A – Identification

↓

PHASE B – Evaluation

↓

PHASE C – Prioritization

Identification of the initial screening process that grouped projects in two groups, those with committed funding and those without committed funding.

Evaluation of projects without committed funding with respect to more specific evaluation criteria.

Prioritization of the projects, based on the screening process and the evaluation results, in order to classify them into four specific Priority Categories (I, II, III, IV).

It has to be noted that projects with no sufficient data/information could not pass the identification phase and were directly placed into a "Reserve Priority Category".

The whole exercise was based on the countries' reports.

PHASE A - Project Identification

Within the identification phase, projects were grouped according to whether they have committed funding or not. If a project had already secured the necessary funding, there was a scope for collecting some additional data ("project technical specifications") but, there was no need for the evaluation exercise. It would be directly placed into Priority Category I.

Based on the country reports, the consultants completed TEMPLATE 1,[56] which contained the list of projects proposed in their country reports. Subsequently, the countries were requested to further elaborate on this list of projects (in case they so desired) and to complete for each project listed in TEMPLATE 1 the respective TEMPLATE 2, in the following manner:

[55] 27 – 29 June 2005, Istanbul, Turkey. Document 7 is available at the following website: <http://www.unece.org/trans/main/eatl/docs/3rd_EGM_Doc7_e.pdf>

[56] All templates can be found in appendix 5.1.

- For projects with funding committed, only some additional technical information should be completed (Section 1 of TEMPLATE 2);
- For projects without funding committed, additional technical information and an evaluation criteria questionnaire should be completed (Section 1 and Section 2, respectively, of TEMPLATE 2);
- For newly proposed projects, complete all necessary information in TEMPLATE 2.

PHASE B - Evaluation

Criteria selection

The unfunded projects' still preliminary level of definition, the lack of precise information on the present situation, the imperfect knowledge of transport demand perspectives, the large array in types of projects as well as the specific objectives of EATL, call for the use of a Multi-Criteria Analysis, instead of any other method, to compare and evaluate the identified projects. Such a method allows available information to be taken into account on projects, even at their very preliminary level of definition, as well as background data.

The specific evaluation criteria were developed in two "dimensions":

The horizontal dimension called "Functionality/ Coherence" expresses the role of the project in the functionality and coherence of the Euro-Asian Transport Linkages.

The vertical dimension called "Socio-economic Efficiency/ Sustainability" expresses the socio-economic return on investment.

Under these two fundamental orientations of the evaluation process, the following criteria have been introduced, which are aimed at covering all of the objectives and specifics relating to the EATL exercise. The criteria were identified during the 2nd Expert Group Meeting.

CLUSTER A - Horizontal Dimension: Functionality/ Coherence Criteria (C_A)

- Serve international connectivity (reaching a border crossing point or provide connection with a link that is border crossing) (C_{A1});
- Promote solutions to the particular transit transport needs of the landlocked developing countries (C_{A2});
- Connect low income and/or least developed countries to major European and Asian markets (C_{A3});
- The project crosses natural barriers, removes bottlenecks, raises substandard sections to meet international standards, or fills missing links in the EATL (C_{A4});

CLUSTER B - Vertical Dimension: Socio-economic Efficiency and Sustainability Criteria (C_B)

- Have high degree of urgency due to importance attributed by the national authorities and/or social interest (C_{B1});
- Pass economic viability test (C_{B2});
- Have a high degree of maturity, in order to be carried out quickly (i.e. project stage) (C_{B3});
- Financing feasibility (C_{B4});
- Environmental and social impacts (C_{B5}).

Criteria measurement

Criteria were first quantified on a physical scale, for each of the projects under consideration, by direct classification according to measurable characteristics, and by "quality attributes". The physical scale of criteria measurement was derived by the consultant based on his previous experience with similar studies (see example below).

Criterion (C_{A1})

Serve international connectivity (reaching a border crossing point or provide connection with a link that is border crossing);

Physical scale/possible answers:

A: Greatly improves connectivity, **B:** Significantly improves connectivity, **C:** Somewhat improves connectivity, **D:** Slightly improves connectivity, **E:** Does not improve connectivity.

Criterial scores

The direct classification was performed by countries (the national representatives in the EATL project) completing the evaluation criteria questionnaire (Section 2 of TEMPLATE 2). The form of the evaluation questionnaire and the measurement for the above criteria can be seen in ANNEX 5.1.

Then, according to the completed evaluation questionnaires, the transformation of criterial scores to the artificial scale took place. According to the quantification of criteria the A value is 5 (the highest) in terms of score and the respective value for E, is 1 (the lowest). Therefore:

$$C_{Ji} \in [1,5]$$

Where:

J = A or B and

i = 1,….,5

It has to be noted here that the good communication between the external appraisers and country experts is necessary in order to properly quantify all the criteria. Nonetheless, the lowest scores were assigned to unfunded projects if no answers were provided in the evaluation questionnaire.

Weighting/ Hierarchy of Criteria

Having the criteria scores, the evaluation of projects is complete. But in order to proceed with the prioritization of projects, criteria weights must be defined. The weights were derived from the Paired Comparison Method (the complete description of the method can be found in Appendix 5.2). Pairwise comparisons of all criteria were performed according to the "policy" priorities specified by the interviewed experts (the consultants, UNECE and UNESCAP).

A standard axiom of most multicriterial methods is that the sum of criteria weights should be 1. Therefore:

$$W_{Ji} \in [0,1] \text{ and}$$

$$\sum_{J=A}^{C}\sum_{i=1}^{5} W_{Ji} = 1$$

where:

J = A or B and

i = 1,….,5

It has to be noted here, that countries (through national representatives) may provide their own weights, with the proper justification of course.

PHASE C - Prioritization

Projects' total score

To prioritise the projects, we first had to obtain their final/ total scores. This was purely a responsibility of the consultant. To derive the project's total score in each country, the consultant used the linear additive model. The total score – for all dimensions together - of each project in each country is the weighted sum of the criteria scores and takes values between 1 (the lowest) and 5 (the highest). To derive the project's total score in each country we use the following relationship:

$$T.S._{Project/Country} = \sum_{J=A}^{C}\sum_{i=1}^{5} C_{Ji} * W_{Ji}$$

where:

$C_{Ji} \in [1,5]$

$W_{Ji} \in [0,1]$

J = A or B and

i = 1,….,5

Therefore:

$T.S._{Project/Country} \in [1,5]$

Projects' priorities

The combination of the criterial scores and priorities puts each project in one of the four priority categories or the reserve category.

If the project already has committed funding, it belongs to priority category **I**.
If the project scores between 4 - 5, then it belongs to priority category **II**.
If the project scores 3 – 4, then it belongs to priority category **III**.
If the project scores 1 – 3, then it belongs to priority category **IV**.

If the project has not passed the pre-selection phase, then it belongs to the reserve category.

The classification of priorities is as follows:

I: Projects, which have funding secured and are ongoing or planned and are expected to be completed in the near future (up to 2010)

II: Projects, which may be funded and implemented rapidly (up to 2015)

III: Projects requiring some additional investigations for final definition before likely financing (up to 2020)

IV: Projects requiring further investigations for final definition and scheduling before possible financing

Reserve: projects to be implemented in the long run, including projects with insufficient data.

Results

Data submitted by the countries

Out of the 18 countries participating in this project, 15 countries have submitted data on the projects under evaluation.

Countries that submitted data:

Armenia, Azerbaijan, Belarus, Bulgaria, China, Georgia, Iran, Kazakhstan, Kyrgyzstan, Moldova, Romania, Tajikistan, Turkey, Ukraine, Uzbekistan.

Countries that have not submitted data:

Afghanistan, Russian Federation, Turkmenistan

Each project is identified with a unique **Project ID** specifying the country, the transport mode and a specific number.

The following abbreviations were introduced for country identification in Project ID: Afghanistan (AFT), Armenia (ARM), Azerbaijan (AZT), Belarus (BL), Bulgaria (BG), China (CH), Georgia (GE), Iran, Kazakhstan (KZ), Kyrgyzstan (KG), Moldova (MD), Romania (RO), Russian Federation (RU), Tajikistan (TJK), Turkey (TU), Turkmenistan (TM), Ukraine (UKR), Uzbekistan (UZB).

The following abbreviations were introduced for type of infrastructure identification in Project ID: Road projects (ROD), Railway project (RLW), Maritime projects (MAR), Inland waterway projects (INL). Inland/border crossing and other projects (INM).

For example, a project with the ID AZT-RLW-1 is a railway project number 1 in Azerbaijan.

In total, 230 projects were included in this phase with an aggregate value of $43.4 billion, of which:

- **112 road projects account for $12.7 billion;**
- **68 railway projects account for $23.4 billion;**
- **37 maritime projects account for $5.7 billion;**
- **11 inland waterway projects account for $1.6 billion; and**
- **2 inland/border crossing projects for $0.003 billion.**

The respective numbers per country are shown below in Table 5.1.

TABLE 5.1 DATA SUBMITTED BY COUNTRIES FOR ALL PROJECTS AND PER TYPE OF INFRASTRUCTURE (NUMBER OF PROJECTS AND COSTS IN MILLION US$)

Country code	All types of projects		Per type of infrastructure									
			ROD		RLW		MAR		INW		INM	
	No. of projects	Cost of projects	No. of projects	Cost of projects	No. of projects	Cost of projects	No. of projects	Cost of projects	No. of projects	Cost of projects	No. of projects	Cost of projects
ARM	8	121.7	3	56.4	5	65.3	-	-	-	-	-	-
AZT	10	1 681.5	7	1 079.1	1	600.0	2	2.4	-	-	-	-
BL	4	28.1	3	27.4	1	0.7	-	-	-	-	-	-
BG	24	5 488.9	15	1 532.8	7	3 816.8	1	115.6	1	23.7	-	-
CH	3	4 603.0	1	413.0	-	-	2	4 190.0	-	-	-	-
GE	49	3 312.0	4	108.2	21	2 140.5	24	1 063.3	-	-	-	-
IR	44	8 428.3	34	3 700.3	10	4 728.0	-	-	-	-	-	-
KZ	14	1 902.4	14	1 902.4	-	-	-	-	-	-	-	-
KG	8	1 555.1	5	218.7	3	1 336.4	-	-	-	-	-	-
MD	9	888.9	5	225.5	3	413.4	-	-	1	250.0	-	-
RO	12	721.8	-	-	-	-	7	333.3	5	388.5	-	-
TJK	7	240.2	4	237.0	1	-	-	-	-	-	1	3.1
TU	19	11 450.0	12	3 124.0	7	8 326.0	-	-	-	-	-	-
UKR	7	1 226.2	-	-	2	292.6	1	1.5	4	932.2	-	-
UZB	12	1 774.5	5	100.8	7	1 673.7	-	-	-	-	-	-
Total	**230**	**43 422.56**	**112**	**12 725.68**	**68**	**23 393.42**	**37**	**5 706.02**	**11**	**1 594.32**	**2**	**3.1**

Note: The table includes only the countries which have sent data.

5.1.1 Prioritization results, including simple cost analysis

The prioritization results can be found in the excel file "Prioritization exercise_results.xls". In this Excel file the following analysis has taken place:

- In the respective worksheets with countries' names, the results (as well as all the computing process) of prioritization can be found for each country.
- In each of these "country name" sheets a note by the consultant (at the bottom of the page) explains relevant calculations.
- In the worksheet "All priorities", all projects (regardless of their priority) are summarized along with their costs.

In this worksheet, for each country, each project is presented by:

(a) A **project ID** column,

(b) A **description** column, in which the title of the project is presented as given by the relevant countries,

(c) A **cost** column representing the total cost of the project (in million $ and in some cases in million €)

(d) A **score** column representing the result of the multicriterial evaluation (results are based on a scale between 1 and 5 where 5 represents the highest possible score and 1 the lowest possible score), and

(e) The **category** column with the project's priority ranking, which reflects the score.

- In the worksheets **"Direct Priority I", "Priority II", "Priority III"** and **"Priority IV"**, the projects are summarized per priority category in the same way as in the worksheet **"All priorities"**.
- In the worksheet **"Simple statistics_Summary"**, the "statistical" summary of results of prioritization can be found (per cent of projects belonging in each priority category for all projects and per type of infrastructure)
- In the worksheet **"Cost statistics"**, the costs are presented for all projects and per type of project as well as for all countries and at the country level, both in absolute numbers and percentages.

The prioritization results can be summarized as follows. Four countries (Bulgaria, China, Iran and Turkey) account for almost 70 per cent of the aggregate value of the EATL projects submitted for evaluation. On the basis of the available information, it can be concluded that in 12 countries annual EATL investment levels are compatible with the widely accepted rule **'investment cost per year < 1.5% GDP.'** In case of Georgia, the estimated annual investment cost seems to be too high at 1.9% of GDP. In cases of Kazakhstan and Kyrgyzstan, the incomplete information on the timing of projects means that the annual investment/GDP ratio cannot be calculated (Table 5.2).

TABLE 5.2 ANNUAL EATL INVESTMENT/GDP RATIOS

Countries that submitted data	Annual Investment Cost/GDP (%)
Armenia	0.19
Azerbaijan	1.05
Belarus	0.01
Bulgaria	1.24
China	0.02
Georgia	1.89
Iran	0.24
Kazakhstan	N/A
Kyrgyzstan	N/A
Moldova	0.45
Romania	0.03
Tajikistan	1.43
Turkey	0.15
Ukraine	0.14
Uzbekistan	1.03

Source: Transport Division, UNECE

The main results of the prioritization exercise at the national level are displayed below.

Prioritization results and cost analysis - per country (in raw numbers)

ARMENIA (ARM)

			All	Per type of infrastructure				
				I	II	III	IV**	Reserve
No. of projects			8	5			3	
Cost* of projects			121.7	71.7			50	
Per type of infrastructure	ROD	No. of projects	3	3				
		Cost* of projects	56.4	56,4				
	RLW	No. of projects	5	2			3	
		Cost* of projects	65.3	15.3			50	
	MAR	No. of projects						
		Cost* of projects						
	INW	No. of projects						
		Cost* of projects						
	INM	No. of projects						
		Cost* of projects						

** All costs in million US$* *** Projects received priority categorisation IV, due to a lack of data*

AZERBAIJAN (AZT)

			All	Per type of infrastructure				
				I	II	III	IV**	Reserve
No. of projects			10	9			1	
Cost* of projects			›1681.5	1681.5			n.a.***	
Per type of infrastructure	ROD	No. of projects	7	7				
		Cost* of projects	1079.1	1079.1				
	RLW	No. of projects	1	1				
		Cost* of projects	600	600				
	MAR	No. of projects	2	1			1	
		Cost* of projects	›2.4	2.4			n.a.***	
	INW	No. of projects						
		Cost* of projects						
	INM	No. of projects						
		Cost* of projects						

** All costs in million US$* *** Projects received priority categorisation IV, due to a lack of data* **** No cost estimate was provided*

BELARUS (BL)

			All	Per type of infrastructure				
				I	II	III	IV**	Reserve
No. of projects			4	4				
Cost* of projects			28.1	28.1				
Per type of infrastructure	ROD	No. of projects	3	3				
		Cost* of projects	27.4	27.4				
	RLW	No. of projects	1	1				
		Cost* of projects	0.7	0.7				
	MAR	No. of projects						
		Cost* of projects						
	INW	No. of projects						
		Cost* of projects						
	INM	No. of projects						
		Cost* of projects						

** All costs in million US$*

BULGARIA (BG)

			All	Per type of infrastructure				
				I	II	III	IV**	Reserve
No. of projects			24	21			3	
Cost* of projects			5488.9	4300.9			1188	
Per type of infrastructure	ROD	No. of projects	15	12			3	
		Cost* of projects	1532.8	344.8			1188	
	RLW	No. of projects	7	7				
		Cost* of projects	3816,8	3816,8				
	MAR	No. of projects	1	1				
		Cost* of projects	115.6	115.6				
	INW	No. of projects	1	1				
		Cost* of projects	3.67	3.67				
	INM	No. of projects						
		Cost* of projects						

** All costs in million US$* *** Projects received priority categorisation IV, due to a lack of data*

CHINA (CH)

			All	Per type of infrastructure				
				I	II	III	IV**	Reserve
No. of projects			3	1	2			
Cost* of projects			4603	413	4190			
Per type of infrastructure	ROD	No. of projects	1	1				
		Cost* of projects	413	413				
	RLW	No. of projects						
		Cost* of projects						
	MAR	No. of projects	2		2			
		Cost* of projects	4190		4190			
	INW	No. of projects						
		Cost* of projects						
	INM	No. of projects						
		Cost* of projects						

** All costs in million US$*

GEORGIA (GE)

			All	Per type of infrastructure				
				I	II	III	IV**	Reserve
No. of projects			49	4			45	
Cost* of projects			3312	108.2			3203.8	
Per type of infrastructure	ROD	No. of projects	4	4				
		Cost* of projects	108.2	108.2				
	RLW	No. of projects	21				21	
		Cost* of projects	2140.5				2140.5	
	MAR	No. of projects	24				24	
		Cost* of projects	1063.3				1063.3	
	INW	No. of projects						
		Cost* of projects						
	INM	No. of projects						
		Cost* of projects						

** All costs in million US$* *** Projects received priority categorisation IV, due to a lack of data*

IRAN (IR)

			All	Per type of infrastructure				
				I	II	III	IV**	Reserve
No. of projects			**44**	**36**	**5**	**3**		
Cost* of projects			**8428.3**	**4580.3**	**2238**	**1610**		
Per type of infrastructure	ROD	No. of projects	**34**	31	2	1		
		Cost* of projects	**3700.3**	2900.3	640	160		
	RLW	No. of projects	**10**	5	3	2		
		Cost* of projects	**4728**	1680	1598	1450		
	MAR	No. of projects						
		Cost* of projects						
	INW	No. of projects						
		Cost* of projects						
	INM	No. of projects						
		Cost* of projects						

** All costs in million US$*

KAZAKHSTAN (KZ)

			All	Per type of infrastructure				
				I	II	III	IV**	Reserve
No. of projects			**14**	**14**				
Cost* of projects			**1902.4**	**1902.4**				
Per type of infrastructure	ROD	No. of projects	**14**	14				
		Cost* of projects	**1902.4**	1902.4				
	RLW	No. of projects						
		Cost* of projects						
	MAR	No. of projects						
		Cost* of projects						
	INW	No. of projects						
		Cost* of projects						
	INM	No. of projects						
		Cost* of projects						

** All costs in million US$*

KYRGYZSTAN (KG)

			All	Per type of infrastructure				
				I	II	III	IV**	Reserve
No. of projects			**8**	**5**			**3**	
Cost* of projects			**1555.1**	**218.7**			**1336.4**	
Per type of infrastructure	ROD	No. of projects	**5**	5				
		Cost* of projects	**218.7**	218.7				
	RLW	No. of projects	**3**				3	
		Cost* of projects	**1336.4**				1336.4	
	MAR	No. of projects						
		Cost* of projects						
	INW	No. of projects						
		Cost* of projects						
	INM	No. of projects						
		Cost* of projects						

** All costs in million US$* *** Projects received priority categorisation IV, due to a lack of data*

MOLDOVA (MD)

			All	Per type of infrastructure				
				I	II	III	IV**	Reserve
No. of projects			9	2			7	
Cost* of projects			888.9	272			616.9	
Per type of infrastructure	ROD	No. of projects	5				5	
		Cost* of projects	225.5				225.5	
	RLW	No. of projects	3	1			2	
		Cost* of projects	413.4	22			391.4	
	MAR	No. of projects						
		Cost* of projects						
	INW	No. of projects	1	1				
		Cost* of projects	250	250				
	INM	No. of projects						
		Cost* of projects						

** All costs in million US$ ** Projects received priority categorisation IV, due to a lack of data*

ROMANIA (RO)

			All	Per type of infrastructure				
				I	II	III	IV**	Reserve
No. of projects			12	6	1		5	
Cost* of projects			721.8	263	201.6		257.2	
Per type of infrastructure	ROD	No. of projects						
		Cost* of projects						
	RLW	No. of projects						
		Cost* of projects						
	MAR	No. of projects	7	3			4	
		Cost* of projects	333.3	104.9			228.4	
	INW	No. of projects	5	3	1		1	
		Cost* of projects	388.5	158.1	201.6		28.8	
	INM	No. of projects						
		Cost* of projects						

** All costs in million US$ ** Projects received priority categorisation IV, due to a lack of data*

TAJIKISTAN (TJK)

			All	Per type of infrastructure				
				I	II	III	IV**	Reserve
No. of projects			7	2			5	
Cost* of projects			›240.2	3.1			›237	
Per type of infrastructure	ROD	No. of projects	4				4	
		Cost* of projects	237				237	
	RLW	No. of projects	1				1	
		Cost* of projects	n.a.***				n.a.***	
	MAR	No. of projects						
		Cost* of projects						
	INW	No. of projects						
		Cost* of projects						
	INM	No. of projects	2	2				
		Cost* of projects	3.1	3.1				

** All costs in million US$ ** Projects received priority categorisation IV, due to a lack of data *** No cost estimate was provided*

TURKEY (TU)

			All	Per type of infrastructure				
				I	II	III	IV**	Reserve
No. of projects			**19**	**9**	**5**	**5**		
Cost* of projects			**›11450**	**6172**	**5278**	**n.a.****		
Per type of infrastructure	ROD	No. of projects	**12**	7		5		
		Cost* of projects	**›3124**	3124		n.a.**		
	RLW	No. of projects	**7**	2	5			
		Cost* of projects	**8326**	3048	5278			
	MAR	No. of projects						
		Cost* of projects						
	INW	No. of projects						
		Cost* of projects						
	INM	No. of projects						
		Cost* of projects						

** All costs in million US$ *** No cost estimate was provided*

UKRAINE (UKR)

			All	Per type of infrastructure				
				I	II	III	IV**	Reserve
No. of projects			**7**	**5**			**2**	
Cost* of projects			**1226.2**	**475.2**			**751**	
Per type of infrastructure	ROD	No. of projects						
		Cost* of projects						
	RLW	No. of projects	**2**	2				
		Cost* of projects	**292.6**	292.6				
	MAR	No. of projects	**1**	1				
		Cost* of projects	**1.5**	1.5				
	INW	No. of projects	**4**	2			2	
		Cost* of projects	**932**	181.15			751	
	INM	No. of projects						
		Cost* of projects						

** All costs in million US$ ** Projects received priority categorisation IV, due to a lack of data*

UZBEKISTAN (UZB)

			All	Per type of infrastructure				
				I	II	III	IV**	Reserve
No. of projects			**12**	**10**		**2**		
Cost* of projects			**1774.5**	**844.2**		**930.3**		
Per type of infrastructure	ROD	No. of projects	**5**	5				
		Cost* of projects	**100.8**	100.8				
	RLW	No. of projects	**7**	5		2		
		Cost* of projects	**1673.7**	743.4		930.3		
	MAR	No. of projects						
		Cost* of projects						
	INW	No. of projects						
		Cost* of projects						
	INM	No. of projects						
		Cost* of projects						

** All costs in million US$*

Prioritization results and cost analysis – for all countries (in raw numbers)

ALL COUNTRIES

			All	Per type of infrastructure				
				I	II	III	IV**	Reserve
No. of projects			230	133	16	10	71	-
Cost* of projects			43422.5	21334.2	13244	2540.3	6303.9	-
Per type of infrastructure	ROD	No. of projects	112	92	2	6	12	-
		Cost* of projects	12725.7	10275.1	640.0	160.0	1650.5	-
	RLW	No. of projects	68	26	11	4	27	-
		Cost* of projects	23393.4	10218.8	8212.4	2380.3	2581.9	-
	MAR	No. of projects	37	6	2	-	29	-
		Cost* of projects	5706	224.3	4190	-	1291.7	-
	INW	No. of projects	11	7	1	-	3	-
		Cost* of projects	1594.3	612.9	201.6	-	779.8	-
	INM	No. of projects	2	2	-	-	-	-
		Cost* of projects	3.12	-	-	-	3.12	-

** All costs in million US$* *** Projects received priority categorisation IV, due to a lack of data*

5.1.2 Prioritization results and cost analysis – for all countries (in statistics)

Based on the last table presented above, we can conclude the summary of results as follows.

(a) Statistics concerning projects' type and cost

- **48.7%** of the projects are **road projects**, with **an estimated value of $12,725.7 million**, representing **29.3% of the total investment cost**.
- **29.6%** of the projects are **railway projects**, with **an estimated value of $23,393.4 million**, representing **53.9% of the total investment cost**.
- **16.1%** of the projects are **maritime projects**, with **an estimated value of $5,706.0 million**, representing **13.1% of the total investment cost**.
- **4.8%** of the projects are **inland waterway projects**, with **an estimated value of $1, 594.3 million**, representing **3.7% of the total investment cost**.
- **0.9%** of the projects are **inland/cross border (etc.) projects**, with **an estimated value of $3.1 million**, representing **0.01% of the total investment cost**.

(b) Statistics concerning projects' priorities and cost

- **57.8%** of the projects belong to **priority category I**, with **an estimated value of $21,334.3 million**, representing **49.1% of the total investment cost**.
- (These projects have secured funding).
- **7%** of the projects belong to **priority category II**, with **the estimated value of $13,244.0 million**, representing **30.5% of the total investment cost**.
- (For these projects funding was not secured but the national representatives have sent sufficient data/answers for multi-criterial evaluation)
- **4.3%** of the projects belong to **priority category III**, with **the estimated value of $2,540.3 million**, representing **5.9% of the total investment cost**.
- (For these projects funding was not secured but the national representatives have sent sufficient data/answers for multi-criterial evaluation)
- **30.9%** of the projects belong to **priority category IV**, with **an estimated value of $6,303.9 million**, representing **14.5% of the total investment cost.**
- (For these projects funding was not secured and the national representatives have not sent sufficient data/answers for multi-criterial evaluation and thus the consultant being unauthorized to valuate criteria, assigned directly the lowest score and derived the lowest priority).

The respective percentages per project type are shown below.

(b_1) Statistics concerning road projects' priorities and cost

- **82.1%** of the road projects belong to **priority category I**, with **an estimated value of $10,275.1 million**, representing **80.7% of the total investment cost for road projects**.
- **1.8%** of the road projects belong to **priority category II**, with **an estimated value of $640 million**, representing **5.0% of the total investment cost for road projects**.
- **5.4%** of the road projects belong to **priority category III**, with **an estimated value of $160 million**, representing **1.3% of the total investment cost for road projects**.
- **10.7%** of the road projects belong **to priority category IV**, with **an estimated value of $1, 650.6 million**, representing **13.0% of the total investment cost for road projects**.

(b_2) Statistics concerning railway projects' priorities and cost

- **38.2%** of the railway projects belong to **Priority Category I**, with **an estimated value of $10, 218.8 million**, representing **43.7% of the total investment cost for railway projects**.
- **11.8%** of the railway projects belong **to Priority Category II**, with **an estimated value of $6,876.0 million**, representing **29.4% of the total investment cost for railway projects**.
- **5.9%** of the railway projects belong to **Priority Category III**, with **an estimated value of $2, 380.3 million**, representing **10.2% of the total investment cost for railway projects**.
- **44.1%** of the railway projects belong to **Priority Category IV**, with **an estimated value of $3,918.3 million**, representing **16.7% of the total investment cost for railway projects**.

(b_3) Statistics concerning maritime projects' priorities and cost

- **16.2%** of the maritime projects belong to **Priority Category I**, with **a total value of $224.3 million**, representing **3.9% of the total investment cost for maritime projects**.
- **5.4%** of the maritime projects belong to **Priority Category II**, with **estimated value of $4, 190 million**, representing **73.4% of the total investment cost for maritime projects**.
- **78.4%** of the maritime projects belong to **Priority Category IV**, with **estimated value of $1, 291.7 million**, representing **22.6% of the total investment cost for maritime projects**.

(b_4) Statistics concerning inland waterway projects' priorities and cost

- **63.6%** of the inland waterway projects belong to **Priority Category I**, with **estimated value of $612.9 million**, representing **38.4% of the total investment cost for inland waterway projects**.
- **9.1%** of the inland waterway projects belong to **Priority Category II**, with **estimated value of $201.6 million**, representing **12.6% of the total investment cost for inland waterway projects**.
- **27.3%** of the inland waterway projects belong to **Priority Category IV**, with **estimated value of $779.8 million**, representing **48.9% of the total investment cost for inland waterway projects**.

(b_5) Statistics concerning inland/border crossing (etc.) projects' priorities and cost

- **100%** of the inland/border crossing (etc.) projects belong to **Priority Category I**, with **an estimated value of $3.1 million**.

Appendix 5.1

PROJECT TEMPLATES

TEMPLATE 1 – IDENTIFIED PROJECTS – SAMPLE TEMPLATE

Project ID	Related infrastructure	Project Name	Project cost (MIO)	Security of funds (Y/N)
	Sections	*e.g. Rehabilitation of: Ankara by-pass*	*Please indicate the currency*	

TEMPLATES 2 – PROJECT FORM /SECTION 1

TEMPLATE 2A – Road and related infrastructure Project Form			
Project Name:			
Project Code			
Projects Group (please select): ☐ Funded ☐ Non-funded **Note: If Funded, fill in Section 1 only. If Unfunded, fill in Sections 1 and 2.**			
Section 1. Project Technical Characteristics and financial data *(Please describe technical design characteristics of existing situation and after project, if changed):*			
1. Description of project and expected benefits:			
2. Location: (latitude/longitude, international reference, or indicate on a map):	Latitude:	Longitude:	Int'l reference:
3. Road Class[1]:			
4. Length (in km):			
5. Number of carriageways:			
6. Number of lanes:			
7. Design Speed (km/h):			
8. Road toll implementation:	☐ YES	☐ NO	
9. Annual Average Daily Traffic (for year 2000 or latest year, if available):			
10. Estimated % of freight vehicles[2] (for year 2000 or latest year, if available):			
11. Expected (total) traffic increase in %:			
12. Project cost (please indicate million $ or €):			
13. Expected Starting Date:			
14. Expected Completion Date:			
15. Internal Rate of Return (IRR):			
16. Project's stage:	☐ Construction ☐ Planning	☐ Tendering ☐ Identification	☐ Design/Study
17. Expected Funding Sources (and the % of funding for each one):	a. b. c.		

Notes:
[1] If AGR (M=Motorway, E=Express road, O=Ordinary road); if AH (P=Primary, I= Class I, II= Class II, III=Class III), or both if applicable.
[2] Freight vehicles include any vehicles used to transport freight, such as trucks and trailers.

TEMPLATE 2B – Rail and related infrastructure Project Form			
Project Name:			
Project Code			
Projects Group (please select): ☐ Funded ☐ Non-funded **Note: If Funded, fill in Section 1 only. If Unfunded, fill in Sections 1 and 2.**			
Section 1. Project Technical Characteristics and financial data *(Please describe technical design characteristics of existing situation and after project, if changed):*			
1. Description of project and expected benefits:			
2. Location: (latitude/longitude, international reference, or indicate on a map):	Latitude:	Longitude:	Int'l reference:
3. Length (in km):			
4. Track gauge (mm):			
5. No of tracks:			
6. Traction:	☐ Electrified	☐ Non-Electrified	
7. Signaling type:	☐ Automatic	☐ Manual	
8. Maximum allowed speed - passenger trains:			
9. Maximum allowed speed - freight trains:			
10. Average Daily Train Traffic - Passenger trains (for year 2000 or latest year, if available):			
11. Average Daily Train Traffic - Freight trains: (for year 2000 or latest year, if available):			
12. Expected (total) traffic increase, in % :			
13. Volume of cargo moved -tones and TEUs (for year 2000 or latest year, if available):			
14. Project cost (please indicate million $ or €):			
15. Expected Starting Date:			
16. Expected Completion Date:			
17. Internal Rate of Return (IRR):			
18. Project's stage:	☐ Construction ☐ Planning	☐ Tendering ☐ Identification	☐ Design/Study
19. Expected Funding Sources (and the % of funding for each one):	a. b. c.		

TEMPLATE 2C – Inland waterways and related infrastructure Project Form			
Project Name:			
Project Code			
Projects Group (please select): ☐ Funded ☐ Non-funded **Note: If Funded, fill in Section 1 only. If Unfunded, fill in Sections 1 and 2.**			
Section 1. Project Technical Characteristics and financial data *(Please describe technical design characteristics of existing situation and after project, if changed):*			
1. Description of project and expected benefits:			
2. Location: (latitude/longitude, international reference, or indicate on a map):	Latitude:	Longitude:	Int'l reference:
3. Length (in km):			
4. Maximum admissible LNWL[1]:			
5. Minimum bridge clearance at HNWL[2]:			
6. Lock dimensions:			
7. Permitted operational speed (km/h):			
8. Yearly vessel traffic (for year 2000 or latest year, if available):			
9. Expected (total) traffic increase (in % - both existing and generated):			
10. Project cost (please indicate mil. $ or €):			
11. Expected Starting Date:			
12. Expected Completion Date:			
13. Internal Rate of Return (IRR):			
14. Project's stage:	☐ Construction ☐ Planning	☐ Tendering ☐ Identification	☐ Design/Study
15. Expected Funding Sources (and the % of funding for each one):	a. National budget (28%)		b. EBRD credit (72%)

Notes:

[1] *Low Navigable Water Level* [2] *Highest Navigable Water Level*

TEMPLATE 2D – Ports (sea and inland waterway), Inland container depot/Intermodal freight terminal Freight village/Logistic centre and related infrastructure Project Form			
Project Name:			
Project Code			
Projects Group (please select): ☐ Funded ☐ Non-funded **Note: If Funded, fill in Section 1 only. If Unfunded, fill in Sections 1 and 2.**			
Project Type: ☐ Sea Port ☐ Inland Waterway Port ☐ Inland Container Depot ☐ Intermodal Freight Terminal ☐ Freight Village/Logistic Center			
Section 1. Project Technical Characteristics and financial data *(Please describe technical design characteristics of existing situation and after project, if changed):*			
1. Description of project and expected benefits:			
2. Location: (latitude/longitude, international reference, or indicate on a map):	Latitude:	Longitude:	Int'l reference:
3. Maximum draft of vessels served (in m) – PORTS ONLY:			
4. Container handling capacity (TEU/day):			
5. Annual throughput (tonnes and TEUs-for the year 2000 and latest year, if available):			
6. **Expected (total) traffic increase (in %- both existing and generated):**			
7. **Additional, specific technical characteristics of the project:**			
8. Project cost (please indicate million $ or €):			
9. Expected Starting Date:			
10. Expected Completion Date:			
11. Internal Rate of Return (IRR):			
12. Project's stage:	☐ Construction ☐ Planning	☐ Tendering ☐ Identification	☐ Design/Study
13. Expected Funding Sources (and the % of funding for each one):	a. Self-financing (please specify how)		
	b.		
	c.		

TEMPLATES 2 –PROJECT FORM /SECTION 2

To be completed only for NON-FUNDED projects on the Euro-Asian Transport Linkages. Please fill in one form for each project, clearly indicating project name and code.

Project Name:
Project Code
Section 2 To be completed only for non-funded projects
Section 2.A. Project Information Concerning Criteria of CLUSTER A
1. To what extent does the project improve international connectivity (for example, by reaching a border-crossing point or providing connection with a link that is border crossing (Criterion C_{A1}) ?
A: Greatly B: Significantly C: Somewhat D: Slightly E: Does not improve connectivity
2. To what extent will the project promote solutions to the particular transit transport needs of the landlocked developing countries (Criterion C_{A2}) ?
A: Greatly B: Significantly C: Somewhat D: Slightly E: Does not
3. Will the project connect low income and/or least developed countries to major European and Asian markets (Criterion C_{A3})?
A: Greatly B: Significantly C: Somewhat D: Slightly E: Does not
4. Will the project cross a natural barrier, alleviate bottlenecks, complete a missing link or raise substandard sections to meet international standards along a Euro-Asian Transport route (Criterion C_{A4})?
A: Greatly B: Significantly C: Somewhat D: Slightly E: Does not

Section 2.B. Project Information Concerning Criteria of CLUSTER B
1. Does the project have a high degree of urgency due to importance attributed by the national authorities and/or social interest (Criterion C_{B1}) ?
The project is...:
A: In the national plan and immediately required (for implementation up to 2008)
B: In the national plan and very urgent (for implementation up to 2010)
C: In the national plan and urgent (for implementation up to 2015)
D: In the national plan but may be postponed until after 2015
E: Not in the national plan
2. To what extent is the project expected to increase traffic (Criterion C_{B2})?
A: By more than 15%
B: 10-15%
C: 5- 10%
D: less than 5%
E: Will not affect traffic
3. At what stage is the project (Criterion C_{B3})?
A: Tendering
B: Feasibility study
C: Pre-feasibility study
D: Planning
E: Identification
4. What is the financing feasibility of the project (Criterion C_{B4})?
A: Excellent
B: Very Good
C: Good
D: Medium
E: Low
5. To what extent does the project have potentially negative environmental or social impacts (pollution, safety, etc) (Criterion C_{B5})?
A: No expected impact
B: Slight impact
C: Moderate impact
D: Significant impact
E: Great impact

Appendix 5.2

THE PAIR COMPARISON WEIGHTING TECHNIQUE

Paired comparison is a scaling approach. In simple terms, using this approach in order to derive criteria weights the only question to be answered is: "is this criterion more important than the other?" This means that the paired comparison matrix (see Table A-I below) can be filled with zeros and ones, where one represents "is more important". By adding these values over the column, a measure is obtained for the degree to which a criterion is important compared to all other criteria. Once these measures are standardised, a set of criteria weights is created.

TABLE A-1: AN EXAMPLE OF PAIRED COMPARISON MATRIX

	W_1	W_2	...	W_N
W_1				
W_2				
...				
W_N				

There are many standardisation formulas for the task at hand. However, for this project only one of them is suitable for the desirable transformation of 'raw' scores to scores with a range from 0 to 1 with an additivity constraint.[57] The formula is as follows:

Standardised score $$w_i = \frac{'raw'\ score..w_i}{\sum 'raw'\ scores} \quad \textbf{(A-I)}$$

Basically each 'raw' score is divided by the sum of all 'raw' scores. This kind of transformation is especially appropriate in standardising various sets of different criterion weights because an application of (A-I) implies that all the weights add up to unity.

[57] The sum of final scores should equal 1.

PART VI

CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusions

Merchandise trade between Europe and East Asia grew rapidly over the last decade, reflecting to a large extent the dynamism of the export-oriented Chinese economy as well as the remarkable sustained recovery of economic activity in Russia and other resource-rich economies in the EECCA region. The expanding number of seaports and maritime routes handling the bulk of trade flows between East Asia and Europe are complemented by Euro-Asian land transport links that enhance prospects for sustainable development not only in major emerging market powers such as China and Russia, but also Iran, Turkey, Ukraine and other countries along the Euro-Asian routes as well as the ten landlocked countries participating in the EATL project (Afghanistan, Armenia, Azerbaijan, Belarus, Kazakhstan, Kyrgyzstan, Moldova, Tajikistan, Turkmenistan and Uzbekistan). The development of efficient Euro-Asian inland transport routes could provide additional transport options to the existing maritime routes, while at the same time be a solid development tool to countries along the Euro-Asian region, especially for the participating landlocked economies.

The landlocked countries along the Euro-Asian land bridge depend on each other for access to international markets. A weak or missing link in one country can render a whole route economically unviable for international transport. The persistence of non-physical bottlenecks, such as excessive documentation requirements, delays at border crossings, unofficial payments, and unexpected closures of borders, continues to discourage transport operators from exploring alternative routes. The result is that the countries spanning the Euro-Asian land bridge face relatively high transport costs, weakening their export competitiveness and preventing them from accessing new export markets that would boost their economic development.

Most of the identified EATL routes are intermodal. However they are still underutilized due to the existing non-physical obstacles. The role of intermodal transport could become increasingly prominent in this context, provided the business environment improves further throughout the region so that transport operators may optimize the performance of combined maritime, rail and road modes within the existing Euro-Asian routes.

The international economic and geopolitical environment has been, on the whole, favourable to development of the EATL network in recent years, and this is of particular importance because much depends on genuine international cooperation pertaining to transport infrastructure investment as well as structural improvements in the business environment and border-crossing modalities along all EATL routes.

The EATL project has achieved a number of tangible results to date. Based on the willingness of the 18 countries involved to cooperate, as well as on inputs and proposals made by their national experts, the project:

- Identified major rail, road and inland water routes connecting Europe and Asia to be considered for priority development;
- Identified a number of key container depots, intermodal terminals and ports along the selected routes as well as the physical and non-physical obstacles to transport within the EATL network;
- Created a comprehensive Geographic Information System (GIS) database;
- Prioritized 230 investment projects to develop transport infrastructure in 15 EATL countries;
- Made an initial assessment of non-physical obstacles along the EATL routes;
- Created a temporary coordinating mechanism in the form of the Group of Experts appointed by participating Governments.

The present in-house study has also identified serious obstacles to the smooth development of Euro-Asian land transport links that pertain to three strategic areas of action (infrastructure, facilitation, policy):

- Coordinated development of the EATL infrastructure investment priorities (infrastructure related);
- Harmonization and effective implementation of the regulatory framework (infrastructure and facilitation related);
- Removing obstacles in transit transport and border-crossing operations along the EATL (facilitation related);
- Improving the business environment in the road, rail, and combined transport sectors (policy related);
- Continuous monitoring of the project-related activities (policy related).

6.2 Recommendations

The ongoing cooperation between the eighteen EATL governments and the two United Nations Regional Commissions (UNECE, UNESCAP) ought to continue and, where possible, be reinforced by implementing strategic actions. The following recommendations could contribute to making the best use of the results and the experience from the implementation of the present project.

Infrastructure

The forward-looking development of transport infrastructure requires considerable financial outlays and over a long period. This makes it a complex exercise, requiring governments to strike a balance with other national priorities, weigh national versus international interests, ascertain the economic, social and environmental net benefits, coordinate programmes and timetables with neighbouring countries, determine the degree of private versus public participation and factor in security considerations.

In all countries along the Euro-Asian transport routes the transport infrastructure investment requirements significantly exceed the funds available. Given that development of transport infrastructure is the responsibility of the governments concerned, the UNESCAP and UNECE secretariats sought to assist countries to identify, evaluate and prioritize viable investment projects along the EATL routes selected. Out of the 18 participating countries, 15 countries have submitted data on the EATL projects for evaluation and prioritization on the basis of an agreed methodology. The overall project costs and the results of the project evaluation process can be summarized as follows.

Out of 230 submitted projects exceeding $42 billion,
Railway projects account for 54% of total investment cost,
Road projects for 29%,
Maritime projects for 13%, and
Inland water transport projects for 4%.

Submissions have been prioritized in four priority categories:

- With confirmed funding
- With funding to be confirmed
- Low priority projects and
- Projects requiring additional data before further evaluation.

Funding for 50% of the total investment costs ($21 billion) is secured for the implementation of 130 projects.

Another 31% of planned investment (some $13 billion) is associated with high-priority projects that lack secure funding to date.

Remaining infrastructure investment planned by the authorities is associated with the projects that were either classified in a low-priority category (7%) or could not be evaluated due to insufficient data (12%). It has to be emphasized that these results are preliminary.

Recommendations:

1. It is of utmost importance to expedite the implementation of identified priority projects with secured funding to improve the competitiveness of EATL routes and relieve the major infrastructure bottlenecks identified by the Expert Group.

2. Taking into account that work on definition and formalization of infrastructure network has been done by both UNECE and UNESCAP in their respective regions, namely through the AGR, AGC, AGTC, AGN and the AH and TAR Intergovernmental Agreements, countries participating in the EATL should concentrate their efforts on incorporating all the identified EATL routes within these networks as well as increasing the degree of functionality and coherence within and between the existing European and Asian networks (e.g. alleviation of bottlenecks, interoperability). Efforts concerning network expansion should follow when a satisfactory level of demand as well as functionality and coherence have been reached.

3. The Euro-Asian infrastructure development strategy should be based on national Master Plans, elaborated by the EATL participating governments while taking into account the existing sub-regional and regional agreements on infrastructure. The national Master Plans and their funding possibilities would thereafter be considered in sub-regional, regional and interregional context, within the Euro-Asian infrastructure development strategy.

4. In order to ensure/provide realistic information on the actual level of the investment expenditure needed to modernize the EATL network, the reporting countries with incomplete data are encouraged to timely provide more detailed information so that the evaluation exercise can be completed with the existing resources.

5. With a view to seeking funding of priority infrastructure projects, it is strongly recommended that experts from participating countries submit EATL project data on a permanent and continuous basis to UNECE and UNESCAP. Both regional commissions should, in collaboration with international financial institutions, explore systematically the funding possibilities available for the implementation of priority projects.

6. Political will and long-term commitment from the countries concerned are pre-requisites for a successful implementation of the EATL investment programme; it is therefore recommended that this programme be included in the long-term national plans for infrastructure development.

Facilitation

The development of infrastructure alone will not achieve the objective of ensuring the smooth movement of goods between Europe and Asia; much work is yet to be done to remove the non-physical obstacles related thereto. Removing obstacles to international transport along the Euro-Asian transport routes should be the major focus of the countries concerned.

Border-crossing regimes need to be improved in a major way if EATL routes are to be more competitive than hitherto. The increasing acceptance of international legal instruments (United Nations transport conventions, agreements, etc.) is important but cannot achieve much without their effective implementation. The accession to and implementation of international conventions would first and foremost require political will and commitment of the countries involved, in order to achieve a reasonable level of harmonization in terms of legislation, institutions and practices.

The UNECE and UNESCAP secretariats are prepared to continue working with countries, at their request, to assess the implications of acceding to and implementing the international legal instruments.

Recommendations:

1. The obstacles to the smooth movement of goods across international borders should be addressed in an integrated manner by all the authorities concerned and in consultation with the private sector. Partnership between the public and private sectors is indispensable to accelerate progress in transport facilitation.

2. Countries participating in the EATL project should focus on capacity building. Particular emphasis on activities aimed at strengthening the capacities of national officials from the various agencies dealing with border-crossing formalities and procedures is advisable.

3. The UNESCAP time/cost-distance methodology should be used to identify and isolate the bottlenecks, as well as for assessing the success of facilitation measures and the competitiveness of the identified routes with periodic snapshots.

4. Greater and more effective effort is needed to promote, accede to and implement the international legal instruments relating to transport facilitation in general, and in the area of border-crossing facilitation in particular.

5. The establishment and strengthening of appropriate national trade and transport facilitation mechanisms with the participation of government officials and representatives from the private sector, as appropriate, would be necessary in each of the EATL participating countries. This would also contribute to the coordination between the EATL Focal Points and other stakeholders.

6. Sharing experiences and best practices among concerned countries, as well as regular assessment and monitoring of progress at the major border-crossing points along the Euro-Asian transport routes, should be permanent processes in the framework of the EATL project.

Policy

Effective and efficient implementation of transport infrastructure and facilitation measures needs to be embedded in a sound policy framework in order to ensure sustainability. Thus, the EATL study elaborates a number of policy recommendations both for the international organizations and the countries concerned.

Recommendations:

1. The project results of both infrastructure and facilitation exercises should be brought to the attention of the appropriate bodies in UNECE and UNESCAP for consideration of potential follow-up actions in the framework of their regular legislative and normative work.

2. The establishment of a suitable mechanism ensuring efficient coordination and monitoring of activities related to Euro-Asian links should be considered.

3. The following activities, among others, should be considered "best practices" on developing transport infrastructure and facilitation of international transport in Europe and Asia:

   - The TEM and TER projects as well as their Master Plan;
   - The EU High Level Group;
   - The UNESCAP time/cost-distance methodology;
   - The development of the freight villages concept;
   - The IRU (for road) and TER project (for rail) border crossing monitoring activities;
   - The co-financing of the development and upgrading of the AH network;
   - The demonstration runs of container block trains.

4. It is indispensable to build on the experiences gained from the implementation of the joint UNECE-UNESCAP Euro-Asian transport linkages project. These experiences include any outcomes of activities linked to the identification of priority routes, project prioritization, application of the time/cost-distance methodology, creation of a GIS database, new IT technologies, capacity building and continuation of the Euro-Asian transport linkages project.

5. The continuation of the EATL project in a new Phase II (2008-2011) is of outmost importance. UNECE and UNESCAP have jointly elaborated and submitted for funding a concrete proposal for Phase II of the project. Sufficient funds need to be ensured.

ANNEX I

COUNTRY REPORTS

Afghanistan

Road transport

Afghanistan faces the major challenge of post-war reconstruction. As of 2005, the lengths of roads were 34, 782 km with 6.8 per cent of them being paved and representing an overall road density of 53.3 km per 1,000 km^2 The restoration of an efficient transport infrastructure is essential to strengthen the unity of the country and promote economic recovery and development.

The Kabul-Kandahar highway is a 483 km long road that links Afghanistan's two largest cities, and it is a key portion of Afghanistan's national road system known as the "Ring Road". Of 20.6 million Afghans, 13.6 million or 66 per cent, live within 50 kilometres of the Ring Road. Approximately 35 per cent of the population lives within 50 kilometres of the Kabul to Kandahar portion of the Ring Road. In addition, the Kandahar-Herat highway is a 557 km long road that links the cities of Kandahar and Herat. This highway is also part of the larger road network, the “Ring Road”.

Rail transport

There is no railway system within Afghanistan, although a number of railway links from neighbouring countries exist and may contribute to the development of a functioning railway system in the future.

Railway links from adjacent countries:

- Iran - no railway link, but nearest railhead at Mashhad – 1,435 mm gauge. Construction of a railway connection between Mashhad and Herat has started;
- Pakistan - no railway, but railhead on border at Chaman;
- Turkmenistan - 9.6 km, 1,524 mm gauge from Gushgy to Towraghondi;
- Uzbekistan - 15 km, 1,524 mm gauge from Termiz to Kheyrabad transhipment point on south bank of Amu Darya.

Sea ports and inland waterway ports

Afghanistan has no sea ports. Among landlocked developing countries, it has one of the longest distances to a seaport, more than 2,000 km, over harsh terrain. A large proportion of Afghanistan’s inhabitants remain physically cut-off. The main inland waterway is predominantly the Amu Darya (1,200 km, which allows vessels up to 500 DWT). The main river ports are Kheyrabad and Shir Khan.

International border-crossing points (road and rail)

The following road border crossings are operational:

- With Pakistan (2,430 km):
  - Towr Kham,
  - Wesh (or Chaman),
  - Barikot,
  - Husain Nika,
  - Speenboldak;
- With Iran (936 km):
  - Dogharoun (Iran) - Islam Quala (Afghanistan),
  - Zarang;

- With Tajikistan (1,206 km):
  - Ishkashim,
  - Across the Amu Darya from Panj-e Payon (Nizhny Panj) in Tajikistan - Shir Khan (Afghanistan);
- With Turkmenistan (744 km):
  - Serkhetabat (or Gushgy/Kushka) in Turkmenistan - Tourghondi on Afghan side,
  - Imam Nazar;
- With China (76 km): none;
- With Uzbekistan (137 km):
  - Across the friendship bridge at Hairatan (Termez).

Ongoing and planned transport infrastructure projects of international importance and related investment costs

A bridge across the Amu Darya (Oxus) River was built in the 1980s, which is now rehabilitated and stretches more than 650 meters over the Amu Darya/Pyandzh River between Afghanistan and Tajikistan, near Pyanji Poyon (Tajikistan) and Shir Khan Bandar (Afghanistan). The bridge project was completed in 2007.

Afghanistan has initiated a priority road rehabilitation project, which will cost US$ 305 million, and five project sites were identified:

- Kabul to Jalalabad to Turkan (224 km)
- Doshi to Sheberghan (250 km)
- Pul-e Khumri to Mazar-e Sharif (220 km)
- Mazar-e Sharif to Shebergan to Herat (760 km)
- Herat to Dugharan (121 km)

The Afghanistan National Development Strategy (ANDS), prepared and presented to donors at the end of April 2006, includes the following Transport Sector Strategic Benchmarks over the next five years:

- Afghanistan will have a fully upgraded and maintained ring road, as well as roads connecting the ring road to neighbouring countries by end-2008, and a fiscally sustainable system for road maintenance by end-2007;
- By end-2010: Kabul International Airport and Herat Airport will achieve full International Civil Aviation Organization compliance; Mazar-i-Sharif, Jalalabad and Kandahar airports will be upgraded with runway repairs, air navigation, fire and rescue and communications equipment; seven other domestic airports will be upgraded to facilitate domestic air transportation; and air transport services and costs will be increasingly competitive with international market standards and rates.

With the support of the World Bank a number of projects have been initiated:

- The “Emergency Transport Rehabilitation Project” with focus on roads and highways (80%) and aviation (20%) incurs lending project costs of US$128.8 million plus a supplement grant of US$45 million exclusively for roads and highway reconstruction;
- The “National Emergency Employment Project for Rural Access” focuses on the repairing of provincial and district roads and highways (50%) and on other social service (50%). The project costs amount to US$39.2 million.

New proposed transport infrastructure projects of international importance and related investment costs

Another “National Emergency Rural Access Project” to address issues in the general transportation sector is planned in cooperation with the World Bank. Envisaged lending project costs are US$100 million.

Challenges

Afghanistan needs to restore and rebuild its physical infrastructure and transport services to promote the country's economic recovery and help its people to avail themselves of new social and economic opportunities. The country faces the following major challenges:

- Weak capacity of relevant ministries (Ministry of Public Works, Ministry of Transport & Civil Aviation, Ministry of Rural Rehabilitation & Development);
- Insufficient and unreliable funding for reconstruction and development of the transport system and inability to mobilize and manage the locally collected funds;
- A poorly developed consulting and contracting industry;
- War-damaged roads and structures and significant deterioration due to lack of maintenance;
- Large-scale deterioration of the civil aviation infrastructure and the shortage of a qualified workforce.

Conflicts and weak security still existing in the country represent major constraints to reconstruction and development of the transport sector.

Sources: World Bank, USAID, <http://www.ands.gov.af>

Armenia

Road transport

Road transport accounted for only 8 per cent of tonnes-km in 2004, down from 21 per cent in 1991 and 15 per cent in 1998. Armenia has 7,633 km of paved roads, although a large proportion of these are in need of refurbishment. Much work in rehabilitating the road network—particularly in the capital, Yerevan—has been carried out with financial support of some $50 million from the private Lincy Foundation, which is run by the Armenian diaspora in the United States. The EATL network is 1,088 km long and consists of five international roads (E001, E117, E691, AH81, AH82, AH83) as well as a short (28 km) national road (Goris – Stepanakert). Ongoing repairs cause bottlenecks on four of these EATL roads.

Rail transport

The rail sector’s share in freight turnover reached 92 per cent in 2004, up from 79 per cent in 1991 and 85 per cent in 1998. Nevertheless, the railway infrastructure is outdated and unreliable. The EATL network is defined by three electrified OSJD corridors, extending over 485 km. Bottlenecks are caused by ongoing repairs along all of these links.

Freight terminals and other intermodal transport infrastructure

The intermodal freight terminal at the railway station Karmir Blur operates around the clock. It can handle up to 200 tonnes of bulk cargo and 40 containers per day. Its actual throughput amounts to some 73,000 tonnes per annum.

International border crossing points (road and rail)

The rail border crossing with Georgia and road border crossings with Georgia and Iran operate around the clock. However, the road link to Iran is closed by heavy snow for up to two months per year. The border crossing with Abkhazia, the separatist region situated on the territory of neighbouring Georgia, has been closed since 1994. Both rail and road border crossings with Azerbaijan and Turkey continue to be closed as a consequence of unsolved conflicts in the region since the early 1990s. The rail connection to Iran also remains cut as it traverses the Nakhichevan region of Azerbaijan. This situation has negative economic effects because the least-cost road and rail routes linking Turkey with Georgia, or Azerbaijan with Iran, pass through the territory of Armenia.

Ongoing and planned transport infrastructure projects of international importance and related investment costs

The Government's transport programme, financed by World Bank loans, allocates $31 million for the reconstruction of the road sector, including 250 km of roads that are of international significance (E117, E691, AH81, AH82). Another $15 million has been approved for reconstruction of the railways system, including the general repair of 37 km of track within the EATL network.

New proposed transport infrastructure projects of international importance and related investment costs

Two railway projects proposed by the authorities, involving the rehabilitation of 110 km of track and construction of 443 km of track, are to be completed by 2010 and 2015 respectively. The funding for both projects remains to be secured.

Altogether, Armenia has submitted eight EATL projects for evaluation. Three road projects and three railway projects have been assigned the first priority category. Due to insufficient data, the two railway projects described above have been classified in the fourth category.

Sources: CIS Statistical Committee, Economist Intelligence Unit, *Statistical Yearbook of Armenia 2004.*

Azerbaijan

Road transport

In 2004, the road sector accounted for 33 per cent of transport freight turnover, up from 7 per cent in 1991 and 13 per cent in 1998. Azerbaijan has 25,000 km of roads, of which some 92 per cent are paved. According to the World Bank, in early 2006 more than 50 per cent of roads in Azerbaijan were in need of urgent repair. The EATL network consists of three international roads (E60-AH5, E119-AH8, E002-AH81), stretching 1,551 km. The last of these roads (E002-AH81: Ordubad- Nakhichivan - Sadarak - Turkish border) passes through the zone occupied by Armenian troops and is thus closed for international traffic. According to the authorities, all three EATL roads are in the need of major reconstruction.

Rail transport

The rail sector accounted in 2004 for 35 per cent of tonnes-km, significantly less than 71per cent in 1991 and 45 per cent in 1998. The sector experienced major disruptions associated with armed conflicts in the region, including the confrontation with Armenia over the disputed territory in Nagorno-Karabakh and the two Chechnya wars. At present, Azerbaijan has some 2,000 km of railways, of which about 60 per cent are electrified. Much of the track and rolling stock is in need of repair or replacement. The 1,439 km long EATL network consists of three electrified lines within the E-rail system (E60, E595, E694) and a non-electrified stretch (198 km on the E694). A section of the electrified E694 line (Fizuli – Armenian border) is closed to international traffic as a consequence of the existing conflict in the South Caucasus region.

Sea ports and inland waterways ports

Sea transport accounted for 32 per cent of transport freight turnover in 2004, up from 21 per cent in 1991 but down from 42 per cent in 1998. Azerbaijan has direct maritime connections to all other Caspian littoral states. The nation's capital, Baku, is the largest port on the Caspian Sea. Although there are maritime routes to Turkmenistan, southern Russia and Kazakhstan, little is exported along them. However, there are some transit earnings from the export of Kazakh and Turkmen oil across the Caspian Sea, through Azerbaijan, to the Black Sea oil terminals in Georgia and Russia.

Freight terminals and other intermodal transport infrastructure

The Baku port has freight, container and oil terminals where the cargoes are loaded on Ro Ro ferries, dry cargo ships and oil tankers respectively. All terminals operate daily around the clock. There is an ongoing reconstruction of the maritime station in the container terminal.

International border crossing points (road and rail)

Five road border crossings are situated on EATL Routes. All of them are open daily and operate around the clock with the exception of the border crossing with Iran at Astara that operates from 9 am to 8 pm only. Except for the narrow approach at Astara, there are no physical impediments to traffic. Waiting times range from 5-15 minutes for buses to 10-20 minutes for trucks. Three rail border crossings on EATL Routes are open around the clock. Average waiting times amount to 2 minutes for both freight and passenger trains.

Ongoing and planned transport infrastructure projects of international importance and related investment costs

Two reconstruction projects at the port of Baku were completed recently; the related investment expenditure reached some $10 million. A number of ongoing road rehabilitation and reconstruction projects are to be completed within a few years. The associated investment spending amounts to $89 million. A major railway project that should link the Russian Federation, Azerbaijan and Iran should start soon, following the signing of an official trilateral agreement in June 2006. The project entails construction and commissioning of the Gazvin-Rasht-Astara (Iran)- Astara (Azerbaijan) railway. The works are to be completed in Azerbaijan first, followed by the construction of a connecting 400 km rail line in Iran.

New proposed transport infrastructure projects of international importance and related investment costs

The authorities have proposed seven new road rehabilitation and reconstruction projects. Two of them are to be financed mainly by the EBRD and World Bank; the related investment cost estimates amount to $41 million and $48 million respectively.

Altogether, Azerbaijan has submitted ten EATL projects for evaluation. Seven road projects, one railway project and two maritime projects have been assigned to the first priority category. Due to insufficient data, one maritime project has been classified in the fourth category.

Sources: CIS Statistical Committee, Economist Intelligence Unit, NFP Country Report.

Belarus

Road transport

Road accounts for 22 per cent of freight transport turnover, up from 10 per cent in the 1990s. Belarus has some 55,000 km of roads and lies at an important crossroads in Eastern Europe, intersected by three major highways: the M1, which connects the town of Brest on the Polish border to Moscow; the M20, which runs in a north-south direction linking Riga, Vitebsk, Mogilev and Kiev; and the M13, which runs along the southern border from Brest to Russia. The transit traffic along the northern and north-south branches of the EATL system has reached significant volumes in recent years. The M-1/E30 Brest-Minsk-Russian border road, an integral part of the Pan-European Transport Corridor II (Berlin-Warsaw-Minsk-Moscow-Nizhny Novgorod) provides an important connection between Western Europe and Asia. More than 25 per cent of transit vehicles out of the total number of those crossing the border of Belarus travel along this road in the Eastern direction.

Following recent repairs and upgrades, the M-1/E30 road is characterized by consistent traffic conditions on 4 traffic lanes. Along this traffic artery, stretching over 610 km, there are 182 bridges and viaducts, 65 traffic interchanges, 18 measuring stations, 11 traffic account stations, 161 emergency telephones and 4 toll plazas on the road.

During the last few years the annual average traffic volumes on the M-1/E30 road have gradually increased, reaching 5,000 – 7,000 vehicles per day (vpd) and 9 000 – 14 000 vpd on access sections to Brest, Stolbtsy and Dzerzhinsk. The traffic flow structure is composed of commercial vehicles (30-35 per cent) and passenger vehicles (65-70 per cent). The share of foreign vehicles amounts to 16 per cent. The pavement is designed for the 115kN standard single axle load.

Rail transport

In 2004 rail transport accounted for 77 per cent of tonnes-km, somewhat less than 90 per cent in 1998 and 88 per cent in 1991. Belarus has around 5,500 km of rail lines. The state-owned Belarusian Railway has cooperated with UNESCAP since 1997 to enhance cargo shipments on the Northern Corridor of the Trans-Asian Railway. The company has signed the Memorandum of Understanding on the planning and implementation of demonstration runs of container block trains along this Corridor. Having been a member of the Coordination Council on Trans-Siberian traffic since 1997, Belarusian Railway has contributed to the improvement of conditions for cargo carriage between Asia and Europe on the Trans-Siberian main line.

The railway line Brest (Belarusian-Polish border)-Minsk-Krasnoje (Belarusian-Russian border) E-20 is a part of the PETC II Berlin-Warsaw-Minsk-Moscow-Nizhny Novgorod. This 608 km long main railway route traverses the territory of Belarus, providing the key connection between West European countries and Asia. It is a fully electrified double track section with the gauge of 1,520 mm. The maximum speed equals 120 km/h for passenger trains and 90 km/h for freight trains. The average daily train traffic comprises 370 passenger trains (including suburban trains) and 120 freight trains.

International border crossing points (road and rail)

Two road border crossings with Poland are situated on the EATL Route 1. At the border crossing for passenger cars and buses average waiting times range from 30-60 minutes. The border crossing used by trucks has waiting times from 60 minutes to 300 minutes. The rail border crossing with Poland on the EATL Route 1 is used by both passenger and freight traffic. Waiting time is on average 2.5 hours for passenger trains. Waiting times for freight trains range from 6-8 hours while leaving, and 22-26 hours while entering Belarus. The implementation of the Customs union agreement between Belarus and the Russian Federation abolished both road and rail border controls on the Belarusian side of the border between the two countries. According to the authorities, there are however extensive controls of foreign trucks and trains on the Russian side of the border. Over the 2006-07 period a range of trade-facilitating measures were implemented in Belarus, including the single window approach to passport and customs controls for freight carriers at all border crossing points. This should reduce border-crossing delays.

Ongoing and planned transport infrastructure projects of international importance and related investment costs

In the road sector, the M1/E30 Highway Improvement Project set a general speed limit of 100 km/h and even 120 km/h on some sections. It also provided the following facilities along the highway: 23 fuel stations, 4 vehicle service stations, 21 guarded parking lots and 36 catering facilities. Another 25 facilities are under construction, including 3 areas providing complete set of services for motorists. Following the improvement of the road infrastructure and provision of optimum driving conditions for road users of the M1/E30, the number of traffic accidents has declined steadily in recent years.

The M1/E30 has been a toll highway since 1996, in line with the terms of the EBRD Loan Agreement. Toll revenues have been used for the loan repayment and financing of routine maintenance works. The toll system allows payment of tolls in national currency (for local transport), US dollars and euros (for foreign vehicles) and in Russian rubles (for the CIS vehicles). Tolls may be paid either in cash or by electronic cards. It should be also mentioned that tolls are collected at each of four toll plazas, which allows differentiating toll rates according to the distance travelled.

Belarusian Railway has prioritized the infrastructure development on its section of the EATL system. Passenger trains with the speed of 160 km/h should operate by 2010. One of the main infrastructure developments on the Euro-Asian Corridor is the construction of digital networks, including the interconnection of Belarusian Railway with the common fibre-optic communication network in Russia and other EECCA countries. Another important activity of Belarusian Railway is the ongoing work on the project aiming at the automatic identification of rolling stock (SAIPS). This system will monitor the place and time of passage of all rail cars equipped with transmitters.

Since March 2003 the Railway Administrations of Germany, Poland, Belarus and Russia have cooperated on a quadrilateral project to improve railway transportation in the Pan-European Corridor II. The goal of this project is to double traffic in the Corridor. The operational and economic effects of the project include a closer integration of Belarus into the European railway network, improvements to safety and quality of both passenger and freight services, and benign environmental effects resulting from the modal shift toward more sustainable transport.

New proposed transport infrastructure projects of international importance and related investment costs

In the road sector, the startup of a number of new projects is imminent. Top priorities include the following tasks:

- **International Transport Corridor II:** heavy repairs of a number of sections of the M-1/E30 road are to be completed over the 2006-10 period (length 129 km, state budget funds for this purpose amount to €54 million); another 421 km of the M-1/E30 will be repaired during the period 2011–2015 (state budget funding equivalent to €194 million is expected);

- **International Transport Corridor IX:** During the time period 2006–2010 it is envisaged that 367 km of the M-8/E95 road (Russian border (Ezherishche)–Vitebsk–Gomel–Ukrainian border (Novaya Guta)) would be reconstructed and repaired, with the state budget support equivalent to €161 million;

- **International Transport Corridor IXB:** Over the period 2006–2010 it is planned to complete reconstruction of 39 km and heavy repairing of 337 km of roads on the route leading from the Lithuanian border in the direction of Minsk and further to the Ukrainian border, this objective being supported by the state budget funds equivalent to €214 million. In the 2nd stage (2011-15), a rehabilitation of additional 36 km of roads on this itinerary will be completed (budget funds equivalent to €74 million will be allocated).

In the rail sector, the following two large-scale projects have been planned for the 2006-15 time period:

- **International Transport Corridor II: Improvement of the Brest–Osinovka section. The estimated project cost amounts to €475 million;**

- **International Transport Corridor IXB: Improvement of the Lithuanian border – Minsk – Gomel – Ukrainian border section. The estimated project cost amounts to €430 million.**

Altogether, Belarus has submitted four EATL projects for evaluation. All of them, i.e. three road projects and one railway project, have been assigned to the first priority category.

Sources: CIS Statistical Committee, NFP Country Report.

Bulgaria

Road transport

The road share of inland freight transport increased in recent years up to 2004, when it accounted for 67 per cent of tkm. The infrastructure includes 18,957 km of paved roads (category III or higher), including 308 km of motorways. The motorway-building programme has been considerably slowed by legal disputes in recent years. The length of E-roads on Bulgarian territory amounts to 2,580 km. The EATL road network in Bulgaria is 1,564 km long and consists of the following six arteries: E80 Kalotina-Sofia-Plovdiv-Capitan Andreevo BCP (Bulgaria/Turkey); BCP (Macedonia/Bulgaria)- Gueshevo-Pernik-Sofia (E871)-Plovdiv (E80)-Stara Zagora-Burgas (E773)-Varna (E87); Russe-Veliko Turnovo-Haskovo (E85)-Capitan Andreevo (E80); Sofia-Botevgrad (E79)-Jablanitza (E771)–Veliko Turnovo-Shoumen (E772)-Varna (E70); and Russe-Varna (E70). These routes are within PET Corridors IV, VIII, IX and X.

Rail transport

Rail is still a significant domestic mode of transport for freight, although road transport now accounts for a larger (and increasing) share of the total. In 2004 there were 6,238 km of rail track; 4,316 km of these were main lines (of which, in turn, 67 per cent were electrified). At the end of 2001 the state-owned railway company was split into two firms; one responsible for managing the rail track and the

other, Bulgarian State Railways (BSR), for rail operations. In addition, private operators are now permitted to run rolling stock for freight—although the first two such companies were licensed only in 2005 and still account for very small volumes of freight.

The following rail lines, extending over 2,500 km, define the EATL network on the Bulgarian territory: E070 BCP (Serbia/Bulgaria) – Kalotina–Sofia–Plovdiv–Svilengrad-BCP (Bulgaria/Turkey); E680 Sofia-Mezdra-Gorna Orjahovitza-Varna (ferry link to Ilyichevsk (Ukraine) /Poti/Batumi (Georgia); E855 Sofia-Radomir (link with T855); T855 (link with E855) Radomir-Gueshevo; E 720 Stara Zagora (link with E070)-Karnobat – Bourgas; E 095 BCP (Romania/Bulgaria) – Russe – Gorna Orijahovitza – Stara Zagora (link with E070 and E720) – Dimitrovgrad. The track along these lines conforms to the standard gauge (1,435 mm). There is a missing link with the FYR Macedonia on the T855 line. Bottlenecks are imposed by the non-electrified 14 km stretch of the E070 line leading to the Serbian border and by an unfinished bridge project on the T056 line.

Sea ports and inland waterway ports

Bulgaria has two seaports belonging to the EATL network: Varna and Burgas. The network also includes 236 km of Danube and three inland waterway ports on the river: Russe, Lom and Vidin. River transport is far less significant than its maritime counterpart and was severely affected by the closure of the Danube during the successive crises in the former Yugoslavia. There are still 7 infrastructure bottlenecks that hamper the traffic on the Bulgarian section of the Danube. Nevertheless, the inland waterway shipping companies have become profitable in recent years.

Freight terminals and other intermodal transport infrastructure

Main freight villages are situated in Sofia, Russe, Stara Zagora and Dimitrovgrad. Seaports have been modernized extensively in recent years. Both Varna and Burgas ports are well connected with railways and can handle 300 TEU/day and 200 TEU/day respectively. The annual throughput in Varna exceeds 7 million tonnes of bulk cargo and 64, 000 TEU, the corresponding figures for Burgas are 6 million tonnes and 25,000 TEU. The handling capacity of inland ports on the Danube is significantly smaller. Further modernisation of intermodal infrastructure is expected from the evolving system of 30-year concessions in Bulgarian ports and terminals. The first tenders, for two relatively small ports, took place in early 2005 and others should follow. Lom, for instance, on the Danube, is expected to enjoy a €30 million upgrade to take container traffic, allowing it to benefit from its position on the EU's north-south PETC IV.

International border crossing points (road and rail)

Four international rail border crossings are open around the clock while another two operate 15 and 18 hours per day. Average waiting times range from 50-70 minutes for passenger trains, and 180-240 minutes for freight trains.

Ongoing and planned transport infrastructure projects of international importance and related investment costs

The recently completed and ongoing infrastructure projects have rehabilitated sections of the E79, E80, E85 and E773 roads along the PET Corridors IV, VIII, IX and X while extending the “Trakia” motorway, a part of the Trans-European North-South Motorway (TEM) connecting the countries of Central and Eastern Europe with the Near East. The related investment, amounting to €159 million, was financed by loans from IFIs and the state budget. A major rail modernization project (€340 million) along the E070 main line from Plovdiv to Svilengrad on the Turkish border should be completed by 2010. It is financed mainly by the EIB loan and ISPA grant, covering 45 per cent and 44 per cent of total cost respectively, while the state budget contributes the residual amount (11 per cent).

New proposed transport infrastructure projects of international importance and related investment costs

The new infrastructure projects proposed for the road sector amount to some €1 billion. Financing has been secured for one motorway project (E79) with the planned cost of €148 million, that is to be completed in 2009. The remaining long-term projects also focus on motorway construction; the form of financing has not been determined yet. Five projects in the rail sector with scheduled completion dates between

2010 and 2017 would cost over €3.6 billion. Three-quarters of this sum would be financed with the aid of EU structural funds while the state budget should contribute the remaining quarter. The projects focus on the overhaul and repair of existing infrastructure, on upgrading the rolling stock, and on further electrification of tracks. No major expansion of the existing rail network is envisaged. However, a missing link on the line between Sofia and Skopje, the capital of the FYR Macedonia, should be completed over the next few years.

Altogether, Bulgaria has submitted twenty-four EATL projects for evaluation. Twelve road projects, seven railway projects, one maritime project and one inland waterway project have been assigned to the first priority category. Due to insufficient data, three road projects have been classified in the fourth category.

Sources: Economist Intelligence Unit, NFP Country Report.

China

Road Transport

China is the world's fourth largest country after Russia, Canada and the USA with a population of 1,3 billion. The latest estimate (as of 2004) concerning road infrastructure gives a total length of 1,870,661 km with 1,515,797 km (80%, with at least 34,288 km of expressways) of it being paved and 354,864 km (19%) being unpaved.

Rail Transport

The length of the Chinese railways system covers 74,408 km with a standard 1.435-m gauge. As per 2004, 19,303 km (26%) are electrified.

Sea Ports and Inland waterways Ports

The overall length of China's waterways amounts to 123,964 km. Two major sea ports are located on the Euro-Asian Transport Linkages:

- *Shanghai (sea port)*: situated on the banks of the Yangtze River Delta, it is one of the world's busiest ports in terms of cargo throughput and, as of December 2005, Shanghai's port, including the newly opened Yangshan deep water port, is the largest in the world.
- *Lianyungang* ("the port connected to the clouds"): This port is located in the center of the coast, linking eastern sea routes with western land routes. Both Japan and the Republic of Korea in the east can be reached economically and conveniently from Liangyungang, which is also part of the world-wide network of sea transport. As well as this, the New Eurasia Continental Landbridge and the railway networks in Western Europe continue by land, connecting Lianyungang with over 40 countries and regions in Europe, South Asia and the Middle East.

Additional important ports are:

- Dalian which is China's northernmost ice-free seaport .
- Guangzhou is a port on the Pearl River, navigable to the South China Sea, and is located about 120km north-west of Hong Kong.
- Nanjing is located in the downstream Yangtze River drainage basin and Yangtze River Delta economic zone.
- Ningbo is a seaport in northeastern Zhejiang province, located south of the Hangzhou Bay, and facing the East China Sea to the east.
- Qingdao is a major seaport, naval base, and industrial center.
- Qinhuangdao is a city in the Hebei province, which is located approx. 300 km east of Beijing, on the Bo Hai Sea, the innermost gulf of the Yellow Sea.

Freight terminals and other intermodal transport infrastructure

Major container freight terminals are located in Shanghai, Lianyungang, Dalian, Guangzhou, Nanjing, Ningbo, Qingdao and Qinhuangdao.

International Border Crossing Points Road and Rail

The following international border crossing points are open along the Euro-Asian Transport Linkages

	Annual Traffic	
Name	Imports (tonnes/TEUs)	Exports (tonnes/TEUs)
Horgos (to Kazakhstan)	19362/44046	231490/533430
Alashankoy (to Kazakhstan)	5133/537	101318/35413
Turgart (to Kyrgyzstan)	37479/71032	18083/33940
Irkeshtan (to Kyrgyzstan)	33316/90836	6170/75869
Kalasu (to Tajikistan)	n.a.	n.a.

Additional border crossings:

- with Afghanistan (76 km):
  - Taxkorghan
- with Bhutan (470 km):
  - no official border crossings due to border issues
- with Myanmar (2,185 km):
  - Panghsang/Mong-A (closed since early 2005)
  - Kyegaung (Ruli) – Muse checkpoint at the Yuli River
  - Lweje
  - Nam Kham
  - Kyukoke
  - Kwanlong
- with India (3,380 km):
  - Jelep La
  - Lipulekh
  - Nathu La
  - Shipki La
  - Honquiraf (Jammu and Kashmir)
- with Kazakhstan (1,533 km):
  - Dostyk/Druzba - Alashankou
  - Baketu/Bakhty
- with North Korea (1,416 km):
  - Dandong
- with Kyrgyzstan (858 km):
  - Turgart Pass
- with Lao PDR (423 km):
  - Kunming
- with Mongolia (4,677 km):
  - Bulgan
  - ZamynUud/Erenhot
  - Arschan/Sumber
- with Nepal (1,236 km):
  - Kodaru
  - Kerung
  - Nangpa La
  - Zhangmu

- with Pakistan (523 km):
  - Tashkurgan /Khunjerab Pass (from 1 May to 15 October each year),
- with Russia (3,645 km):
  - Blagoveshchensk/Heihe
  - Zabaikalsk/Manzhouli (road/rail)
  - Grodekovo /Suifenhe
  - Naushki
  - Tongjiang
- with Tajikistan (414 km):
  - Kulma Pass
- with Vietnam (1,281 km):
  - Huu Nghi at Dong Dang of Lang Son Province to Pinxiang and Nanning on the Chinese side (rail and road)
  - Lao Cai border crossing to Kunming and
  - Mong Cai border crossing to Quangzhou (rail and road)

regional borders:

- with Hong Kong (30 km):
- with Macau (0.34 km):

Ongoing and planned transport infrastructure projects of international importance and related investment costs

China's 11th Five Year Plan (2006-2010) forms the current basis for the Government's economic and social development efforts including infrastructure and transport-related projects. Currently, China undertakes 23 projects in the area of transport infrastructure. These projects are supported with lending from the World Bank:

Project Name	Approval Date	Closing Date	Lending Project Cost (USD mio.)	Sector
Guangzhou City Center Transport Project	29-May-98	31-Dec-07	550	Roads and highways
Second Fujian Highway Project	24-Jun-99	30-Jun-07	595.6	Roads and highways
Guangxi Highway Project	28-Mar-00	30-Jun-07	566.8	Roads and highways
Urumqi Urban Transport Improvement Project	19-Dec-00	31-Dec-07	270	Roads and highways
Shijiazhuang Urban Transport Project	27-Mar-01	31-Dec-08	286.2	Roads and highways
National Railway Project	29-Jan-02	31-Dec-07	1302.24	Railways
Inner Mongolia Highway Project	06-Jun-02	31-Mar-08	268.73	Roads and highways
Xinjiang Highway Project (03)	05-Sep-02	31-Dec-07	334.2	Roads and highways
Hubei Xiaogan-Xiangfan Highway Project	17-Sep-02	31-Dec-07	690.88	Roads and highways
Second Anhui Highway Project	24-Jun-03	30-Jun-09	631.83	Roads and highways
Wuhan Urban Transport Project	09-Mar-04	30-Jun-09	598.2	General transportation sector
Fourth Inland Waterways Project	25-Mar-04	31-Jan-10	260.4	Ports, waterways and shipping
Second National Railways Project (Zhe-Gan Line)	24-Jun-04	31-Jan-08	1755.5	Railways
Hubei Shiman Highway Project	24-Jun-04	30-Jun-09	529	Roads and highways

Project Name	Approval Date	Closing Date	Lending Project Cost (USD mio.)	Sector
Inner Mongolia Highway and Trade Corridor	15-Feb-05	30-Jun-10	262.66	Roads and highways
China: Fifth Inland Waterways	11-Oct-05	30-Jun-11	211.11	Ports, waterways and shipping
Fuzhou Nantai Island Peri-Urban Development Project	15-Dec-05	30-Jun-11	324.46	Roads and highways
Third Jiangxi Highway Project	27-Jun-06	31-Dec-10	711.39	Roads and highways
Liaoning Medium Cities Infrastructure Project	27-Jun-06	31-Dec-11	525.42	Roads and highways
Sichuan Urban Development Project	07-Sep-06	31-Dec-13	399.87	Roads and highways
Fujian Highway Sector Investment	12-Oct-06	30-Jun-12	1490	Roads and highways
Third National Railway Project	23-Jan-07	30-Jun-12	1165.6	Railways
Shaanxi Ankang Road Development	13-Mar-07	30-Jun-12	735	Roads and highways

New proposed transport infrastructure projects of international importance and related investment costs

According to two separate reports the official Xinhua News Agency and China Daily newspaper state that the government will put about 1.5 trillion yuan (US$190 billion; €146 billion) into improving and extending rail networks by 2010 and spend about 2 trillion yuan (US$250 billion; €193 billion) on expanding expressways over the next 30 years. The plan aspires to increase the country's rail network by 20 percent. The roadways plans devised by the Ministry of Communications will more than double the existing expressway network, bringing it to 85,000 kilometers (53,000 miles) within 30 years.

According to the Xinhua News Agency (March 6, 2006), China envisages a number of key transport infrastructure projects to be built during the 2006-2010 period:

- *Railway*: six railways for passenger transportation, including one between Beijing and Shanghai; five inter-city railways, including one between Beijing and Tianjin; and the upgrading of five existing railways including one between Datong and Qinhuangdao.
- *Highway*: 14 expressways including one from Beijing to Hong Kong and Macao.
- Port: transit systems for the transportation of coal and imported oil, gas and iron ore, and containers transport systems at 12 seaports including those in Dalian, Tianjin and Shanghai; coal transit and storage bases in eastern and southern China.
- *Shipping*: the third-phase project for dredging the deepwater channel at the mouth of the Yangtze River, the course at the mouth of the Pearl River to the sea, channel dredging in the Yangtze and Pearl River valleys and the Beijing-Hangzhou Canal; and acceleration of port construction along inland rivers.
- *Airport*: expansion of ten airports including those in Beijing, Shanghai and Guangzhou; relocation of the two airports in Kunming and Hefei; and airports in central, western and northeastern China to accommodate flights on feeder lines.

Sources: World Bank, CIA Factbook, http://www.china.org.cn/english/2006lh/160316.htm
http://www.iht.com/articles/ap/2006/11/23/asia/AS_GEN_China_Expressway_Expansion.php

Georgia

Road transport

Road freight transport declined significantly since the early 1990s, reaching in 2004 only 34 per cent of the 1991 level. Nevertheless, it now accounts for some 10 per cent of freight transport (tkm), up from 3-4 per cent in the 1990s. The network includes 1,474 km of international roads, 3,326 km of state roads and 15,439 km of local roads. Most roads of international importance were reconstructed and rehabilitated by 2005. Their maintenance is relatively costly because of severe weather conditions. The 1,222 km long EATL network is defined by a number of E-roads (E60, E70, E97, E117, E001, E691, E692), with design speeds ranging from 60 to 100 km/h.

Rail transport

Rail freight turnover reached in 2004 only 40 per cent of the 1991 level. However, the rail transport performance improved in relative terms and by 2004 it accounted for 88 per cent of tkm, up from 24-25 per cent in the 1990s. Although Georgia has over 1,600 km of rail track, most of it is in a state of severe disrepair. The busiest line links Tbilisi to the Black Sea ports; until completion of the Baku-Supsa oil pipeline, this was also used to transport Azeri oil to the Black Sea. There are regular trains to Baku (the Azerbaijani capital) and Yerevan (the Armenian capital), as well as occasional passenger and freight services on slow, single-track connections between Tbilisi and provincial towns.

The EATL network includes 1,564 km of electrified rail lines. Based on a joint decision by the Governments of Georgia, Azerbaijan and Kazakhstan, a Poti-Baku-Aktau-Almaty container train began operating in 2006. An extension of this route towards China has been contemplated at a Ministerial Conference in Astana (27 July 2006) attended by participants from Azerbaijan, Georgia, Kazakhstan, Turkey and China.

Sea ports and inland waterway ports

Sea transport declined rapidly from the early 1980s when it accounted for 73 per cent of freight transport turnover. By 2004, this share fell to 1 per cent. This decline was caused partly by the civil war and subsequent loss of territory to separatist forces in the early 1990s. Georgia has two main seaports on the Black Sea, Poti and Batumi, which have a freight capacity of 7 million and 5 million tonnes/year (t/y), respectively. Since the completion of the Baku-Supsa oil pipeline, almost all freight from the Caspian region passes through these two ports. Restructuring of the port at Poti is under way to develop new terminals and increase freight capacity to 12 million t/y.

Freight terminals and other intermodal transport infrastructure

The Georgian railway system has direct connections to the railway systems of Armenia, Azerbaijan and the Russian Federation. Railway-ferry lines from the Batumi and Poti Black Sea ports directly connect the Caucasus and Central Asia with the Black Sea regions of Europe. The Poti port has direct ferry transit with Iliychevsk (Ukraine) and Varna (Bulgaria) ports. Another railway-ferry service has started operating between the ports of Poti and Kavkaz (Russia).

The port of Poti owns a major cargo transportation facility for processing almost all types of dry cargo and liquid products. Freight turnover at the port is consistently increasing while 7 terminals are under long-term lease. The port processed 6.1 million tonnes of cargo in 2005. It is linked with Iliychevsk (Ukraine), Varna (Bulgaria) and Kavkaz (Russia) ports by direct railway-ferry lines, and with Novorossiysk (Russia), Burgas (Bulgaria) and Rize (Turkey) ports by direct motorway-ferry lines.

Transportation of Azeri and Kazakh oil has transformed Batumi port into an important Europe-Asia link. The cargo carriage capacity for oil products is 15-18 million tons annually. For dry cargo it is 2.3-2.5 million tons annually. In 2004, the port processed 8.2 million tons of cargo; in 2005 its turnover rose to 11 million tons. A large container terminal (4.5 hectares) is being constructed in the port. The projected turnover of the terminal amounts to 47-50 thousand containers per year.

International border crossing points (road and rail)

Georgia has fifteen road border-crossing points, most of which operate 24 hours per day. Their operations are impeded by poor equipment and inefficient organization of border-crossing activities. The four rail border crossings are open around the clock. Their operations are also impeded by poor equipment and inefficient organization.

Ongoing and planned transport infrastructure projects of international importance and related investment costs

Two road rehabilitation projects, financed by a World Bank loan ($55 million) and a Kuwaiti Fund credit ($24.2 million), were finished in recent years. Another road rehabilitation project, with projected expenditure of $26 million, is scheduled to be completed in 2009. A number of projects to improve the infrastructure of ports in Batumi ($162 million) and Poti ($226 million) should be completed within a few years.

New proposed transport infrastructure projects of international importance and related investment costs

New proposed projects for further infrastructure improvements to the Batumi and Poti ports involve investment expenditure of $680 million and ought to be completed by 2015. Similar projects with projected completion after 2015 would cost another $375 million. The financing has not been secured yet for any of the new projects mentioned above.

Altogether, Georgia has submitted forty-nine EATL projects for evaluation. Four road projects have been assigned to the first priority category. Due to insufficient data, the remaining twenty-one railway projects and twenty-four maritime projects have been classified in the fourth category.

Sources: CIS Statistical Committee, Economist Intelligence Unit, NFP Country Report.

Iran

Road Transport

The EATL network in Iran covers eight major routes on nine international roads (AH1, AH2, AH8, AH70, AH71, AH72, AH75, AH78, AH82) totalling 10,716 km (15,149 km)[1] of roadways. As 68 per cent of the sections of these routes are considered to be in "good" or "good to fair" condition, there is a need for improvement and upgrade of the road system.

Rail Transport

The EATL network spans 11,164 km and six major routes (A21-24, B21-22). In 2005, freight rail amounted to 19.1 billions of tonne-kilometers.

Problems regarding bottlenecks and missing links are addressed as follows:

- Construction of railway connections between Astara and Rasht, Anzali (port) and Rasht as well as Bam to Chabahar have been proposed;
- Missing links between Rasht and Qazvin, between Sangbast – Torbat/Heydarieh – Tabas – Bafgh as well as between Kerman and Bam are under construction.

A considerable amount of freight traffic is moving over the railway that opened between Bafgh and Mashhad in 2005: According to the Railway Gazette (January 2007) three passenger trains a week operate between the port of Bandar Abbas on the Gulf of Hormuz and Mashhad in north-eastern Iran, but most trains over the line are carrying freight. Providing a direct link between the Turkmenistan border and the sea, the line handles considerable quantities of bulk liquids, mainly oil, petroleum and other oil derivatives. Goods, such as compressed gases, aggregates, sulphur and steel coils are moving over the line, with much of the traffic bound to, or from the Central Asian republics. While most traffic is carried in bulk cargo wagons, there is evidence of a considerable increase in volume of container business.

Sea Ports and Inland waterway Ports

Iran maintains four sea ports (Bandar Emam, Bandar Abbas, Chabahar, Bushehr) and two inland ports (Anzali, Amirabad). The length of available inland waterways (on the Karun River) is 850 km. The actual annual throughput amounts to about 64 million tonnes. For the majority of ports, construction and improvement projects are planned or underway.

Freight terminals and other intermodal transport infrastructure

The sea ports in Bandar Emam and Bandar Abbas offer modern container carrying terminals with lifting and displacing equipment (rail/sea - rail/road transhipment facilities). The inland port Amirabad also has modern container carrying terminals with lifting and displacing equipment (rail/sea - rail/road - Ro/Ro transhipment facilities).

[1] This is the sum of the overall lengths of the individual routes, which does not exclude the lengths of shared sections of the route.

International Border Crossing Points Road and Rail

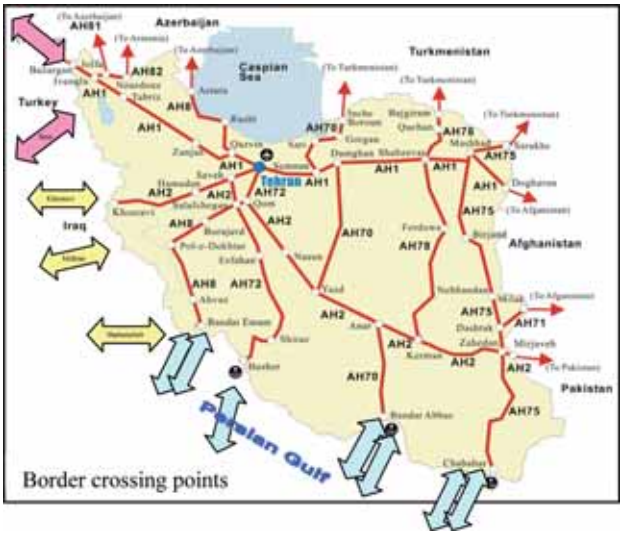
Iran has numerous international border crossing points with neighbouring countries (see figure below), which include:

- Milak (road), Dogharoun (road) and Sangan (rail) with Afghanistan;
- Bazargan (road) and Razi (rail) with Turkey;
- Astara (rail and road), Nourdouz and Jolfa (rail and road) border with Azerbaijan;
- Mirjaveh (rail) with Pakistan.

Furthermore, three formal border crossing points with Iraq were established:

- Khosravi on AH2 opposite to Mantharye in Iraq, which is on M40;
- Mehran in front of Zorbatye in Iraq that is connected to AH2 through Ilam and Kermanshah cities;
- Shalamcheh opposite to Basreh in Iraq (on M70), that has connection to Ahvaz and Bandar Emam on AH8 via Khorramshahr.

FIGURE A1.1 BORDER CROSSING POINTS



While only some of the international road border crossing points (Bazargan, Nourdouz and Jolfa) are open 24 hours each day, all seven rail border crossing points operate on a 24 hours-basis daily. The majority of the other road border crossing points has opening hours only during daytime.

The international border crossing with Turkmenistan at Sarakhs (rail and road) disposes of bogie exchange facilities for container trains and the handling capacity amounts to about 200 containers/24 hours.

Ongoing and planned transport infrastructure projects of international importance and related investment costs

In Iran, major road, railway and port development programmes are being undertaken for the expansion and modernization of the transport infrastructure. Currently, 37 infrastructure projects (9 railway projects and 28 road projects) with a cost volume of approximately US$ 3,427.5 million are underway. In addition, six road projects are in the planning stage. These projects intend to close the gaps in the Iranian part of the Euro-Asian transport links and to reduce bottlenecks.

New proposed transport infrastructure projects of international importance and related investment costs

Seven railway projects (new construction and upgrade) proposed by the Iranian authorities are to be completed until 2010. The anticipated project costs are US$ 3,006 million. Furthermore, two road

construction and two road upgrade projects are envisaged. The sources of funding for all these projects have not yet been identified.

Sources: CIA Factbook, Railway Gazette (2007), Islamic Republic of Iran Country Report presented in Amman in 2005, other information provided by the country.

Kazakhstan

Road transport

The EATL network in Kazakhstan covers 22 major routes on 23 international roads (AH5, AH6, AH7, AH60-64, AH67, AH68, AH70, E011-016, E38, E40, E121, E123, E125, E127) totalling 28,472 km of roadways.[2] As the authorities consider the condition of all these routes as being "fair", there is substantial need for improvement and upgrade of the road system. All given roads are toll-free. The overall road density in Kazakhstan is 37 km per 1,000 km^2 with approximately 94 per cent of the roads being paved.

Rail transport

The EATL network spans four major routes with a total length of 4,588.5 km:

- Petropavlovsk to Dostyk (1,910.8 km);
- Presnogorkovskaya to Kokshetau (346.5 km);
- Saryagash to Aktogai (1,505.4 km);
- Aksaraiskaya to Oazis (825.8 km);

The overall rail network in Kazakhstan covers 14,200 km (as of 2005) and has a density of 5 km per 1,000 km2. The Kazakhstan railways are responsible for 68 per cent of the overall freight traffic turnover and 57% of the passenger turnover in the country. In 2005, freight shipments amounted to 171.9 billion of tonne-kilometres.

Sea ports and inland waterway ports

Kazakhstan, a landlocked country (closest distance to the sea is 3,750 km), has access only to the Caspian Sea and, thus, relies to some extent on transport via inland waterways, mainly on the Irtysh and Syr Darya rivers. Four major inland waterways covering 3,912 km in length allow transport for vessels with navigable water level of no less than 2.5 m for river vessels and 4.5 m for "river-sea" vessels respectively. The inland waterways have a limited navigation period averaging 200 days per year. In 2000 yearly traffic amounted to 552 units (including 402 units of transport fleet and 150 units of technical fleet). The inland waterways require some infrastructure investment in order to remedy existing bottlenecks. The only major sea port is the Aktau International Commercial Sea Port at the Caspian Sea.

Freight terminals and other intermodal transport infrastructure

The container sites at Tura-Tam station, Arys station and Turkestan station require major renovation works to function. In 2003, the annual throughput of the freight terminals amounted to 31,116 tonnes or 567 TEUs. Additional ports are Atyrau river port (Gur'yev), Pavlodarsk river port, Aqtau (Shevchenko), Oskemen (Ust-Kamenogorsk) and Semey (Semipalatinsk).

International border-crossing points (road and rail)

Along the EATL roads, Kazakhstan has 42 international border-crossing points. While the border-crossing points at Khorgos, Dostyk (road and rail), Kegen and Kolzhat have limited opening hours from 9 a.m. to 6 p.m., all others operate daily on a 24 hour basis. Furthermore, additional 16 rail border-crossing points are operational. At the rail border crossing with the Russian Federation non-physical obstacles to smooth border crossing exist, resulting in delays caused by extensive checks and lengthy processing of documents by the Russian customs service.

[2] This is the sum of the overall lengths of the individual routes, which does not exclude the lengths of shared route sections.

Ongoing and planned transport infrastructure projects of international importance and related investment costs

Kazakh authorities have planned 17 rehabilitation/reconstruction projects for the road system. The envisaged total project costs amount to US$ 2,694.4 million. The projects are implemented in a phased manner with starting dates from 2001 onwards and expected completion dates up to 2012. The funding for all the above projects has been secured. Furthermore, two ongoing projects involve new construction of railway links from Khromtau to Altynsarin (cost: US$ 244.7 million) and from Yeralievo to Kuryk (cost: US$ 4.7 million).

New proposed transport infrastructure projects of international importance and related investment costs

Two short-term projects involving road construction and reconstruction of the "Astana to Borovoye" highway (cost: US$ 222.5 million) as well as a "project research works" (cost US$ 12.8 million), with durations of four years each, will be financed out of the state budget. Furthermore, a US$ 3.5 billion project with a duration of five years is planned for the construction of the "Trans-Kazakhstan railway". It is envisaged to finance 82 per cent of the project costs through loans and the rest from the national budget.

Sources: World Bank, UNCTAD, *CIA World Factbook*, <http://www.railways.kz/>, International Union of Railways

Kyrgyzstan

Road transport

Transport contributes approximately 2-3 per cent to the Kyrgyz GDP, with the country having one of the lowest road densities (0.17 km/km^2). However, the level of profitability of transport enterprises is difficult to gauge, as statistics for the transport sector are not easily available.

The EATL network in Kyrgyzstan covers five major routes on four international roads (AH5, AH7, AH61, AH65)[3] totalling 1,695 km of roadways. Some sections of the road (especially on AH65 from Sary Tash to the border of China and from Sary Tash via Daroof Korgan to the Karamyk at the border of Tajikistan) are in a bad condition and require investment to respond to the transport needs. Because of the country's mountainous terrain, more than 97 per cent of goods are transported by truck and 80 per cent of passengers are transported also by road.

Rail transport

The EATL network spans three corridors in Kyrgyzstan, one being part of TRACECA:

- Osh to border with Uzbekistan (to Andizhan);
- Bagish to border with Uzbekistan (to Andizhan) via Dzhalal-Abad;
- Koshkorka to border with Kazakhstan (to Kainda) via Balykchi, Bishkek and Kara Balta.

In general, the Kyrgyz railway system has the following main lines:

- Balykchy – Bishkek – Lugovoe (further to Kazakhstan and Russia);
- Osh to Jalal-Abad;
- Kok-Yangak to Kara-Suu;
- Kyzyl-Kiya to Tash-Kumyr (to Uzbekistan, Turkmenistan and Persian Gulf countries).

According to the Kyrgyz Ministry of Transport and Communications, the total length of the railroad system in the Kyrgyz Republic is 424.6 km, consisting of two unconnected lines: a "Southern" line - 323.4 km and a "Northern" line - 101.2 km.

Sea ports and inland waterway ports

Kyrgyzstan is a landlocked country; nevertheless a small volume of transport on the 600 km of inland waterways occurs on Lake Issyk-Kul (Balykchy port).

[3] Another report from ADB uses different denominations for two routes: Osh to Irkeshtam AH64 instead of AH65, Kara Balta to Osh AH74 instead of AH7.

International border-crossing points (road and rail)

The Kyrgyz Republic and its four neighbours have 14 border control points, two of which are major rail corridor crossing points. The largest rail control point is in Bishkek (about 40 km from the border with Kazakhstan) whereas the largest road control point is in Akzhol (at the border with Kazakhstan). Osh, another rail border-crossing point covers the traffic through the Ferghana Valley. According to data from 2003, these two points handle over 1.1 million tons and 1.3 million tons of goods per year respectively. The border control points process 20 000 rail wagons and about 125 000 trucks annually. With the exception of the new facilities at Akzhol, the main problems are the poor condition of the buildings/offices and inadequate communication and data processing facilities.

Kyrgyzstan has a number of international border-crossing points with neighbouring countries, which include:

- Kazakh-Kyrgyz border (1 051 km): Akzhol (road), Georgievka, Kegan;
- Kyrgyz-Uzbek border (1 099 km): Osh (rail), Kara-Suu, Kizibl-Kiya (Kaytpas and Gazprom checkpoints);
- Kyrgyz-Tajik border (870 km): Isfand, Sari-Tash (Kyzylart Pass), Karamik;
- Kyrgyz-Chinese border (858 km): Torugart Pass.

The situation at some of the border crossings is not clear in respect of the delimitation between Kyrgyzstan and some of its neighboring countries.

Ongoing and planned transport infrastructure projects of international importance and related investment costs

A number of road rehabilitation projects at estimated project costs of US$ 357.8 million are planned, which include:

- Bishkek-Osh rehabilitation (AH7, 72 km);
- Uzgen - Osh (AH7, 52 km);
- Jalalabad-Uzgen and Madaniyat bypass (AH7, 53.4 km);
- Taraz-Talas-Suusamyr road (AH7, 190 km);
- Bishkek-Georgievka road to border of Kazakhstan, Bishkek bypass (AH5, 28 km);
- Bishkek-Torugart;
- Kalakol-Balykchi-Tuyup-Kegen.

New proposed transport infrastructure projects of international importance and related investment costs

In addition, new construction of railways is planned from Kochkor via Kazarman to both Torugart and Jalal-Abad. The railroad line connecting Balykchy - Jalal-Abad – Torugart to China is in the design phase. The construction of this railroad line will reduce the rail distance between Europe and Southeast Asia by 1, 100 km in comparison with the route of the Trans-Siberian Railway, and by 300 km in comparison with the Friendship Railway in Kazakhstan. The European Union program TACIS has provided US$ 1 million for the preparation of a feasibility study of this project.

Another proposed project is the electrification of 322.7 km of railway between Lugovoe and Balykchy. Estimated total cost of construction is US$ 145 million. The cost of the first stage of construction of the Lugovoe – Alamedin segment (157 km) is US$ 69 million, while the second part, Alamedin - Balykchy (165.7 km), will cost US$ 76 million.

Sources: <http://bisnis.doc.gov/bisnis/bisdoc/030617trans_kg.htm>, <http://www.cisstat.com/eng/kir.htm>, *CIA World Factbook*, <http://www.asiandevbank.org/Documents/Reports/CAREC/Transportation-Facilitation.pdf>

Moldova

Road transport

There are 9,462 km of roads on the Moldovan territory. The EATL road network consists of 4 international (AGR) arteries, including the east-west oriented E 58 road along the sector (Iaşi) – Chişinău – (Odessa) and 3 connectors: E 581 along the sector Leuşeni – Chişinău – (Odessa), E 583 along the sector (Iaşi) Bălţi – (Mogilev-Podolsky), and E 584 along the sector Dubăsari – Chişinău – Giurgiuleşti.

The country continues to suffer from the internal "frozen" conflict in the eastern region of Transnistria, which has been *de facto* outside the control of the central Government since 1991. Road transport operators have to bypass the Transnistrian part of Moldova to avoid possible difficulties with the self-proclaimed authorities of the region. Nevertheless, the road sector's performance improved noticeably between 1998 and 2004, its share in the freight turnover measured by tkm rising from 13 per cent to 31 per cent. This improvement materialized in spite of the continued deterioration of Moldova's road network due to the limited investment undertaken in recent years.

Rail Transport

The volume of rail freight increased slowly between 1998 and 2004 while its share of freight transport declined from 87 per cent to 69 per cent. Similar to the road sector, rail continues to suffer from inadequate maintenance and rehabilitation of the network. The Moldovan components of Pan-European Corridors VII and IX, national main railway lines as well as the OSJD rail corridors and lines on the Moldovan territory are considered to be direct links or branches within the EATL network.

Inland waterway ports

The E-Waterway Network in Moldova covers 2 branches of west-east oriented main inland E-waterways specified in the AGN agreement: E 80-07 – the Prut river from the mouth to Ungheni, E 90-03 – the Nistru river from the port Belgorod-Dnestrovsky (Ukraine) to Bender, including 2 inland navigation ports: P 90-03-02 Bender (the Nistru, 228.0 km) and P 80-62 Giurgiuleşti (the Danube, 133.0 km) that remains at the early development stage.

The importance of inland waterways became negligible in the early 1990s when the central Government lost control of the major port situated in Transnistria. The Government intends to increase the marginal share of inland water in freight turnover by constructing the new port Giurgiuleşti mentioned above, which would ensure a direct connection of landlocked Moldova to the Black Sea.

Freight terminals and other intermodal transport infrastructure

The multimodal transport corridor Europe - Caucasus - Asia (TRACECA) crosses both the Black Sea and the Caspian Sea, connecting them with the Moldovan components of PETC IX, which reach the Black Sea port of Odessa along the railway line from the Moldovan-Ukrainian border, via Ukrainian stations Cuciurgan (Kuchurgan) and Razdelnaia and along the motorway Chişinău – Tiraspol – Odessa. The authorities are convinced that this route could be extended along the water from the port of Odessa to the port complex Giurgiuleşti, which is being constructed on the Moldovan territory on the mouth of the Danube river (the national component of PETC VII).

International border crossing points (road and rail)

Five road border crossings are situated on EATL Routes. All of them are open daily and operate around the clock. The customs checkpoints at two of these crossings are beyond the control of the Government of Moldova. Waiting times range from 5-15 minutes for passenger cars to 20-30 minutes for buses and 30-60 minutes for trucks. Two rail border crossing on EATL Routes are open around the clock. The operation of customs and other services at one of them is not controlled by the Government of Moldova. Average waiting times at the second railway crossing (on the Romanian border), including the change of carriage bogies, amount to 120 minutes for passenger trains and 100-185 minutes for freight trains.

Ongoing and planned transport infrastructure projects of international importance and related investment costs

The ongoing reconstruction of the railway line Revaca – Cainari aims to link the two main lines of E-rail network on the territory of Moldova (CE 95 and E560). This project has been financed by the CFM.

New proposed transport infrastructure projects of international importance and related investment costs

Such priority rail and road infrastructure projects as the reconstruction of the railway line Revaca – Cainari, the rehabilitation and electrification of the Moldovan rail segment of PETC IX and CE 95 main line, and the improvement of road and roadside services along the Moldovan part of Corridor IX were included in the 2006 Master Plan, which has been developed in the framework of the UNECE Trans-European North-South Motorway (TEM) and Trans-European Railway (TER) projects.

One new infrastructure project proposal aims at the rehabilitation and electrification of the railway line traversing the Moldovan territory from the Ukrainian border through the capital city of Chişinău to the Romanian border. At present, this 209 km long main line, which constitutes the Moldovan part of TEN Corridor IX and the E95 line defined by the AGC and AGTC agreements, is being operated with diesel locomotives. The project preparation and implementation would take 7 years. The funding remains to be secured.

According to the Agreement concluded in December 2004 by the Government of Moldova and three companies from Azerbaijan ("Azpetrol", "Azertrans" and "Azpetrol Refinery"), a free international port is to be built on the mouth of the Danube river at Giurgiulesti and provide both passenger and freight services. The territory of the Giurgiulesti port will be leased to the Azeri investors for a period of 25 years.

Altogether, Moldova has submitted nine EATL projects for evaluation. One railway project and one inland waterway project have been assigned the first priority category. Due to insufficient data, five road projects and two railway projects have been classified in the fourth category.

Sources: CIS Statistical Committee, NFP Country Report.

Romania

Road transport

The road share of inland freight transport increased remarkably in recent years, reaching almost 67 per cent of tkm by 2004. Romania's public road network covers 78,000 km, comprising national roads (14,500 km), district roads (36,000 km) and municipal roads (28,000 km). In addition, there are approximately 30,000 km of village roads serving the needs of rural communities. The EATL road network along PET Corridors IV and IX is 1,614 km long and includes a number of E-roads that coincide with sections of Asian Highways AH1, AH2 and AH3. There are four bottlenecks identified by the authorities along the E68 and E81 roads (AH3).

Rail Transport

The rail network is extensive, including 14,217 km of track with standard gauge (1,435 mm). However, only 35 per cent of rail track is electrified while much of the rolling stock needs urgent replacement. The rail share of inland freight transport keeps declining. Following years of falling volumes, the number of rail passengers seems to have stabilised at around 500,000 per day. The EATL network, situated within PET Corridors IV and IX, extends over 1, 414 km of rail track on the Romanian territory.

Sea Ports and Inland waterway ports

Three Romanian seaports belong to the EATL network: Constanta, Managalia and Midia. In addition, the network includes nine inland water ports and 1,169 km of inland waterways. Shipping along the Danube, which flows for 1,075 km within PET Corridor 7, provides Romania with important trade links to central Europe. The authorities identified 16 bottlenecks along this EATL route. The 64 km long Danube-Black Sea canal, stretching from the lower part of the river to Constanta, has a strong development potential as the newly independent Caspian states seek outlets for their hydrocarbon exports that bypass the Bosporus Strait. The shorter (30 km) Poarta Alba-Midia-Navodari canal also connects inland waters to a Black Sea port.

Freight terminals and other intermodal transport infrastructure

The Constanta port has oil, ore and container terminals, which are well equipped with handling facilities and operate around the clock. The container handling capacity amounts to 1,334 TEU per day.

International border crossing points (road and rail)

There are five international road border crossings for both freight and passengers that operate around the clock. Average waiting times range from 1 to 5 minutes. Three rail border crossings for both freight and passengers are also open 24 hours per day. Average waiting times are longer than at road border crossings, ranging from 4-40 minutes for passenger trains to 150-240 minutes for freight trains.

Ongoing and planned transport infrastructure projects of international importance and related investment costs

The cost of the national programme to construct and upgrade the road infrastructure amounted to some $3.3 billion over the 2004-07 period. Almost $1 billion has been allocated to EATL projects. About one-quarter of the funding was provided by the state budget, the remainder includes EU pre-accession grants (ISPA and PHARE programmes) and loans from the World Bank, European Investment Bank (EIB), European Bank for Reconstruction and Development (EBRD) and Japan Bank for International Cooperation (JBIC).

Investment expenditure on projects to upgrade EATL railway routes up to 2010 exceeds $2.1 billion. The funds have been provided by the government budget, EU grants and the financial institutions mentioned above. The construction of new container and passenger terminals as well as infrastructure upgrades in the Constanta port cost $195 million; more than one-half of the financing was provided by the JBIC. Three inland waterway projects, with completion dates within the 2005-2007 period, cost $164 million. The funding was provided by the EIB, EU grants and the state budget.

New proposed transport infrastructure projects of international importance and related investment costs

The newly proposed infrastructure investment on EATL road routes amounts to approximately $7 billion, being dominated by ambitious motorway projects. Some $4.8 billion of this expenditure are to be provided by PPP concessions. Six other proposed projects pertain to the development of inland waterways and maritime ports. The related investment expenditure amounts to $613 million.

Aside from the EATL projects, the government intends to proceed with the construction of a motorway from Brasov in central Romania to Bors on the Hungarian border. The €3.4 billion Brasov-Bors project runs parallel to a section of the motorway proposed along PET Corridor IV (i.e. EATL Route 4) from central Romania to the Hungarian border at Arad. Both the EU and the EBRD provide financial support for the construction of the Corridor IV motorway link to the Hungarian border.

Altogether, Romania has submitted twelve EATL projects for evaluation. Three maritime projects and three inland waterway projects have been assigned the first priority level. Another inland waterway project has been placed in the second category. Due to insufficient data, the remaining inland waterway project and four maritime projects have been classified in the fourth category.

Sources: Economist Intelligence Unit, NFP Country Report.

Russian Federation

Road transport

The road network under the EATL framework in the Russian Federation covers 15,716 km with 78 per cent of the roads being in good or at least fair condition. The routes are along ten Asian highways (AH6, AH7, AH8, AH30, AH31, AH60, AH61, AH63, AH64 and AH70).

Rail transport

The overall rail network is 87,157 km long. In 2005, overall rail freight reached the amount of 1,801.6 billion tonne-km. The total freight traffic on the Russian rail network is forecast to reach 1.3 or 1.4 billion tonnes a year by 2008.

Sea ports and inland waterway ports

Russia has two ports on the Caspian seaboard: Astrakhan and Makhachkala. Additional sea and river ports related to EATL routes are Vladivostok, Nakhodka, Vanino, Vostochny, St. Petersburg, Murmansk, Arkhangelsk, Kandalaksha, Dudinka, Omsk, Novosibirsk, Krasnoyarsk, Osetrovo, Blagoveshensk, Vyborg, Vysotsk, Novorossiysk, Tuapse, Taganrog, Kavkaz, Temryuk, Nizhny Novgorod, Volgograd, Cherepovets and Kazan.

Inland waterways in Russia:

- Branches (TSW):
  - TSW1: Irtysh – (Omsk – Khanty-Mansiysk);
  - TSW3: Ob (Novosibirsk - Khanty-Mansiysk);
  - TSW5: Yenisey (Krasnoyarsk);
  - TSW7: Lena (Osetrovo);
  - TSW9: Amur (Blagoveschensk).
- Main route (NSW): St.-Petersburg – Vytegra – Cherepovets – Nizniy Novgorod – Kazan – Volgograd Astrahan – Caspian Sea;
  - Branches (NSW):
  - NSW1: White Sea – Baltic Sea canal;
  - NSW2: Cherepovets – Bolshaya Volga - Moscow canal – Moscow;
  - NSW3: Kama River (Kazan – Perm – Solicamsk);
  - NSW4: Volgograd – Volga-Don canal – Rostov-on-Don.

Freight terminals and other intermodal transport infrastructure

In terms of intermodal transport infrastructure, TransContainer (TC), the intermodal daughter company of Russian Railways (RZD), conducted trials for fast transit of 150 TEU container trains on three different routes in 2006. Furthermore, enhanced infrastructure allows container transhipment at docks in port Olja. Due to demand for development of specialized container terminals on inland waterways providing transportations and transhipment on the international transport corridor "North-South", additional container terminals in riverports St. Petersburg, Moscow-North, Yaroslavl, Nizhniy Novgorod, Kazan, Samara, Volgograd, Astrakhan, Ust-Donetsk, Rostov-on-Don and Azov are planned to be constructed by 2010.

International border-cossing points (road and rail)

Major road border-crossing points with EATL countries are situated on borders with Azerbaijan (284 km), Belarus (959 km), China (3,645 km), Georgia (723 km), Kazakhstan (6,846 km) and Ukraine (1,576 km). As of September 2006, there were six rail border-crossing points to Belarus and seventeen to Ukraine.

Ongoing and planned transport infrastructure projects of international importance and related investment costs

The Government has approved the federal program on “Modernization of Transport System in Russia” for 2002-2010 that attaches priority to development of highways that service international and interregional routes. This includes for example:

- Construction of a highway between Chita and Khabarovsk (length: 2,165 km including 23.5 km of bridges);
- Reconstruction of sectors on the route Glukhoe (border crossing to Ukraine) – Kursk – Voronezh Saratov continuing to Uralsk (Kazakhstan);
- Coordination of activities on preparation for planning and construction of a bridge across the Kigach River on the Astrakhan-Atyrau highway as a part of E40 and AH70 international routes.

Railway projects with anticipated completion dates between 2004 and 2010 include:

- Line Kochetovka – Saratov – Urbakh - Verkhniy Baskunchak (modernization and reconstruction of the line with the possible electrification of the branch Kochetovka – Rtischevo and organization of the high-speed traffic on the branch Kochetovka – Saratov);
- Railway border stations Aksarayskaya, Ozinki, Verkhniy Baskunchak, Pallasovka, Elton (construction of border check points);
- Railway lines, which are part of the EATL "North-South" corridor (introduction of modern technical means to improve safety).

The anticipated investment volumes for transport projects until 2010 are: (1) Trans-Siberian corridor: US$ 7.5 billion; (2) North-South corridor: US$ 6.4 billion.

New proposed transport infrastructure projects of international importance and related investment costs

Rail projects envisaged by the Russian Railways between 2007 and 2010:

- Development of routes linking the Kuznetsk coal basin with the Far East, the Azov Sea and Black Sea, and with transport hubs in the northwest (US$ 4.5 billion)
- Construction of the Berkakit - Tommot - Kerdem (Yakutsk) line by 2010 (US$ 0.1 billion in 2006-08)
- Reconstruction of the Mga-Gatchina - Veimarn - Ivangorod line and the rail approaches to ports along the south coast of the Gulf of Finland (US$ 1.0 billion in 2006-10)
- Improving the rail approaches to Ust-Luga (US$ 0.37 billion)

Road projects envisaged:

- "Chujsky trakt" (Motorway 52/A-4: Novosibirsk – Barnaul – Tashanta – border with Mongolia) to become the main route connecting the Siberian federal district region with other parts of the Russian Federation and China;
- Highway "East" Khabarovsk – Nakhodka (length: 824 km of which 342 km are already operational);
- Highway Khabarovsk – Lidoga – Vanino (length: 527 km; construction of section Lidoga – Vanino already started and 24.4 km operational; investment volume US$ 145 million).

Sources: *CIA World Factbook*, <http://www.fdi.net, http://www.worldcargonews.com>, <http://www.steane.com/egtre/borders/xings.php?country=RU>, NFP report.

Tajikistan

Road transport

The Tajik road system covers 27,767 km with a road density of 194 km per 1,000 km^2. The EATL road network in Tajikistan covers four major routes on three international roads (AH7, AH65, AH66) with a total length of 1,924 km:

- Tursunzade (border to Uzbekistan) to Kofirnigan;
- Kofirnigan to border of Kyrgyzstan;
- Kofirnigan to Kulma Pass (border of China);
- Chavast (border to Uzbekistan) to Nizhiniy Panj (border to Afghanistan).

The major part is within the TRACECA corridor, except for the sections "Nizhiniy Panj to Afghan border" (0.2 km) and "Murgab to Kulma Pass" (91 km). The current physical status of the AH network (141,000 km, 32 countries) with a missing link (no road) of 100 km indicates that 33 km of that missing link are located on AH66 in Tajikistan.

Rail transport

The railway network covers 951 km and has one of the lowest densities in the Central Asian region. However, the share of total freight carried by rail is approximately 95 per cent. The EATL rail network in Tajikistan covers three major routes that are also in the TRACECA corridor:

- Kairakkum to Bekabad (border of Kyrgyzstan);
- Dushanbe to Oktajabr'sk (border with Kyrgyzstan);
- Kulab to Ajvadz (border with Uzbekistan).

Sea ports and inland waterway ports

Tajikistan is a landlocked country; nevertheless a small volume of transport on the 200 km of inland waterways occurs along the Vakhsh River.

International border-crossing points (road and rail)

The following border-crossing points are operational:

- Afghanistan (1,206 km): Nizhiniy Panj, Ashkasham (both road);
- China (414 km): Kulma Pass (road);
- Kyrgyzstan (870 km): Oktajabr'sk, Bekabad (both rail);
- Uzbekistan (1,161 km): Tursun-zadeh (road), Ajvadz (rail), Chavast (road), Sughd Oblast ("Navruzobod").

In detail, the "Bratsvo" international checkpoint facility at Tursun-zadeh is fully equipped with computers and passport readers allowing transmission of information on border crossing to all applicable Tajik agencies. According to the EU's Border Management Programme in Central Asia, border-crossing points on the Tajik-Afghan border at Darvoz, Tem and Ishakashim are currently under construction, with new buildings that encourage inter-agency cooperation and facilitate trade and transit whilst enhancing border security.

Ongoing and planned transport infrastructure projects of international importance and related investment costs

According to the input provided by Tajikistan, six projects are envisaged to upgrade the road network. To date, the projects are in different stages of completion:

- Construction of section Murghab - Taktamish (38 km);
- Rehabilitation Kulyab – Kalaikhumb;
- Three bridge constructions (River Pjandzh) along highway Dushanbe-Khorog;
- Construction of "Anzob" tunnel;
- Construction of bridge in settlement Nidzny Pyjandz;
- Planned construction of 25 border crossing facilities, with the ones to Kyrgyzstan and China being of special importance.

New proposed transport infrastructure projects of international importance and related investment costs

The Government has adopted an ambitious Programme of the Tajik transport development by 2015 that focusses on the development of international transport corridors. Tajikistan submitted 7 EATL projects with total cost of US$ 240 million, of which 4 road projects account for US$ 237 million.

Sources: CIA World Factbook,
<http://www.asiandevbank.org/Documents/Reports/CAREC/Transportation-Facilitation.pdf>,
<http://bomca.eu-bomca.org/en/taj>,
<http://dushanbe.usembassy.gov/pr_012606.html>,
<http://www.iselinconsulting.com/Afghanistan/Afghanistan_9.htm>.

Turkey

Road transport

The General Directorate of Highways administers 63,220 km of roads, including 1,881 km of motorways. Road is the dominant land transport mode, accounting in 2004 for 96 per cent of passenger-km (pkm) and 94 per cent of tonne-km (tkm). Its share in merchandise trade transport is some 10 per cent by volume and 40 per cent by value. The length of the state and provincial road network is 61,800 km. In recent years, road surfaces have been considerably improved, and some roads have been widened. In addition, there are about 1,900 km of motorway. The motorways and two bridges across the Bosporus are toll paying.

Rail transport

The 10,984 km rail network is predominantly single-tracked (95 per cent) and characterised by mountainous terrain, tight curves and steep gradients. Only 19 per cent of rail track is electrified. Rail plays a relatively modest role in inland transport, accounting in 2004 for 2 per cent of pkm and 5 per cent of tkm. Its share in international trade transport reaches 0.5 per cent only. The loss-making state railways, TCDD, own all lines. Only a few suburban lines are commercially successful, while services in the less developed eastern part of the country have been operated at a loss. TCDD runs major sea ports in Turkey that are generally State owned. Block trains to Cologne in Germany and Almaty in Kazakhstan operate once a week.

A number of planned projects aim to increase the role of rail. Branch lines are to be built to industrial zones, private train operators are to be permitted, and work has started on a new, much faster Istanbul-Ankara line, with the Ankara-Eskisehir stretch to be completed by the end of 2006 and the remainder by the end of 2008. There are also plans for a new railway from Ankara to Konya. In May 2004 a Japanese-led consortium began construction of a rail tunnel under the southern Bosporus, with official Japanese financial support. This is the first phase of the Marmaray project, an east-west rail link across Istanbul slated for completion in 2008. But even when the Bosporus tunnel connects the Asian and European parts of the country by a fixed link, EATL rail transit via Turkey towards Iran will continue to be limited by the ferry crossing across the Van lake.

Another obstacle to rail links is posed by differences in gauge parameters. Since the track gauge is different in Turkey (1,435 mm) and EECCA countries (1,520 mm), during transport to these countries either the axles of wagons are changed or the goods are transferred to EECCA wagons. The only exception is provided by the ferry link between the ports Derince (Turkey) and Ilyichevsk (Ukraine) that permits EECCA wagons to be loaded with freight in Turkey, bypassing the break in gauge.

Sea ports and inland waterway ports

Sea transport is important for domestic and international trade and travel, with three of Turkey's major industrial agglomerations (Istanbul-Izmit, Izmir and Adana-Mersin) located on the coast. The share of maritime transport in merchandise trade is almost 90 per cent by volume and 50 per cent by value. The ports of Derince, Mersin, İskenderun, Samsun, Haydarpaşa and İzmir, operated by TCDD - Turkish State Railways - are important parts of the EATL network. All of them are well connected to railways and roads. The privately owned port of Trabzon is also an EATL facility but has no railway connection.

Inland water transport of freight is of marginal importance. Lake Van is the only part of the EATL inland water system in Turkey. The train ferry operating on the lake is an essential link in an EATL rail route connecting South-Eastern Europe to Iran.

Freight terminals and other intermodal transport infrastructure

Two intermodal (rail+road) transhipment points are located in Halkali-Istanbul and Gaziantep. The first has the container handling capacity of 100 TEU/day, the second 54 TEU/day. Both of them operate 11 hours per day, excluding Saturday and Sunday. Annual throughputs of Halkali- Istanbul and Gaziantep equal 219,014 t and 43,450 t respectively.

International border crossing points

There are two road border crossings with Bulgaria (one of them for freight only), one with Georgia and one with Iran. All of them operate around the clock. Average waiting times range from 20 to 30 minutes for private cars, 1 to 8 hours for buses and 20 minutes to 2 hours for trucks.

There are three rail border crossings. On the border with Bulgaria, the average waiting time amounts to 75 minutes for passenger trains and 350 minutes for freight trains. On the Iranian border, the average waiting time for passenger trains is 156 minutes. The border crossing with Armenia remains closed (Figure A1.2).

FIGURE A1.2 PROPOSED EURO-ASIAN ROADS IN TURKEY

Source: National Focal Point (Turkey).
Note: Turkey's border with Armenia is currently closed

Ongoing and planned transport infrastructure projects of international importance and related investment costs

There are seven ongoing road infrastructure projects along the E-road and AH networks (E 70, E-80, E-95, AH1, AH5) with the aggregate investment amounting to $3.1 billion. Five of these projects are scheduled to be completed in 2006, one project in 2007 and one in 2009. As a whole, these projects will connect the Turkish main arterial network to the Caucasus and via the Caspian Sea ferry service to Central Asia and the Far East. The key link is provided by the 577 km long Samsun-Trabzon-Sarp Highway that should start operating in 2006. The highway was tendered as a dual carriageway and 20 tenders have been realized (6 financed by the Turkish Government, 14 by foreign loans).

In the rail sector, three ongoing infrastructure projects along the E-rail network (E70) entail investment outlays of some $3.5 billion. These projects will be completed between 2007 and 2009. Another five projects aims to build or modernize container terminals in major ports (Derince, İskenderun, Haydarpaşa, İzmir and Mersin) that are operated by TCDD, the state-owned railway company.

New proposed transport infrastructure projects of international importance and related investment costs

A number of proposals for new infrastructure projects have been reported to the secretariat. The bulk of them are in the rail sector, the aggregate cost estimate amounting to approximately $11 billion. One of these projects would see the construction of a new line bypassing the northern shore of Lake Van, and thus provide an uninterrupted rail link via Turkey between the EU and Iran. The feasibility of this project depends on the evolution of transport demand along this route. The road and inland water projects proposed by authorities are at a comparatively modest scale, amounting to $350 million and $34 million respectively.

Altogether, Turkey has submitted nineteen EATL projects for evaluation. Seven road projects and two railway projects have been assigned the first priority category. Another five railway projects have been placed in the second category. Finally, five road projects have been classified in the third category.

Sources: Economist Intelligence Unit, NFP report, Turkish State Railways.

Turkmenistan

Road transport

The road system in Turkmenistan covers 24,000 km (as of 2001) and represents a road density of 49 km per 1,000 km^2:

- One major highway runs westward from Mary, along the Iranian border through Ashgabat and then to Turkmenbashi on the Caspian Sea;
- Another one runs north-westward from the Afghan border through Turkmenabat, along the Uzbek border to Dashhowuz;
- Major road-building projects – initiated in 2000 – improved sections of the highway connecting Ashgabat with Turkmenbashi and Mary;
- A major highway between Ashgabat and Dashhowuz (scheduled for completion in 2006) is part of a plan to link the capital with major points in all five provinces.

Rail transport

The railway network covers 2,503 km and provides a rail density of 5 km per km^2. A new 540 km line linking Kypchak (Ashgabat) and Dashoguz was completed in 2006 at a cost of US$ 2 billion, including rolling stock and the provision of 17 bridges. It is planned to start building an extension beyond Dashoguz as far as Turkmenbashi in 2007, with an expected finishing date in 2010.

Sea ports and inland waterway ports

Turkmenistan has access to the Caspian Sea with the major port being Turkmenbashi and shipping to Astrakhan in Russia and Baku in Azerbaijan. In addition, smaller Caspian ports are Alaja, Chekelen, and Ekarem. The important inland waterways (approximately 1,400 km in length) are the Amu Darya river and the Kara Kum canal. The canal designed mainly for irrigation, is navigable for 450 kilometers from its Caspian terminus, while the Amu Darya is navigable only about 250 kilometers downstream from the Afghan border to Turkmenabat.

International border-crossing points (road and rail)

The following border-crossing points are operational:

- Afghanistan (744 km): Serkhetabat (or Gushgy/Kushka) in Turkmenistan (Tourghondi on the Afghan side), Imam Nazar;
- Iran (992 km): Altyn Asyr;
- Kazakhstan (379 km);
- Uzbekistan (1,621 km),

Furthermore, Turkmenistan borders the Caspian Sea with a length of 1,768 km.

Ongoing and planned transport infrastructure projects of international importance and related investment costs

The "Strategy of socio-economic transformations in Turkmenistan for the period until 2010" includes projects of construction and reconstruction of transport routes and telecommunications infrastructure. Included is the completion of construction of modern motor roads between Turkmenbashi and Farab as well as between Ashgabat, Karakum and Dashoguz

Sources: CIA World Fact Book,
<http://www.unctad.org/sections/ldc_dir/docs//lldc-tuk.pdf>,
<http://lcweb2.loc.gov/frd/cs/profiles/Turkmenistan.pdf>,
<http://www.turkmenistan.ru/?page_id=3&lang_id=en&elem_id=9235&type=event&sort=date_desc>.

Ukraine

Road transport

Road transport accounted for 6 per cent of freight turnover (tkm) in 2004, trebling its share since 1998. The network consisting of 250,000 km of roads - only one-half of which are paved - remains underdeveloped, and, with a few exceptions, has been poorly maintained in recent years. Government construction projects tend to be under funded and, in the absence of significant legislative changes, private investment has not materialised. The EATL road network in Ukraine is 8,316 km long and includes sections of both AGR and AH arteries (E40, E50, E58, E95, E105, AH1, AH2, AH3).

Rail transport

The share of rail transport in freight turnover reached 87 per cent in 2004, up from 84 per cent in 1998. The rail network, consisting of 23,000 km of railway track, just over one-third of which is electrified, remains more reliable than the road and motorway system, but is also in dire need of investment. Much of the rolling stock is long past its usual working life. Revenue is used mainly for operating expenses, with little remaining for capital investment as profitable freight transport services have to cross-subsidise passenger services. Nevertheless, with the economy recovering and the revenues rising, the rail authorities have benefited from an increase in liquidity since 2001. This has helped finance investments in railway carriages, and a more than twofold rise in passenger capacity at the recently renovated Kiev train station. A high-speed passenger rail link was established in 2002 to link Kiev and Kharkiv, and another high-speed link opened in 2003 between the capital and Dnipropetrovsk. The EATL network includes sections of PET Corridors V and IX (E 30, E95).

Sea ports and inland waterways ports

There are seven ice-free commercial ports and 4,400 km of inland waterways. The inadequate infrastructure at Black Sea ports has hampered the country's export trade and the share of sea transport declined from 10 per cent to 3 per cent of freight turnover (tkm) between 1998 and 2004. The corresponding share of inland waterways trebled over the same time period, reaching 6 per cent in 2004. The EATL network includes 1,174 km of AGN routes E40, E80 and E80-09, mostly on the Dniper river (1,004 km). Further, there are sixteen river ports along these EATL routes.

Freight terminals and other intermodal transport infrastructure

The EATL network in Ukraine includes three inland freight terminals (inland water + road + rail) that are located in Kiev, Dnipropetrovsk and Zaporozhe. The country's largest intermodal terminal (sea + road + rail) is situated in the port of Ilyichevsk, including a major ro-ro ferry facility with regular services to Varna (Bulgaria), Poti/Batumi (Georgia) and Derince (Turkey). All terminals operate daily around the clock.

International border crossing points (road and rail)

Ukraine has 43 road and 4 rail border-crossing points. Average waiting times range from 30 minutes to 2 hours for passenger trains and 5 hours to 21 hours for freight trains. All rail border crossings and most road crossings are open daily around the clock. The only exceptions are the border-crossing points at international ferry terminals where opening times depend on the arrival and departure schedules of ferries.

Ongoing and planned transport infrastructure projects of international importance and related investment costs

There are only a few ongoing infrastructure projects relevant to the EATL network. Two of these projects are in the rail sector, amounting to $385 million. Three projects aim to improve the inland water network, with a combined investment outlay of $932 million.

New proposed transport infrastructure projects of international importance and related investment costs

The authorities intend to modernize the combined transport terminal at the Ilyichevsk seaport; however, no cost estimates and dates are available.

Altogether, Ukraine has submitted seven EATL projects for evaluation. Two railway projects, one maritime project and two inland waterway projects have been assigned the first priority level. Due to insufficient data, two other inland waterway projects have been placed in the fourth category.

Sources: CIS Statistical Committee, Economist Intelligence Unit, NFP report.

Uzbekistan

Road transport

The road system in Uzbekistan covers an estimated length of 181,315 km with a road density of 405 km per 1,000 km^2. The EATL networks spans 3,626 km along AH5, AH7, AH62, AH63 and AH65.

Rail transport

The railway network covers 4,126 km and provides a rail density of 9 km per 1,000 km^2. Freight services amount to 18 billion tonne-kilometres per annum. The EATL network spans approximately 2,154 km (excluding shared route sections) on the following routes:

- Keles to Karakalpakstan;
- Keles to Hodjadavlet;
- Havast to Nao on the route from Karakalpakstan to Osh (Kyrgyzstan);
- Karakalpakstan to Termez.

Sea ports and inland waterway ports

Uzbekistan, being a landlocked country, shares the southern portion of the Aral Sea with a 420 km shoreline. The inland port on the Amu Darya river operates at Termez. The waterways within the country add up to 1 100 km in length.

Freight terminals and other intermodal transport infrastructure

Overall eight inland container depots, intermodal freight terminals (rail/road) and freight villages/logistics centres operate along the EATL: Chukursai, Tashkent, Sergeli, Ulugbek (Samarkand), Termez, Margilan, Bukhara-2 and Andijan (northern). The general opening hours are from 8 a.m. to 8 p.m. every day.

International border-crossing points (road and rail)

Uzbekistan operates border-crossing points along the border with the following countries:

- Afghanistan 137 km: Galaba, Termez, Amuzang (all rail), Hayraton (road);
- Kazakhstan 2,203 km: Karakalpakiya and Keles (rail), Karakalpakiya and Yallama (road);
- Kyrgyzstan 1,099 km: Savay, Sultanobod, Xonobod, Uchkurgan (rail), Dustlik (road);
- Tajikistan 1,161 km: Bekobod, Suvanobod/Andarhon, Amuzang, Kudukli/Uzun (rail), Gulbahor, Sariasiya, Djartepo, Aybek, Andarhon (road);
- Turkmenistan 1,621 km: Nishon, Pitnyak, Hodjadavlet, Hodjeyli, Alat (rail), Hodjeyli and Alat (road).

As of 2003, 183 customs points were operational. Out of these 34 are mobile customs points, 11 are rail border-crossing points, 68 are road border-crossing points and one is a river border crossing. Uzbek authorities maintain that 58 customs points are dedicated to “foreign economic relations” with 16 of them being rail customs points.

Ongoing and planned transport infrastructure projects of international importance and related investment costs

Currently nine infrastructure projects (four concerning rail and five concerning road infrastructure) of international importance are undertaken. The following railway projects with costs of US$ 730.4 million are under way:

- Railroad modernization (Samarkand-Hodjadavlet);
- Electrification of Tukimachi-Angren railway section ;
- Rehabilitation of Marokand-Karshi railroad;
- Reconstruction of railroad station Termez-Galaba, including bridge through the river Amu Darya.

For only one road project (rehabilitation and reconstruction of Samarkand-Termez road on a section of the Transafghan international transport corridor) a cost estimate of US$ 58.8 million has been given. Although the following four projects are under construction, the Uzbek authorities have not provided associated cost estimates:

- Construction and reconstruction of Uzbek section of "Ukraine border-Volgograd-Astrahan-Atirau-Beyneu-Tashkent" highway which is the main part of international road E-40;
- Reconstruction and rehabilitation of Uzbek section of "Kungrad-Jaslik-Beyneu" road;
- Construction and rehabilitation of Uzbek section of "Tashkent-Andijan-Osh-Saritash-Irkeshtam-Kashgar" road;
- Construction of Angren-Pap mountain road.

New proposed transport infrastructure projects of international importance and related investment costs

In addition to the ongoing infrastructure projects, Uzbekistan has proposed two projects with a short-term perspective and four with a medium-term perspective on implementation:

Short-term (until 2010):

- Construction of Uzbek section of "Uchkuduk - Kyzylorda" road;
- Construction of customs control complex "Karakalpakiya", which will control rail and road transportation;

Medium-term (until 2015):

- Construction of new railroad Angren-Pap;
- Reconstruction of Uzbek section of "Djalalabad-Karasu-Andijan" railroad;
- Reconstruction of Uzbek section of "Aktau-Beyneu-Kungrad" railroad;
- Modernization of customs control complexes and main customs points.

Sources: CIA World Factbook, NFP report, <http://www.unctad.org/sections/ldc_dir/docs//lldc-uzb.pdf>

ANNEX II

SUMMARY LIST OF INTERNATIONAL UNECE AND UNESCAP LEGAL INSTRUMENTS IN THE FIELD OF TRANSPORT

I. MAIN INTERNATIONAL UNECE TRANSPORT CONVENTIONS

A. Transport Infrastructure Agreements

1. The European Agreement on Main International Traffic Arteries (AGR), of 1975, provides the international legal and technical framework for the development of a coherent international road network in the UNECE region. The AGR defines the E road network, consisting of the arteries channelling major international road traffic flows in Europe, and the infrastructure parameters to which those arteries should conform. The AGR underwent a major revision in the early 1990s following the fall of the Iron Curtain. It has also been recently revised to include the international roads of the countries in the Caucasus and Central Asia. States that become Contracting Parties to the AGR commit themselves to its implementation, including the construction or upgrading of the E-roads in their territories, within their national investment programmes, although they are given complete latitude as to the timing for the completion of construction works. Contracting Parties at 13 March 2007: 37 States.

2. The European Agreement on Main International Railway Lines (AGC), of 1985, similarly provides the legal and technical framework for the development of a coherent international rail network in the region. The AGC identifies the rail lines of major international importance, the E rail network, and defines the infrastructure parameters to which they should conform. The AGC is also revised whenever necessary to take account of political and transport changes in Europe. It has undergone a major revision in recent years in order to also include the international rail networks of the Caucasus and Central Asian countries. In becoming Contracting Parties to the AGC, European States commit themselves to its implementation, including the construction or the upgrading of the E-rail lines in their territories, within the framework of their national programmes but without any time constraints. Contracting Parties at 1 August 2007: 28 States.

3. The European Agreement on Important International Combined Transport Lines and Related Installations (AGTC), of 1991, provides the technical and legal framework for the development of efficient international combined road/rail transport in Europe. Combined road/rail transport comprises the transport of containers, swap bodies and entire trucks on railway wagons to and from especially equipped terminals. The AGTC determines all important European railway lines used for international combined transport, identifies all terminals, border crossing points, ferry links and other installations important for international combined transport services. It also establishes internationally acceptable infrastructure standards for those lines and related combined transport installations, and prescribes internationally acceptable performance parameters of trains and combined transport installations and equipment. European States who become Contracting Parties to the AGTC, commit themselves to its implementation in their territories within the framework of their national programmes but without any time constraints. Contracting Parties at 13 March 2007: 30 States.

4. The European Agreement on Main Inland Waterways of International Importance (AGN), of 1996, establishes the internationally agreed European network of inland waterways and ports as well as the uniform infrastructure and operational parameters to which they should conform. The geographical scope of the E waterways network, consisting of navigable rivers, canals and coastal routes extends from the Atlantic to the Ural, connecting 37 countries and reaching beyond the European region. By acceding to the AGN, Governments commit themselves to the development and construction of their inland waterways and ports of international importance in accordance with the uniform conditions agreed upon and within their investment programmes. Contracting Parties at 13 March 2007: 13 States.

B. Main Road Traffic and Road Safety Conventions

5. The Convention on Road Traffic, done in Vienna in 1968, aims at facilitating international road traffic and at increasing road safety through the adoption of uniform road traffic rules. The Convention sets up commonly agreed rules on all factors influencing international road traffic and its safety, including the driver and the vehicle, with which Contracting Parties must comply and ensure compliance. The Convention establishes that, in general, and without affecting the right of a Contracting Party to make the admission of vehicles in their territory subject to any applicable national law, Contracting Parties shall be bound to admit to their territories in international traffic motor vehicles and drivers that fulfil the conditions laid down in the Convention and to recognize vehicle registration certificates issued by other Contracting Parties. In addition, the Convention details the basic conditions for the admission of vehicles and drivers in international traffic. The Convention has recently been amended to prohibit the use of hand-held mobile phones while driving and better control driving permits. The benefits of this Convention for countries are obvious. International trade is increasingly carried by road. This Convention is crucial for facilitating international road traffic, therefore international transport and trade as well as tourism. In addition, the Convention rules provide for a high level of road safety. Contracting Parties at 13 March 2007: 67 States.

6. The Convention on Road Signs and Signals, done in Vienna in 1968, sets up a set of commonly agreed road signs and signals. It classifies road signs in three categories: danger warning, regulatory and informative, and provides for each of them definitions and physical appearance, including dimensions, shapes and colours, graphic symbols and norms for ensuring their visibility and legibility. The Convention also prescribes common norms for traffic light signals and signals for pedestrians. Moreover, the Convention prescribes uniform conditions for road markings, signs for road works and signals and gates for level crossings. Amendments, including new provisions regarding the legibility of signs, priority at roundabouts and new signs to improve safety in tunnels, were adopted in 2003. Contracting Parties at 13 March 2007: 56 States.

7. The European Agreement supplementing the 1968 Convention on Road Traffic, of 1971, sets up stricter provisions than the Convention in order to further enhance road safety on European roads. Contracting Parties at 13 March 2007: 31 States.

8. The European Agreement supplementing the 1968 Convention on Road Signs and Signals, of 1971, similarly establishes stricter rules for signs and signals for use on European roads to increase safety. Contracting Parties at 13 March 2007: 29 States.

9. Protocol on Road Markings, Additional to the European Agreements supplementing the 1968 Convention on Road Signs and Signals, of 1973, sets up the rules according to which marking should be placed on the roads to better organize road traffic and prevent road accidents. Contracting Parties at 13 March 2007: 24 States.

C. Agreements on Regulations for the Construction of Vehicles

10. The Agreement concerning the Adoption of Uniform Technical Prescriptions for Wheeled Vehicles, Equipment and Parts which can be fitted and/or be used on Wheeled Vehicles and the Conditions for Reciprocal Recognition of Approvals granted on the Basis of these Prescriptions, of 1958, provides the legal framework for the development of the safety and emissions regulations according to which motor vehicles must be manufactured in Europe and in many other parts of the world. Altogether more than 120 such regulations have been developed. These regulations and the successive amendments they have undergone have considerably increased vehicle safety and drastically reduced vehicle emissions. Contracting Parties at 13 March 2007: 46 States and the European Community.

11. The Agreement concerning the Establishing of Global Technical Regulations for Wheeled Vehicles, Equipment and Parts which can be fitted and/or be used on Wheeled Vehicles, of 1998, provides the framework for the development of global technical regulations for vehicles. Two global technical regulations have already been adopted. Contracting Parties at 13 March 2007: 28 States and the European Community.

D. Other Road Transport Conventions

12. The European Agreement concerning the Work of Crews of Vehicles engaged in International Road Transport (AETR), done on 1 July 1970, aims at preventing drivers and crews of commercial vehicles of more than 3.5 tonnes, or transporting more than 9 people, engaged in international road transport, from driving excessive hours, as this increases the risk of serious road accidents and may create disparities in the working conditions of this category of workers and in the competition conditions of their companies. To this end, the AETR regulates the driving and rest periods of those professional drivers. The Agreement also defines the on board control device, the so-called tachograph, that is used to control those periods, and sets up the general provisions as well as all technical requirements for the construction, testing, installation and inspection of the device. Additionally, the AETR also sets up requirements for the checking of driving hours by the competent authorities of Contracting Parties. The AETR is now being amended to introduce the digital tachograph, which, contrary to the mechanical tachographs, will be tamper proof and cannot be manipulated. By regulating the driving and rest periods of drivers of heavy commercial vehicles engaged in international transport, the AETR creates a level playing field in the road haulage industry and helps prevent road accidents caused by fatigue. These accidents may be all the more serious as vehicles involved are heavy goods vehicles or carry a large number of passengers. Contracting Parties at 13 March 2007: 47 States.

13. The Convention on the Contract for the International Carriage of Goods By Road (CMR), done in Geneva on 19 May 1956, facilitates international road transport by providing a common transport contract, including a common consignment note and harmonized liability limits. The CMR fixes the conditions governing the contract for the international carriage of goods by road between the carrier and the forwarder and sets the conditions of liability of the carrier in case of total or partial loss of goods. The CMR belongs to private law and have no direct implications for the Government. However, in order for transport operators to implement the Convention, it must be included in their national legislation. A new Protocol to the CMR is being considered in order to introduce the use of an electronic consignment note. The CMR helps to maintain fair competition between carriers and limits the costs of international road transport, including insurance costs. Contracting Parties at 13 March 2007: 51 States.

14. The Protocol to the Convention on the Contract for the International Carriage of Goods by Road, of 1978, modifies the provisions concerning the liability of the carrier for compensation in respect of loss of goods, set out in article 23 of the Convention. Contracting Parties at 13 March 2007: 35 States.

E. Border-Crossing Facilitation Conventions

15. The Convention concerning Customs Facilities for Touring, of 1954, facilitates the development of international touring by providing temporary admission, free of import duties and import taxes, of the personal effects imported by a tourist, provided they are for the personal use of the tourist, that they are carried on the person of or in the luggage accompanying the tourist, that there is no reason to fear abuse, and that these personal effects will be re-exported by the tourist on leaving the country. Contracting Parties at 13 March 2007: 78 States.

16. The Additional Protocol to the Convention concerning Customs Facilities for Touring, relating to the Importation of Tourist Publicity Documents and Materials, of 4 June 1954, establishes the special conditions for the admission of such documents and materials. Contracting Parties at 13 March 2007: 73 States.

17. The Customs Convention on the Temporary Importation of Private Road Vehicles, of 1954, facilitates the temporary admission into a country Contracting Party to the Convention of private road vehicles registered in another country, also Contracting Party to the Convention, without payment of import duties and taxes for the vehicles. The Convention defines the concept of private road vehicle and establishes the principle of temporary importation of such vehicles under the cover of the international "Carnet de passage en douane" (CPD). These Carnets guarantee payment of import duties and taxes of the vehicles to national competent authorities if the vehicle that has been temporarily admitted is not re-exported. The “Carnets de passage en douane” are issued by authorized organizations or associations, which guarantee the payment. The Convention describes in detail the functioning of the temporary importation

procedures and the documents to be used as well as claims procedures to be applied when exportation of vehicles has not been done within the time limits prescribed. The Convention is open to all United Nations Members. It introduces a uniform procedure and provides for an internationally recognized document, which replace national procedures and documents, often different from one country to another. The procedure also avoids the operation of national guarantee systems, as all taxes and duties are covered. In addition, it ensures accurate filling-in by competent authorities and associations or private vehicle drivers. As a result, the Convention helps minimize procedures and delays at border crossings. Contracting Parties at 13 March 2007: 79 States and the European Community.

18. The Customs Convention on the International Transport of Goods under Cover of TIR Carnets (TIR Convention), of 1975, sets up the procedure that permits the international carriage of goods by road vehicles or containers from one Customs office of departure to a Customs office of arrival, through as many countries as necessary, without intermediate check of the goods carried and without the deposit of a financial guarantee at each border. The procedure includes the use of secure vehicles or containers that have to be approved by authorities according to standards prescribed in the Convention in order for them to be used for TIR operations. It also includes an international guarantee chain, set up under the Convention, to cover duties and taxes at risk throughout the journey and whereby in each Party a duly authorized association provides a guarantee towards national competent authorities. In addition, each vehicle must carry an international Customs document, the TIR Carnet, which certifies the contents of the cargo as checked at the Customs Office of departure and which is also a guarantee document. The Customs authorities at intermediate borders recognize the TIR Carnets, trust the information contained therein and do not undertake checks unless deemed appropriate for any reason. Finally, the procedure foresees a controlled access to the TIR system and the exclusion from the system of operators that misuse it for illegal purposes. An Administrative Committee, composed of all Parties to the TIR Convention, administers the Convention, which is open to all members of the United Nations. Through efficient control procedures and an international guarantee system, the TIR Convention of 1975 permits to avoid physical inspections of goods in transit as well as payment of taxes and duties for the goods en route. It also permits to avoid a national guarantee system and national Customs document and control systems. All this results in minimum procedures and delays at borders and in lower transport costs, which in turn results in lower export and import costs. Contracting Parties at 13 March 2007: 66 States and the European Community.

19. The Customs Convention on the Temporary Importation of Commercial Road Vehicles, of 1956, facilitates the temporary admission into a country Party to the Convention of commercial road vehicles registered in another country also Party to the Convention without payment of import duties and taxes for the vehicle. The Convention sets up the principle of temporary importation of such vehicles under cover of the international document "Carnet de passage en douane" (CPD). These Carnets guarantee payment of import duties and taxes of the vehicles to national competent authorities if the vehicle that has been temporarily admitted is not re-exported. The CPDs are issued by authorized organizations or associations, which guarantee the payment. The Convention describes the functioning of the temporary importation procedures and the documents to be used as well as claims procedures to be applied when the exportation of vehicles has not been done within the time limits prescribed. The Convention introduces a standardized procedure and provides for an internationally recognized document, which replace national procedures and documents, often different from one country to another. The procedure also avoids the operation of national guarantee systems, as all taxes and duties are covered. In addition, it ensures accurate filling-in by competent authorities and transport operators. As a result, the Convention helps minimize procedures and delays at border crossings. The Convention is open to all United Nations Members. Contracting Parties at 13 March 2007: 39 States and the European Community.

20. The International Convention to Facilitate the Crossing of Frontiers for Passengers and Baggage carried by Rail, of 1952, facilitates the crossing of borders for passengers carried by rail by providing procedures for control of the entry and exit of passengers and their baggage by competent authorities of two adjoining countries linked by a railway line carrying a considerable volume of passengers crossing the frontier. Contracting Parties at 18 January 2006: 10 States.

21. The International Convention to Facilitate the Crossing of Frontiers for Goods Carried by Rail, of 1952, facilitates the crossing of frontiers by goods carried by rail by providing procedures and conditions for harmonizing and ensuring a high level of efficiency in the controls of goods carried by rail at borders between two adjoining countries on a railway line carrying a considerable volume of goods. Contracting Parties at 13 March 2007: 10 States.

22. The Customs Convention on Containers, of 1972, facilitates the temporary use of containers in international transport by deferring payment of taxes and duties for the temporary use in a Contracting Party of containers registered in another Contracting Party. Contracting Parties at 13 March 2007: 35 States.

23. The International Convention on the Harmonization of Frontier Controls of Goods, of 1982, aims at facilitating border crossing in international transport of goods through harmonization and reduction of the requirements for completing formalities and the number and duration of border controls. The Convention establishes the procedures for carrying out efficiently all types of controls that may be necessary at borders, including Customs controls, medico-sanitary inspections, veterinary inspections, phytosanitary inspections, controls of compliance with technical standards and quality controls. Procedures largely call for national cooperation and coordination of the various services among them, as well as for international cooperation between the respective border services of the adjacent countries. The Convention foresees measures that include joint controls of goods and documents through the provision of shared facilities, same opening hours and same types of services at the same border. These procedures apply to all goods being imported, exported or in transit and to all modes of transport. An Administrative Committee manages the Convention, which is foreseen for global application. The Convention provides for a reduction in the number and duration of all types of controls and best practices for efficient controls of goods at border crossings. It aims at promoting the one-stop-shop principle for border controls. As a result, the Convention reduces border delays, which results in lower transport costs and, therefore, in lower export and import costs. Contracting Parties at 13 March 2007: 47 States and the European Community.

24. The Convention on Customs Treatment of Pool Containers Used in International Transport, of 1994, aims at the duty- and tax-free admission of containers belonging to a Pool by simplifying the regime set up by the Customs Convention on Containers, of 1972. Contracting Parties at 13 March 2007: 14 States.

F. Transport of Dangerous Goods

25. The European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR), of 1957, aims at ensuring the highest possible level of safety in the transport of dangerous goods at an economically acceptable cost. It identifies the substances that are considered as dangerous goods and that can be admitted in international transport as well as those that cannot be admitted. For the former, the ADR establishes the conditions under which they can be carried. These include the classification of substances according to their specific type of danger (explosives, flammable liquids, flammable gases, corrosive substances, etc.), packing conditions, labelling, marking, placarding, documentation and special requirements for tanks. The ADR also contains requirements on transport operations, driver training as well as vehicle construction and approval. Security provisions have recently been included. The Annexes to the ADR are usually amended every two years. While obliging Contracting Parties to accept vehicles coming from other Parties if they comply with the ADR, the Agreement preserves the right of Contracting Parties to prohibit, for reasons other than safety during carriage, the entry of dangerous goods into their territory. Contracting Parties also retain the right to arrange less stringent conditions of international transport on their territories, by special bilateral or multilateral agreements. The ADR is open for accession to all United Nations member States. Accession to the ADR has no financial implications for countries. However, for exporting countries, it imposes administrative structures for testing and approval of packagings, tanks and vehicles, for driver and dangerous goods safety adviser training and for issuing the corresponding certificates. The ADR provides for a high level of safety and security during international carriage of dangerous goods. It also facilitates

transport and trade of such goods resulting from mutual recognition of packaging, tank, vehicle and driver training certificates. Being harmonized with the United Nations Model Regulations that serve as a basis for all modes of transport and most national regulations at worldwide level also facilitates compliance, enforcement and control. Annexes A and B may be, and actually are, used for also regulating domestic traffic in EU countries. Contracting Parties at 13 March 2007: 42 States.

26. The Protocol amending article 1(a), article 14 (1) and article 14(3)(b) of ADR, of 1993, simplifies the procedures for amending the annexes to the ADR, and harmonizes the definition of the term "vehicle" with the definition used in various EC directives. Contracting Parties at 13 March 2007: 29 States.

27. The European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterway (ADN), of 2000, aims at ensuring a high level of safety in such carriage at an economically acceptable cost. It includes provisions that must be respected by all components of such transport, including vessels and crew. Signatories at 13 March 2007: 5 States.

G. Transport of Perishable Foodstuffs

28. The Agreement on the International Carriage of Perishable Foodstuff and on the Special Equipment to be used for such Carriage (ATP), of 1970, establishes uniform prescriptions for the preservation of the quality of the perishable foodstuffs during their international transport. It defines uniform norms and standards for the special transport equipment required as well as for the checking of insulation and sets up uniform distinguishing marks to be affixed to the special equipment. Also uniform equipment and temperature conditions for deep-frozen and frozen foodstuffs are specified. Contracting Parties at 13 March 2007: 41 States.

H. Summary list of international UNECE Transport agreements and conventions

TRANSPORT INFRASTRUCTURES

1. Declaration on the Construction of Main International Traffic Arteries, of 16 September 1950
2. European Agreement on Main International Traffic Arteries (AGR), of 15 November 1975
3. European Agreement on Main International Railway Lines (AGC), of 31 May 1985
4. European Agreement on Important International Combined Transport Lines and Related Installations (AGTC), of 1 February 1991
5. Protocol on Combined Transport on Inland Waterways to the European Agreement on Important International Combined Transport Lines and Related Installations (AGTC) of 1991/1997
6. European Agreement on Main Inland Waterways of International Importance (AGN), of 19 January 1996

ROAD TRAFFIC AND ROAD SAFETY

7. Convention on Road Traffic, of 19 September 1949
8. Convention on Road Traffic, of 8 November 1968
9. Protocol on Road Signs and Signals, of 19 September 1949
10. Convention on Road Signs and Signals, of 8 November 1968
11. European Agreement supplementing the Convention on Road Traffic (1968), of 1 May 1971
12. European Agreement supplementing the Convention on Road Signs and Signals (1968), of 1 May 1971
13. European Agreement on the Application of Article 23 of the 1949 Convention on Road Traffic concerning the Dimensions and Weights of Vehicles Permitted to Travel on Certain Roads of the Contracting Parties, of 16 September 1950

14. European Agreement supplementing the 1949 Convention on Road Traffic and the 1949 Protocol on Road Signs and Signals, of 16 September 1950
15. European Agreement on Road Markings, of 13 December 1957
16. Protocol on Road Markings, additional to the European Agreement supplementing the Convention on Road Signs and Signals, of 1 March 1973
17. Agreement on Minimum Requirements for the Issue and Validity of Driving Permits (APC), of 1 April 1975

ROAD VEHICLES

18. Agreement concerning the Adoption of Uniform Technical Prescriptions for Wheeled Vehicles, Equipment and Parts which can be fitted and/or be used on Wheeled Vehicles and the Conditions for Reciprocal Recognition of Approvals Granted on the Basis of these Prescriptions, of 20 March 1958
19. Agreement concerning the Adoption of Uniform Conditions for Periodical Technical Inspections of Wheeled Vehicles and the Reciprocal Recognition of Such Inspections, of 13 November 1997
20. Agreement concerning the Establishing of Global Technical Regulations for Wheeled Vehicles, Equipment and Parts which can be fitted and/or be used on Wheeled Vehicles, of 25 June 1998

OTHER LEGAL INSTRUMENTS RELATED TO ROAD TRANSPORT

(a) Working Conditions

21. European Agreement concerning the Work of Crews of Vehicles engaged in International Road Transport (AETR), of 1 July 1970

(b) Taxation

22. Convention on the Taxation of Road Vehicles for Private use in International Traffic, of 18 May 1956
23. Convention on the Taxation of Road Vehicles engaged in International Passenger Transport, of 14 December 1956
24. Convention on the Taxation of Road Vehicles engaged in International Goods Transport, of 14 December 1956

(c) Private Law

25. Convention on the Contract for the International Carriage of Goods by Road (CMR), of 19 May 1956
26. Protocol to the Convention on the Contract for the International Carriage of Goods by Road (CMR), of 5 July 1978
27. Convention on the Contract for the International Carriage of Passengers and Luggage by Road (CVR), of 1 March 1973
28. Protocol to the Convention on the Contract for the International Carriage of Passengers and Luggage by Road (CVR), of 5 July 1978

(d) Economic Regulations

29. General Agreement on Economic Regulations for International Road Transport, of 17 March 1954

INLAND NAVIGATION (Private Law)

30. Convention relating to the Unification of Certain Rules concerning Collisions in Inland Navigation, of 15 March 1960
31. Convention on the Registration of Inland Navigation Vessels, of 25 January 1965
32. Convention on the Measurement of Inland Navigation Vessels, of 15 February 1966

33. Convention relating to the Limitation of the Liability of Owners of Inland Navigation Vessels (CLN), of 1 March 1973
34. Protocol to the Convention relating to the Limitation of the Liability of Owners of Inland Navigation Vessels (CLN), of 5 July 1978
35. Convention on the Contract for the International Carriage of Passengers and Luggage by Inland Waterway (CVN), of 6 February 1976
36. Protocol to the Convention on the Contract for the International Carriage of Passengers and Luggage by Inland Waterways (CVN), of 5 July 1978

BORDER CROSSING FACILITATION

37. Convention concerning Customs Facilities for Touring, of 4 June 1954
38. Additional Protocol to the Convention concerning Customs Facilities for Touring, relating to the importation of tourist publicity documents and material, of 4 June 1954.
39. Customs Convention on the Temporary Importation of Private Road Vehicles, of 4 June 1954
40. Customs Convention on the International Transport of Goods under Cover of TIR Carnets (TIR Convention), of 15 January 1959
41. Customs Convention on the International Transport of Goods under Cover of TIR Carnets (TIR Convention), of 14 November 1975
42. Customs Convention on the Temporary Importation for Private Use of Aircraft and Pleasure Boats, of 18 May 1956
43. Customs Convention on the Temporary Importation of Commercial Road Vehicles, of 18 May 1956
44. International Convention to Facilitate the Crossing of Frontiers for Passengers and Baggage carried by Rail, of 10 January 1952
45. International Convention to Facilitate the Crossing of Frontiers for Goods Carried by Rail, of 10 January 1952
46. Customs Convention concerning Spare Parts Used for Repairing Europ Wagons, of 15 January 1958
47. Customs Convention on Containers, of 18 May 1956
48. Customs Convention on Containers, of 2 December 1972
49. European Convention on Customs Treatment of Pallets Used in International Transport, of 9 December 1960
50. International Convention on the Harmonization of Frontier Controls of Goods, of 21 October 1982
51. Convention on Customs Treatment of Pool Containers Used in International Transport, of 21 January 1994

TRANSPORT OF DANGEROUS GOODS

52. European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR), of 30 September 1957
53. Protocol amending article 1 (a), article 14 (1) and article 14 (3) (b) of the European Agreement of 30 September 1957 concerning the International Carriage of Dangerous Goods by Road (ADR), of 28 October 1993
54. Convention on Civil Liability for Damage caused during Carriage of Dangerous Goods by Road, Rail and Inland Navigation Vessels (CRTD), of 10 October 1989
55. European Agreement Concerning the International Carriage of Dangerous Goods by Inland Waterway (ADN), of 25 May 2000

TRANSPORT OF PERISHABLE FOODSTUFFS

56. Agreement on the International Carriage of Perishable Foodstuffs and on the Special Equipment to be Used for such Carriage (ATP), of 1 September 1970

II. MAIN INTERNATIONAL UNESCAP TRANSPORT AGREEMENTS AND CONVENTIONS

1 The Intergovernmental Agreement on the Asian Highway Network entered into force on 4 July 2005. As of February 2007, the Agreement has been signed by 28 countries, of which 20 are Parties to the Agreement.

2. The Intergovernmental Agreement on the Trans-Asian Railway Network was adopted at the 62nd UNESCAP Commission session held in Jakarta, Indonesia in April 2006 and signed by 18 member States on 10 November 2006 during the Ministerial Conference on Transport held in Busan, Republic of Korea. The Agreement has been deposited with the United Nations Headquarters where it will remain open for signature until 31 December 2008.

ANNEX III

SUMMARY LIST OF EU LEGISLATION FOR TRANSPORT INFRASTRUCTURE

1. Trans-European Transport Networks

- Council Regulation (EC) 2236/95 of 18 September 1995 laying down general rules for the granting of Community financial aid in the field of trans-European networks, Official journal L 228, 23/09/1995, p. 0001-0007, modified by:
- Regulation (EC) 1655/1999 of the European Parliament and of the Council of 19 July 1999 amending Regulation (EC) 2236/95 laying down general rules for the granting of Community financial aid in the field of trans-European networks, Official journal L 197, 29/07/1999, p. 0001 - 0007
- Regulation (EC) 788/2004 of the European Parliament and of the Council of 21 April 2004 amending Council Regulation (EC) 2236/95 and Regulations (EC) 1655/2000, (EC) 1382/2003 and (EC) 2152/2003 with a view to adapting the reference amounts to take account of the enlargement of the European Union, Official journal L 138, 30/04/2004, p. 0017 - 0018
- Regulation (EC) 807/2004 of the European Parliament and of the Council of 21 April 2004 amending Council Regulation (EC) 2236/95 laying down general rules for the granting of Community financial aid in the field of trans-European networks, Official journal L 143, 30/04/2004, p. 0046 - 0048
- Decision 1692/96/EC of the European Parliament and of the Council of 23 July 1996 on Community guidelines for the development of the trans-European transport network, Official journal L 228, 09/09/1996, p. 0001 - 0104, rectified by:
- Corrigendum to the Decision 1692/96/EC of the European Parliament and of the Council of 23 July 1996 on Community guidelines for the development of the trans-European transport network, Official journal L 15, 17/01/1997, p. 0001 - 0004

modified by:

- Decision 1346/2001/EC of the European Parliament and of the Council of 22 May 2001 amending Decision 1692/96/EC as regards seaports, inland ports and intermodal terminals as well as project Nr 8 in Annex III, Official journal L 185, 06/07/2001, p. 0001 - 0036
- Decision 884/2004/EC of the European Parliament and of the Council of 29 April 2004 amending Decision 1692/96/EC on Community guidelines for the development of the trans-European transport network (Text with EEA relevance), Official journal L 167, 30/04/2004, p. 0001 - 0038, rectified by:
- Corrigendum to the Decision 884/2004/EC of the European Parliament and of the Council of 29 April 2004 amending Decision 1692/96/EC on Community guidelines for the development of the trans-European transport network (Text with EEA relevance), Official journal L 201, 07/06/2004, p. 0001 - 0055
- Directive 2004/54/EC of the European Parliament and of the Council of 29 April 2004 on minimum safety requirements for tunnels in the Trans-European Road Network, Official journal L 167, 30/04/2004, p. 0039 - 0091, rectified by:
- Corrigendum to the Directive 2004/54/EC of the European Parliament and of the Council of 29 April 2004 on minimum safety requirements for tunnels in the Trans-European Road Network, Official journal L 201, 07/06/2004, p. 0056 – 0076
- Council Directive 96/48/EC of 23 July 1996 on the interoperability of the trans-European high-speed rail system (OJ L 235, 17.9.1996, p. 6)
- Directive 2004/52/EC of the European Parliament and of the Council of 29 April 2004 on the interoperability of electronic road toll systems in the Community (Text with EEA relevance) (OJ L 166, 30.4.2004, p. 124)
- Directive 2004/54/EC of the European Parliament and of the Council of 29 April 2004 on minimum safety requirements for tunnels on Trans-European Roads

2. Coordination of Investments in the Domain of Transport

- Council Regulation (EEC) 3600/82 of 30 December 1982 on the granting of limited support in the field of transport infrastructure, Official journal L 376, 31/12/1982, p. 0010 - 0010

- Council Regulation (EEC) 1889/84 of 26 June 1984 introducing special measures of Community interest relating to transport infrastructure, Official journal L 177, 04/07/1984, p. 0004 - 0006
- Council Regulation (EEC) 3620/84 of 19 December 1984 on a specific measure in the field of transport infrastructure, Official journal L 333, 21/12/1984, p. 0058 - 0060
- Council Regulation (EEC) 4059/86 of 22 December 1986 on the granting of financial support to transport infrastructure projects, Official journal L 378, 31/12/1986, p. 0024 - 0026
- Council Regulation (EEC) 4070/87 of 22 December 1987 on the grant of support to transport infrastructure projects, Official journal L 380, 31/12/1987, p. 0033 - 0034
- Council Regulation (EEC) 4048/88 of 19 December 1988 on the grant of financial support to transport infrastructure projects, Official journal L 356, 24/12/1988, p. 0005 - 0006
- Council Regulation (EEC) 3359/90 of 20 November 1990 for an action programme in the field of transport infrastructure with a view to the completion of an integrated transport market in 1992, Official journal L 326, 24/11/1990, p. 0001- 0005
- Council Regulation (EEC) 1738/93 of 25 June 1993 for an action programme in the field of transport infrastructure with a view to the completion of an integrated transport market, Official journal L 161, 02/07/1993, p. 0004-0008

3. Setting of Prices of the Use of Infrastructures

- Regulation (EEC) 1108/70 of the Council of 4 June 1970 introducing an accounting system for expenditure on infrastructure in respect of transport by rail, road and inland waterway, Official journal L 130, 15/06/1970, p. 0004 - 0014 , implemented by :
- Regulation (EEC) 2598/70 of the Commission of 18 December 1970 specifying the items to be included under the various headings in the forms of accounts shown in Annex I to Council Regulation (EEC) 1108/70 of 4 June 1970, Official journal L 278, 23/12/1970, p. 0001 - 0005, modified by :
- Commission Regulation (EEC) 2116/78 of 7 September 1978 amending Regulation (EEC) 2598/70 specifying the items to be included under the various headings in the forms of accounts shown in Annex I to Council Regulation (EEC) 1108/70 of 4 June 1970, Official journal L 246, 08/09/1978, p. 0007 - 0008
- Commission Regulation (EC) 13/2004 of 8 December 2003 determining the composition of the list of waterways of a maritime character provided for in Article 3(d) of Council Regulation (EEC) 1108/70 (Text with EEA relevance), Official journal L 003, 07/01/2004, p. 0003 - 0005

modified by:

- Council Regulation (EEC) 1384/79 of 25 June 1979 amending Regulation (EEC) 1108/70 introducing an accounting system for expenditure on infrastructure in respect of transport by rail, road and inland waterway, Official journal L 167, 05/07/1979, p. 0001 - 0006

adapted by:

- Council Regulation (EEC) 3021/81 of 19 October 1981 adapting, consequent upon the accession of Greece, Regulation (EEC) 1108/70 introducing an accounting system for expenditure on infrastructure in respect of transport by rail, road and inland waterway, Official journal L 302, 23/10/1981, p. 0008 – 0008

4. Intermodality/Combined Transport

- Council Regulation (EC) 2196/98 of 1 October 1998 concerning the granting of Community financial assistance for actions of an innovative nature to promote combined transport, Official journal L 277, 14/10/1998, p. 0001 – 0006
- Regulation (EC) 1382/2003 of the European Parliament and of the Council of 22 July 2003 on the granting of Community financial assistance to improve the environmental performance of the freight transport system (Marco Polo Programme), Official journal L 196, 02/08/2003, p. 0001 - 0006

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