

**JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)
MINISTRY OF TRANSPORT AND COMMUNICATIONS
THE REPUBLIC OF KAZAKHSTAN**

**STUDY FOR THE PROJECT OF
THE INTEGRATED LOGISTICS SYSTEM AND
MARKETING ACTION PLAN
FOR CONTAINER TRANSPORTATION**



FINAL REPORT



DECEMBER 2007

Tonichi Engineering Consultants, Inc.



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LOCATION MAP

EXISTING CONDITION OF TRANSPORT SYSTEMS

Area of Kazakhstan	2,717,300 km ²
Railway Length	13,600 km
Road Length	90,845 km
- Republic Road	23,508 km
- Local road	67,337 km
Port	3 ports
Airports	20 airports,
- International Airport	9 airports
- Domestic Airport	11 airports

Exchange rate used in this study

As of May 2007

USD 1.00 = JPY 120.73

USD 1.00 = KZT120.23

PREFACE

In response to the request from the Government of the Republic of Kazakhstan, the Government of Japan decided to conduct “Study for the Project of the Integrated Logistics System and Marketing Action Plan for Container Transportation” and entrusted the Study to the Japan International Cooperation Agency (JICA).

JICA selected and dispatched the Study Team headed by Mr. Masaru Miki of Tonichi Engineering Consultants, Inc., to the Republic of Kazakhstan from September 2006 to October 2007. JICA set up an Advisory Committee consisted of Dr. Ikuo Mitsuhashi from ERINA (Economic Research Institute for Northeast Asia), Dr. Masahiro Shimotani from Kyoto University and Mr. Toshiaki Akimoto from MLIT (Ministry of Land, Infrastructure and Transport, Japan), which examined the study from the specialist and technical points of view.

The Study Team held discussions with the officials concerned of the Government of the Republic of Kazakhstan and conducted the Study in collaboration with the Kazakh counterparts. Upon the last return to Japan, the Study Team finalized the study results for delivery of this Final Report.

I hope that this report will contribute to development in Kazakhstan and to the enhancement of friendly relationship between the two countries.

Finally, I wish to express my sincere appreciation to all the officials concerned of the Government of the Republic of Kazakhstan for their close cooperation extended to the Study.

December 2007

Eiji Hashimoto
Vice President
Japan International Cooperation Agency

Mr. Eiji Hashimoto
Vice President
Japan International Cooperation Agency
Tokyo, Japan

December 2007

Letter of Transmittal

Dear Mr. Eiji Hashimoto,

We are pleased to formally submit herewith the Final Report entitled “Study for the Project of the Integrated Logistics System and Marketing Action Plan for Container Transportation”.

This report compiles the results of the study, which was undertaken in the Republic of Kazakhstan from September 2006 to October 2007 by the Study Team organized by Tonichi Engineering Consultants, Inc. under the contract with the JICA.

The Final Report is composed of the Main Report for the Project of the Integrated Logistics System and Marketing Action Plan for Container Transportation and the Summary Report in Japanese. The Main Report includes the results of the Master plan on the Integrated Logistics System and Marketing Action Plan, and the Feasibility Study on the Logistics Terminals, which are carried out by this Study. It is truly hoped that the outcomes of the Final Report will contribute to the development of the international freight transport and promote the logistics system development in Kazakhstan.

Finally, we would like to express our sincere gratitude and appreciation to all the officials of your agency, the JICA Advisory Committee in Japan, the Embassy of Japan in the Republic of Kazakhstan, and Ministry of Foreign Affairs. We also would like to send our great appreciation to all those who have extended their kind assistance and cooperation to the Study Team, in particular, relevant officials of Ministry of Transportation and Communication, Joint Stock Company National Company Kazakhstan Temir Zholy (KTZ: National Railway) and Joint Stock Company Kaztransserivce.

Very truly yours,

Masaru Miki
Team Leader, JICA Study Team
Study for the Project of the Integrated Logistics
System and Marketing Action Plan for Container
Transportation

**STUDY FOR THE PROJECT OF THE INTEGRATED LOGISTICS SYSTEM
AND MARKETING ACTION PLAN FOR CONTAINER TRANSPORTATION**

FINAL REPORT – MAIN VOLUME

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List of Abbreviation

ADB	Asian Development Bank
ADSL	Asymmetric Digital Subscriber Line
AIC	Agency of the Republic of Kazakhstan for Information and Communication
ARNM	Agency for Regulation of Natural Monopolies
ASTOK	Automated System of custom clearance and control
B/C Ratio	Benefit and Cost Ratio
BEEPS	Business Environment and Enterprise Performance Survey
CAR	Central Asian Republics
CAREC	Central Asian Regional Economic Cooperation
CEP	Caspian Environment Program
CIF	Cost, Insurance and Freight
CIS	Commonwealth of Independent States
CIT	Corporate Income Tax
CKD	Completely Knocked Down
CLB	China Land Bridge
CPC	Caspian Pipeline Consortium
CT	Common Tariff
D/W	Dead Weight
EBRD	European Bank for Reconstruction and Development
ECSSD	Environmentally and Socially Sustainable Development Unit
EIA	Environmental Impact Analysis
EIRR	Economic Internal Rate of Return
ELB	Eurasia Land Bridge
EU	European Union
FSU	Former Soviet Union
FTZ	Free Trade Zone
GDP	Gross Domestic Product
GPS	Global Positioning System
HS Code	Harmonized System Codes
IBRD	International Bank for Reconstruction and Development
ICT	Information Communication Technology
IDB	Inter-American Development Bank
IMF	International Monetary Fund
IRICA	Iran Customs Administration
ITT	International Transit Tariff
ITU	International Telecommunication Union
JBIC	Japan Bank for International Cooperation
JETRO	Japan External Trade Organization
JIP	Just-in-Time
JSC	Joint Stock Company

KDB	Kazakhstan Development Bank
KLSS	Kazakhstan Living Standard Survey
KTC	Kascotransservice
KTS	Kaztrasservice
KTZ	Trans Kazakhstan Railway
KZT	Kazakhstan Tenge
MCP	Microsoft Certificated Professional
MEP	Ministry of Environmental Protection
MIT	Ministry of Industry and Trade
MTC	Ministry of Transport and Communications
NPV	Net Present Value
PCI	Per Capita Income
PFI	Private Finance Initiative
PIT	Personal Income Tax
PPP	Public Private Partnership
PRC	People's Republic of China
PSO	Port and Shipping Organisation
RAI	Railway of the Islamic Republic of Iran
RK	Republic of Kazakhstan
RORO	Roll On Roll Off ship
SCC	State Customs Committee
SCF	Standard Conversion Factor
SCM	Supply Chain Management
SEZ	Special Economic Zone
SLB	Siberian Land Bridge
SME	Small and Medium Enterprises
SOE	State-Owned Enterprise
TA	Technical Assistance
TACIS	Technical Assistance for the CIS (EU)
TEU	Twenty-foot Equivalent Unit
TIR	Les Transport Internationaux de Marchandises par Vehicules Routiers
TRACECA	Transport Corridors Europe, Caucasus, and Asia
TRN	Trunk Railway Network
TTS	Transport/Transaction Time Saving
UN	United Nations
UNDP	United Nation Development Program
VAT	Value Added Tax
VOC	Vehicle Operating Cost
WACC	Weighted Average Cost of Capital
WCO	World Customs Organization
W/G	Working Group
WTO	World Trade Organization
3PL	Third Party Logistics

EXECUTIVE SUMMARY

(1) Background of the Study

In response to a request from the Government of Kazakhstan, the Government of Japan decided to conduct a Study for the Project of the Integrated Logistics System and Marketing Action Plan for Container Transportation in Kazakhstan and entrusted its execution to Japan International Cooperation Agency (JICA), the official agency responsible for the implementation of the technical cooperation program of the Government of Japan. In August 2006, the JICA Study Team commenced the study with the cooperation of counterparts in the Kazakhstan government and submitted a Progress Report to the Kazakhstan government in December 2006. Following this, the study team submitted an Interim Report in April 2007 after continued work in Japan. The study team conducted the necessary field study on the feasibility study, submitted a Draft Final Report to the Kazakhstan government in October 2007, and compiled a Final Report (this text) after making the necessary amendments based on comments from the Kazakhstan government.

(2) Objectives of the Study

The objectives of the study are summarized as follows:

- 1) To enhance domestic and international cargo movements by developing a comprehensive logistics system focused on container cargo transport by the national railway, to be presented in the form of a marketing plan (target year 2017) ,
- 2) To present the outcome of the feasibility study on modern cargo handling facilities to be established at border railway entry points for east-west transit cargo, and
- 3) To promote capacity-building among the parties concerned in Kazakhstan while implementing the study.

(3) Study Area

The study area is the whole area of Kazakhstan and neighboring countries such as China, Iran, Russia, Uzbekistan, Kyrgyz, Turkmenistan, Georgia, Azerbaijan and Afghanistan.

(4) Work Schedule for the Study

The study takes sixteen (16) months, beginning in August 2006 and ending in November 2007. The study is basically divided into two (2) phases, namely Phase 1: Formulation of the Marketing Plan for Logistics and Phase 2: Feasibility Study.

(5) Organization of the Study

The JICA Study Team conducted the study in close cooperation with the following two Kazakhstan counterpart organizations.

- 1) Task Force: the Ministry of Transport and Communications (MTC), Kazakhstan Railway (KTZ), Kaztransservice (KTS)¹
- 2) Working Group: MTC, KTZ and other related administrative organizations

¹ An affiliated company of KTZ which handles container freight business exclusively.

I. STUDY ON THE INTEGRATED LOGISTICS SYSTEM

I.1 Analysis of Competing Routes

In order to formulate the study for the project of the integrated logistics system, the following major transport corridors that pass or might pass through Kazakhstan are analyzed;

- East Asia-Europe and Russia Transport Corridor
- East Asia-Iran Transport Corridor
- East Asia-Caucasus Transport Corridor
- East Asia-Central Asia Transport Corridor
- Iran-Russia Transport Corridor



Figure 1 Alternative Routes in the East Asia-Europe/Russia Corridor

Based on the analysis of the transport corridors, the combination of countries and regions where the transport corridors are located is classified into several categories, i.e., the trans-Kazakhstan route has a comparative advantage, the trans-Kazakhstan route competes with other routes and the trans-Kazakhstan route has no potential. According to this classification, the target area of the trans-Kazakhstan route is shown as follows:

- OD with an advantage on the Trans-Kazakhstan route
 - China (inland area)-Western Europe, Eastern Europe and Russia
 - Japan/Korea, China (coastal and inland areas)-Central Asia
- OD competing with the Trans-Kazakhstan route and some other routes
 - Japan/Korea-the Caucasus
 - China (coastal area)-Eastern Europe, Russia, Iran and the Caucasus
 - China (inland area)-Iran and the Caucasus
 - Iran-Russia

Table 1 Results of Comparative Analysis of International Transport Corridors in Terms of Strengths of the Trans-Kazakhstan Route

	Japan / Korea	China (Coastal)	China (Inland)	West Europe	East Europe	Russia	Iran	Caucasus	Central Asia
Japan / Korea	NA	NA	NA	Water	Water	T-Siberian	Water	T-Aktau T-Turkmen	TRACECA
	China (Coastal)	NA	NA	Water	Water, T-Asian T-Siberian	T-Asian T-Siberian	Water, T-Aktau T-Sarakhs	T-Aktau T-Turkmen	TRACECA
		China (Inland)	NA	Water T-Asian	T-Asian	T-Asian	T-Aktau T-Sarakhs	T-Aktau T-Turkmen	TRACECA
			West Europe	NA	NA	NA	NA	NA	NA
				East Europe	NA	NA	NA	NA	NA
					Russia	NA	Aktau, Astrakhan	NA	NA

- Notes: 1) advantage area, competing area little potential area
- 2) Water: All Water Route, T-Asian: Trans-Asian Route, T-Siberian: Trans-Siberian Route
- 3) T-Aktau: TRACECA Aktau Route, T-Sarakhs: TRACECA Sarakh Route, T-Turkmen: TRACECA Turkmen Route,
- 4) NS Aktau- North South Aktau Route, NS Astrakhan Route: North South Astrakhan Route

I.2 Vision and Goals

Based on the present situation and issues and the National Development Plans of Kazakhstan, the basic direction of the marketing plan for improvement of the integrated logistics system in Kazakhstan can be stated as follows.

Vision
<p>Kazakhstan has emerged from its economic transition period and is aiming to match new industrial countries and become one of the 50 countries top-ranked for competitiveness.</p> <p>By establishing an efficient and effective logistics system, Kazakhstan seeks not only economic development but also improving residents' quality of life and aims to achieve national stability and sustainable development through balanced regional development and to promote the position of Kazakhstan in the world.</p>

National Goals
<p>National Goals: Integrated logistics system development plan</p> <p>Goal 1: Establishment of east-west transit hub</p> <p>Goal 2: Modernization of logistics system in Kazakhstan</p>

I.3 Development Strategy for Improving the Integrated Logistics System in Kazakhstan

Kazakhstan has emerged from its economic transition period and, as a country with a market economy,

is aiming to transform its economic system into a multi-industrial economy from the current economy depending on natural resources. It is important to provide an efficient and effective logistics system that can promote the global development of the Kazakhstan economy. In addition, the following development strategies are proposed in order to meet future freight and container demands. In particular, important key words are “Trans-Kazakhstan route”, “Container freight transport”, “Marketing functions”, “International cargo transport” and “Regional and industrial development.”

Strategies for Logistics System Development
Strategy 1: Strengthening the Trans-Kazakhstan Route
Strategy 2: Promoting containerization for freight traffic
Strategy 3: Strengthening of marketing functions in the logistics service industry
Strategy 4: Developing infrastructure related to the logistics system
Strategy 5: Developing the information system and standardizing the logistics system
Strategy 6: Standardizing and simplifying the customs system
Strategy 7: Enhancing regional and industrial development along the Trans-Kazakhstan Route
Strategy 8: Institutional and human resource development

I.4 Policy for Container Logistics System Development

The policy to improve the logistics system in response to the strategies described above is summarized in Table 2. The policy listed suggests solutions for settling predicted present and future issues in the fields of railways, truck transport, distribution services, marine transport and ports and institutional and human resources.

I.5 Strengthening the Trans-Kazakhstan Route

(1) Strengthening measures for the Trans-Kazakhstan Route

Based on the analysis of competitive routes, trade affected by the trans-Kazakhstan route and stakeholders in logistics, and the strengths and weaknesses of the trans-Kazakhstan route, are evaluated and reinforcement measures are formulated as shown in Table 3.

Table 2 Strategies for Logistics System Development and Development Policy

Strategy / Measure		1	2	3	4	5	6	7	8
		Strengthening of Trans-Kazak Route	Promotion of Containerization for Freight Traffic	Strengthening of Marketing Functions in Logistics Service Industry	Development of infrastructure related Logistics System	Development of Information System and Standardization of Logistics System	Standardization of Customs System	Enhancement of Economic and Industrial development	Institutional and Human Resource Development
Railway									
R-1	Railway Network Development Plan								
R-2	Improvement of Railway Logistics Terminals								
R-3	Improvement in Freight Transportation System								
R-4	Improvement in Freight Transport Operation System								
R-5	Promotion of Containerization								
R-6	Railway Cargo Information System Improvement								
R-7	KTZ Marketing Function Development								
Trucking Industry									
T-1	Road Network Development								
T-2	Enhancement of Truck Industry								
T-3	Establishment of Multi-Modal Transport System								
Marine Transport Development									
M-1	Port Development								
M-2	Caspian Marine time Transport Development								
Logistics Service Industry Development									
L-1	Construction of Logistics Terminal								
L-2	Forwarder Development Program								
Customs System Improvement									
C-1	Customs System Improvement								
C-2	Simplification of Customs System								
Regional and Industrial Development									
E-1	Special Economic Zone Development								
E-2	Industrial Development								
Logistics Institution Development									
I-1	Human Resource Capacity Development								
I-2	Institutional Development								

Source: JICA Study Team

Table 3 Reinforcement Measures for Trans-Kazakhstan Route

	Infrastructure	Operations	Administration	Others
Measures	- Readying railway network–construction of the section between Shalqar-Beyneu (short term)	- Operating block trains - Ensuring punctuality and reliability of train operation - Providing security for freight	- Cooperation among governments (customs, etc.) - Cooperation among railway operators (railway tariffs, etc.)	- Economic and industrial development along the trans-Kazakhstan route
	- Readying Dostyk Terminal - Readying Aktau Terminal - Readying Aktau international commercial port	- Ensuring rapid transshipment and train makeup - Achieving simplification of customs procedure - Securing traceability in freight transport	- Cooperation among container operators - Cooperation among freight forwarders	

(2) Improvement of Infrastructure and Facilities

Due to its historical background, the railway network in Kazakhstan has been developed toward Moscow, Russia, and the east-west connection of the transport network was poorly developed. In order to reinforce the network, the construction of a missing link section between Beyneu-Shalqar is proposed over the short term. Furthermore, over the medium to long term, extension of the rail line to Zhezkazgan is proposed in order to have a direct railway link between Dostyk and Aktau.

- Construction of railway section between Shalqar and Beyneu
- Improvement of Dostyk terminal
- Readying of Aktau terminal
- Improvement of Aktau international commercial port

In this connection, the feasibility study on the missing link section between Beyneu and Zhezkazgan has been completed and this section is waiting for the construction. If it is implemented along the plan, the transport route via Aktau will have a comparative advantage in terms of transport distance, transport time and number of customs clearance stops. In addition to that route, it is proposed to provide a trans-Asia/Europe route.



Figure 2 Proposed Infrastructure Development Concerning the East-West Transport Corridor

(3) Reinforcement and Introduction of Block Trains on the Trans-Kazakhstan Route

In order to ensure the reliability of railway transportation, punctuality, security and speed in railway transport services are prerequisites. Block train services can be a relevant solution for this requirement. For example, introducing international regular block train services such as block train operation between Urumqi-Dostyk-Moscow is necessary.

Table 4 Proposed Operation Routes for Block Trains

Route	Origin/Destination of Route	Number of operations per annum	
		Present	2010
1. Route 1	Liyangang/Urumsqi (China)-Dostyk-Almaty	576	1,237
2. Route 2	Liyangang/Urumsqi (China)-Dostyk-Astana	0	104
3. Route 3	Liyangang/Urumsqi (China)- Dostyk-Almaty-Shymkent-Aktau	0	104
4. Route 4	Liyangang/Urumsqi (China)-Dostyk-Astana-Ozinki- Moscow	3	52
5. Route 5	Nakhodka (Russia)-Novosibirsk (Russia)-Almaty	103	221
6. Route 6	Nakhodka (Russia)-Novosibirsk (Russia)-Asake (Uzbekistan)	61	91
7. Route 7	Liyangang/Urumsqi (China)-Dostyk-Asake (Uzbekistan)	9	13

Source: 1) Present: KTZ

2) 2010 : JICA Study Team

Note: 1) The number of operations in 2010 is estimated based on the present figure, taking the growth rate of freight demand in the concerned countries into account.

2) Based on twice-weekly block train operations between Aktau and Astana.



Figure 3 Proposed Block Train Operation Routes

(4) Provision of Freight Information System

International business generates global-scale freight transport. Providing a modern logistics system and container freight traceability is essential for coping with such needs. Although KTZ has established a system that provides information on containers in Kazakhstan, this system does not cover information for international transit cargos. Accordingly, a freight information system linking the countries concerned with international transit cargos is needed.

Figure 4 shows a concept plan for the required information system for international container transit. Based on this concept, the freight information system should be established in close linkage with neighboring countries.

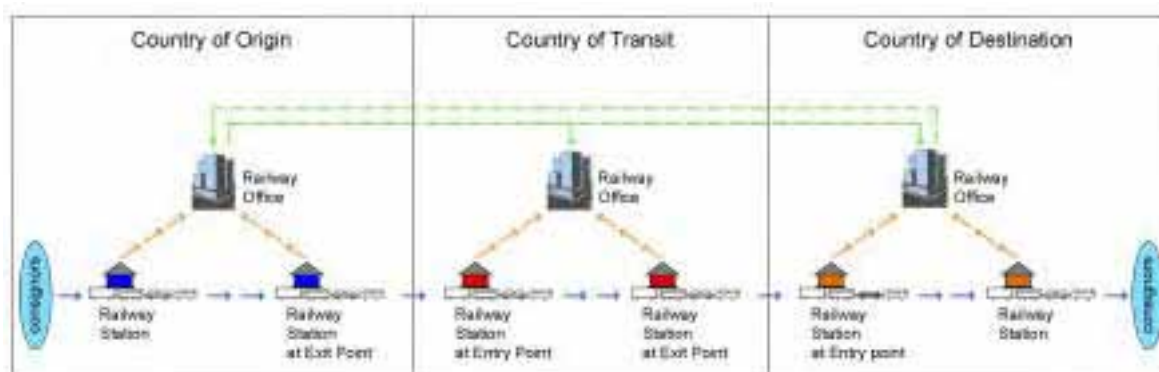


Figure 4 Proposed Freight Information System for International Container Transit

(5) Institutional Improvements

Given the nature of international transit cargos, it is impossible to improve the logistics system unilaterally as would be the case for infrastructure provision within Kazakhstan. Therefore, bi- or multi-lateral governmental agreements between Kazakhstan and other countries involved with the consignors, consignees and freight forwarders are required. The following are needed for institutional improvement.

- 1) Cooperation and agreements among governments
 - Transport agreement on international transit cargos
 - Agreement on customs clearance procedure for transit cargos
 - Introduction of one-stop border system
 - Standardization of customs documentation
 - Introduction of EDI system for customs services
 - Application of TIR for railway container transit cargos
- 2) Cooperation among container service providers
- 3) Cooperation among freight forwarders

Regarding institutional improvements, it is proposed that the Kazakhstan side should arrange the necessary talks between Kazakhstan and its neighboring countries, because the Kazakhstan government is the largest beneficiary and should take the initiative so as to promote institutional

improvements.

(6) Promotion of Regional and Industrial Development

Kazakhstan has abundant mineral resources such as copper, coal and uranium and processing plants for those raw materials in the east, as well as oil and gas resources and refinery plants and related factories in the coastal area of the Caspian Sea. When the trans-Kazakhstan route is provided, new industry can be developed through the integration of the industries in the eastern and western areas.



Figure 5 Trans-Kazakhstan Route and Related Industrial Development

I.6 Marketing Plan for Promoting Container Transportation

(1) Marketing Needs

Under the current trade structure of Kazakhstan where its main export items are mineral resources, in order to increase trade volume through encouraging container transport, it is essential 1) to increase railway container transport by import goods from the countries of East Asia, i.e., Japan, South Korea and China, including expansion of container transport by export goods from Kazakhstan through industrial diversification over the longer term and 2) to increase container transit volume passing through Kazakhstan. Therefore, it is very important to exploit not only domestic but also overseas clients. Because of this, various marketing activities are carried out in Kazakhstan and abroad. However, since Kazakhstan's marketing abilities for attracting overseas clients, i.e., information-gathering and client analysis capabilities, are still insufficient, these functions should be reinforced for foreign clients.

(2) Direction of Comprehensive Marketing

In order to increase railway container freight, it is necessary to analyze the issues and support needs of clients who actually use railway freight (the demand side). It is important to provide railway transport services properly according to clients' needs. In particular, from the client viewpoint, freight railway must be operated with rapid and punctual schedules. In this regard, providing the block train operation system in Kazakhstan is well worth considering, because this can reduce transport time and bring stability to train operation schedules so as to provide domestic and foreign freight users with more effective transport services. For example, introduction of block train operation on various routes should be considered, i.e., between Dostyk and Aktau, between Dostyk and Ozyynki, Dostyk, Almaty and Aktau (one-stopover operation). As a first step, marketing activities should be carried out for a block train plan focusing on west-bound cargos from East Asia to Kazakhstan and its neighboring countries, and then marketing for east-bound cargos from Russia and Europe to Kazakhstan and East Asia over the medium and long terms.

(3) Establishment of Kazakhstan Logistics Research Development Center

In general, the logistics system in Kazakhstan is still at the developing stage compared with industrial countries. It is very important for Kazakhstan's sustainable economic development and economic growth to establish a modern logistics system. It is, therefore, proposed to establish the Kazakhstan Logistics Research Center.

Its major roles are as follows:

- Formulation and improvement of logistics infrastructure
- Research and development of modern logistics system
- Research on tariff policy
- Execution of container cargo movement survey
- Formulation of database for cargo traffic (container freight flows) and analysis
- Human resource development
- Research on logistics information system
- Close linkage between academia and industry on logistics system development

I.7 Formulation of Implementation Plan

(1) Project Implementation Plan

The total project cost for the proposed Logistics Improvement Plan and the required investment amount broken down over the medium and long terms are shown in Table 5.

Table 5 Project Implementation Schedule and Required Investment Amount

Measures		Cost (M Tenge)	Short Term (2008-10)				Medium Term (2011-2017)						Long
			2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	(2018-)
Railway Transport Development		853,546											
R-1	Railway Network Development	509,389											
R-2	Improvement of Railway Container Terminal	229,194											
R-3	Improvement in Freight Transportation System	100											
R-4	Improvement in Freight Transport Operation System	100											
R-5	Promotion of Containerization	113,445											
R-6	Railway Cargo Information System Improvement	1,218											
R-7	KTZ Marketing Function Development	100											
Road Transport Development		1,187,759											
T-1	Road Network Development	1,186,009											
T-2	Enhancement of Truck Industry	1,750											
Port and Marine Transport Development		62,540											
M-1	Port Development	48,940											
M-2	Caspian Marine-time Transport Development	13,600											
Logistics Service Industry Development		100											
L-1	Multi-Modal Logistics Terminal	-											
L-2	Forwader Development Program	100											
Customs System Improvement		1,300											
C-1	Customs System Improvement	1,200											
C-2	Simplification of Customs System	100											
Economic and Industrial Development		0											
E-1	Special Economic Zone Development	-											
E-2	Regional Development	-											
Human Resource and Institution Development		200											
I-1	Human Resource Capacity Development	100											
I-2	Institutional Development	100											
Total Cost (M Tenge)		2,105,445	464,949				1,075,363						565,133
Cost Per Year (M Tenge)		154,031	154,983				153,623						-

Source: JICA Study Team

In order to carry out the project implementation mentioned above, continuous financial resources must be secured. The following measures are proposed for securing financial resources.

- 1) Since the logistics system has to do mostly with private firms, it is desirable to encourage many private firms to participate in a logistics system industry through deregulation. In this case, since certain areas such as basic logistics infrastructure are to be provided by the public sector, it is important to prepare a specific scheme allowing a public-private partnership (PPP).
- 2) In addition, since the infrastructure related to the logistics system has a nature derived from the public sector, it is important for public financial institutions such as the Kazakhstan Development Bank to prepare a specific long-term financing scheme offering a lower interest rate.

(2) Proposed Action Plans

Out of the short-term plan in the project implementation plan, eight specific projects whose implementation would contribute to achieving the objectives of integrated logistics system development have been chosen and proposed as high-priority projects. They are regarded as the first step of project implementation and are listed in Table 6.

Table 6 Proposed Action Plans

Measures	Organization	2007		2008		2009		2010		After 2011	Notes
		4-6	7-12	1-6	7-12	1-6	7-12	1-6	7-12		
A-1	Strengthening of Trans-Kazakhstan Route										
	• Construction of Shalqar - Beynue		Examine in KTZ	Construction							F/S completed
	• Improvement of Dostyk terminal		F/S	Construction				Operation			
	• Construction of Aktau Logistics Terminal		F/S	Construction				Operation			
	• Expansion of Aktau Sea Port		F/S	Construction				Opera			EU is now carrying out F/S
A-2	Expansion of Block Train Operation			Implementation of operation							
	• Increase in Block Trains between Lianyungang/Urumqi and Almaty			Implementation of operation							
	• New Block Train between Lianyungang / Urumqi and Akatu / Astana		Examine in KTZ	Implementation of operation							
	• New Block Train line between Lianyungang / Urumqi and Moscow		Examine in KTZ	Implementation of Operation							
A-3	Strengthening of Marketing Functions		Implementation arrangement	Implementation and Operation							
A-4	Enhancement of Logistics Service Industry			Operation							
	• Construction of multi-modal logistics terminal			Operation							
	• Enhancement of forwarders		Implementation arrangement	Operation							
A-5	Establishment of Logistics Information and Communication System		Implementation arrangement	Construction		Operation					
A-6	Customs System Improvement Simplification of Customs System		Implementation arrangement	Operation							
A-7	Enhancement of Regional and Industrial Development			Construction							
	• Special economic zone development		F/S	Implementation arrangement		Construction					
	• Akatu regional development		F/S	Implementation arrangement		Construction		Opera			Presently JICA is now conducting the study
A-8	Human Resource and Institutional Development			Implementation							
	• Establishment of Kazakhstan logistics research center		Implementation arrangement	Implementation							
	• Institutional Development		Implementation arrangement	Institutional improvement		Implementation					

Source: JICA Study Team

(3) Priority Projects for Feasibility Study

Regarding the sites which were proposed as the target areas for the feasibility study in the preceding study, i.e., 3 sites (Dostyk, Aktogay, Khorgos) near the eastern border and 2 sites (Aktau and Kuryk) near the western border, comparative analyses were carried out to select the project sites from the social, natural, economic and marketing viewpoints.

1) Dostyk terminal

Dostyk has been selected as a distribution terminal along the eastern border with China.

Reasons for choosing Dostyk Terminal

- This terminal is in need of urgent improvement due to the fact that it is obviously accumulating cargos in trade with China.

2) Aktau terminal

Reasons for choosing Aktau Terminal

- Aktau Terminal is in a strategic location; in fact, this terminal is important as an access point to and from Kazakhstan, Europe, Iran, the Caucasus, etc.
- The Mangystau Oblast Government has created a plan for developing a logistics terminal together with development of offshore production areas. Aktau Terminal is one of the components in the plan.

The location of project sites selected for the feasibility study is shown in Figure 6.

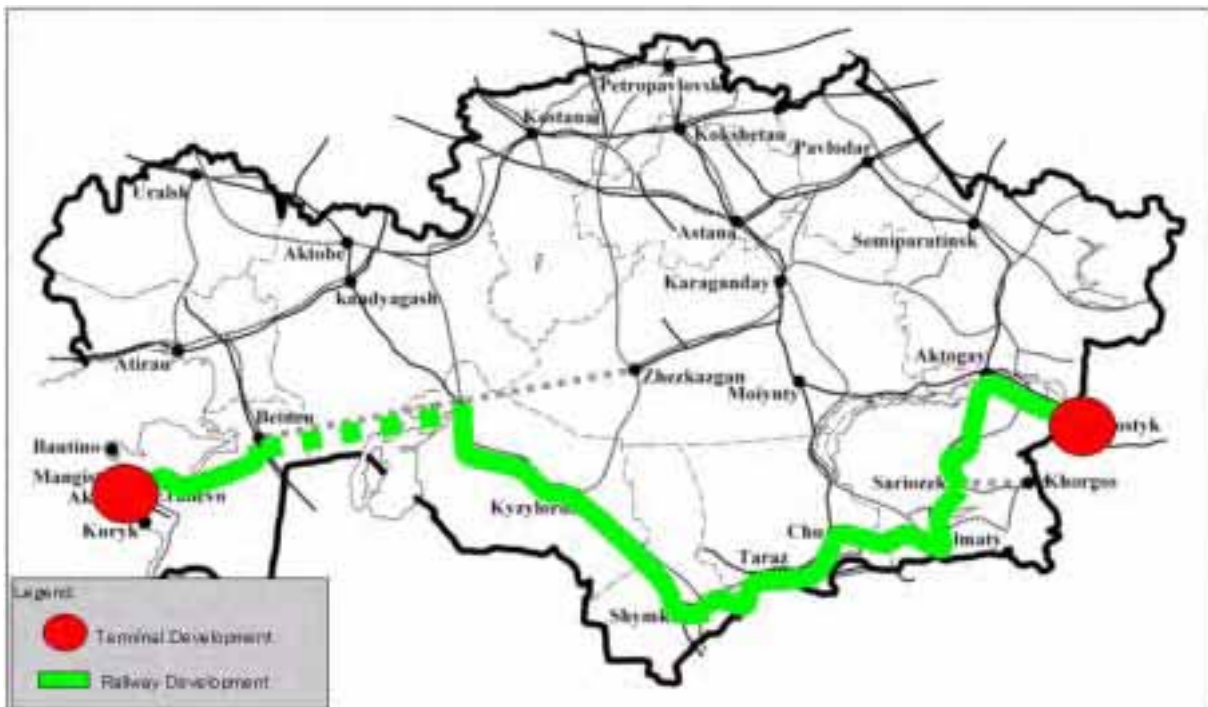


Figure 6 Feasibility Study Location Map

II. FEASIBILITY STUDY

II.1 Feasibility Study on Improvement Plan for Dostyk Terminal

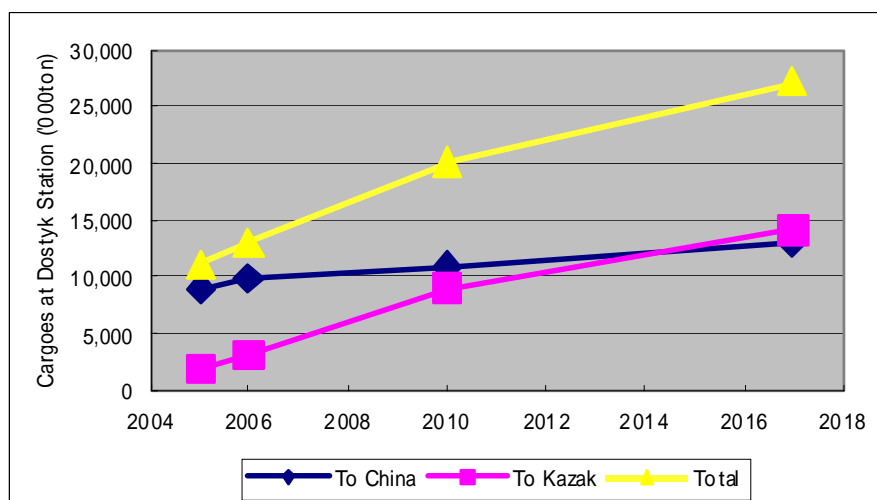
(1) Rationale

Improvement of the Dostyk Terminal is necessary for the following reasons.

- 1) Although gradual improvements have been made to the facilities at Dostyk Terminal since its opening in 1992, no large-scale improvements have been undertaken.
- 2) Current container handling capacity is not sufficient for handling the increase in container freight, whereas container freight volume has increased dramatically in recent years.
- 3) Although the China Land Bridge which connects East Asia with Central Asia has been developed by serving as an important route for the Trans Asia-Europe Land Bridge and Trans Asia-Caucasus Land Bridge, it is slowing down the development of the related land bridges due to the inefficiency resulting from delayed cargos passing through Dostyk Terminal.

(2) Future Freight Traffic Demand Forecast

Future freight traffic demand at Dostyk Terminal is forecast at 27.2 million tons in 2017. Broken down by category, export and outbound transit volume is estimated at 13 million tons and import and inbound transit volume is estimated at 14.2 million tons. By cargo type, especially rapid growth of container cargos is foreseen.



Source: JICA Study Team

Figure 7 Forecast for Freight Traffic at Dostyk Terminal

(3) Preliminary Design

A preliminary design is conducted, taking the following factors into consideration.

- 1) Immediate provisional plan (Phase 1)
 - Provision of new marshaling yard E
 - Provision of transshipment facilities (No.4)

- Replacement of cargo handling equipment
- Provision of bogey switching facilities

2) Readying of new container terminal at Dostyk (Phase 2)

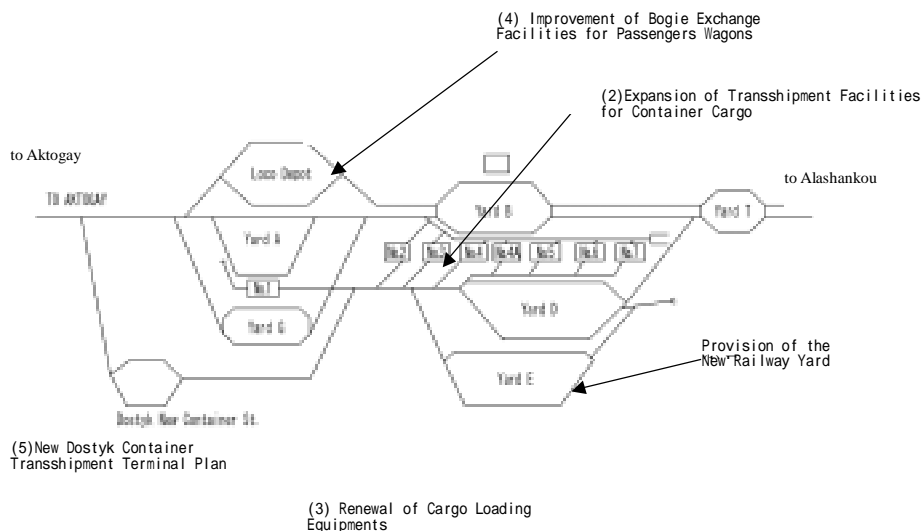


Figure 8 Outline of Dostyk Terminal Improvement

(4) Cost Estimate

Total construction cost is estimated as shown in Table 7.

Table 7 Estimate of Construction Cost

Unit: million KZT

Items	Foreign	Domestic	Foreign + Domestic
E Yard	206.3	120.1	326.4
Additional container trans-loading equipment	30.6	514.2	544.8
Bogey switching facility	16.0	4.5	20.6
Transport equipment	1,094.0	0.0	1,094.0
Information and communication system	109.2	0.0	109.2
Total	1,456.1	638.9	2,095.0

(5) Project Evaluation

1) Economic and Financial Viewpoints

The results of economic and financial analyses on Dostyk Terminal are shown in Tables 8 and 9, respectively. Since the project is considered to be feasible from both the economic and financial viewpoints, it should be implemented immediately.

Table 8 Results of Economic Analysis

B/C ratio	Net Present Value (million KZT)	Economic Internal Rate of Return (EIRR)
2.53	19,762	70.01 %

Note: Discount rate = 12 %, Project life = 30 years after inauguration

Table 9 Indexes of Financial Analysis

Financing Plan	FNPV (million KZT)	Project FIRR (%)	Equity FIRR (%)	WACC (%)
1	13,288	23.49	28.05	4.14
2	13,140	23.10	33.85	3.45
3	13,197	23.12	43.26	2.13

Note: Financing Plan 1: Domestic accommodation, Financing Plan2: International accommodation

Financing Plan 3: ODA fund

2) Environmental Viewpoint

The project is evaluated from the viewpoint of the environment as follows.

- The project will have no negative and serious effects on the environment due to the nature of buildings/facilities to be constructed and the surrounding site situation.
- Items for which mitigation are required are limited to the construction stage and assumed to occur temporarily and to a minor degree, if at all. However, it is desirable to reduce the negative impact on the environment by improving the construction method used.

II.2 CONSTRUCTION OF AKTAU LOGISTICS CENTER

(1) Rationale

Major industries in Mangystau are related to oil and natural gas and their products account for 1,000 billion KZT in 2007. In proportion to the increase of oil and gas production, rapid economic growth is expected in Mangystau. Under this situation, the Mangystau Oblast Government announced an integrated project concept, the so-called “Land-Sea-Sky” concept, in 2006, including the introduction of a Special Economic Zone (SEZ). The development of SEZ is proceeding in the industrial area near the Aktau international commercial port and consists mostly of oil-related industry. The concept includes the provision of a logistics center and has a strong relationship with this project.

(2) Freight Demand Forecast

As the result of a freight demand forecast, freight demand of around 4 million tons is estimated.

Table 10 Freight Demand Estimate for the Logistics Terminal at Aktau Port

(Unit: million tons per year)

Freight category	2010	2017
Freight volumes related to SEZ	1.72 (assuming 60% of the performance rate as of 2010 to 2017)	2.88
Freight volumes related to Aktau Port	0.50	1.14
Freight volumes related to final consumption in Aktau City	0.22	0.22
Sum	2.22* ~ 2.44	4.02* ~ 4.24

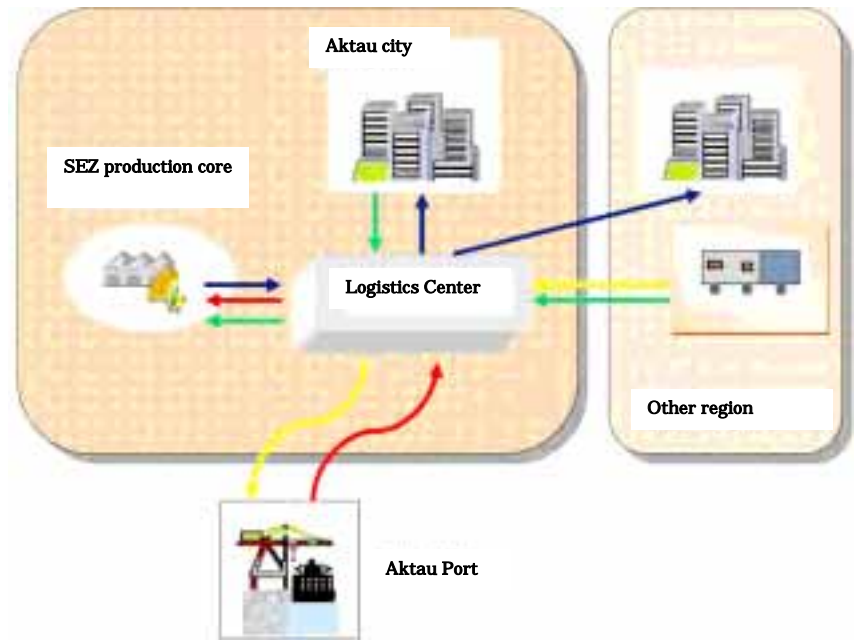
Note: * shows the case excluding demand related to final consumption in Aktau City.

Source: JICA Study Team

(3) Concept of Aktau Integrated Logistics Center

For the logistics center concept, multimodal freight facilities connecting railway, road and port with each other are assumed for the following reasons.

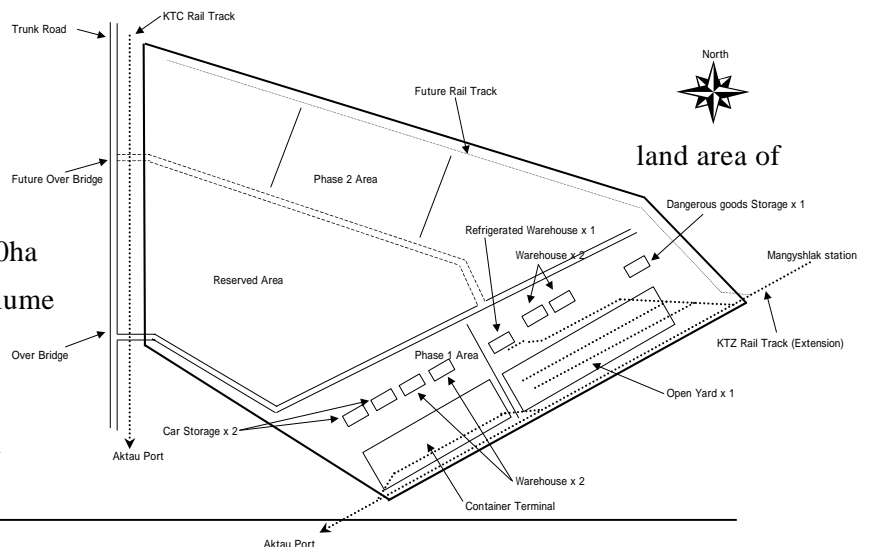
- The center requires a transport function as a production center because it is located in the SEZ industrial complex close to Aktau Port.
- The center requires a transport function corresponding with delivery of consumer goods needed by consumers in Aktau City.



(4) Preliminary Design

The planning area is located north of Aktau Port, in a pentagon-shaped flat 300ha. Initially, however, a logistics center on a scale of about 100ha is designed, taking freight demand volume into account. Overall facility location is shown in Figure 9.

Figure 9 Layout Plan



(5) Construction Cost

Total construction cost for the logistics center is estimated at about 8.61 billion KZT. Assuming staged construction, a construction plan, of which the 1st stage would be implemented from 2010 to 2011 and the 2nd stage from 2015 to 2016, has been formulated. As the first logistics facilities, a logistics center with a container yard of about 100ha and related railway facilities is proposed.

Table 11 Construction Cost

Unit: million KZT

Items	Foreign	Domestic	Foreign + Domestic
Railway facilities	168.8	251.4	420.2
Container-related facilities	0.0	6,179.3	6,179.3
Shared freight facilities	0.0	893.6	893.6
Transport equipment	1,066.0	0.0	1,066.0
Information and communication system	50.8	0.0	50.8
Total	1,285.6	7,324.3	8,609.9

(6) Project Evaluation

The results of economic and financial analyses for Aktau Terminal are shown in Tables 12 and 13, respectively. The project is considered feasible from the economic viewpoint, but has marginal status from the financial viewpoint.

Table 12 Results of Economic Analysis

B/C ratio	Net Present Value (million KZT)	Economic Internal Rate of Return (EIRR)
1.70	7,055	29.01 %

Note: Discount rate = 12 %, Project life = 30 years after inauguration

Table 13 Indexes of Financial Analysis

Financing Plan	FNPV (million KZT)	FIRR(%) (ROI)	FIRR(%) (ROE)	WACC (%)
1	10,530	21.21	24.83	7.95
2			36.95	4.69
3			55.20	2.81

Note: Financing Plan 1: Domestic accommodation, Financing Plan 2: International accommodation
Financing Plan 3: ODA fund

The result of the natural and social environmental assessment shows that environmental impact is

expected to be minor except during the construction period, while 3 environment monitoring items, i.e., atmosphere, water and noise, have been selected for Initial Environment Evaluation (IEE) by scoping. From the technical, economic/financial and environmental points of view, this project is considered to be well worth implementing.

III CONCLUSION AND RECOMMENDATION

(1) Reinforcing the Trans-Kazakhstan Route

The Trans-Kazakhstan route is the shortest in terms of physical distance from East Asia to Europe and Russia compared with other routes, i.e., Trans-Siberian Route, TRACECA Route and All Water Route. Specifically, for the case from China (coastal region and inland region) to Eastern Europe and Russia, this route is comparatively dominant over the other routes in terms of both transport time and cost. If the Trans-Kazakhstan route is reinforced, freight demand using this route is expected to increase.

For this purpose, the following provisional arrangement regarding infrastructure and facilities should be carried out.

- Preparation of railway network: Construction of railway line between Shalqar-Beyneu (short term), extension of railway line up to Dzhenzkazgan (long term)
- Readyng of Dostyk Terminal
- Readyng of Aktau Terminal
- Readyng of Aktau Port

In terms of development of “soft” logistics aspects, the following measures are required.

- Operation of block trains in order to secure punctual and reliable train operation and ensure freight security
- Improvement of customs system for transit freight
- Provision of a container freight information system in order to make it possible to trace freight transport

In terms of administrative improvements and human resource development, the following measures are required.

- Cooperation and agreement among Governments on improving transport linkage and the customs system
- Cooperation among concerned railway operators (railway tariff coordination, etc.)
- Cooperation among forwarders concerned
- Establishment of the Logistics Research Center

(2) Reinforcing Marketing Activity

Various marketing activities are carried out both in Kazakhstan and abroad. However, since Kazakhstan’s marketing capacity for attracting overseas clients, i.e., information-gathering and client analysis capabilities, is still insufficient, these functions should be reinforced for foreign clients.

(3) Improvement Plan for Dostyk Terminal

The improvement plan for Dostyk Terminal is well worth immediate implementation, for the following reasons.

- Current container handling capacity is not sufficient for handling the container freight increase, whereas container freight volume has increased dramatically in recent years.
- The development of the Trans-Kazakhstan route, which connects East Asia and Central Asia and functions as a gateway to Kazakhstan, is being restricted due to the inefficiency resulting from delayed cargos passing through Dostyk Terminal.
- The project is considered feasible from the viewpoints of both economic/financial evaluation and social environmental assessment.

(4) Construction Plan for Aktau Terminal

The construction plan for Aktau Terminal should be implemented as soon as possible, for the following reasons.

- Aktau Terminal will function as a logistics core for the economic strategy consisting of the integrated project concept, the so-called “Land-Sea-Sky” concept, and the creation of a Special Economic Zone (SEZ).
- Aktau Terminal is important as a final destination for block trains using the Trans-Kazakhstan route.
- The project is considered feasible economically and acceptable financially.

(5) Monitoring

The study has clarified the present situation of logistics in Kazakhstan, presented a vision, strategies, necessary measures and action plan for logistics system development and formulated a roadmap for improving the integrated logistics system in Kazakhstan. However, as social and market conditions relating to logistics change constantly, it is necessary to monitor the latest situation and update the roadmap appropriately/timely by checking out new changes or a specific situation against prospects. The leadership of the central Government is essential for updating the roadmap flexibly and keeping it current.

INTRODUCTION

CHAPTER 1 INTRODUCTION

1.1 Background of the Study

Kazakhstan is located in Central Asia and is surrounded by Russia, Turkmenistan, Uzbekistan, Kyrgyz and China. It also faces Azerbaijan and Iran across the Caspian Sea.

The transportation sector plays an important role for development and utilization of the country's domestic resources, industries and population spread over the vast territory. The railroad system, among other transportation means, maintains a key position as it is suitable for long hauls and mass transport.

Currently, the government is promoting a long-term development program up to 2030 and a mid-term development program up to 2010. In both programs, the transport sector is targeted as one of the key areas for development. Since Kazakhstan is located in the central part of Central Asia and geographically links the eastern and western halves of the Eurasian Continent, the programs have the development of transit cargo passing through Kazakhstan, as a hub area of the east-west corridor, as the most important objective.

Based on the findings, the actual marketing plan should be prepared in order to stimulate, increase and maintain the volume of transit cargo moving through Kazakhstan versus competing routes.

To attract more transit cargo, it is also important to increase cargo handling capacity at the border railroad entry points. Urgent consideration should be given to plans for the development of cargo handling facilities at the border areas.

Under such circumstances, the government of Kazakhstan made an official request to the government of Japan regarding the implementation of a study to establish a marketing plan for better utilization of railroad facilities in the country and a feasibility study for the construction of modern cargo handling facilities at the eastern and western border areas of the country. In response to the request, the Scope of Work was discussed by both governments, and it has finally been decided to start the official study.

1.2 Objectives and Study Area

The objectives of the study are summarized as follows:

- i) To enhance domestic and international cargo movements by developing a comprehensive logistics system focused on container cargo transport by the national railway, to be presented in the form of a marketing plan (target year 2017)
- ii) To present the outcome of the feasibility study on the modern cargo handling facilities to be established at the border railway entry points for east-west transit cargo.

The presentation of the study will include a detailed explanation regarding functions, capacities, efficient and effective setup of the facilities, operating mechanism, etc.

- iii) To promote capacity-building among the parties concerned in Kazakhstan while implementing the study.

The geographical area of the study is the whole area of Kazakhstan. However, transport status in China, Iran and countries neighboring Kazakhstan, namely Russia, Uzbekistan, Kyrgyz, Turkmenistan, Georgia, Azerbaijan and Afghanistan, and the rivals of the corridor through Kazakhstan, namely the Siberian Land Bridge and marine transport, are also included as study countries, because the study covers transport demand in the Eurasian continent including Kazakhstan.

1.3 Implementation of the Study

1.3.1 Framework of study

In order to create a comprehensive master plan, the study will be implemented with a view to achieving two main tasks; namely, (1) to draft a marketing plan for logistics and (2) to draft a development plan for efficient logistic facilities through a feasibility study based on the marketing plan (Fig. 1.3-1). It should be noted that technical assistance aiming at capacity-building among the concerned parties will be provided during the entire term of the study.

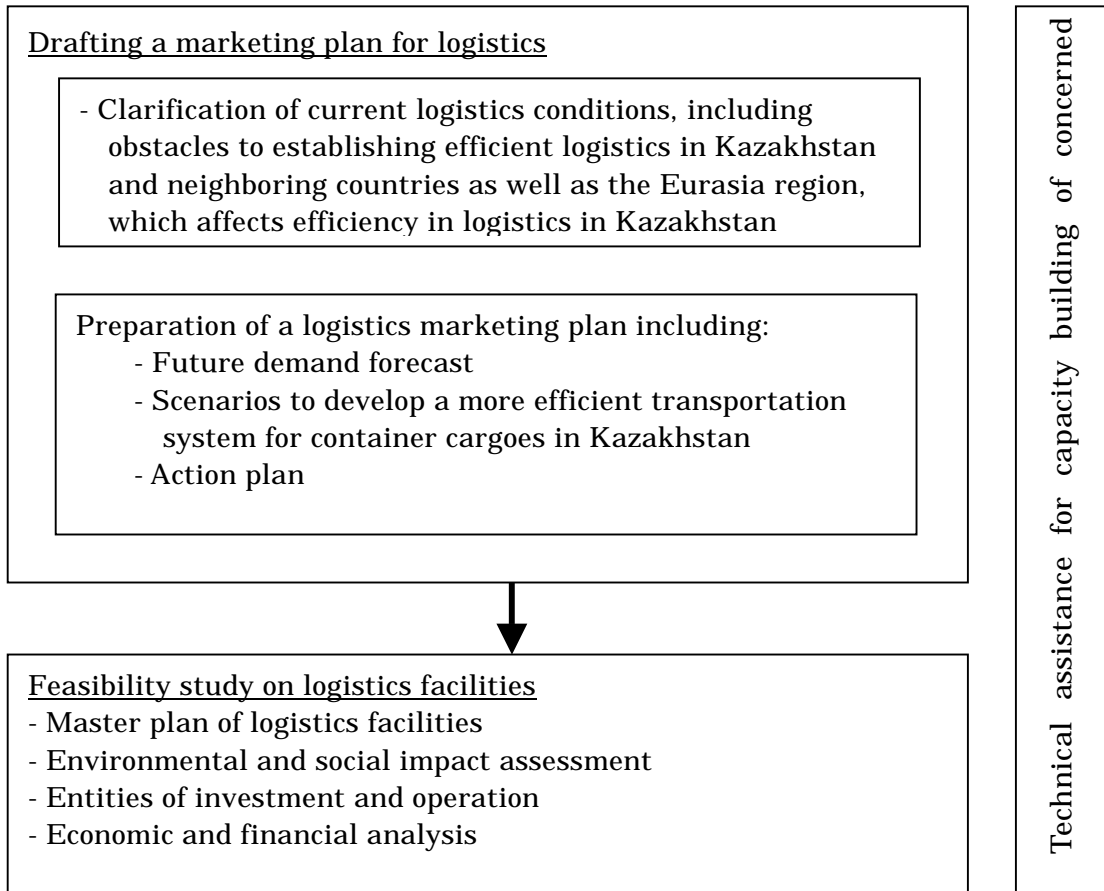


Figure. 1.3-1 Framework of the study

Phase I

(1) Present situation study (Kazakhstan)

The Study Team will investigate the following issues in Kazakhstan.

- i) Clarification of current status of the transportation sector
- ii) Clarification of current status of enterprises

(2) Study on neighboring countries

The Study Team will investigate the following issues in neighboring and other Eurasian countries, which affect logistics in Kazakhstan.

- i) Clarification of current status of plans and activities for investment in transportation
- ii) Clarification of current status of customs clearance and other procedures
- iii) Clarification of current status of neighboring countries (China, Iran and Azerbaijan)
- iv) Clarification of other competing corridors

(3) Tentative selection of logistics facilities for examination in the feasibility study

One of the three logistics facility sites (Dostyk, Aktogay, and Khorgos) adjacent to China, and one of the two logistic facility sites (Aktau and Kuryk) adjacent to the Caspian Sea, have been tentatively selected as logistics facility sites for examination in the feasibility study, based on current and previously conducted studies as well as natural conditions.

Phase II

(4) Formulation of the logistics marketing plan

The Study Team have carried out the following tasks to formulate the master plan on logistics system and marketing in Kazakhstan, focusing the container transportation.

- Future demand forecast
- Analysis on the international logistics condition and competing route in Eurasia
- Scenarios to develop a more efficient transportation system for container cargoes in Kazakhstan
- Action plan

(5) Formulation of the feasibility study

The Study Team have conducted the feasibility study on the logistics centers in Dostyk and Aktau.

1.4 Implementation Schedule

The total duration of the Study is approximately one year from August 2006 to August 2007. The tasks in the previous flowchart will be implemented based on the task schedule below. The reporting schedule is shown in the following table.

Table 1.4-1 Reporting Schedule

Report	Time of Submission	No. of Report	Content
1.Inception Report	Early August, 2006	20 copies in Russian, 10 copies in English	The overall approach and implementation program of the Study
2.Progress Report	Early December, 2006	20 copies in Russian, 10 copies in English	Analysis of the Present Situation
3.Interim Report	End of March, 2007	20 copies in Russian, 10 copies in English	The strategy and scenario of container transportation development
4.Draft Final Report	Mid of October, 2007	20 copies in Russian, 10 copies in English	all results of the study, including the conclusion and recommendation of feasibility study, will be submitted as the Draft Final Report
5.Final Report	End of November, 2007	30 copies in Russian, 20 copies in English CD-ROM: 3 sets	All Study Results

1.5 Organization of the Study

The organizational structure for the implementation of the Study is indicated in the figure below.

The JICA Study Team will conduct the study in close cooperation with the following two Kazakhstan counterpart organizations.

- a) Task force: the Ministry of Transport and Communications (MTC), Trans Kazakhstan Railway (KTZ), Kaztransservice (KTS)
- b) Working Group: MTC, KTZ and other related administrative organizations

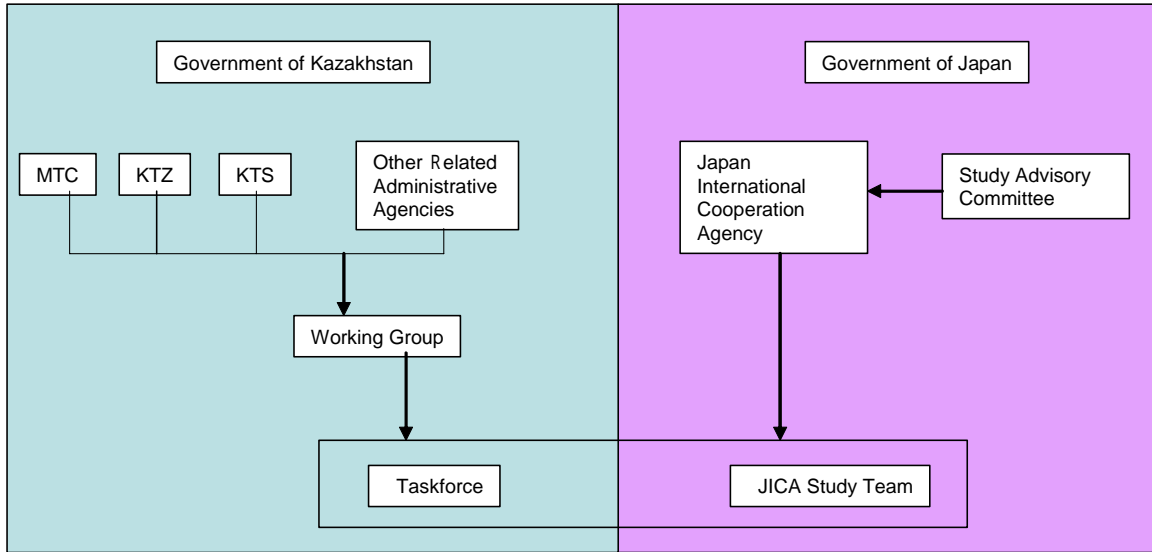


Figure 1.5-1 Study Organizational Framework

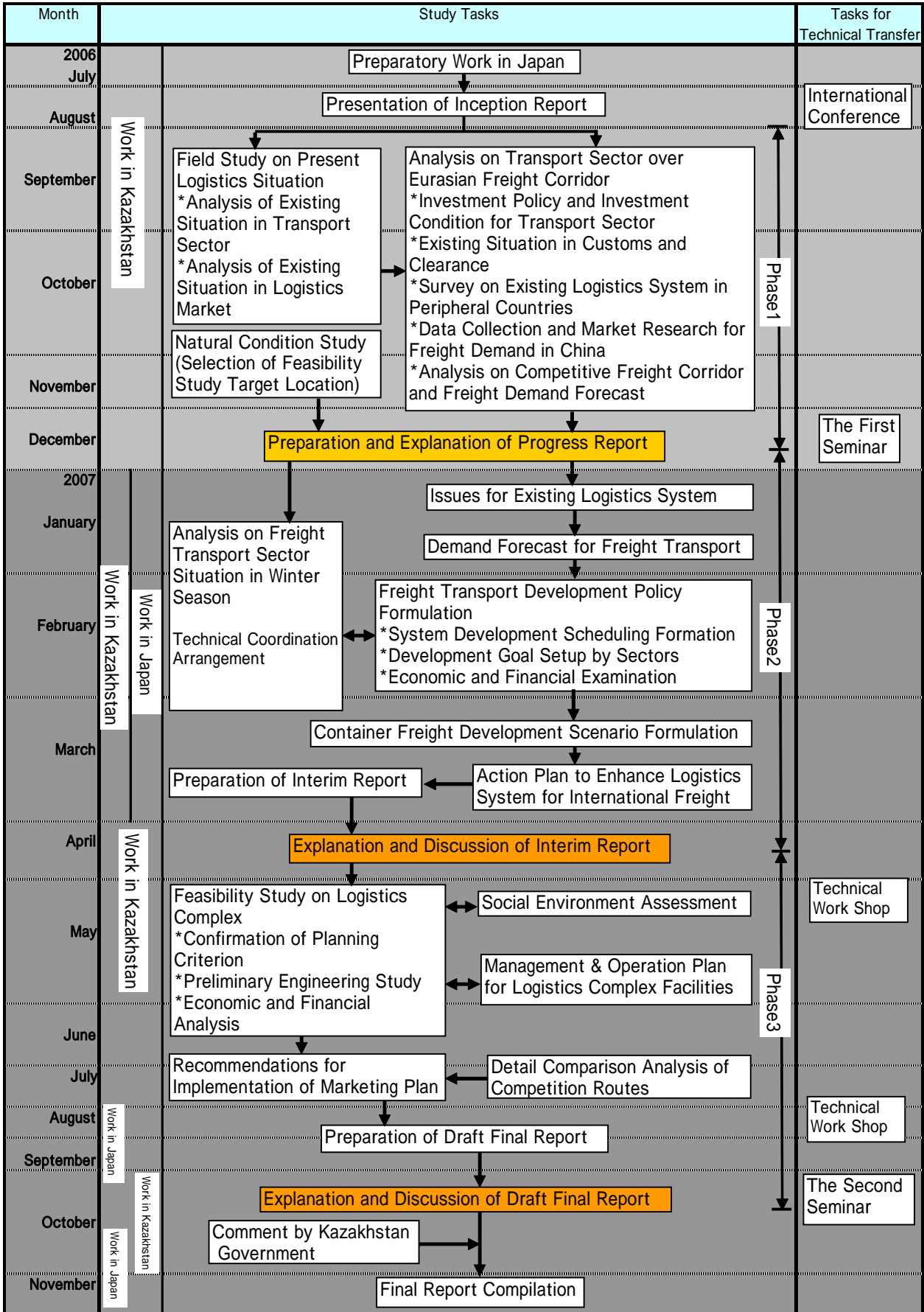


Figure 1.5-2 Study Schedule

PART I PRESENT CONDITIONS

CHAPTER 2 SOCIO-ECONOMY OF KAZAKHSTAN

2.1 Natural Conditions

2.1.1 Geography

Kazakhstan has an area of 2.72 million square km, stretching almost 3,000 km from west to east and 1,650 km from north to south, which makes it the ninth largest country in the world. Kazakhstan is bounded by neighboring countries such as Russia, China, Kyrgyz, Uzbekistan and Turkmenistan.

Kazakhstan is surrounded by the Caspian Sea and lowlands in the west, in the central northern and southern part by the West Siberian plains, and in the east and the southeast by the Altai, Tarbagatai, Dzungarian Alatau and Tyan-Shian mountains. Kazakhstan includes mountain taiga, forest-steppes, semi-deserts and deserts.

2.1.2 Climate

The climate of Kazakhstan is extremely continental, with sharp changes in temperature conditions from winter to summer.

Kazakhstan has a semi-arid continental climate with cold snowy winters and hot dry summers (Figure 2.1-1). Annual precipitation ranges from less than 450mm in the north to 150mm in the southern foothills (Figure 2.1-2). The average temperature in July is 19°C in the north and gradually increases to 28-30°C in the south (Figure 2.1-3). The average temperature in January is -19°C in the north and gradually increases to -2°C in the south (Figure 2.1-4). Kazakhstan's land varies from semi-arid steppes in the northern and central regions to desert and mountains along the southern borders with Uzbekistan and Kyrgyz.

2.1.3 Natural Resources

Kazakhstan has almost all types of important mineral resources.

Kazakhstan is the first in the world for the most tungsten resources, the second for chrome and phosphorus ores, the third for manganese ore resources, the fourth for lead and molybdenum and the eighth for iron ore.

Oil and gas deposits are located in Atyrau, Mangystau, and the West Kazakhstan regions. (Figure 2.1-5)

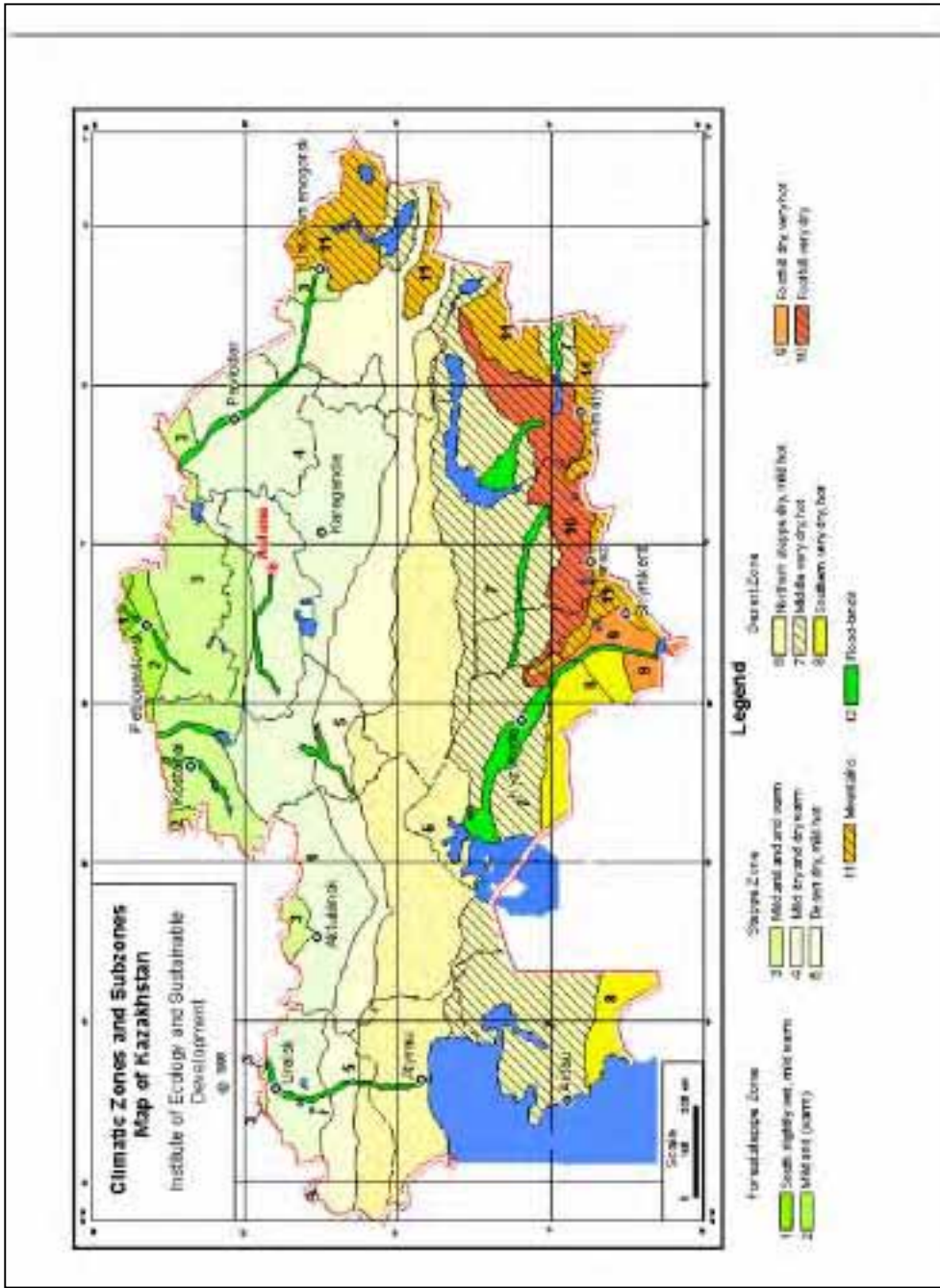


Figure 2.1-1 Climatic Zones and Sub-zones of Kazakhstan

Source: Institute of Ecology and Sustainable Development of Kazakhstan

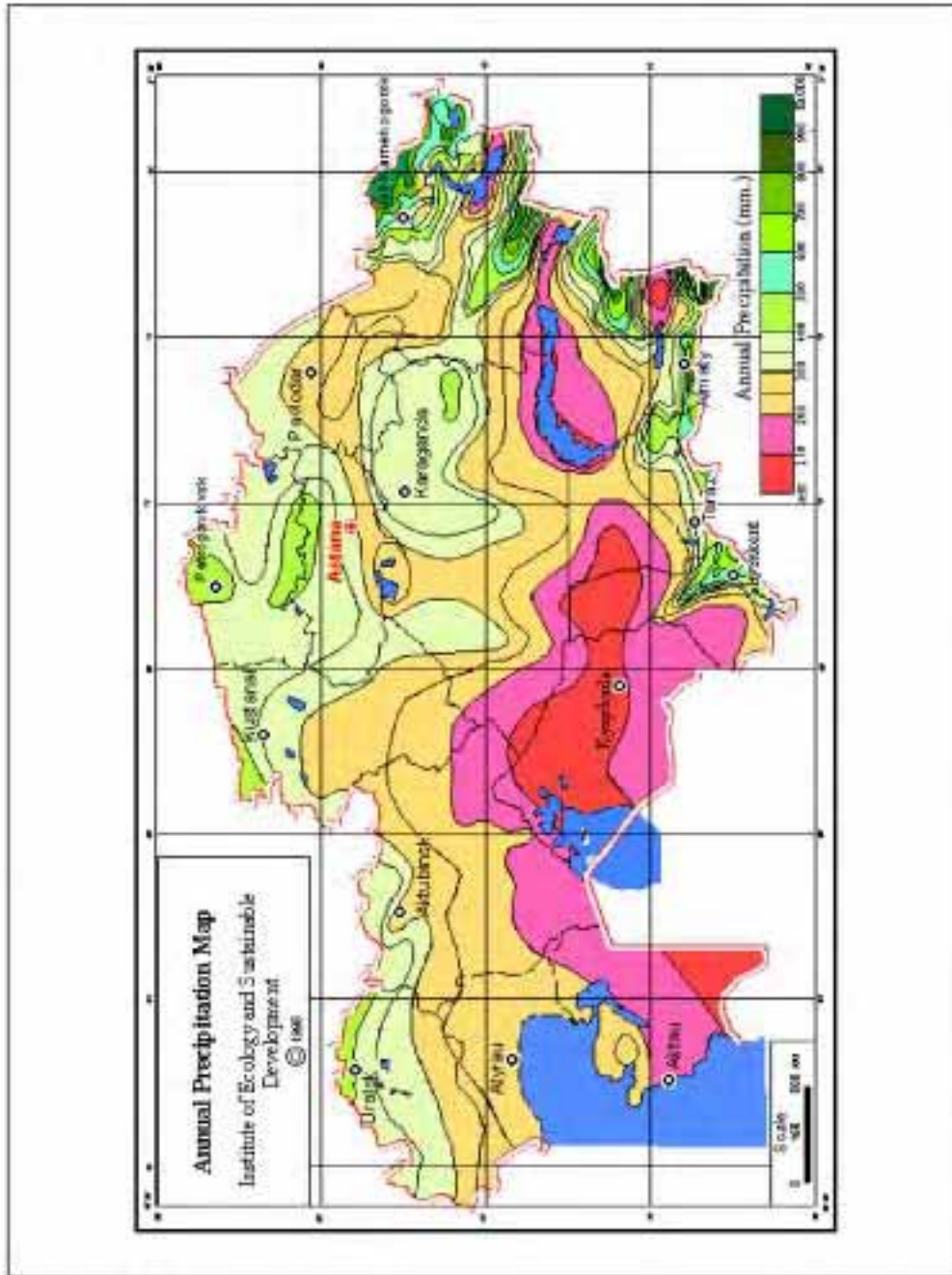


Figure 2. 1-2 Annual Precipitation Map of Kazakhstan

Source: Institute of Ecology and Sustainable Development of Kazakhstan

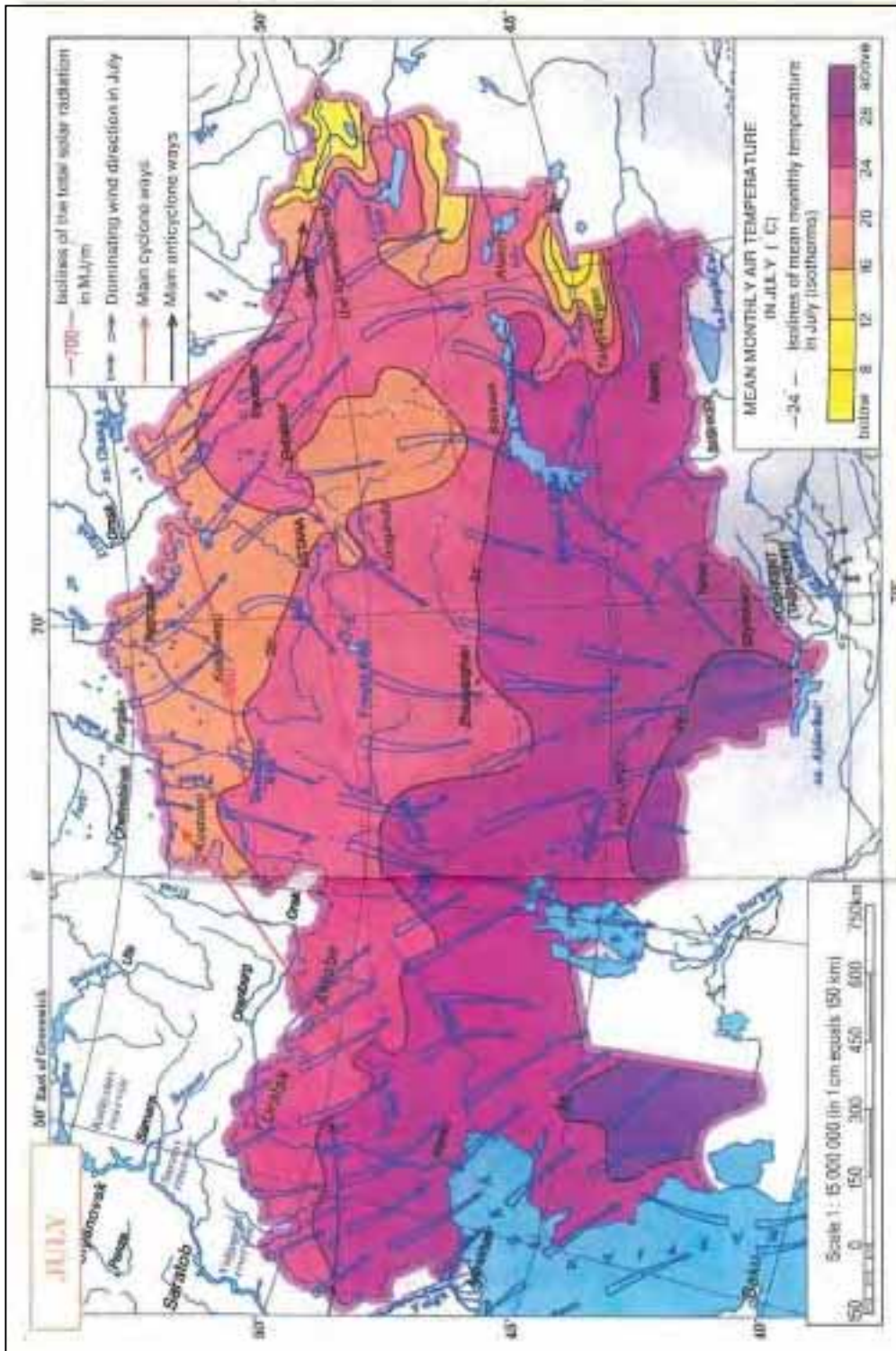


Figure 2. 1-3 Average Air Temperature in July Map of Kazakhstan

Source: Atlas of Kazakhstan's geography

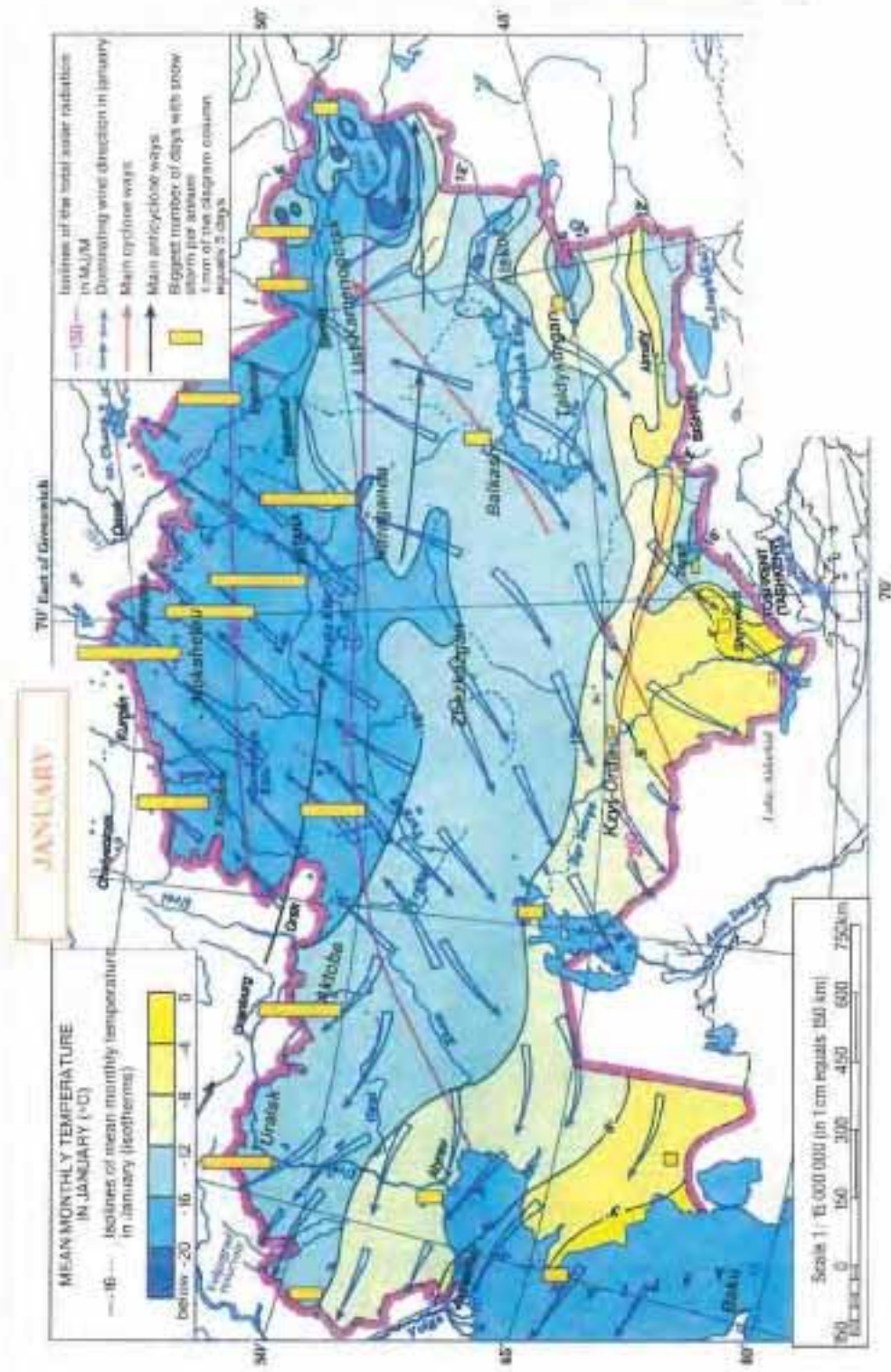


Figure 2. 1-4 Average Air Temperature in January Map of Kazakhstan

Source: Atlas of Kazakhstan's geography

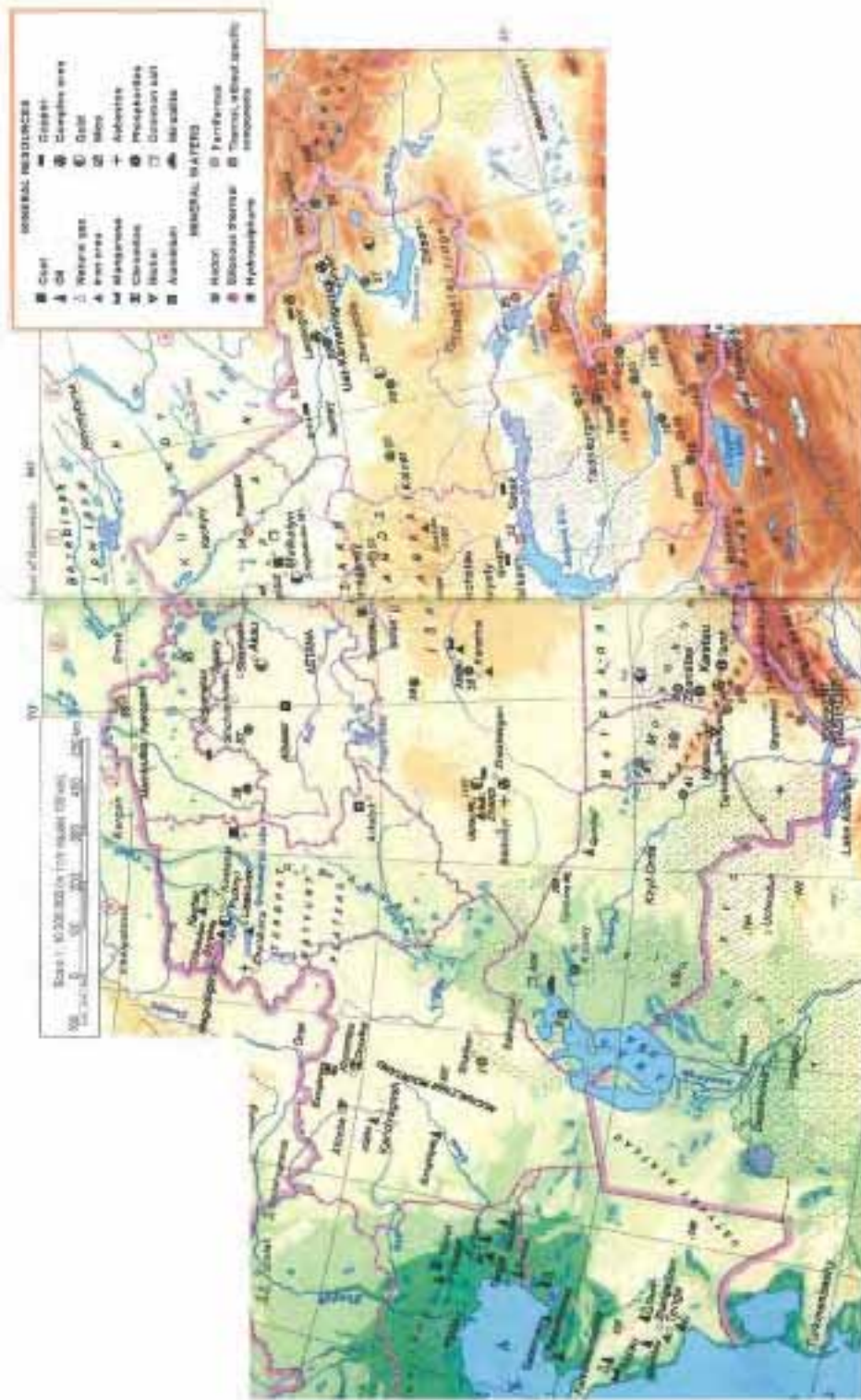


Figure 2.1-5 Natural Resources in Kazakhstan

Source: Atlas of Kazakhstan's geography

2.2 Socio-economic Profile

2.2.1 Key Indicators in Kazakhstan and Neighboring Countries

Table 2.2-1 shows data on key socio-economic indicators. Based on the data, socio-economic profiles in related countries are summarized and shown in Figures 2.2-1 to 2.2.4.

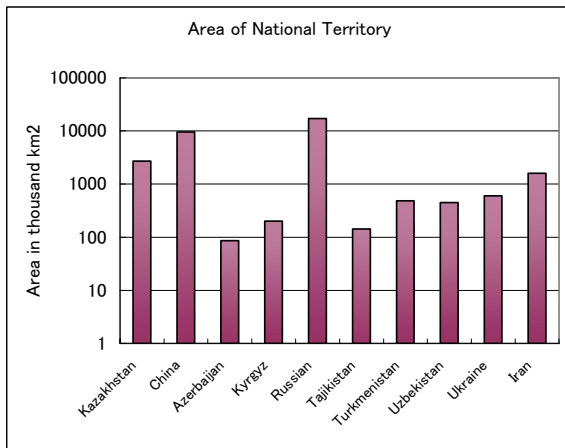


Figure 2.2-1 Comparison of the Area of Related Countries

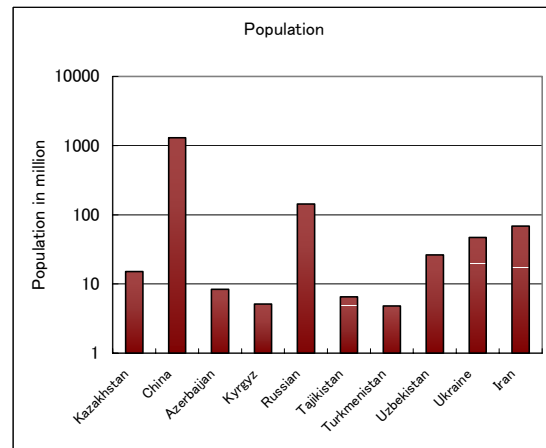


Figure 2.2-2 Comparison of the Population of Related Countries

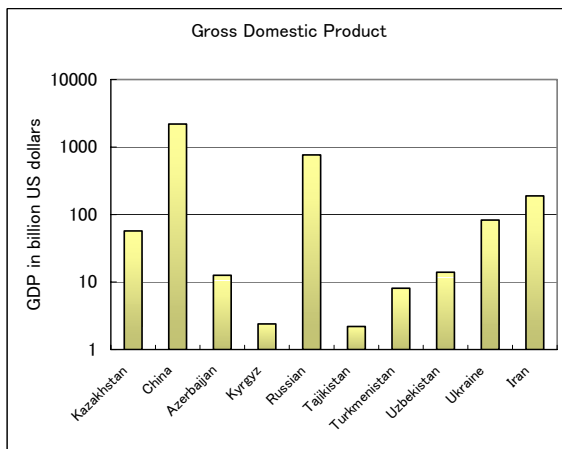


Figure 2.2-3 Comparison of the GDP of Related Countries

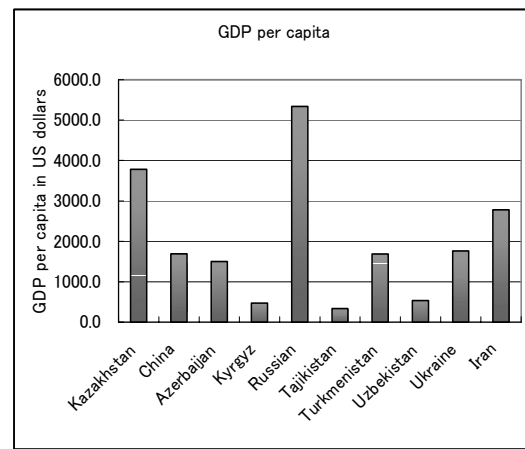


Figure 2.2-4 Comparison of the GDP per capita in Related Countries

Compared to its neighboring countries, Kazakhstan is the 3rd largest country in terms of area of national territory, the 5th largest in terms of GDP, but ranks 6th in terms of population. As for GDP per capita, Kazakhstan has the 2nd largest GDP, following Russia. Above all, Kazakhstan is regarded as the leading economic power in the Central Asia region together with Iran, although its small population could constrain its further expansion.

Table 2.2-1 Comparison of Major Socio-economic Indicators in Related Countries

	Kazakhstan		China		Azerbaijan		Kyrgyz Republic		Russian Federation		Tajikistan		Turkmenistan		Uzbekistan		Ukraine		Iran	
	2000	2005	2000	2005	2000	2005	2000	2005	2000	2005	2000	2005	2000	2005	2000	2005	2000	2005	2000	2005
Population, total (million)	14.9	15.1	1300	1300	8	8.4	4.9	5.1	146.3	143.1	6.2	6.9	4.5	4.8	24.7	26.2	49.2	47.3	63.7	68.3
Population growth (annual %)	-0.3	0.9	0.7	0.6	0.8	1	1	1	0	-0.5	1.2	1.2	1.3	1.4	1	1.2	-1	-0.8	1.5	1.4
Surface area (sq. km)	2.7 million	2.7 million	9.6 million	9.6 million	86,600.00	86,600.00	199.9 thousand	199.9 thousand	17.1 million	17.1 million	142.6 thousand	142.6 thousand	488.1 thousand	488.1 thousand	447.4 thousand	447.4 thousand	603.6 thousand	603.6 thousand	1.6 million	1.6 million
Electric power consumption (kWh per capita)	3,080.50	992.7	2,040.50	992.7	2,040.50	992.7	1,687.40	1,687.40	5,208.80	5,208.80	2181.8	2181.8	1,697.6	1,697.6	1,779.00	1,779.00	2,373.40	2,373.40	3,595.30	3,595.30
GDP (current billion US\$)	18.3	57.1	1200	2200	5.3	12.6	1.4	2.4	259.7	763.7	1.1	2.2	2.9	8.1	13.8	14	31.3	82.9	101.3	189.8
GDP growth (annual %)	9.8	9.7	8.4	10.2	11.1	26.2	5.4	-0.6	10	6.4	180	330	18.6	18.6	3.8	7	5.9	2.6	5.1	4.4
Inflation, GDP deflator (annual %)	17.4	17.9	2.1	3.9	12.5	10.3	27.2	6.8	37.7	19.6	22.7	8.7	7.8	47.3	15.9	23.1	20.3	26.4	15.9	15.9
Agriculture, value added (% of GDP)	8.7	6.8	14.8	12.6	17.1	16	36.8	34.1	6.4	5.6	27.4	24.4	24.8	24.8	34.4	28.1	17.1	10.9	13.7	10.4
Industry, value added (% of GDP)	40.5	39.9	45.9	47.5	45.3	62.3	31	20.9	37.9	38	38.9	31.9	45.3	45.3	23.1	28.7	36.3	33.8	36.7	44.6
Services, etc., value added (% of GDP)	50.8	53.7	39.3	39.9	37.5	27.7	32.2	45	55.6	56.4	33.7	43.7	29.9	29.9	42.5	43.2	46.6	55.3	49.5	45
Merchandise trade (% of GDP)	75.7	70.1	70.6	63.6	57.5	94.3	77.3	72.9	57.8	48.3	40.7	40.7	150.5	105.3	40.1	60.3	91.3	85	42.1	48.5

Source: World Bank

2.2.2 Recent Socio-economic Trends

(1) Gross Domestic Product (GDP)

As shown in Table 2.2-2, GDP has been continuously growing, but net (real) GDP decreased in 1995 and 1998.

Table2.2-2 GDP and Trade Statistics of Kazakhstan

Year	GDP (Bill. Tenge)	Exchange rate (Tenge/US\$)	GDP (Mill. US\$)	Net GDP Volume (2000=100)	Export (Bill. Tenge)	Import (Bill. Tenge)
1994	453.07	35.54	12,748.17	96.3	156.96	199.53
1995	1,048.99	60.95	17,210.66	88.4	395.27	441.67
1996	1,353.75	67.30	20,115.16	88.9	499.32	509.74
1997	1,604.76	75.44	21,272.00	90.4	583.86	626.10
1998	1,652.55	78.30	21,105.36	88.7	525.95	604.22
1999	2,098.57	119.52	17,558.32	91.1	856.23	808.94
2000	2,589.70	142.13	18,220.64	100.0	1,471.61	1,276.48
2001	3,157.75	146.74	21,519.35	113.5	1,491.86	1,526.29
2002	3,528.77	153.28	23,021.72	124.7	1,774.50	1,776.40
2003	4,465.19	149.58	29,851.52	136.3	2,232.98	1,985.29
2004	5,881.58	136.04	43,234.20	149.3	3,065.81	2,552.97
2005	7,391.67	132.88	55,626.66	163.5	4,064.64	3,387.32

Note: Export & Import include goods and services

Source: IMF "International Financial Statistics Yearbook" 2006

GDP by industry is shown in Table 2.2-3. Construction increased most and industry followed.

Table2.2-3 GDP by Industry

(Unit: Million Tenge)

Year	Agriculture, forestry, etc.	Industry	Construction	Services	Others	GDP
1998	148,467.8	422,520.8	85,579.0	983,395.4	93,300.5	1,733,263.5
1999	199,353.9	569,087.0	95,671.4	1,057,476.6	94,867.4	2,016,456.3
2000	210,872.4	847,559.1	134,575.3	1,257,872.4	149,022.4	2,599,901.6
2001	283,608.8	997,071.9	177,752.0	1,604,873.6	187,287.0	3,250,593.3
2002	301,947.7	1,112,959.7	239,360.4	1,905,930.6	216,078.9	3,776,277.3
2003	362,603.0	1,341,482.1	276,180.5	2,390,019.1	241,690.6	4,611,975.3
2004	418,127.2	1,719,372.3	355,828.3	3,133,483.5	243,323.0	5,870,134.3
2005	483,484.6	2,261,203.7	594,986.2	3,948,769.8	302,149.2	7,590,593.5
'05/98	3.26	5.35	6.95	4.02	3.24	4.38

Source: IMF "International Financial Statistics Yearbook" 2006

Gross Regional Domestic Product (GRDP) by region (oblast) is shown in Table 2.2-4.

Table2.2-4 GRDP by Region in 2005

(Unit: Million Tenge)

Regions	Total Regional Product in mill. KZT		Industrial Output in mill. KZT		Agriculture Production in mill. KZT		Investment to Basic capital in mill. KZT		Retail Commodity in mill. KZT	
Akmolinskaya	178,290.8	2.6%	69,278.0	1.3%	82,007.8	10.7%	38,189.0	1.6%	24,836.3	1.8%
Aktiubinskaya	390,418.9	5.7%	485,422.0	9.3%	27,362.5	3.6%	184,130.0	7.6%	79,984.5	5.7%
Almatinskaya	286,429.5	4.2%	180,490.0	3.5%	105,434.8	13.8%	99,501.0	4.1%	31,152.7	2.2%
Atyrauskaya	848,964.9	12.5%	1,071,754.0	20.5%	9,445.3	1.2%	713,681.0	29.5%	25,202.8	1.8%
East-kazakhstanskaya	418,657.5	6.2%	260,236.0	5.0%	75,118.5	9.8%	82,197.0	3.4%	130,596.5	9.3%
Zhambylskaya	151,828.5	2.2%	74,366.0	1.4%	45,737.4	6.0%	22,182.0	0.9%	22,215.8	1.6%
West-kazakhstanskaya	452,223.3	6.7%	501,690.0	9.6%	22,917.2	3.0%	91,860.0	3.8%	55,840.1	4.0%
Karagandinskaya	572,542.0	8.4%	517,281.0	9.9%	35,533.3	4.7%	153,438.0	6.3%	146,909.6	10.4%
Kostanaiskaya	297,612.4	4.4%	179,593.0	3.4%	108,742.9	14.2%	56,074.0	2.3%	40,172.0	2.9%
Kyzylordinskaya	235,833.3	3.5%	339,679.0	6.5%	16,848.7	2.2%	61,471.0	2.5%	18,843.7	1.3%
Mangistauskaya	423,718.4	6.2%	767,801.0	14.7%	2,385.0	0.3%	143,108.0	5.9%	20,968.3	1.5%
Pavlodarskaya	335,429.2	4.9%	308,129.0	5.9%	36,268.7	4.7%	64,072.0	2.6%	58,893.8	4.2%
North-kazakhstanskaya	161,786.1	2.4%	37,339.0	0.7%	93,979.0	12.3%	37,229.0	1.5%	36,444.5	2.6%
South-kazakhstanskaya	319,556.0	4.7%	141,229.0	2.7%	95,218.9	12.5%	64,939.0	2.7%	57,061.3	4.1%
Astana	582,472.5	8.6%	60,230.0	1.2%	4,762.5	0.6%	274,746.0	11.3%	82,266.0	5.8%
Almaty	1,135,348.1	16.7%	236,399.0	4.5%	2,080.9	0.3%	334,159.0	13.8%	577,309.9	41.0%
Kazakhstan Total	6,791,111.4		5,230,916.0		763,843.4		2,420,976.0		1,408,697.8	

Source: Agency on Statistics of the Republic of Kazakhstan, "Regional statistics of Kazakhstan 2005", 2006

GRDP of Almaty is the largest. Atyrauskaya is the second largest, but it has the largest industrial output. Kostanaiskaya is the largest in agricultural product.

(2) Population

Population is shown in Table 2.2-5. The Agency on Statistics of the Republic of Kazakhstan shows population increase from 2002, but IMF Yearbook shows the decrease of total population.

Table2.2-5 Population

Year	Population (thousand)	Reference (IMF: Billion)
1996	15,480.6	15.68
1997	15,188.2	15.50
1998	14,955.1	15.32
1999	14,901.6	15.16
2000	14,865.6	15.03
2001	14,851.1	14.94
2002	14,866.8	14.89
2003	14,951.2	14.86
2004	15,074.8	14.84
2005	15,219.3	14.83

Source: Agency on Statistics of the Republic of Kazakhstan, "Statistical Yearbook of Kazakhstan", 2006

IMF "International Financial Statistics Yearbook", 2006

The reason why Kazakhstan statistics and IMF data are different is not clear. The census year is 1999. It

is said that Kazakhstan data are limited to Kazakhstan people and IMF data might include foreign people. Therefore, IMF population might decrease as the immigration such as Russian from Kazakhstan increased. Or except census year, population is estimated. Thus, estimates may differ depending on the organizations and/or time.

GDP per capita is shown in Table 2.2-6 based on the IMF GDP in US\$ and population in Kazakhstan statistics.

Table2.2-6 GDP per capita

Year	GDP (Current price Mill. US\$)	Population (thousand)	GDP per capita (US\$/person)
1996	20,115.16	15,480.6	1,299
1997	21,272.00	15,188.2	1,401
1998	21,105.36	14,955.1	1,411
1999	17,558.32	14,901.6	1,178
2000	18,220.64	14,865.6	1,226
2001	21,519.35	14,851.1	1,449
2002	23,021.72	14,866.8	1,549
2003	29,851.52	14,951.2	1,997
2004	43,234.20	15,074.8	2,868
2005	55,626.66	15,219.3	3,655

Source: JICA Study Team

Population distribution is shown in the Table 2.2-7. South Kazakhstan is the largest and Almatinskaya is the second. However, the shares of Almaty and Astana are increasing and showing urban concentration inclination.

Table2.2-7 Population by Region

Regions	2004		2005		2006	
	Population	%	Population	%	Population	%
Akmolinskaya	748,930	5.0%	747,185	5.0%	746,652	4.9%
Aktiubinskaya	671,812	4.5%	678,607	4.5%	686,698	4.5%
Almatinskaya	1,571,194	10.5%	1,589,751	10.5%	1,603,758	10.5%
Atyrauskaya	457,215	3.1%	463,466	3.1%	472,384	3.1%
East-kazakhstanskaya	1,455,412	9.7%	1,442,097	9.6%	1,431,180	9.4%
Zhambylskaya	985,552	6.6%	992,089	6.6%	1,001,094	6.6%
West-kazakhstanskaya	603,832	4.0%	606,534	4.0%	609,291	4.0%
Karagandinskaya	1,330,927	8.9%	1,331,702	8.8%	1,334,438	8.8%
Kostanaiskaya	913,435	6.1%	907,396	6.0%	903,178	5.9%
Kyzylordinskaya	607,491	4.1%	612,048	4.1%	618,249	4.1%
Mangistauskaya	349,668	2.3%	361,754	2.4%	374,430	2.5%
Pavlodarskaya	745,238	5.0%	743,826	4.9%	742,911	4.9%
North-kazakhstanskaya	674,497	4.5%	665,936	4.4%	663,126	4.4%
South-kazakhstanskaya	2,150,256	14.4%	2,193,556	14.6%	2,233,568	14.7%
Astana	510,533	3.4%	529,335	3.5%	550,438	3.6%
Almaty	1,175,208	7.9%	1,209,485	8.0%	1,247,896	8.2%

Source: Agency on Statistics of the Republic of Kazakhstan, "Regional statistics of Kazakhstan 2005", 2006

(3) Present Economic Conditions in Eurasian Countries

GDPs of the neighboring countries are shown in Table 2.2-8 and Table 2.2-9. GDPs of all the countries in current price have increased since 1995, but GDPs in US\$ of Russia, Georgia, Kyrgyz and Iran decreased temporarily. Net (real) GDP indexes of Georgia, Kyrgyz and Iran show an increase inclination. GDPs in US\$ of Azerbaijan and China as well as China's net GDP have increased continuously.

GDPs of the other neighboring countries, namely, Tajikistan, Turkmenistan and Uzbekistan, are not shown in the IMF statistics. However, IMF based on the World Bank statistics show continuous increases of net (real) GDP from 1998.

Table2.2-8 GDPs of Neighboring Countries

Country	Item	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Russia	GDP(Bil. Rubles)	1,429	2,008	2,343	2,630	4,823	7,306	8,944	10,831	13,243	16,966	21,598
	Exchnage rate	4.5592	5.1208	5.7848	9.7051	24.6199	28.1292	29.1685	31.3485	30.692	28.8137	28.2884
	GDP in Mill. US\$	313,432	392,126	405,027	270,992	195,898	259,730	306,632	345,503	431,481	588,817	763,493
Azerbaijan	GDP(Mil. Manat)	2,134	2,733	3,158	3,441	3,775	4,718	5,316	6,062	7,147	8,530	11,876
	Exchnage rate	0.8827	0.8603	0.7971	0.7738	0.8240	0.8948	0.9313	0.9722	0.9821	0.9827	0.9454
	GDP in Mill. US\$	2,418	3,177	3,962	4,447	4,581	5,273	5,708	6,235	7,277	8,680	12,562
Georgia	GDP(Mil.Laris)	....	3868	4555	5022	5669	6015	6648	7457	8564	9970	....
	Exchnage rate	....	1.2628	1.2975	1.3898	2.0245	1.9762	2.073	2.1957	2.1457	1.9267	1.8127
	GDP in Mill. US\$	....	3,063	3,511	3,613	2,800	3,044	3,207	3,396	3,991	5,175	....
	Net GDP Volume	....	83.8	92.6	95.5	98.2	100.0	104.8	110.6	122.8	130.5	....
Kyrgyz	GDP(Mil. Soms)	16,145	23,399	30,686	34,181	48,744	65,358	73,833	75,367	83,872	94,351	100,116
	Exchnage rate	10.822	12.810	17.362	20.838	39.008	47.704	48.378	46.937	43.648	42.650	41.012
	GDP in Mill. US\$	1,492	1,827	1,767	1,640	1,250	1,370	1,526	1,606	1,922	2,212	2,441
	Net GDP Volume	76.1	81.5	89.6	91.5	94.7	100.0	107.3	109.5	113.9	119.7	127.8
China	GDP(Bil. Yuan)	5,851.1	6,833.0	7,489.4	7,900.3	8,267.3	8,934.1	9,859.3	10,789.8	12,173.0	16,028.0	18,232.1
	Exchnage rate	8.3514	8.3142	8.2898	8.2790	8.2783	8.2785	8.2771	8.2770	8.2770	8.2768	8.1932
	GDP in Mill. US\$	700,613	821,847	903,448	954,258	998,671	1,079,193	1,191,154	1,303,588	1,470,702	1,936,497	2,225,272
	Net GDP Volume	67.0	73.5	79.8	86.1	92.3	100.0	107.2	116.8	128.7	141.4	....
Iran	GDP(Bil. Rials)	185,928	248,348	292,678	329,134	436,625	580,474	671,735	926,477	1,109,532	1,406,032	....
	Exchnage rate	1,747.93	1,750.76	1,752.92	1,751.86	1,752.93	1,764.43	1,753.56	6,906.96	8,193.89	8,613.99	8,963.96
	GDP in Mill. US\$	106,370	141,852	166,966	187,877	249,083	328,987	383,069	134,137	135,410	163,227	....
	Net GDP Volume	82.0	87.8	90.8	93.3	95.1	100.0	103.7	111.5	119.4	125.5	....

Source: IMF "International Financial Statistics Yearbook" 2006

Table2.2-9 Real GDP Annual Percent Change of Tajikistan, Turkmenistan and Uzbekistan

Year	1998	1999	2000	2001	2002	2003	2004	2005
Tajikistan	5.2	3.7	8.3	10.2	9.1	10.2	10.6	6.7
Turkmenistan	6.7	16.5	18.6	20.4	15.8	17.1	17.2	9.6
Uzbekistan	2.1	3.4	3.3	4.1	3.1	1.5	7.4	7.0

Source: IMF "World Economic Outlook", April 2006

CHAPTER 3 EXISTING LOGISTICS CONDITIONS IN KAZAKHSTAN

3.1 Existing Freight Traffic Situation in Kazakhstan

3.1.1 Past Trends in Freight Traffic and Modal Share

Table 3.1.1-1 shows freight transport volumes by transport means. Total freight transport volume in Kazakhstan amounts to 296.3 billion ton/km as of 2005 and is divided into railway (58%), road (16%) and pipeline (26%), respectively. Excluding pipeline, railway shared 78% of the total volume and plays a role as the main freight transport mode in Kazakhstan due to the country's huge land area and the historical background in transport system development.

Table 3.1.1-1 also shows that average annual growth rate (AAGR) for freight traffic between 2000 and 2005 is 7.4 %. The AAGR for freight traffic by air is the highest (18.9 % per annum), followed by road transport in second place (8.7%), pipeline in third place(8.6%) and rail is the lowest (6.6 %).

Table 3.1.1-1 Trends in Freight Traffic by Mode (Ton-Km Base) Unit: Billion Ton-km

	2000	2001	2002	2003	2004	2005	AAGR
Real Value (Billion Ton-km)							
Railway	125	135.7	133.1	147.7	163.4	171.9	6.6%
Road	31	33	37.6	40.2	43.9	47.1	8.7%
Pipeline	51	57.3	63.5	69.8	76	77.1	8.6%
Air	0	0	0.1	0.1	0.1	0.1	18.9%
All	207	225.9	234.2	257.7	283.4	296.3	7.4%
Share (%)							
Railway	60.4%	60.1%	56.8%	57.3%	57.7%	58.0%	
Road	15.0%	14.6%	16.1%	15.6%	15.5%	15.9%	
Pipeline	24.6%	25.4%	27.1%	27.1%	26.8%	26.0%	
Air	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
All	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	

Source: Statistical Yearbook of Kazakhstan, 2006

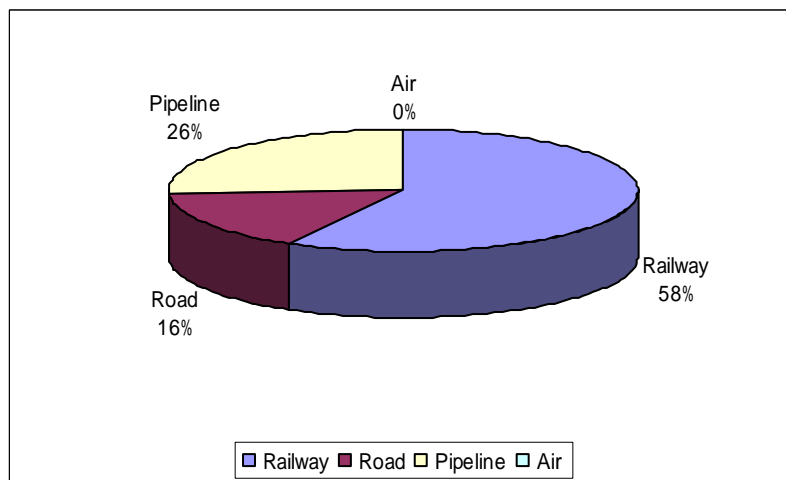


Figure 3.1.1-1 Modal Share of Freight Traffic

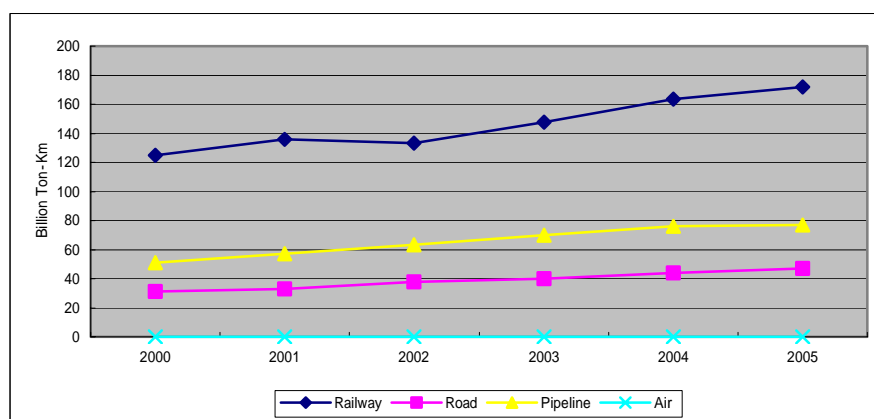


Figure 3.1.1-2 Trends in Freight Traffic by Mode

3.1.2 Freight Traffic by Railway Transport

(1) Overall Situation

Table 3.1.2-1 shows trends in freight transport turnover on ton basis by rail. According to this table, the increase in freight export remains 3% (one fifth of freight import) while freight import shows a very high growth rate of 16%. In particular, the growth rate of transit cargo is very high and its AAGR is over 10%. Domestic cargo shows a high growth rate of 7% as well.

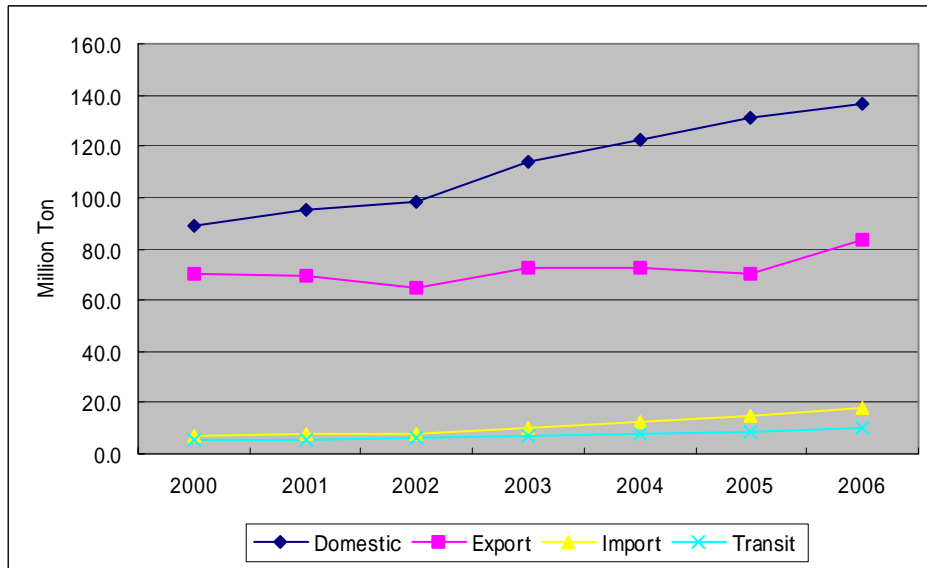
Kazakhstan railways transported approximately 0.3 billion tons of freight in 1990, but this fell drastically to 0.1 billion tons in the late 1990s. However, there was an increase after 1998 and shipments climbed back to 249 million tons in 2005, i.e. 80 % of the transport volume in 1990.

Figure 3.1.2-2 shows shares for domestic freight and international freight by railway and also the composition of commodities imported and exported. According to this, coal accounts for 50% of domestic freight transport and 74% of total freight if ore and oil are included. On the other hand, for export cargo, coal, ore and oil account for 37%, 20% and 19%, respectively. Accordingly, transport for primary product constitutes three-quarters of the total freight originating in Kazakhstan.

Table 3.1.2-1 Trends in Railway Traffic by Type (Ton Base) Unit: Million Ton

	2000	2001	2002	2003	2004	2005	2006	AAGR
Real Value (Million Ton)								
Domestic	89.3	95.3	98.4	113.6	122.5	131.1	136.6	7.3%
Export	70.0	69.4	64.8	72.3	72.2	69.9	83.9	3.1%
Import	7.4	8.0	7.9	10.1	12.7	15.1	18.0	16.0%
Transit	5.6	5.6	6.2	6.7	8.0	8.7	10.1	10.3%
Total	172.3	178.3	177.3	202.7	215.4	224.8	248.6	6.3%
Share (%)								
Railway	51.8%	53.4%	55.5%	56.0%	56.9%	58.3%	54.9%	
Road	40.6%	38.9%	36.5%	35.7%	33.5%	31.1%	33.7%	
Pipeline	4.3%	4.5%	4.5%	5.0%	5.9%	6.7%	7.2%	
Air	3.3%	3.1%	3.5%	3.3%	3.7%	3.9%	4.1%	
All	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	

Source: Statistical Yearbook of Kazakhstan, 2006



Source: Statistical Yearbook of Kazakhstan, 2006

Figure 3.1.2-1 Trends in Railway Freight Traffic by Type

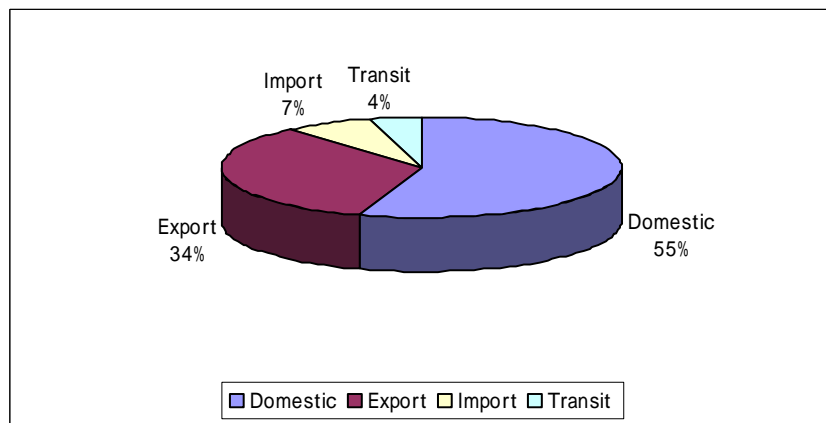


Figure 3.1.2-2 Railway Freight Traffic by Type of Freight

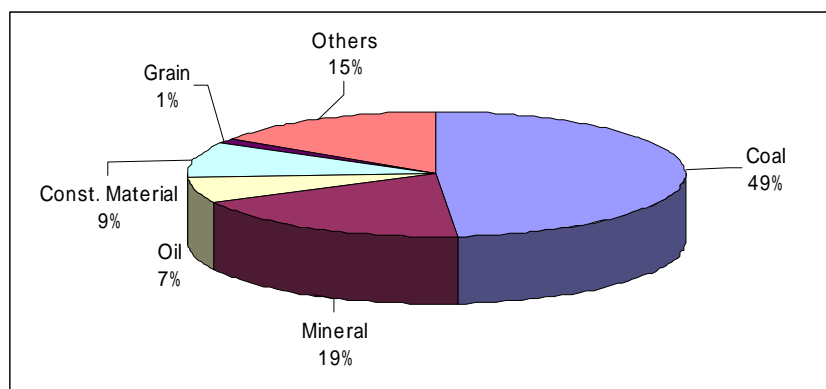


Figure 3.1.2-3 (1) Domestic Freight Traffic by Commodity

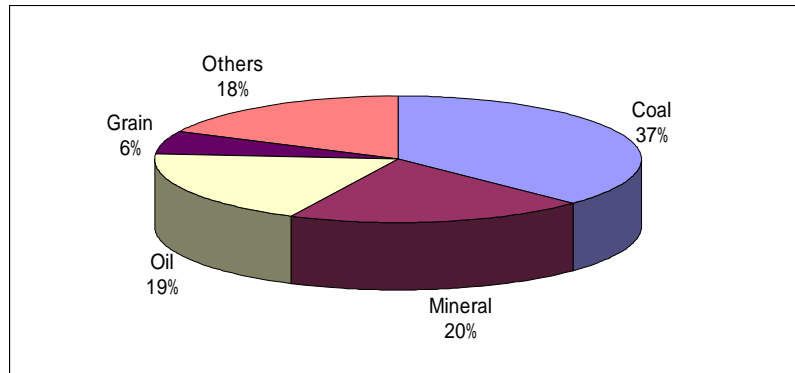


Figure 3.1.2-3 (2) International Freight Traffic by Commodity (Export)

(2) Freight Generation and Attraction by Oblasts

With regard to railway freight except container freight, geographical distribution of railway freight generation and attraction in each Oblast is estimated from origin and destination data for railway freight and shown in figures 3.1.2-4 and 3.1.2-5. The detailed data are shown in the Appendix.

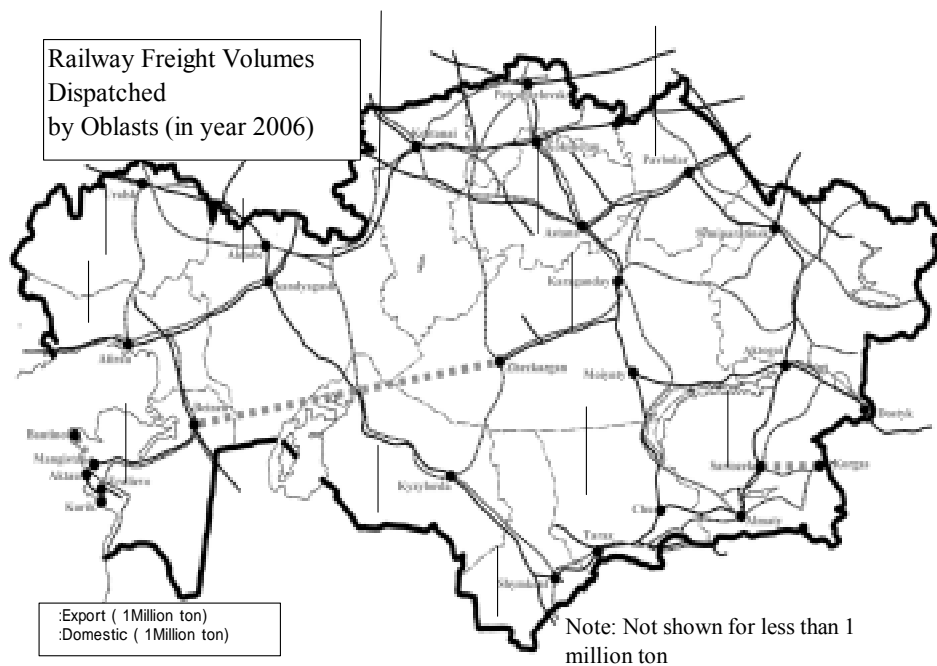


Figure 3.1.2-4 Railway Freight Generation by Oblasts

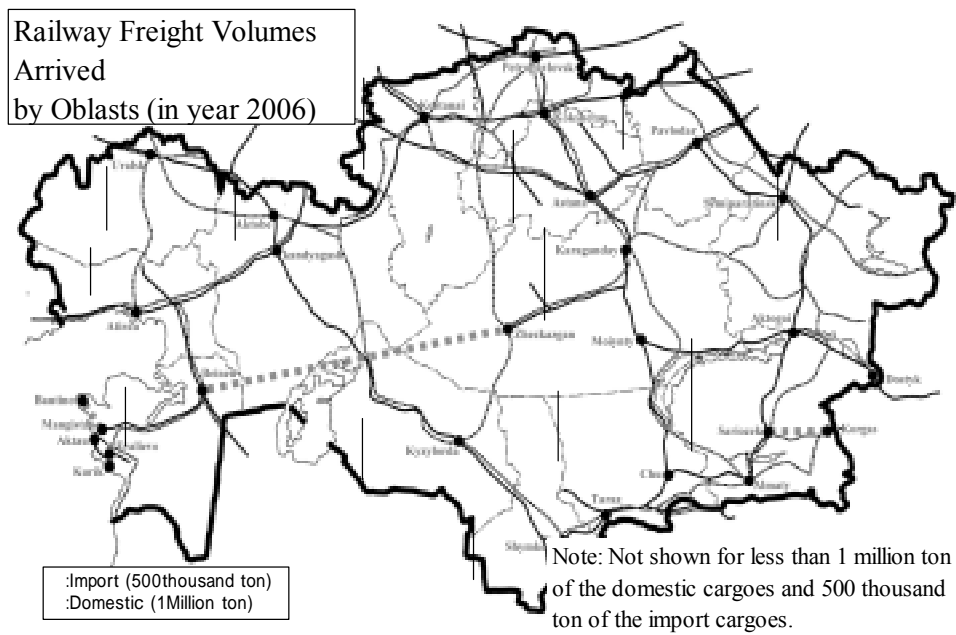


Figure 3.1.2-5 Railway Freight Attraction by Oblasts

(3) Freight Lead Time and Service Characteristics

For actual freight services, typical service characteristic information was collected in the supplementary freight tracing survey. The summary of survey results is shown in the Appendix. Based on this data, performance of the current railway freight services is summarized as follows.

i) Total freight transport time, train running time and intermediate stop time

The average total freight transport time is about 1 day 22' 12" which consists of 1 day 16' 56" of train running time and 5' 15" of intermediate stop time on average. Intermediate stops are required for forming cargo trains and separating wagons at the respective intermediate freight stations.

The relationship between time required for freight transport and transport distance is shown in Figure 3.1.2-6.

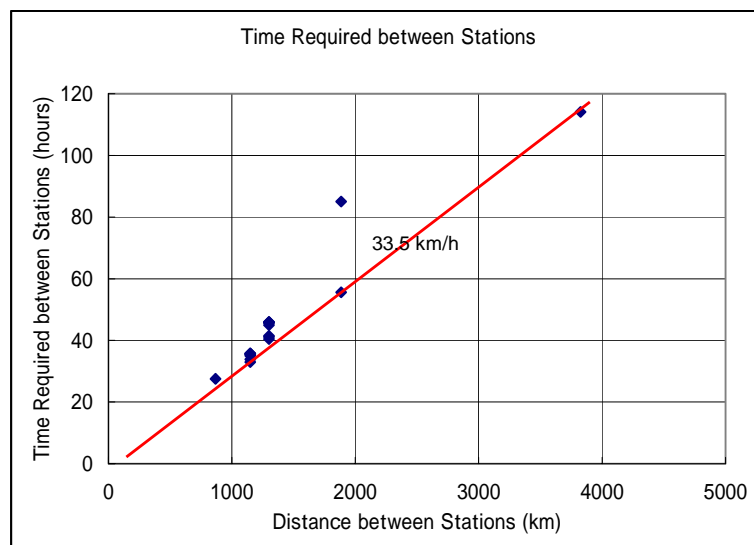


Figure 3.1.2-6 Time Required for Freight Transport and Transport Distance

ii) Freight train speed

The commercial speed of freight services is shown in Figure 3.1.2-7. The average is about 31.0 km/hour. Substantial train speed in freight services is shown in Figure 3.1.2-8 and the average is about 34.5 km/hour.

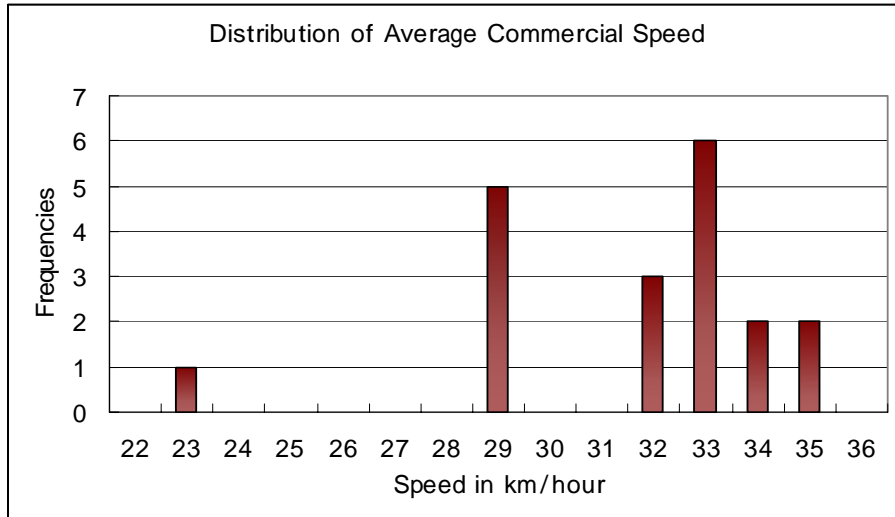


Figure 3.1.2-7 Commercial Speed in Freight Transport

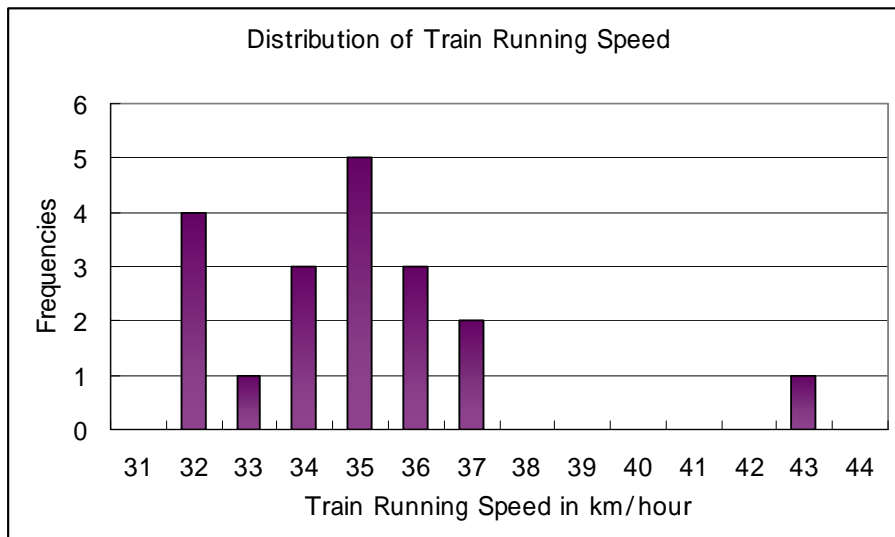


Figure 3.1.2-8 Train Running Speed in Freight Transport

(3) Container Freight Distribution

Figure 3.1.2-9 shows generation and attraction of railway container freight by oblasts. Detailed data are shown in the Appendix. The figure below shows that the largest container volumes are generated and attracted in the area of Almaty and its periphery, accounting for about 40,000 container units in terms of 40ft and 20ft containers. Following this, Astana has large container generation and attraction, about 4,000 units. As seen in the figure, most of the container freight is concentrated in the eastern

part of Kazakhstan.

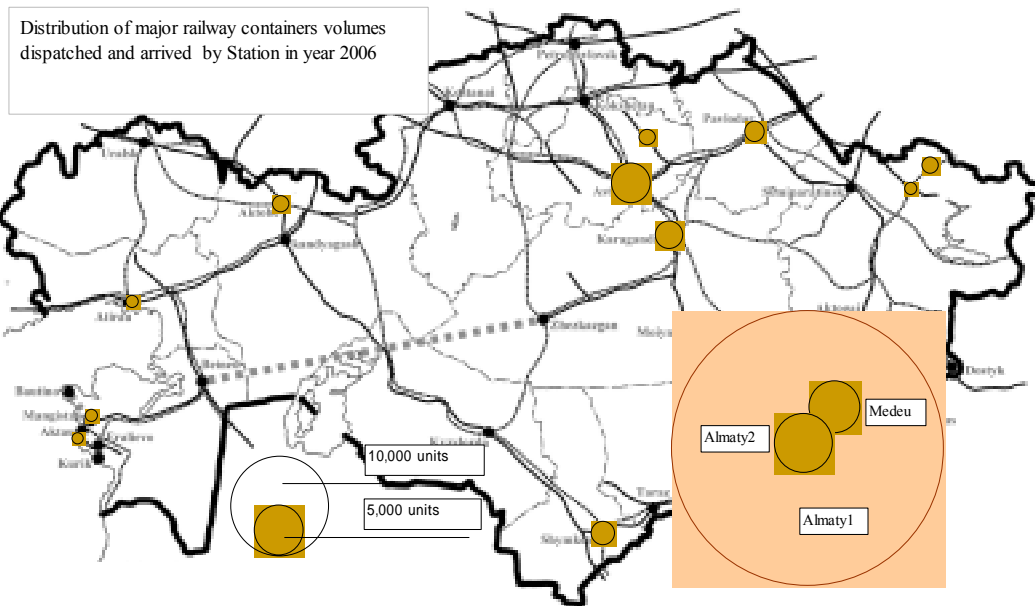


Figure 3.1.2-9 Container Freight Generation and Attraction by Oblasts

Figure 3.1.2-10 shows the container volumes which enter or leave Kazakhstan’s border points. The volumes include international container flows for export, import and transit. The largest inbound container flows are seen in the Dostyk section, accounting for 51,000 units. The Ozinki section, accounting for about 15,000 units, it is next. The Sary Agash section has the highest outbound container flow, accounting for about 30,000 units, with the Ozinki section coming next.

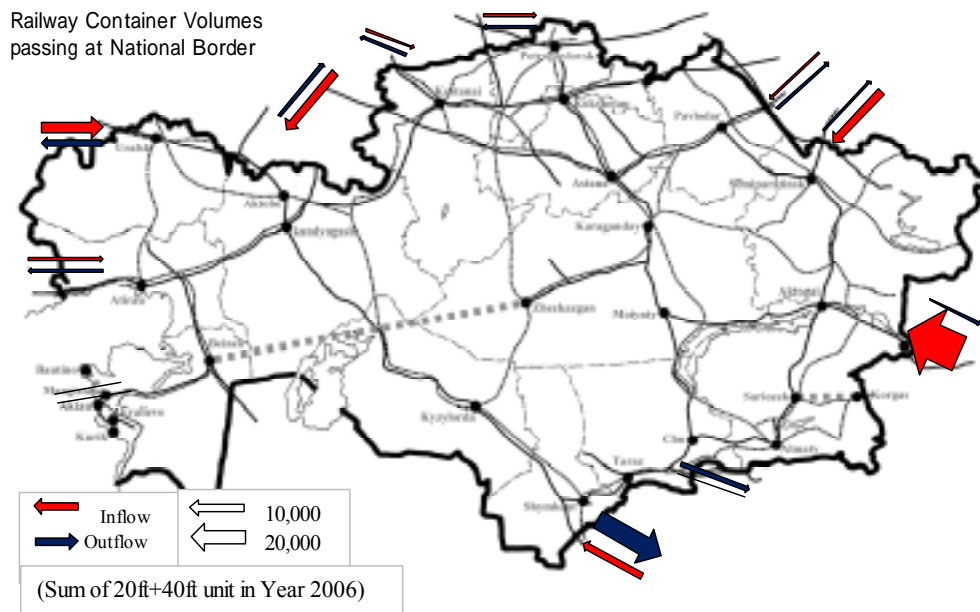


Figure 3.1.2-10 Container Freight Volumes at Border Crossings

Figure 3.1.2-11 shows the container freight flow for transit freight in 2006. Large container freight volumes are seen for the sections between Dostyk and Sary Agash, Lokoty and Sary Agash, and

Ozinki and Sary Agash.

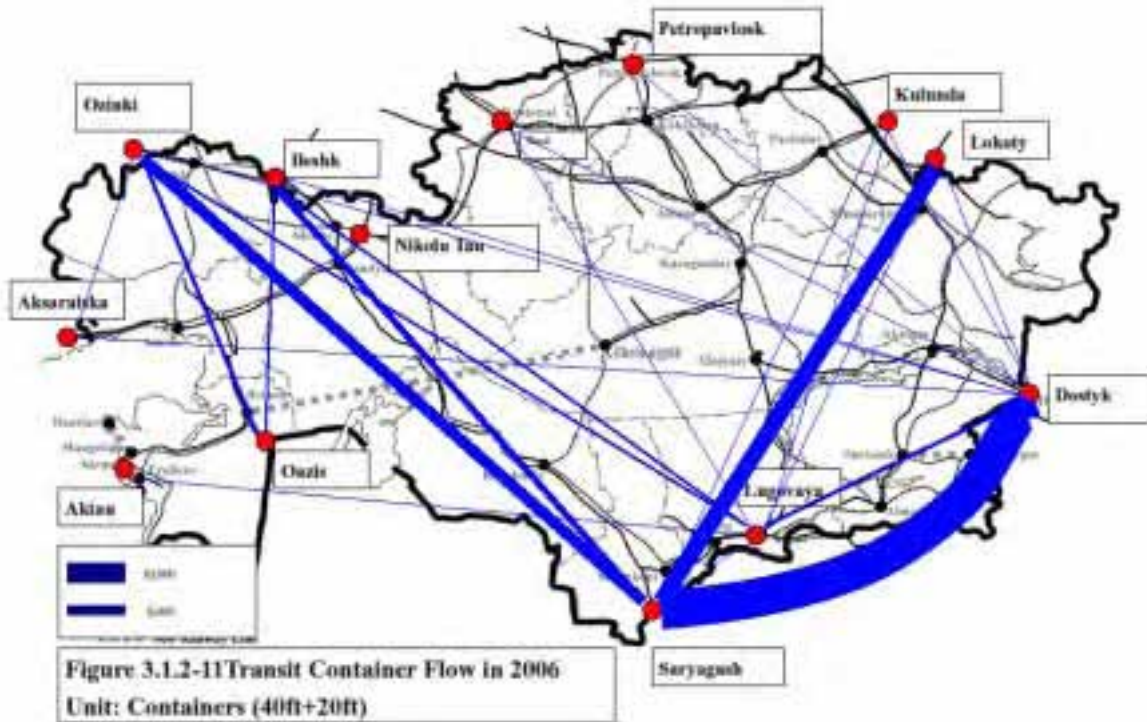


Figure 3.1.2-11 Transit Container Flow in 2006

Block train operation is important for promoting the container freight transport because it can provide the rapid and punctual transport services which are required in container freight transport.

At present, several block trains are operated in Kazakhstan as international freight transport. Figure 3.1.2-12 shows the actual result of block train operations in the past 4 years. According to this, block train operation is growing steadily. In the past 4 years, operations increased by about 3 times or more.

Number of Block Trains Operated by Years													
Year	Type	Trains	40	80	120	160	200	240	280	320	360	400	
2003	Transit	21	■	■	■	■	■	■	■	■	■	■	
	Import	52	■	■	■	■	■	■	■	■	■	■	■
	Export	11	■	■	■	■	■	■	■	■	■	■	■
2004	Transit	35	■	■	■	■	■	■	■	■	■	■	■
	Import	153	■	■	■	■	■	■	■	■	■	■	■
	Export	44	■	■	■	■	■	■	■	■	■	■	■
2005	Transit	21	■	■	■	■	■	■	■	■	■	■	■
	Import	297	■	■	■	■	■	■	■	■	■	■	■
	Export	167	■	■	■	■	■	■	■	■	■	■	■
2006	Transit	72	■	■	■	■	■	■	■	■	■	■	■
	Import	375	■	■	■	■	■	■	■	■	■	■	■
	Export	305	■	■	■	■	■	■	■	■	■	■	■

Source : KTS

Figure 3.1.2-12 Number of Block Trains Operated, by Year

3.2 Transport Sector

3.2.1 Railway Transport

(1) Railway Network

The total length of the railway network in Kazakhstan is 14,205.3km, including 4,787.0km (33.7%) of double track sections and 4,136.6km (29%) of electrified sections. (See Figure 3.2.1-1)

Railway lines in Kazakhstan are divided into 5 categories in accordance with their importance in the railway network. Among them, the most important railway sections are as follows:

- a) Trunk line section (Trans-Asian Railway Trunk Line)
- b) International freight corridor
 - Central Asia corridor (Trans-Asian Railway Trunk Line)
 - TRACECA
 - North-South Corridor
 - Northern Corridor of Trans-Asian Railway Trunk Line.

Because of the area’s historical background, the route connecting with Moscow was seen as important, and track upgrades such as double tracking and electrification was made mainly on the central railway corridor connecting Tashkent-Arys-Shalkar-Aktobe-Russia. In addition to that, there are about 10,000 kilometers of sections with automatic train signal systems and also a lot of signaling equipment and train passing siding track facilities for single track sections in order to increase track transport capacity.

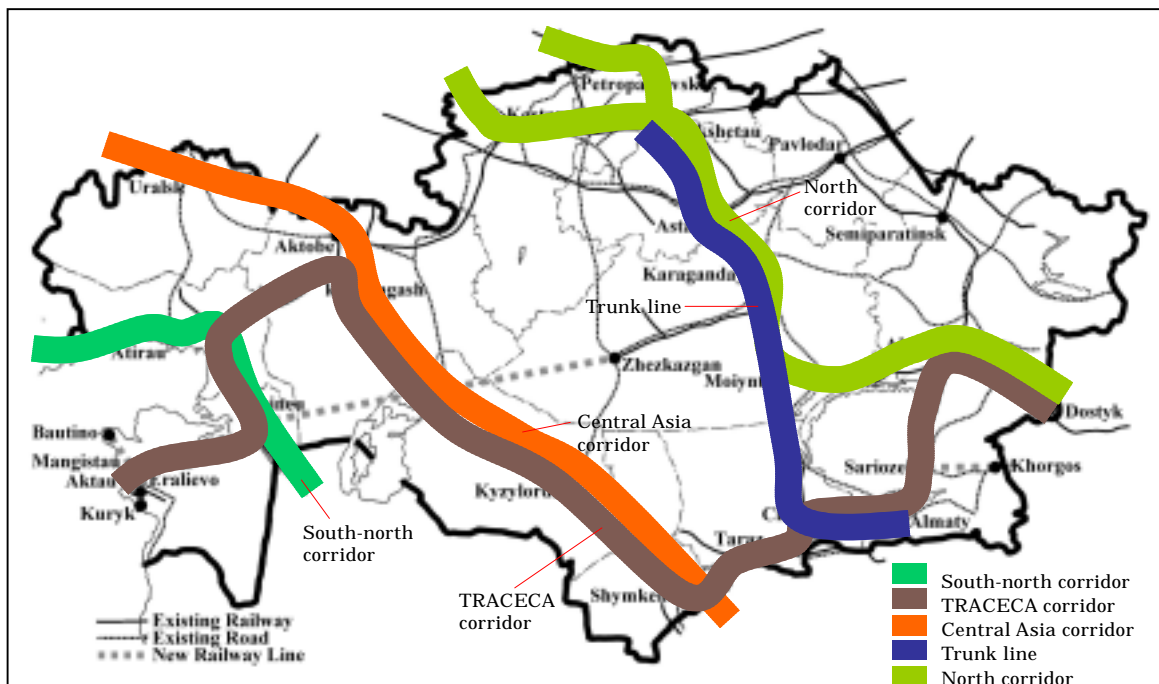


Figure 3.2.1-1(a) Kazakhstan Railway Network

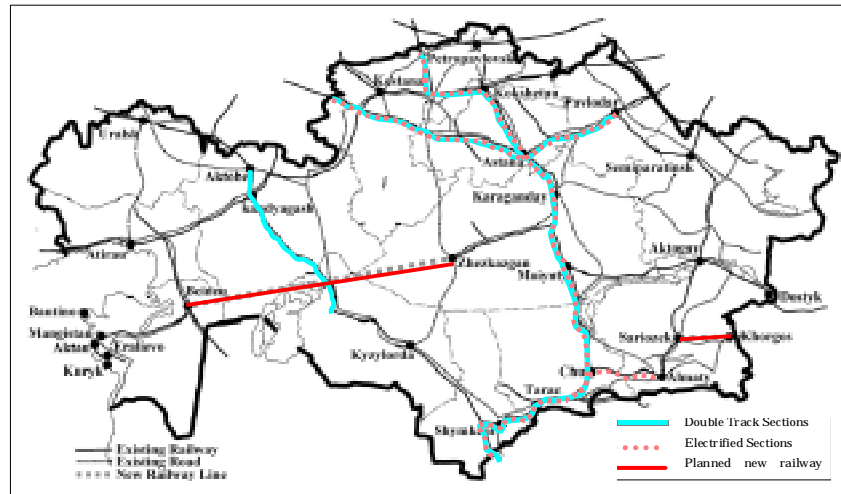


Figure 3.2.1-1(b) Kazakhstan Railway Network

For reference, the railway network in Russia and other CIS countries is shown in Appendix 3.

(2) Railway Stations and Yards

There are 364 stations in the whole railway network and most of the stations handle freight transport. However, the stations handling container cargos are limited to 11 terminals as shown in Figure 3.2.1-2. There are approximately 40 freight yards located in important places since the freight yards form trunk routes for freight transport. Among them, 6 yards, i.e., Astana, Pavlodar, Karaganda, Chu, Arys and Kandygash, are designated principal yards and play an essential role for railway freight transport in the whole country. The main role of freight yards is to sort/organize freight wagons arriving from many stations of origin into directional train units toward final destinations or the next freight yard.

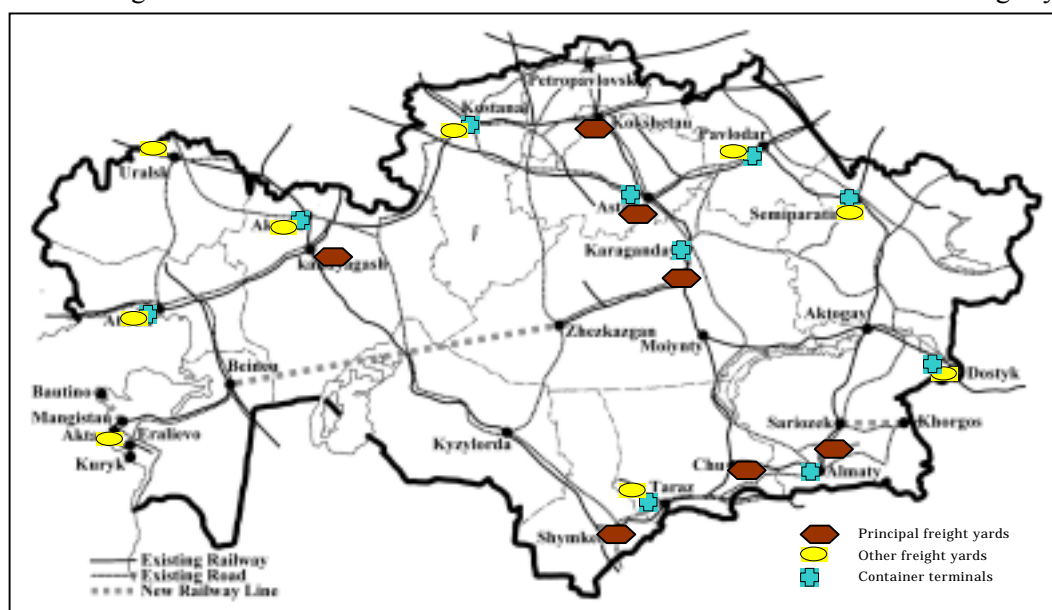


Figure 3.2.1-2 Allocation of Railway Yards and Container Stations in the Kazakhstan Railway Network

(3) Rolling Stock

According to the railway restructuring program of Kazakhstan for 2004-2006, locomotives are being changed to JSC “Locomotive” and wagons to JSC “Kazzheldortrans” from JSC “NC KTZ.”

1) Locomotives

On an inventory basis as of 2004, the number of locomotives was 1,711. Since 1,963 were registered in 2000, the number of locomotives decreased by 252 during this period. This change implies that there are a considerable number of over-aged locomotives.

Table 3.2.1-1 Trends for Locomotives in Kazakhstan

Unit: Vehicle

	2000	2001	2002	2003	2004	AAGR
Steam Locomotive	54	54	54	53	34	-10.9
Diesel-Electric Locomotive	1,291	1,242	1,227	1,126	1,082	-4.3
Electric Locomotive	618	617	615	591	595	-0.9
Total	1,963	1,913	1,896	1,770	1,711	-3.4

Source: Statistical Yearbook of Kazakhstan

2) Goods Wagons

The inventory of wagons as of 2005 was 86,921. Since the number was 86,119 as of 2001, the number of wagons decreased by 802 during this period. According to the latest report, approximately 17,000 wagons are identified as obsolete or deficient. Since an increase in freight transport is expected, Kazzheldortrans plans to expand the number of wagons.

Table 3.2.1-2 Trends for Goods Wagons in Kazakhstan

Unit: Vehicle

	2001	2002	2003	2004	2005	AAGR
Goods Wagons	86,119	87,715	88,726	87,480	86,921	0.2

Source: Statistical Yearbook of Kazakhstan

Table 3.2.1-3 Goods Wagons in Kazakhstan

Unit: Vehicle

	Open Goods Wagon	Roofed Goods Wagon	Flat Goods Wagon	Tank Car	Refrigerator Car	Other	Total
Number	28,000	13,000	10,000	10,000	1,000	13,000	75,000

Notes: 1) Flat goods wagons include 986 container cars.

2) The inventory survey was carried out in 2003-2004 so as to be different from the above table.

(4) Freight Train Operation System

1) Freight Train Operation System

Freight train operation is divided into the following five types.

- a) Freight train operation in which wagons are decoupled/coupled at each freight yard along the freight route
- b) Freight train operation in which wagons are decoupled/coupled only at main freight yards with network hub function
- c) Freight train operation integrated between cargo loading/unloading points for specific bulk cargos
- d) Exclusive container train operation (block trains)
- e) Others

A main feature of freight railway in Kazakhstan is basically that freight yards have a hub function that collects and disperses all the wagons to a designated yard with shunting works. At the same time, necessary capacity adjustments are made through appropriate train formation changes by section, in order to utilize weight standards fully because wagon traction capacity is different by railway section. Furthermore, concentrating the major sorting function in a few principal yards as focal points of freight transport can minimize yard-related work in intermediate yards on freight routes.

Container transport is operated in ordinary freight trains, because it is relatively difficult to gather enough container cargos to make an exclusive container train. However, handling work at intermediate stations must be reduced and transport time shortened to respond to basic needs for rapid services. A container express train (block train) has been tried already, but it does not operate regularly. Regular operation of container express trains could be introduced if the demand for container cargo increases to some extent. It is desirable to secure regular operation of container express train because of promoting container freight development and providing the platform of logistics system in Kazakhstan.

2) Current Status of Freight Train Operation

Gross freight turnover is 277.5 billion ton-km in 2004, consisting of 164.6 billion in net ton-km, and 112.8 billion in tare ton-km. Total wagon running length is 4,698 million kms, consisting of 2,904 million kms of loaded wagons and 1,793 million kms of empty wagons, giving a load factor of 62%.

Table 3.2.1-4 Freight Train Operation Indicators

	2000	2001	2002	2003	2004
Gross freight turnover (billion ton-kilometers)	208.9	223.0	222.7	250.5	277.5
Net freight turnover	126.0	134.2	133.3	149.6	164.6
Tare freight turnover	82.9	88.8	89.3	100.8	112.8
Wagon running kilos (million kilometers)	3,533	3,770	3,749	4,224	4,698
In loaded wagons	2,158	2,320	2,305	2,597	2,904
In empty wagons	1,371	1,445	1,438	1,618	1,793
Load factor(%)	61	62	62	62	62

Source: KTZ

Though freight train frequency depends on transport capacity of railway sections, according to current train schedules there are generally 28 trains per day running in one direction in the northern industrial region and 10 to 15 trains per day running in one direction overall.

Table 3.2.1-5 Number of Trains in Major Railway Sections

Akmola Rail Traffic Department				
Railway sections	Freight	Passenger	Total	Remarks
Astana ~ Borovoye	20	8	28	Double tracks
Borovoye ~ Kokshetau	20	12	32	Double tracks
Astana ~ Erementau	26	12	38	Double tracks
Astana ~ Atbasar	17	16	33	Double tracks
Atbasar ~ Yesil	17	12	29	Double tracks
Atyrau Rail Traffic Department				
Atyrau ~ Ganyushkino	12	8	20	Single tracks
Makat ~ Beyneu	11	12	23	Single tracks
Makat ~ Sgys	15	10	25	Single tracks
Uralsk Rail Traffic Department				
Uralsk ~ Kazakhstan	7	12	19	Single tracks
Shymkent Rail Traffic Department				
Shymkent ~ Arys	15	32	47	Double tracks
Shymkent ~ Tyulkubas	13	32	45	Double tracks
Pavlodar Rail Traffic Department				
Yereimentau ~ Yekibastuz	28	6	34	Double tracks
Semipalatinsk Rail Traffic Department				
Semipalatinsk ~ Lokot	11	12	23	

Source: KTZ

3) Container transport

There are 11 stations that handle mainly containers.

Table 3.2.1-6 Railway Container Terminals (2003) unit: TEU

	Dispatch	Arrival	Interchange	Total
Astana	7,557	8,193	7,602	23,352
Pavlodar	2,928	3,985	5,191	12,104
Karaganda	1,846	3,477	7,185	12,508
Jusch-Kam	2,350	2,713	1,128	6,191
Kostanay	2,152	1,384	5,089	8,625
Zamble	2,211	2,518	8	4,737
Symkent	3,457	3,753	4,206	11,416
Aktobe	6,612	7,194	30,685	44,491
Atyrau	5,930	6,263	2,603	14,796
Semey	635	1,287	3,497	5,419
Almaty	21,767	25,804	360	47,931
Total	57,445	66,571	67,554	191,570
Daily Average	191	222	225	638

Note: Figures are in 2003.

Names in bold are block terminals with a hub function in container train operation.

Both KTS and Kedentrans are mainly engaged in container transport operations. The former is mainly in charge of commercial activities and the latter is in charge of yard-related activities such as loading/unloading/sorting and container distribution. Their corporate information is as follows:

Table 3.2.1-7 Profile of KTS and Kedentrans

	KTS	Kedentrans
Main activity	Container business, forwarding <ul style="list-style-type: none"> • Providing container services • Management of container transport • Documentation services for international transport • Container location tracing • Planning of containers and container wagons • Investment of containers and container wagons 	Cargo handling (loading/unloading) in freight terminals <ul style="list-style-type: none"> • Cargo loading/unloading • Cargo distribution services • Storage services • Wagon sorting in freight terminals
Owned containers	7,394	
Owned wagons	493	493

Operation of international container trains has been increasing gradually, as shown in Table 3.2.1-7. According to this, 409 trains (84%) out of a total of 485 trains operated in 2005 were operated across the Dostyk-Alashankou section. In particular, train operation between Lianyungang-Almaty, using the China land bridge, showed a significant increase.

Table 3.2.1-8 International Container Train Operation

Origin-Destination	2004	2005	2005/ 2004
Lianyungang – Almaty	44	151	343
Tianjin - Almaty	56	85	152
Lianyungang – Assake	0	17	-
From China	100	253	253
Chukursai – Alashankou	0	3	-
Akaltyn – Qingdao	0	1	-
Almaty – Alashankou	31	151	487
Almaty – Tianjin	5	1	20
To China	36	156	433
Total across Dostyk-Alashankou:	136	409	301
Nakhodka-Lokoty- Almaty	53	61	115
Nakhodka-Lokoty- Almaty - Tashkent	35	0	0
Almaty – Tashkent	2	1	50
Almaty-Novorossisk (Turkey)	1	5	500
Almaty-Lokoty-Nakhodka East	5	9	180
Total	232	485	209

Note: 2005/2004 indicates growth percentage of 2005 value over 2004.

Source: KTZ

4) Freight Train Travel Time

Due to the vast land area of Kazakhstan and other reasons, railway network lines between the eastern and western parts of the country are not built in straight alignment. The distance measures 4,000 km on existing railway lines from Dostyk in the east to Aktau in the west. The distance is over 1,700 km from Uzbekistan in the south to Russia in the north-south direction. Freight train speed limits are determined by track standards and other factors, and accordingly this varies by railway section. However, since average freight train speed is estimated to be 41km an hour, wagon handling in freight yards consumes significant amounts of time on freight routes. In addition, some freight trains require a locomotive change, train driver change and other trains may pass them at intermediate stations, so much time is lost.

Table 3.2.1-9 Average Speed of Freight Trains

	2001	2002	2003	2004	2005
Av. Speed(km/h)	41.2	41.7	41.8	41.8	40.9

Source: Statistical Yearbook 2006

Based on current freight train patterns, the route of freight trains between Dostyk and Aktau is probably as follows:

Dostyk-Aktogay yard-Almaty yard-Chu yard-Arys yard-Kandyagash yard-Aktau

Freight trains reach Aktau after wagon transmission/shunting works are carried out at 7 intermediate yards. Freight transport time between typical freight stations is estimated as shown in Table 3.2.1-10.

Table 3.2.1-10 Railway Distance and Required Time between Typical Stations

O-D	Intermediate points	Distance	Required Time
Dostyk Aktau	Aktogay-Astana-Akchuvinsk (north route)	3,813km	Approximately 8 days
Dostyk Aktau	Aktogay-Almaty-Shymkent (south route)	4,181km	Ditto
Dostyk Shymkent	Aktogay-Almaty	1,678km	Approximately 5 days

5) Freight Transport Information System

Regarding freight transport information, real-time communication on railway operation from station of origin to destination station is essential for making freight transport more efficient. However, strategic freight carriers who want to lead competitors should provide freight users with real-time information such as location information of cargo and estimated arrival time.

- Where freight transport information at KTZ is concerned, although computerization has already been introduced for some freight transport information processing, in general, actual communication in the freight railway system is done by telephone/telegram. Since such procedures include manual handling, they lack accuracy in communication quality and transmission speed. Furthermore, more advanced applications such as information systems to monitor client databases are necessary for modern management.
- Information about container transport is exchanged by telephone, fax and the Internet. In particular, information about container and platform wagon location is managed exclusively by KTS headquarters in Astana.

Table 3.2.1-11 Outline of Freight Related Information at KTZ

Information type	Media	Remarks
Information transmitted from departure station to arrival station	Telephone telegram	
Freight yard to freight yard	Telephone	
Consignor to departure station	Ditto	
Arrival station to consignee	Ditto	
Consignor to consignee	N.A	By users

(5) Organization of Railway Transport System

Railway organizations and institutions form the basic structure for railway transport activities and serving the public with an essential transport means for socio-economic development. Railway assets in Kazakhstan are currently maintained and railway services provided under the organization shown in Figure 3.2.1-3.

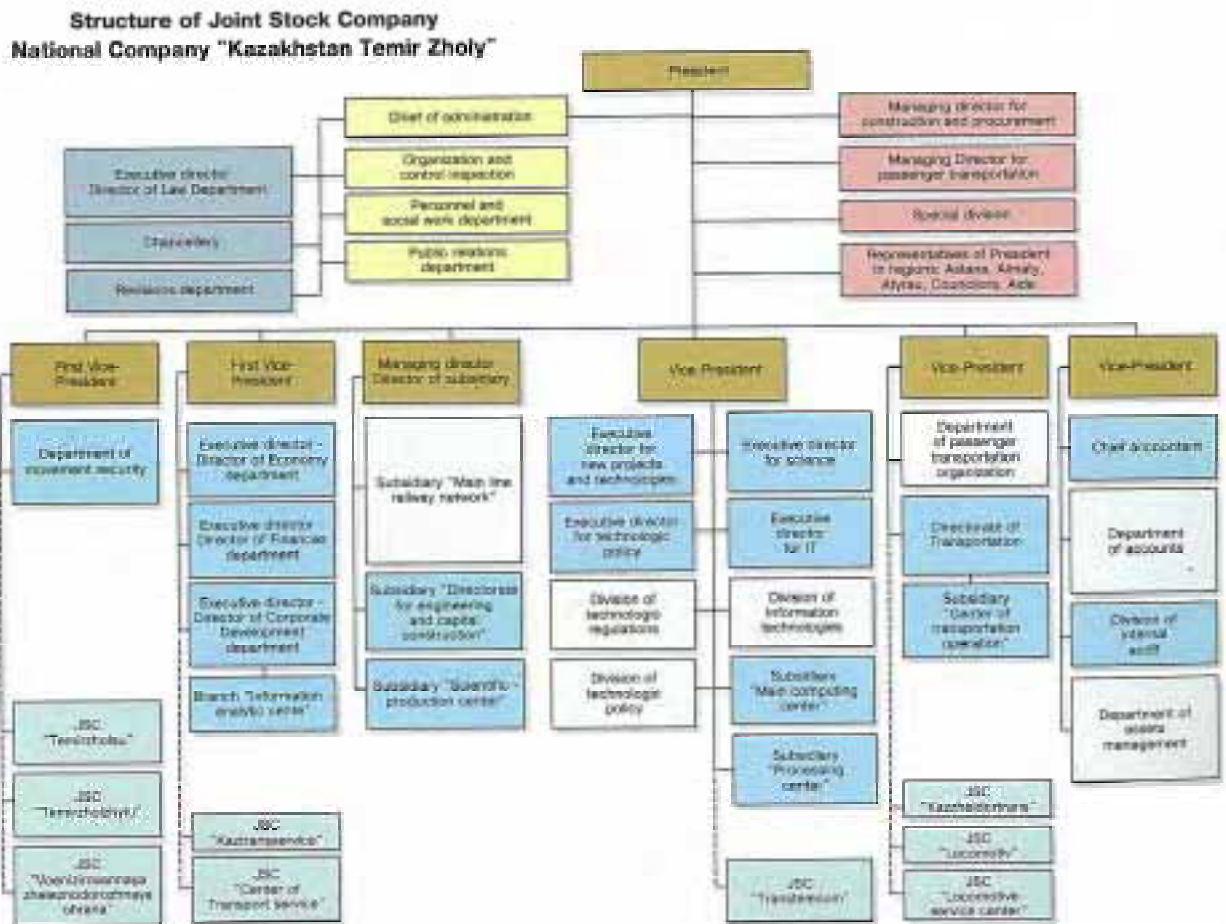


Figure 3.2.1-3 Organization Chart of KTZ

Under this structure, railway-related activities concerning railway transport services are divided into a number of specific activities and functions, and those activities are carried out by functional operating units, most of which are Joint Stock Companies of KTZ. The main principle of this institutional system is shown in Table 3.2.1-12.

Table 3.2.1-12 Functional Division of Railway Organization

Function	Main player	Status & Objectives
Railway assets management and development policy	JSC NC KTZ	Responsible for maintaining and using railway trunk lines from the viewpoint of the national interest
Freight transport services	JSC Kazzheldortrans	Established in 2003, 100% of its shares are owned by KTZ. Responsible for providing railway freight transport.
Locomotive asset holding and traction service	JSC Locomotives	100% of locomotive assets transferred from KTZ and used to provide all carriers with equal access to locomotive haulage services.
Wagon stocks	JSC Wagon services	Leases wagons owned by KTZ to freight carriers.
Maintenance and repair of rolling stock, including railway supplementary services	A number of repair enterprises independent from KTZ	Assets of rolling stock repair enterprise are sold by competitive tender.
Passenger transport services for international routes and socially important routes	JSC passenger transportation	Responsible for providing railway passenger services on international routes and socially important routes.
Overall freight yard function	JSC Keden-transservice	Responsible for loading/unloading in yards to freight carriers, including feeder transport services.
Container freight	JSC Kaztransservice	Responsible for container transport plan and forwarding services to consignors.

(6) Financial situation

As a result of railway reform in Kazakhstan, the passenger railway services are separated institutionally and financially. Passenger rail services are loss-making but are being spun off into a separate corporate entity from the more viable cargo transport business. Financial performance for each railway services shows opposite picture as shown in table 3.2.1-13/14. The passenger railway services result in huge operation loss while freight services make considerable profit.

Table 3.2.1-13 Financial Result of Freight Transport unit:million tenge

No.	Title	2004	2005
	Operation Rvenues and Expenditures		
	Revenues	250,857	290,323
1	Gain on Sale of Ready-Made Products (Goods, Works, Services)	240,350	268,851
	Advanced Payments Received	9,517	11,055
	Other Inflows	990	10,417
	Expenditure	215,696	225,165
2	Bills of Suppliers and Contractors	98,531	101,046
	Advanced Payments Made	11,823	2,807
	Salaries	49,667	56,620
	Remuneration Payment	986	2,594
	Corporate Income Tax	5,829	6,148
	Other Budgetary Payments	32,062	30,087
	Other Payments	16,798	25,863
	3	Balance	35,160	65,158

Source: KTZ

Table 3.2.1-14 Financial Result of Passenger Transport unit:million tenge

No.	Title	2003	2004
	Income	19,072	19,369
1	Passenger transport revenues	16,469	16,701
	Luggage transport revenue	884	785
	Mail	216	266
	Other income	1,503	1,617
	Expenditure	36,249	40,704
2	Direct expense	15,249	18,708
	Indirect expense	21,000	21,996
3	Balance	-17,177	-21,335

Source :KTZ

This is considered to be an inevitable consequence of railway restructuring while financial and organizational separation enabled to ensure transparency of money flows and the commitment by private sector. In order to encourage the participation from private sector, the government allocate

about 10 billion KZT per annum from the state budget for compensation of losses caused by passenger transportation.

(7) Railway tariffs

Under the restructuring program of the railway industry in Kazakhstan, former freight railway tariffs have been separated into several basic cost factors for railway transport and are determined by each factor. The structure of freight tariffs is explained in Table 3.2.1-15.

Table 3.2.1-15 Freight Tariff Structure

basic cost factor	Content	Determined by
Tariff for trunk railway network usage (TRN)	Charge for using the trunk railway network owned by KTZ. Regulated by “natural monopolies law”	Agency for regulation of natural monopolies (ARNM)
Tariff for locomotive haulage services	Charge for using traction services provided by JSC locomotives	KTZ
Tariff for use of freight cars and containers	Charge for using wagons and containers owned in JSC Kazzheldortrans	KTZ
Tariff for freight and commercial services	Charge for using railway supplementary services provided by KTZ	KTZ

For this basic concept, the tariff for TRN (Trunk Railway Network) services was approved by the order of the Chairman of ARNM in 2004. Additionally, the same year, KTZ set tariffs for the 3 other factors by issuing an internal order to approve a temporary tariff schedule (part 2) for extra discount rates to the freight transportation tariff.

The average tariff rate by commodity is shown in Table 3.2.1-16.

Table 3.2.1-16 Current Tariff Table by Commodity

Tariff :Tenge / ton-km

Name of Commodity	Domestic	Export	Import
Grain cultivation	1.016	1.257	1.262
Grain processing product	0.843	1.042	1.047
Coal	0.789	0.957	0.970
Oil	1.265	4.719	1.573
Metal ore	0.843	1.042	1.047
Ferrous metal	2.350	2.350	2.350
Cement	1.271	1.271	1.271
Timber	1.156	1.430	1.437

Source: Ministry of Transport and Communications

A strategic freight carrier seeking favorable tariff conditions can submit a proposal to obtain approval for a special tariff discount from a specific government agency (Competition Protection Committee), but this practice makes the tariff regime less transparent.

For the international freight tariff, rates of the railway tariff policy in the CIS countries are applied to freight in a year. This tariff policy is adopted at annual tariff conferences of the CIS countries, whose members include Kazakhstan. Tariff policy rates are based on ITT (International Transit Tariff) and CTT (Common Transit Tariff), determined by the Railway Cooperation Organization (RCO), of which KTZ is a member. The current issue concerning the international transit tariff is tariff adjustment between domestic price and international prices. As Table 3.2.1-17 shows, there are considerable price gaps between tariff levels applied to domestic cargo and those applied to export/import cargo. In particular, the difference between transit and domestic cargos is significant.

Table 3.2.1-17 Average Tariff Level by Freight Type

	2002	2003	2003/2002
Average Tariff (Tg/Ton*Kilo)	1.11	1.19	108
Domestic	0.73	0.77	105
Export	1.13	1.19	105
Import	1.26	1.53	121
Transit	2.22	2.38	107

Source: KTZ

3.2.2 Road Transport

(1) Outline of Road Transport System

Road transport plays an important role in the Kazakhstan transport system.

In 2004, freight transportation by automobile road was 1,444.8 million tons, which represents 78.5% of the total freight transportation in the country. But in terms of freight turnover, road transportation was 43.9 billion ton/km, which represents 15.5% of the total and far less than the freight turnover by rail (163.4 billion ton/km or 57.7% of the total). This trend reflects the fact that road transportation is used mainly for medium- or short-distance inter- and intra-city transportation rather than long-distance haul.

Annual growth in road transportation is 3-5%, which echoes the economic growth of the country. Table 3.2.2-1 indicates actual performance of road transportation in past years together with passenger transportation and number of motor vehicles in Kazakhstan, which also shows a trend for sustainable performance enhancement.

Table 3.2.2-1 Road Transport Indicator

	2001	2002	2003	2004
Freight Transportation by road (million tons)	1,077	1,219	1,318	1,449
Freight Turnover by road (million ton/km)	33,000	37,600	40,200	43,900
Number of Trucks	241,528	251,129	261,327	265,245
Passenger Transportation (million person)	7,855	8,879	8,722	9,235
Passenger Turnover (million person/km)	71,287	79,429	80,825	85,240
Number of buses	50,162	51,367	61,391	62,894
Number of passenger cars	1,057,801	1,062,554	1,148,754	1,204,118

Source: Statistical Yearbook of Kazakhstan, 2005

Road transport is expected to continue growing, for the following reasons: 1) bullish economic activity of the country in general, 2) increase in the demand for transportation from door to door, 3) flexible time schedule and 4) stronger transportation needs, particularly in the western part of the country relating to oil producing industries. Table 3.2.2-2 is the 5-year demand forecast by the Ministry of Transport and Communications for freight and passenger transportation.

Table 3.2.2-2 Demand Forecast for Freight and Passengers 2007-2011

	2007	2008	2009	2010	2011
Freight transportation (million tons)	1,522	1,543	1,565	1,586	1,609
Passenger Transportation (million person)	9,919	10,008	10,099	10,189	10,224

Source: Road Transport Division, MTC

Within the competence of the Road Transport Division in the Ministry of Transport and Communications, there

are issues on the state policy regulation in road transport. The Committee for the Transport Infrastructure Development conducts construction and maintenance of the roads of national significance as a key element in the road transport infrastructure.

(2) Road Network Condition

Public roads in Kazakhstan are divided into two categories: Republic roads and Local roads. Republic roads are the major trunk lines extending across the country and connecting international road corridors with neighboring countries. Local roads provide basic access to rural areas. Both equally constitute the backbone for economic activities in the country. Each network is controlled by different levels of the government and their respective road organizations.

1) Republican road network

The owner of the Republican road network is the Government of Kazakhstan and the network is administered by the Ministry of Transport and Communications. The road network is managed by the Transport Infrastructure Development Committee.

2) Local roads

Each local government (Oblasts and Raiyons) owns the roads within its territory. Roads are managed by the road department within the local government.

The characteristics of the road network systems are summarized in Table 3.2.2-3.

Table 3.2.2-3 Characteristics of the Road Network

(1) Republican road network (unit: km)									
Total length	By road category					By road pavement			
	I	II	III	IV	V	AC	Black Gravel	Gravel	Earth
23,508	675	3,516	17,136	2,040	141	8,350	13,020	1,968	170

(2) Local roads (unit: Km)									
Total length	By road category					By road pavement			
	I	II	III	IV	V	AC	Black Gravel	Gravel	Earth
67,337	70	764	13,875	42,766	6,734	6,306	29,000	24,174	7,857

Total (1)+(2) (unit: Km)									
Total length	By road category					By road pavement			
	I	II	III	IV	V	AC	Black Gravel	Gravel	Earth
90,845	745	4,280	31,011	44,806	6,875	14,656	42,020	26,142	8,027

Source: Transport Infrastructure Development Committee, MTC

Total length of the road network is 90,845 km. While 90.9% of Republican roads are paved, only half of Local roads are paved. Thus, the total paved ratio of the country's road network is 62.4%. The road network running north/south in the country connects its major cities. The paved ratio for these roads is

relatively high and they are better maintained. However, most of the road network passing through rural areas needs repair and routine maintenance. As for the road network system, compared with the north-south road network links, the east-west road network links are poorly developed just the same as the railway network.

Table 3.2.2-4 Length of the Road and Paved Ratio

(1) Length of roads	Total length (Km)	Shared percentage
Republican road network	23,508	25.9%
Local roads	67,337	74.1%
Total	90,845	100%

(2) Paved ratio	Paved length (Km)	Paved percentage
Republican road network	21,370	90.9%
Local roads	35,306	52.4%
Total	56,676	62.4% (average)

(3) Road development plan

The development program for the Kazakhstan road-transport industry for 2006-2012 was adopted in 2005. The first priority in the program is rehabilitation work for the main international transit corridors. The volume of work during the project period for the Republican road network is as follows: Construction and rehabilitation: 7,205km, Overhaul repairs: 1,660km, Mid-life repairs: 16,800km, Reconstruction and overhaul of bridges: 412 items.

It is estimated that US\$ 6.4 billion will be required for the project during 2006-2012.

Table 3.2.2-5 Cost for Road Development 2006-2012

Type of work	Volume of work (km)	Cost estimation (million US\$)
Construction/Rehabilitation	7,205	4,797.0
Overhaul repairs	1,660	568.3
Mid-life repairs	16,800	581.5
Maintenance & landscaping		429.6
Total	25,665	6,376.4

Source: Transport Infrastructure Development Committee, MTC

Several main international road corridors run through the country. The Government of Kazakhstan has designated portions of the main roads below for priority rehabilitation work:

1. Tashkent – Shymkent – Taraz – Almaty – Khorgos
2. Shymkent – Kyzylorda – Aktobe – Uralsk – Samara

3. Almaty – Karaganda – Astana – Petropavlovsk
4. Astrahan – Atyrau – Aktau – Turkmenistan border
5. Omsk – Pavlodar – Semipalatinsk – Maikapchagay
6. Astana – Kostanay – Chelyabinsk – Yekaterinburg

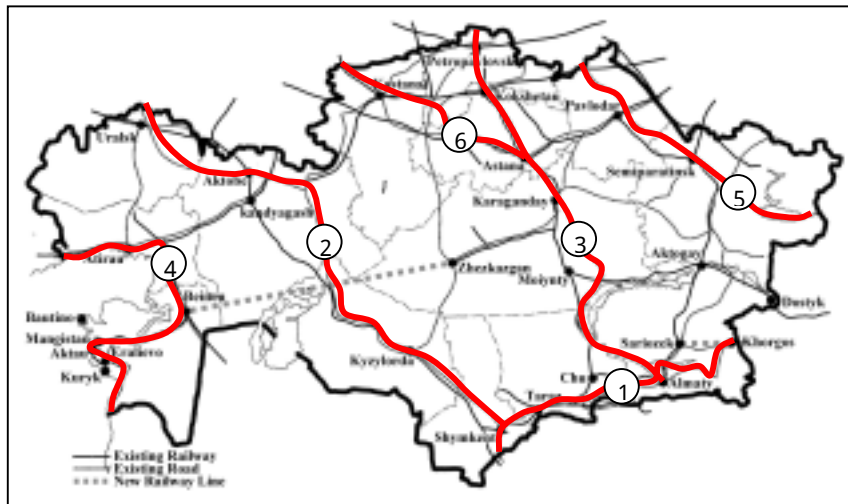


Figure 3.2.2-1 Main International Road Corridors

(4) International Road Transportation

1) Bilateral agreements on road transportation

Due to its geographical location, Kazakhstan's road network is directly linked with various neighboring countries and furthermore to the entire European continent, the Middle East and Asia. For uninterrupted flow of motor traffic across the border, it is important to establish inter-governmental treaties for two-way traffic of vehicles. The sub-division for international road transportation arrangements of the Road Transport Division is working on such arrangements with various countries. So far, agreements have been concluded with the following 35 countries:

Table 3.2.2-6 List of Countries Concluding Bilateral Agreements

	Country	Signing date		Country	Signing date
1	Turkey	05/01/92	18	Estonia	15/06/00
2	China	26/09/92	19	Netherlands	14/06/00
3	Ukraine	22/02/93	20	Spain	30/10/00
4	Iran	12/05/93	21	France	02/03/01
5	Lithuania	21/07/93	22	Greece	26/06/02
6	Mongolia	22/10/93	23	Switzerland	20/01/03
7	Georgia (Updated)	01/06/93	24	Italy	05/02/03
		06/09/07	25	Russia	15/04/03
8	Pakistan	12/03/95	26	Kyrgyz	25/12/03
9	Finland	07/02/96	27	Belarus	19/01/04
10	Azerbaijan	16/09/96	28	Slovakia	31/05/04
11	Hungary	07/10/96	29	Sweden	25/10/04
12	Poland	23/05/97	30	Uzbekistan(updated)	20/03/06
13	Bulgaria	13/11/97	31	Tajikistan(updated)	03/05/06
14	Germany	26/11/97	32	Croatia	10/07/06
15	Latvia	19/05/98	33	Armenia	06/11/06
16	Moldova	15/07/99	34	UK	22/11/06
17	Chechnya	13/12/99	35	Belgium	5/12/06

Source: Road Transport Division, MTC

2) International convention for road transportation

There are various international conventions relating to border crossing by road. Table 3.2.2-7 shows the names of the conventions and when they were established.

Table 3.2.2-7 International Conventions

Names of Conventions/Agreements	Date
Convention on International Cargo Transportation Agreement	19/5/1956
European Agreement relating to the performance of vehicles' crew involved in international motor trucking	1/7/1970
Agreement on International Carriage of Perishable Foodstuffs and on Specific Transport Facilities to be used for such carriage	1/9/1970
European Agreement on international motorways	15/11/1975
Customs Convention on the International Transport of Goods under the Cover of TIR Carnet (TIR Convention)	14/11/1975
Road traffic convention	8/11/1968
Convention on road signs and traffic signals	8/11/1968
European Agreement on international carriage of hazardous cargo	30/9/1957
European Agreement on major international lines of multi-modal transportation and related facilities	1/2/1991
International convention on coordination of cargo inspection provisions on border entry points	21/10/1982
Customs Convention relating to Containers	2/12/1972

Source: Road Transport Division, MTC

(5) Truck transport industry

The number of registered vehicles in Kazakhstan is shown in Table 3.2.2-8.

Table 3.2.2-8 Number of Units at the End of 2005

Vehicle type	Units
Trucks	281,538
Buses	65,698
Passenger cars	1,405,325

Source: Statistical Yearbook Kazakhstan 2006

Most of the trucks are owned by private entities and are engaged mainly in domestic hauling. There were 466 trucking companies as of the beginning of 2005. The total number of trucks is increasing at an annual rate of 4%.

Table 3.2.2-9 Number of Trucks in Kazakhstan 2001-2005

Year	2001	2002	2003	2004	2005
Units	241,528	251,129	261,327	265,245	281,538
Growth rate		4.0%	4.1%	1.5%	6.1%

Source: Statistical Yearbook Kazakhstan 2006

Cross-border trucking

Although the major activity of the trucking industry in Kazakhstan is domestic cargo delivery, truck transport by road connects Kazakhstan with neighboring countries and beyond. In 2005, 3.6 million tons of import/export cargos were carried by truck. Out of 2 million tons of import cargo, 59% was from Russia. 1.6 million tons of cargos were exported by truck and the major destination was Kyrgyz (67%). Major import commodities carried by truck were wood and woodworks, machinery and equipment, and food and vegetables. The dominant export commodities were construction materials, which constitute 65% of export cargo carried by truck.

Table 3.2.2-10 Import/Export by Truck by Commodity 2005

Truck transport 2005 (Commodity)	Import		Export		Total	
	(tons)	(%)	(tons)	(%)	(tons)	(%)
Wood & woodworks	425,147.3	21.6%	0.0	0.0%	425,147.3	11.6%
Machinery & equipment	304,019.5	15.5%	48,108.7	2.9%	352,128.2	9.6%
Foodstuff	117,639.5	6.0%	15,731.9	0.9%	133,371.4	3.7%
Vegetables	71,802.8	3.7%	260,435.0	15.5%	332,237.8	9.1%
Construction materials	165,777.2	8.4%	1,096,681.9	65.1%	1,262,459.1	34.6%
Others	881,918.8	44.9%	263,745.3	15.7%	1,145,664.1	31.4%
TOTAL	1,966,305.1	100.0%	1,684,702.8	100.0%	3,651,007.9	100.0%

Source: Road Transport Division, MTC

Table 3.2.2-11 Import/Export by Truck by Country 2005

Truck Transport 2005 (Country)	Import		Export		Total	
	(tons)	(%)	(tons)	(%)	(tons)	(%)
China	227,817.7	12%	113,267.1	7%	341,084.8	9%
Kyrgyz	84,328.3	4%	1,135,032.7	67%	1,219,361.0	33%
Other Central Asia	13,887.4	1%	10,495.0	1%	24,382.4	1%
Iran	6,969.7	0%	10,620.8	1%	17,590.5	0%
Turkey	92,009.6	5%	1,063.3	0%	93,072.9	3%
Russia	1,156,037.0	59%	358,842.5	21%	1,514,879.5	41%
Other CIS	30,686.7	2%	4,995.7	0%	35,682.4	1%
Europe	255,678.7	13%	37,980.0	2%	293,658.7	8%
Other part of th world	98,890.0	5%	12,405.7	1%	111,295.7	3%
Grand Total	1,966,305.1	100%	1,684,702.8	100%	3,651,007.9	100%

Source: Road Transport Division, MTC

(6) Issues and Constraints

At the present stage, railway is the dominant transport mode in terms of freight turnover in Kazakhstan. This is due to the vast area of the country and the relatively low density of the road network. Major bulk commodities such as oil, grain and mineral resources transported in the country also favor railway as the regular transportation means. However, this does not preclude the future possibility of road transportation in this country. As can be learned from the transportation development process in countries like the U.S or Canada having geographic characteristics similar to those of Kazakhstan, road transportation has developed to establish its own status in the transportation sector in each country. Motorization is the global trend and demand for truck transportation will increase. Particularly when the government aims to change the industrial structure of the country from a resource-dependent economy to a value-added processing economy, the required transportation means will also change. A road network development plan should be prepared to cater to an increase in demand. It is necessary to construct a road connecting the east and west of the country, and to carry out regional enhancement of the road network in the western part of Kazakhstan, in light of that area's potential.

3.2.3 Port and Marine Transport

(1) Government Organization

Ports and maritime transport in Kazakhstan are administered by the Water Transport Department of the Ministry of Transport and Communications. There are three sub-divisions in the Department. The domestic waterways sub-division controls inland waterway traffic, the sea port sub-division is in charge of port facilities, and the sea navigation sub-division administers maritime transportation.

(2) Port Infrastructure - Aktau Port

1) Outline of Aktau Port

The port is owned and operated by the Aktau International Sea Commercial Port State Enterprise.

Aktau, population 250,000, is the capital city of Mangystau Oblast and faces the eastern coast of the Caspian Sea. The port of Aktau is the principal seaport of Kazakhstan and virtually the only gateway for sea-borne freight to/from Kazakhstan.

Aktau Port was built in 1963 and initially used to support the development of the uranium industry and oil deposits in Mangystau Oblast. Since then, Aktau Port had been used mostly for domestic oil shipments within the USSR. After independence in 1991, the Kazakhstan government planned to strengthen trade relations with Caspian coast countries by refurbishing the port with general cargo handling facilities in addition to its traditional oil loading facility.

During 1996-1999, a rehabilitation project for Aktau Port was carried out with the help of an EBRD loan. The major work of the project was reconstruction of the port, modernization of cargo handling equipment and expansion of general cargo handling facilities. The amount of the EBRD loan was 38,461,000 Euros, while the total project value was 53,115,000 Euros. After completion of the work in September 1999, dry cargo handling and transshipment capacity reached the level of 1.5 million tons per year, along with the existing capacity for handling 8.0 million tons of oil per year.

In 2001, rehabilitation work on the rail ferry terminal (berth No. 11) was carried out with financial aid from EU/TACIS amounting to 2 million Euros. Also in 2001, private investor AkBidai added a new grain silo along with a grain handling berth (berth No.6).

After completion of this upgrading, current port facilities can be described as follows:

General Cargo (Dry Cargo) Facilities

- 3 berths for general cargo (berths No.1, 2 and 3), 1 berth for bulk grain (berth No. 6)
- Total length 550m; 4 vessels can work alongside simultaneously
- Open shed 50,000 m² and roofed transit shed 6,000 m²
- Railway siding 3 lines (2 lines for G.C./steel cargo, 1 loop-line for grain)
- Dockside cranes (20 tons x 2, 32 tons x 1)
- Mobile dock cranes (36 tons x 2, 64 tons x 1, 80 tons x 1)

Rail Ferry terminal: 1 berth (berth No. 11)

Oil loading terminal: 4 berths (berth No. 4, 5, 9 and 10)

Permissible draft for vessels at each berth is indicated in Table 3.2.3-1.

Table 3.2.3-1 Permissible Draft at Aktau Port

Berth	Permissible Draft
Entering Channel	7.0m
General cargo berths (No. 1, 2 and 3)	6.7m
Oil loading berth (No. 4)	6.0m
Oil loading berths (No.9 and 10)	7.0m
Rail ferry berth (No.11)	5.3m

Maximum allowable size of vessels entering Aktau Port

Although this may vary depending on the assigned berth, the maximum size of vessels regularly entering the port is 13,000D/W tanker with a length of 145m. Standard size for regular callers to the port (tankers and freighters) is 3,000-5,000 D/W with ship's draft of 3.7-4.7m which is considered the Caspian standard-size vessel. Table 3.2.3-2 shows the list of regular callers to Aktau Port.

Table 3.2.3-2 Vessels Calling Regularly at Aktau port

Name of ship	Type	Length	Width	Draft	Carrying capacity	D/W
1. Alexander	Tanker	128.5	16.6	5.5	5,700	6,400
2. General Aslanov	--- " ---	136.6	17.5	8.0	11,500	12,450
3. Apsheron	--- " ---	137.5	17.4	5.3	7,000	7,410
4. Captain Pshenitsyn	--- " ---	134.0	16.5	4.5	5,300	5,825
5. Geidar Aliyev	--- " ---	143.1	17.3	7.1	12,500	13,470
6. Iran Dalir	Dry cargo	140.0	16.0	4.7	5,700	5,992
7. Iran Gadir	--- " ---	136.0	13.5	4.7	3,809	4,000
8. Omsky 113	--- " ---	108.4	13.0	4.7	3,230	3,600
9. Dobrogast	--- " ---	105.8	16.5	3.7	3,665	3,983
10. Nefterudovoz	--- " ---	113.5	13.0	3.7	3,070	3,280
11. Monoxilion	--- " ---	105.8	16.7	3.7	3,709	4,100
12. Composer Rakhmaninov	Ro/Ro ferry	117.5	16.2	4.7	3,463	4,673
13. Azerbaizhan	Rail Ferry	154.3	17.0	4.3	3,435	3,950

2) Port Expansion Plan

The Aktau Port expansion project is based on the creation of a new basin to the north of the existing port, which would provide four new oil berths, four berths for general cargo and containers and three support berths for smaller ships. The initial cost estimation for the project is 32.7 billion Tenge and the project is divided into five phases over the period to 2020. The work has already started, currently involving

dredging of the basin. The oil berths will have a 9.0m depth, and the dry cargo berths 6.0m. This expansion gives the port an additional 10-11 million tons handling capacity for oil exports and 1.5 million tons for general cargo. Summing up with existing facilities included, the total capacity of the port will be expanded to 18-19 million tons of oil and 3 million tons of general cargo.

Although still at the initial planning stage, there is a further expansion plan in the southwestern part of the existing port facility. The plan includes five oil berths (12 million tons per year) and five general cargo berths (2 million tons per year). If the plan materializes, total capacity of the port will be increased to 30 million tons of oil and 5 million tons of general cargo.

There is also a plan to build a new oil loading terminal at Kuryk Port which is located about 75 km south of the Aktau area. The plan is being developed by Kazmunaigas and the Kazakhstan national shipping company, Kazmortransflot (KMTF). The Kuryk project is primarily designed as an oil loading terminal. The new gigantic offshore Kashagan field will start oil production by 2010 and the Kuryk terminal is proposed as new access for sea-borne transportation. The project is expected to cost between 16-24 billion Tenge. Kazakhstan oil exports through the Caspian Sea will reach the 30 million ton level by 2015.

But depending on the expansion of pipeline network and the status of buying countries, export volume of oil by ship may vary. However, it is obvious that there would not be enough volume to justify the development and expansion of two oil loading facilities at the same time.

3) Cargo at Aktau Port

Table 3.2.3-3 shows cargo handling performance by commodity at Aktau Port for the last five years.

Table 3.2.3-3 Cargo Handling Volume at Aktau Port

(unit: thousand tons)

	2001	2002	2003	2004	2005
Oil	5,035	5,552	6,971	8,289	8,913
Steel Products	1,060	571	836	1,011	1,024
Grain	84	209	5	13	33
Others	23	23	23	34	48
Rail Ferry Cargo	199	593	245	345	350
(non-oil total)	(1,366)	(1,396)	(1,109)	(1,403)	(1,455)
Total	6,401	6,948	8,080	9,692	10,368

Source: Aktau Port

Oil is the principal commodity handled at the port and accounts for the overwhelming portion (more than 85%) of all cargo. Major Kazakhstan oil producers such as Kazmunaigas and Mangystaumunaigas bring the oil from inland oil fields to the port by railway tank wagon and it is exported through Aktau Port. A new offshore oil field is now under development and it is planned to ship through the new facility in Kuryk. But Aktau Port is also prepared to handle the increased volume of oil by expanding its facility.

For general cargo, steel product are the major commodity at Aktau Port (70%). Most of these products are

shipped to Iran. Domestic production capacity of the Iranian steel industry is approximately 10 million tons per annum., but with domestic demand for steel products at 14-15 million tons per annum, the balance must be imported from outside. Currently, Iran imports 2-3 million tons every year and the main supply sources are Russia and Kazakhstan.

The major part of the steel products shipped from Aktau is supplied by Mittal Steel Temirtau, a Kazakhstan company. Recently, some Russian products are also being shipped from Aktau as transit cargo. Grain is another major export commodity of Kazakhstan and 3-5 million tons of grain (wheat and barley) are exported annually. Quantity exported from Aktau Port is relatively small. Major export partners in the Caspian Sea area are Iran and Azerbaijan.

Trading partners of Aktau Port are Baku (Azerbaijan), Bandar Anzali (Iran), Amirabad (Iran) and Astrakhan (Russia). The major destination for general cargo is Iran (steel and grain).

The cargo flow of consumer goods coming from the western Chinese region and shipped to the Caucasus countries is growing.

(3) Maritime Transport

Shipping activities in Kazakhstan are relatively small-scale. The total number of ships registered under the Kazakhstan flag is 36.

Table 3.2.3-4 Merchant Fleet, Registered on 31 December

	2002	2003	2004
Number of vessels	20	22	36
Total gross tonnage	11,845	15,300	25,950

Source: Lloyd's Register-Fairplay, World Fleet Statistics

Kazmortransflot (KMTF) is the national shipping company of Kazakhstan, jointly owned by the Ministry of Transport and Communications (50%) and Kazmunaigas (50%). The main maritime activity of KMTF is tanker operation in the Caspian Sea. KMTF owns three 12,000D/W tankers (length 150m, width 17.3m, draft 7m) and charters ships from the market depending on need. KMTF carried 4,620 thousand tons of oil in 2005, which is equivalent to over 50% of total Kazakhstan oil exports by ship. Destinations for 2005 cargos were Makhachkala (Russia) 2,400,000 tons, Neka (Iran) 1,200,000 tons and Baku (Azerbaijan) 1,020,000 tons. KMTF future plans include construction of a large-capacity tanker fleet and development of the Kuryk oil terminal.

Major players in Caspian Sea shipping are shown in Table 3.2.3-5.

Table 3.2.3-5 Shipping Companies in Caspian Sea

Country (Shipping Company)	Activities (Number of ships)
Azerbaijan State Shipping Company (CASPAR)	Biggest player in Caspian shipping Owns/operates a total about 80 ships, 40 of them trading in the Caspian Sea, including 7 rail-ferries. Rail-ferry has capacity to accommodate 28 rail wagons.
Iranian Shipping Company (Khazar Shipping)	Operates 6 ships, all of them general cargo vessels. Basically has weekly operations to Aktau.
Turkmenistan Shipping Company	Operates 3 ships, all of them general cargo vessels.
Kazakhstan National Shipping Company (Kazmortransflot)	Owns/operates 3 ships, all of them tankers. No general cargo vessels in operation.
Russian Shipping Company	Tankers and general cargo vessels, including 2 rail ferries. Rail-ferry has capacity to accommodate 52 rail wagons.

As shown above, the presence of Kazakhstan shipping is small and specialized in oil transportation. Most general cargo, including transit cargo and container cargo, is carried by non-Kazakhstan shipping lines.

Inland waterways

Inland water transport in Kazakhstan is restricted mainly to the navigable waters of the River Irtysh, the River Ily, the River Ural, and Lake Balkhash. Total length of service area is 3,600km. Most of the area is frozen during winter, which makes it impossible to navigate. There are nine privately owned main river ports. The main products carried by inland waterways are sand and gravel, timber and fuel. Traffic volumes in 2003 were 555,000 tons of cargo and 160,000 passengers.

(4) Issues and Constraints

1) Railway access (KTC)

The railway branch line from Mangystau station to Aktau Port is owned and operated by Kaskortransservice (KTC), which is a different entity from KTZ. All railway traffic to/from Aktau Port moves through this line. KTC was originally established in 1964 as a private rail line connecting the Aktau waterfront to industrial plant sites located in the suburbs of Aktau to carry needed materials. Later on, the line was connected to the KTZ main lines at Mangystau station due to the need to carry Kazakhstan oil to Aktau Port for export, but the 18km branch line is still independently owned and operated by KTC. KTZ owns a 25.5% share of KTC and maintains a close relationship with KTC. Daily operation is carried out under mutual cooperation and no major obstacles are observed in the joint working mechanism. However, some railway customers criticize KTC service, saying that priority is given to oil transport and general

cargo transport is left behind, or that railway tariffs are increased quite frequently without any consideration to customers' business circumstances. In order to promote further expansion of transit cargo to/from Aktau Port, it is essential to have free and easy access to the port. Certain measures may be required to achieve this.

2) Future development plan (Kuryk)

Oil is a major export commodity at Aktau Port and all Kazakhstan oil exported by ship goes through Aktau Port. The expansion of Aktau Port is primarily aiming at increasing the volume of oil from the new offshore oil field. There is another port development project at Kuryk which is also trying to induce a higher volume of oil from the new oil field. Kuryk is located about 75km southeast of Aktau and there has no port facility at the moment. The plan for building a port facility there has been developed by Kazakhstan oil giant Kazmunaigas and state-owned tanker company Kazmortransflot. They intend to develop a new oil loading terminal, but facilities for general cargo handling are not included in their plan. A sharp increase in seaborne oil exports is expected around 2010 after the start-up of commercial operation of the Kashagan oil field. At this moment, it is difficult to foresee whether the brand new oil terminal at Kuryk Port will have started operation by that time, or if Aktau Port will still maintaining a dominant position in Kazakhstan oil exports. Also, seaborne oil exports will depend on the growth of export volume moving by pipeline. Future development of these two plans would certainly have a great impact on the project, especially on the selection of a feasibility study site.

3) National shipping line (KMTF)

This is not an issue merely pertaining to the port but rather a general issue relating to transit transport east/west as a whole. Marine transportation in the Caspian Sea needs to be developed. The Caspian Sea forms an integral part of the east/west corridor and unless the necessary steps for developing marine transportation are taken, the corridor would end up having one missing link. Most ships currently trading in the Caspian Sea are bulk carriers primarily designed to carry bulk cargo, such as grain and steel products, and many of them are old. It is necessary to develop a fleet that can accommodate container cargo since a major part of transit cargo in the future would be container cargo.

Modern types of ships such as semi-container type general cargo ships, rail ferries with larger capacity of for rail wagons and Ro/Ro ferry for trucks are to be employed for the trade.

These ships should be operated based on fixed schedules for the convenience of the trade. Currently, there are no general cargo ship operators in Kazakhstan and most of the cargo is carried by foreign ships. Kazakhstan should consider participating in general cargo transport in the Caspian Sea. In order to encourage the private sector to enter the shipping business, it might be worth considering some kind of incentive.

3.2.4 Airport and Air Transport

(1) Characteristics of Air Transport

The air transport sector in Kazakhstan is relatively small considering the vastness of the land area and the country's economic potential. The Civil Aviation Commission within the Ministry of Transport and Communications is the controlling authority for air transport in Kazakhstan.

The Civil Aviation Committee has three divisions. The division for the Regulation of Airline Activities administers the operation of civil aviation. The division for the Regulation of Airport Activities is responsible for planning, development and control of airports in the country. The division for Flight Safety is in charge of all safety regulations imposed on civil aviation aircraft flying in the territory. State policy in aviation market regulations aims at the formation of competitive air carriers capable of satisfying customers' demand for aviation services on a commercial basis in Kazakhstan.

Freight transport by air is about 20,000 tons per year and has remained at almost the same level for several years. Future increases are expected in the western region due to development of the oil industry. Air cargo volume is not sizeable enough to justify air cargo freighters in Kazakhstan, so all air cargo is carried by scheduled passenger flights. At the moment, most of the freight is generated at Almaty Airport.

Table 3.2.4-1 Air Transport in Kazakhstan

	2001	2002	2003	2004
Freight Transportation by air (thousand tons)	10	20	20	20
Freight Turnover by air (million ton/km)	40	50	90	70
	2001	2002	2003	2004
Passenger Transportation (thousand passengers)	900	1,000	1,300	1,300
Passenger Turnover (million passenger/km)	1,901	2,179	2,654	2,638

Source: Statistical Yearbook of Kazakhstan, 2005

(2) Airports in Kazakhstan

There are 20 airports in Kazakhstan. Nine airports have international airports status. Almaty Airport plays a major role as the country's principal airport for both freight and passengers. Most international flights operate to/from Almaty with some flights from Astana. Aktau and Atyrau Airports handle several regional international flights from the Caspian Sea area.

Table 3.2.4-2 Airports in Kazakhstan

	Name of Airport	Status		Type of ownership
		International	Domestic	
1	Petropavlovsk airport	○		Municipal
2	Kustanani airport		○	Municipal
3	Kokshetau airport		○	Private
4	Astana airport	○		National
5	Atyrau airport	○		Private (KMG)
6	Aktau airport	○		Municipal
7	Akzhol airport, Uralsk	○		Private
8	Aktobe airport	○		National
9	Ust-Kamenogorsk airport		○	Municipal
10	Semey airport		○	Municipal
11	Pavlodar airport		○	National
12	Azamat service, Ekibastuz		○	Private
13	Saryorak airport, Karaganda		○	Private
14	Zheskazgan airport		○	National
15	Shymkent airport		○	Municipal
16	Auliye Ata airport, Taraz	○		Private
17	Kyzylorda airport	○		Municipal
18	Taldykorgan airport		○	Municipal
19	Almaty airport	○		Private
20	Altair Air, Boralday village		○	Private

Source: Civil Aviation Committee, MTC

(3) Air Transport Market

There are several airline companies in Kazakhstan but state-owned Air Astana has the dominant share among them, followed by SCAT which is a private company.

Table 3.2.4-3 Estimated Share of Domestic Market in 2004

Airline	% of flights	% of seats flown	% of seat-miles flown
Air Astana	34.4%	52.2%	62.3%
SCAT	40.7%	30.5%	26.2%
Eurasia	13.2%	9.9%	5.4%
Tulpar	6.6%	4.9%	4.0%
Kokshetau	4.3%	2.1%	2.0%
Zhetysu	0.8%	0.3%	0.1%
Total	100.0%	100.0%	100.0%

Source: World Bank

(4) Government Policy

The Kazakhstan government plays a relatively active role in airline ownership, route licensing and a fairly restrictive international regime with subsidies and investment in airports. The government owns a 51% share of the Kazakhstan national flag carrier, Air Astana, together with a foreign company (BAE). Air Astana has a monopoly on the largest domestic air route, Almaty-Astana.

“Policy for the Development of Air Transport in Kazakhstan 2006-2010” is the government guideline regarding future plans for air transport. It contains the following policies:

- Expanding the national fleet for scheduled service to cater to increasing demand
- Introducing the hub airport concept, in which international flights are concentrated on the three hub airports (Astana, Almaty and Atyrau) and domestic flights connect to/from regional centers
- Encouraging transit traffic growth through one or more of the hub airports by upgrading airport facilities to international standards
- Increasing the involvement of local authorities in the development of regional airports for modernization of the facilities
- Developing regional cargo airports by using external sources of finance
- Introducing more commercial management structures

3.2.5 Logistics Center

(1) Dostyk Station

1) Trends for import and export freight between Kazakhstan and China

Dostyk, located on the eastern border of Kazakhstan, is the hub for cross-border logistics distribution between Kazakhstan and China. It began operation in 1992 and handled approximately 11,000,000 tons in 2005.

Table 3.2.5-1 Transport of Incoming and Outgoing Freight in Dostyk

(Unit: ten thousand tons/year)

Commodity	2005 (Total)		2005 (Export/Import)		2005 (Transit)	
	To China	To Kazakhs tan	To China	To Kazakhs tan	To China	To Kazakhs tan
Crude oil	171	6	139	6	32	
Coke		44		31		13
Metal goods a	537		524		13	
Metal goods b	78	16	69	14	9	2
Instrument	22	8	21	7	1	1
Construction Materials		24		18		6
Cotton	11		1		10	
Food		17		3		14
Fertilizer	50		10		40	
Chemical products	24	18	21	6	3	12
Containers	10	53	7	28	3	25
Others	11	12	3	4	8	8
Total in 2005	907	200	795	117	112	83
Total in 2006 (estimation)	1,100	250	970	138	130	112

Source: KTZ

82% of all freight was exported from Kazakhstan to China and 18% was imported from China to Kazakhstan. Of 9,070,000 tons of freight heading to China, 7,950,000 tons (88%) departed from Kazakhstan and the remaining 1,120,000 tons (12%) was transit freight. Looking at transit freight by country, 700,000 tons came from Russia and 360,000 tons from Uzbekistan. And, out of 2,000,000 tons of freight entering Kazakhstan from China, 1,170,000 tons (59%) was Kazakhstan-bound (final destination) and the remaining 700,000 tons (41%) was transit freight. Looking at this transit freight by country, 290,000 tons was for Uzbekistan, 250,000 tons for Russia and 150,000 tons for Tajikistan.

The result for the nine months from January to September 2006 was approximately 8,000,000 tons to China and 1,800,000 tons from China. Net transport in 2006 was expected to reach 11,000,000 tons for China and 2,500,000 tons for Kazakhstan.

Judging from the traffic volume, Dostyk is becoming one of the stations that deal in cross-border freight on

a large scale.

Recently, container freight entering from China has been rapidly increasing.

For this reason, operations in the yard for reshipment of containers are very congested. And because the number of containers from China is small, container cars for Kazakhstan are in short supply at Dostyk Station. Container transportation is congested and is slowed down considerably.

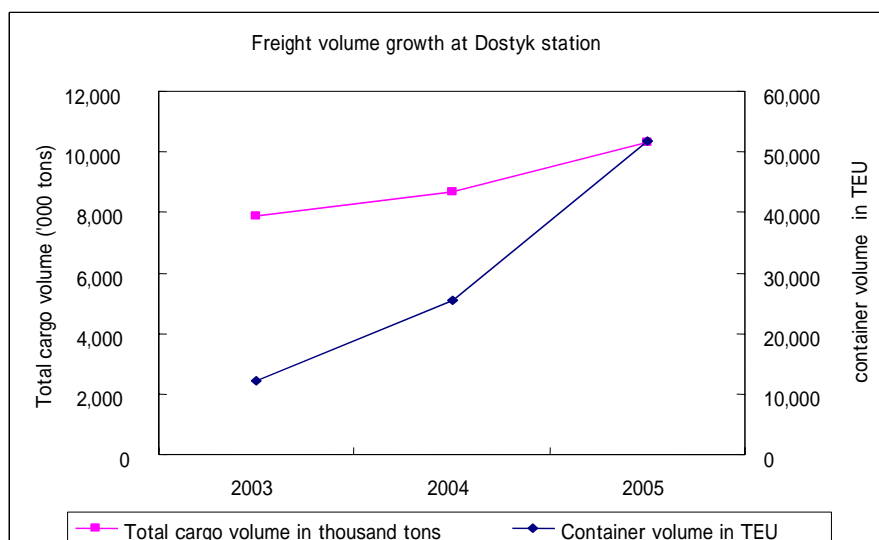


Figure 3.2.5-1 Freight Volume Growth at Dostyk Station

Table 3.2.5-2 Current Container Freight Volumes at Dostyk Station

	Number of loaded containers	Number of empty containers	Total no. of containers	Freight turnover in tons
Imports to China	1/27	94/1,827	95/1,854	354/7,514
Exports to Kazakhstan	185/3,873	0/0	185/3,873	5,148/110,034

Note: Each figure specify number on 21st November/ accumulated number in November up to 21st November

Source: KTS

2) Railway Alignment Condition between Dostyk and Alashankou

Dostyk and Alashankou face each other, and they are 12.2 km apart. The border is 4km from Dostyk and 8km from Alashankou. Two lines connect these stations: one is 1520mm broad gauge and the other is 1435mm standard gauge. Vertical alignment has a decline gradient with 12.5‰ from the Kazakhstan side. The effective length of the main tracks at both stations is 850 m.

Table 3.2.5-3 Railway Alignment Condition in Dostyk and Alashankou

	Kazakhstan side (1520mm)	China side (1435mm)
Unified weight standard toward China side	4000 tons	2600 ~ 2000 tons
Unified weight standard from China side	2000 tons	1000 tons
Average train speed (km/h)	25.2	11.1

3) Method of transshipment works at the two stations

The works to exchange wagons crossing the border are carried out by the recipient side, i.e. both decoupling and coupling for trains from Kazakhstan to China are implemented by the China side, and vice versa for trains from China to Kazakhstan. At Dostyk Station, wagons to China are organized and sent to Alashankou Station and wagons from China are decoupled, reloaded onto wagons with the Kazakhstan gauge and sorted into train formation in each direction in Kazakhstan. However, wheel change works are carried out unilaterally in Dostyk because in Alashankou there are no wheel change facilities for both freight and passenger trains. The wheel and bogey change is limited to passenger trains and freight trains with specific cargo which is generally difficult to reload.

4) Directions for improvement in Dostyk as a logistics distribution hub

In terms of net transport, freight bound for China accounts the overwhelmingly large share (9,070,000 tons in 2005) and the amount of freight entering from China is small (2,000,000 tons). The volume of container freight from China is large (500,000 tons/in 2005) recently and that bound for China from Kazakhstan is small (100,000 tons/ in 2005). In addition, container freight entering from China is expected to reach 1,000,000 tons. This situation causes the following problems in Dostyk.

With regard to general wagons, loaded wagons coming from Kazakhstan become empty on the China side and many of these empty wagons are sent back to Kazakhstan. Meanwhile, for container freight, because there are fewer containers with freight from Kazakhstan, many empty containers are sent back. In both cases, they are transporting freight only one way.

Container transport, in particular, has been on an upsurge recently. For this reason, container wagons are in short supply and containers are collected at Dostyk Station.

It takes too much time to perform operations at Dostyk Station, because of “too much time for customs clearing procedure,” “too much time for station yard operations,” “approaching the capacity limit for trans loading facilities” and so on.

- In the near term, the urgent remedy for the problem of the growing number of containers from China is to learn more about the situation of containers entering from China beforehand and ensure allocation of container cars in Dostyk.
- The following solutions are needed in the medium and long term.

Facilities provision

- a) Reviewing the way to use the reloading facilities to consider capacity expansion by diverting #2 / #3 shed of general freight reshipment yard to container reshipment yard
 - b) Expanding handling capacity in the 1435mm yard which deals with trains from China and arriving trains.
 - c) Reinforcing the wagon accumulation capacity of arrival and departure tracks and the sorting track in A yard of the 1520mm yard which handles trains and wagons from Kazakhstan.
 - d) Increasing the number of container cars adequate for demand in Kazakhstan.
-

The “soft” aspects

- a) Checking whether there is room for more saving and more efficiency or not reviewing the customs clearing procedure
- b) Trying to strike a balance for each other’s freight, general freight or container freight in business development, because the current problems are caused by an imbalance between imports and exports at Dostyk
- c) Developing a freight business o from China to Kazakhstan
- d) Regarding containers, developing a new business of containers to China by discounting, because of the large number of empty containers bound for China

(2) Multimodal Logistics Center

1) Present situation

A logistics center has been constructed in Almaty and a plan for a similar center is also being implemented in Astana.

Detailed information about these projects could not be obtained, but the outline of the projects is that the railway freight terminal is located in the middle of truck transshipment facilities and warehouses.

These logistics centers might be the base for multimodal logistics and seem to be the seeds of future multimodal logistics centers in Kazakhstan.

There is the example of a commercial complex facility project supported by the EBRD in Almaty, although it does not have logistics functions.

In Astana, there is a plan to relocate a market to the environs.

In addition, the Aktau Port expansion plan by the Water Transport Department, Ministry of Transport and Communications, appears to include a logistics center.

The Ministry of Industry and Trade is planning Free Economic Zones as well as logistics facilities in the three border areas as described below (3.7 Industrial and Trade Sector). Concerning the Khorgos border area, Resolution No. 1061, 7 November 2006 approved the Program for Further Development of the International Center of Border Area Cooperation Khorgos for 2007 – 2011.

However, these logistics centers seem to be planned and implemented separately and individually.

That may be inevitable result to some extent, because logistics is a kind of multi-sector or boundary (frontier) area.

2) Future perspectives

In Japan, a “Comprehensive Logistics Policy Promotion Association” was established, consisting of;

- Ministry of Land, Infrastructure and Transport,
 - Ministry of Economy, Trade and Industry,
 - Ministry of Administrative Affairs (Information and Communications Bureau),
 - Fair Trade Commission,
 - Ministry of Foreign Affairs (Economic Bureau),
 - Ministry of Finance (Customs Bureau),
 - Ministry of Health, Labor and Welfare (Medical and Food Bureau),
- } Leading ministries

- Ministry of Agriculture, Forestry and Fisheries (Comprehensive Food Bureau),
- National Policy Agency (Traffic Bureau), and
- Ministry of Environment.

Background factors to establishing such an organization are:

- Globalization of economic activity
- Advances in IT
- Global warming
- Recycling-oriented society
- Enterprise needs (supply chain management: creating a total chain link of companies from materials procurement and production to merchandise, logistics and consumption, including inventory reduction, lead time reduction, etc.)

It should be considered that the government sets up a comprehensive coordinating organization to promote efficient logistics, which is very important in Kazakhstan, and each member ministry or agency sets goals and implements policies.

Moreover, logistics should be promoted mainly by the private sector and the government should support private activities and eliminate impediments to logistics progress. For that purpose, the government should be sufficiently aware of the intentions of private companies. In particular, the government and state corporations should change their mindset from supplying infrastructure and exerting great authority to becoming a public service supplier for users and satisfying demand from the demand side.

Concerning the logistics centers which are planned individually and independently at present, the development perspective could be as follows, taking Japan's experience into consideration as a reference.

- Independently owned logistics center of major private logistics enterprises
- Truck terminals for SMEs
- Logistics and exhibition complex facilities for SME wholesalers
- SME warehouse complex
- Market and logistics complex in environs of metropolises
- Logistics and exhibition complex for import/export companies in port areas

Major (logistics) enterprises will be able to construct their own logistics centers independently. Therefore, the public sector should direct location through zoning plans.

Since SMEs do not have enough funds to construct their own logistics centers, it might be necessary for the public sector to support joint common truck terminals and office/logistics/ exhibition complex facilities for SME wholesalers. Warehouse complexes might bring advantages through concentration.

Furthermore, when markets are to be relocated from the center of a metropolis to its environs, logistics should be taken into consideration.

Ports might need complex facilities for offices, logistics, exhibition and sale for import/export SMEs instead of simple warehouses or disposal area for cargos.

It is desirable to locate complex logistics centers in the environs of metropolitan areas based on planning in order to avoid traffic congestion problems, because such centers are multimodal and generate traffic.

In Japan, truck terminals, warehouse complexes and wholesale centers were constructed in Heiwajima,

Kasai and Itabashi, away from the center of Tokyo, and the Japan Development Bank (now the Development Bank of Japan) supported the financing. In addition, a fresh vegetable and fruit wholesale market was moved and a fish wholesale market is planned to be relocated to the environs of Tokyo, too.

According to the study results of this project in Iran and Azerbaijan, it appears that those countries do not have multimodal logistics centers. In China, there are advanced logistics centers, but they are mostly facilities belonging to large enterprises or foreign investor companies. For example, Haier (Chinese white goods home appliance manufacturer) has its own logistics centers. In Xinjiang, there appears to be no advanced logistics center. ADB's Technical Assistance Consultant's Report, "Regional Trade Facilitation and Customs Cooperation Program – Xinjiang Uygur Autonomous Region Trade Facilitation and Logistics Development Research Project" (June 2006), notes the following:

There is at present a lack of consolidation and distribution nodes in Xinjiang's trade logistics system. There is no systematic allocation of cargo movement (with many transport vehicles returning empty), nor a central modern facility for the provision of shared logistics services such as assembly, packaging, inspection, cargo transfers and inventory management. As documented, current centers (which are effectively simple warehouses) are basic set-ups with no automation nor mechanization. These facilities also lack value-added services as well as scale economies, which translate into missed opportunities in cost savings.

The ADB's report proposed three Tier I logistics centers (Urumqi, Khorgos and Kashgar) and four Tier II logistics centers in Xinjiang and Technical Assistance of exercise for logistics center masterplanning.

Kazakhstan seems to have a similar situation.

3.2.6 Forwarders' Activities

(1) Background of transport-related enterprises' foundation in market-oriented economic reform after disintegration of the Soviet Union.

After the former Soviet Union collapsed in December 1991 in the context of both international and domestic laws, 15 republics that had formed the Soviet Union and been incorporated in its centrally-controlled economic system, were forced to change to run themselves as independent countries.

Previously, state-owned enterprises had performed their production activities with raw materials provided by the GOSSNAB (National Committee for Goods Supply) based on medium and long term plans prepared by the GOSPLAN (National Committee for Economic Planning). After the Soviet Union's collapse, the enterprises lost their supply channels through which they had obtained raw materials and delivered their products to their customers. This loss was crucial for their production activities, after the joint production system among the 15 countries in the previous time had broken down.

In this turmoil, destabilization of the payment system among the 15 separated independent countries made the problem more complicated. Since the ruble had lost its credibility as an international and domestic currency, the 15 separated independent countries were forced to set up another system using barter payments or foreign currency exchange, mainly in US dollars, for foreign trade payments among

themselves.

For example, the corporation of agricultural machinery production in the former Belarusian Soviet Socialist Republic was forced to decrease production due to a stoppage of iron and steel goods supplies from the Ural region of the former Soviet Union. It also had difficulty finding customers even in the former Soviet Republics, because trade payment depended on means such as a barter system through which they could not pay their employees' salaries, using goods obtained from the customers through barter trade. In this way, each production enterprise was brought to a standstill. The fate of transport-related corporations was almost the same.

(2) Main features of forwarders' foundation in Kazakhstan

In the Soviet era, the transport network had been managed integrally under the leadership of the former Soviet Union's transport ministry. However, once countries attained their independence, each country's transport ministry started to run and control its own railways as a matter of course. Compared to production enterprises described above, the normative rules of railways between the former republics of the Soviet Union did not end up in complete disintegration, probably because of the physical inseparability of the railway network.

However, this was confined to the former Soviet-bloc states; the circumstances were more complicated in relationships of logistics with countries other than the former Soviet-bloc states.

Each enterprise of the former Soviet Union had carried out international logistics through state-owned corporations like MPS (by rail), state-owned AEROFLOT (Aeroflot Airlines) (by air) and state-owned FESCO (Far East Marine Vessel Public Corporation).

But, after separating into 15 independent countries, the former Soviet-bloc states had to maintain cooperative relationships with foreign forwarders in their own right. However, foreign major forwarders had opened branches with their resident officers in big cities like Moscow before the Soviet Union's collapse. Therefore, after independence, joint ventures between domestic independent capital and foreign forwarders were founded one after another, which stabilized the logistics system regardless of political crises (during the middle of the Boris Yeltsin Administration) or destabilizing economic factors (inflation or the ruble currency crisis).

Meanwhile, inland states like Kazakhstan had been in danger of being left behind in international logistics without the help of foreign forwarders with worldwide networks including the former Soviet Union. However, major worldwide forwarders, i.e., Schenker and PANALPINA, established overseas subsidiary companies, focusing on the former capital, Almaty.

After 2000, the domestic economy and overseas trade began growing significantly and expansion of foreign forwarders reached a peak, supported by domestic oil field development in the coastal area of the Caspian Sea and internal region, and the high price of crude oil. At the same time, domestic capital

investment in the forwarder business intensified. Such newcomers in the forwarder business organized ANEK (Association of National Expeditors of the Republic of Kazakhstan) and aimed to become competitive with foreign forwarders.

The numbers of transport agents and forwarders registered in Kazakhstan is shown in Tables 3.2.6-1 and -2.

Table 3.6-1 Transport Agents and Forwarders in Kazakhstan, by Year

	2001	2002	2003	2004
1. Land Transport	741	745	805	877
2. Pipeline	8	6	6	6
3. Aviation	77	79	62	44
4. River	11	11	11	11
Total	837	841	884	938

Source: “Numbers in Kazakhstan 2005”, “Business Spectr Kazakhstan 2006”

Table 3.6-2 Transport Agents and Forwarders in Kazakhstan by Oblast in 2004

	Land Transport	Pipeline	Aviation	River	Total
Akmolinskaya oblast	49	0	1	0	50
Aktyubinskaya oblast	47	0	1	0	48
Alamatinskaya oblast	54	0	3	0	57
Atylauskaya oblast	38	3	2	2	45
V-Kazakhstanskaya oblast	107	0	1	5	113
Zhanbylskaya oblast	43	0	1	0	44
Z-Kazakhstanskaya oblast	45	0	1	1	47
Karagandinskaya oblast	89	0	3	1	93
Kostanaiskaya oblast	46	0	0	0	46
Kyzylordinskaya oblast	25	0	0	0	25
Mangystauskaya oblast	40	0	0	0	40
Pavlodarskaya oblast	47	1	0	1	49
S-Kazakhstanskaya oblast	43	0	0	1	44
Yu-Kazakhstanskaya oblast	49	0	1	0	50
Astana city	28	1	2	0	31
Almaty city	127	1	28	0	156
Kazakhstan (total)	877	6	44	11	938

Source: “Numbers in Kazakhstan 2005”, “Business Spectr Kazakhstan 2006”

The features of transport agent concentration are as follows:

- 1) In Almaty and the capital city, Astana, there are many transport agents established.
- 2) There are many transport agents in V-Kazakhstan Region where Ustj-Kamenogolsk City, one of the mining and industrial centers in Kazakhstan, and Semipalatinsk City, with many cable factories and precision industries, are located.
- 3) There are many transport agents in Karaganda Province, because it is a center of the domestic iron manufacturing industry and an important area for domestic supply and export of iron and steel goods.

Regarding the distribution of forwarders, according to “Business Spectr Kazakhstan 2006,” major forwarders have a network covering many parts of the country.

- 1) GlobalLink: it has a huge branch office network in Almaty, Astana, Aksau, Aktau, Aktobe, Atyrau and Oskemen.
- 2) PANALPINA: it is specialized in oil-related cargo like in Aktau, where oil development is active and in Atyrau, which has potential for oil development, modernization of petroleum refining plants and a construction plan for a new oil industrial complex.

(3) Future Problems and Issues

Interviews with transport participants and analysis of relevant documents noted the following problems and issues.

- 1) Overall task (Reduction of transport cost and transit time)
 - a) Problems in border areas: Lack of freight handling capacity, lengthy processing time required for customs clearance, and strict inspections by border security authorities (especially in unsealing inspection of international transit cargo)
 - b) Problems of general customs: complicated procedures/lack of common interpretation of related laws and regulations/illegal acts
 - c) Railway-related problems: transport charges remain high/shortage of freight facilities/ aged facilities/lack of container freight handling capacity/motivation of local staff
 - d) Problems with road construction and improvement: existing disparity between the rapid increase of truck transport and necessary countermeasures in new road construction and improvement of existing roads.
- 2) Capacity building in the forwarder business
 - a) To cope with the lack of knowledge of customs procedures and import and export procedures
 - b) To develop know-how on reservation procedures for railway wagons
 - c) Importance of industry group, i.e., ANEK activity to cope with problems difficult to solve by individual operators

3.3 Industrial and Trade Sector

3.3.1 Investment Trends

Overseas direct investment in Kazakhstan is mainly directed to the mining industry, and the major investing nations are the United States, Switzerland, the Netherlands and the United Kingdom, etc. (see Tables 3.3-1 & 2). In particular, investment in mining based mainly on petroleum industries is growing rapidly in terms of both amount and share. Investment in mining has dropped significantly in 2005.

Table 3.3-1 Overseas Investment Sectors in Kazakhstan (Amount: US\$ million, unit: %)

	1993-2000 Total		2001		2002		2003		2004		2005	
	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%
Mining	7,841.2	62.4	3,088.9	67.8	2,070.8	50.4	2,188.3	47.3	5,245.0	63.4	1,766.4	27.5
Manufacturing	1,766.4	14.1	642.7	14.1	832.4	20.3	1,000.7	21.6	519.1	6.3	280.3	4.4
Others (real estate, education)	2,954.6	23.5	825.0	18.1	1,202.6	29.3	1,435.5	31.0	2,508.6	30.3	4,369.7	68.1
Total overseas investment	12,562.2	100.0	4,556.6	100.0	4,105.8	100.0	4,624.5	100.0	8,272.7	100.0	6,416.4	100.0

Source: Republic of Kazakhstan, "Statistical Yearbook of Kazakhstan 2004, 2005 & 2006"

In terms of the investing countries, investment by the United States is displaying rapid growth: its level of investment in 2004 (US\$8,272.7 million) was 2.12 times that of 2002. Investment by the Netherlands grew at the very high rate of 8.55 times over the same period. China displayed growth of 1.85 times over the same period, too. Investment in 2005 decreased due to less investment from the U.S., but it is estimated that total investment will recover in 2006.

Table 3.3-2 Main Overseas Investor Countries (Unit: US\$ million, %)

Country	1993-2000 (Acc)		2001		2002		2003		2004		2005	
	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%
United States	4,161.2	33.1	1,460.4	32.1	1,011.4	24.6	1,105.5	23.9	2,971.2	35.9	1,125.5	17.5
Switzerland	171.0	1.4	361.0	7.9	520.0	12.7	630.5	13.6	235.6	2.8	103.4	1.6
Netherlands	398.2	3.2	211.1	4.6	401.0	9.8	612.2	13.2	1,768.2	21.4	1,534.2	23.9
UK	1,701.9	13.5	600.6	13.2	622.7	15.2	591.4	12.8	924.6	11.2	-62.4	-1.0
Italy	515.6	4.1	488.3	10.7	469.1	11.4	375.7	8.1	312.9	3.8	306.6	4.8
China	551.5	4.4	211.9	4.7	64.7	1.6	248.6	5.4	387.8	4.7	195.0	3.0
Other countries total	5,062.8	40.3	1,223.3	26.8	1,016.9	24.8	1,060.6	22.9	1,672.4	20.2	3,214.1	50.1
Overseas investment total	12,562.2	100	4,556.6	100	4,105.8	100	4,624.5	100	8,272.7	100	6,416.4	100

Source: Republic of Kazakhstan, "Statistical Yearbook of Kazakhstan 2004, 2005 & 2006"

3.3.2 Related Issues

Logistics is affected by industrial activities. On the other hand, logistics conditions affect industrial location of (foreign) direct investment. Therefore, there is a mutual relationship to some extent. However, generally speaking, industrial activities generate freight. In this section, industrial development related to logistics in Kazakhstan is examined. Nevertheless, industrial development is a large theme beyond the scope of this study that should be planned as another independent industrial development study project. Therefore, in this section, present industrial promotion policies are reviewed briefly and possibilities for related logistics are examined as follows.

(1) Organization in charge of industry and trade (Ministry of Industry and Trade)

In Kazakhstan, the Ministry of Industry and Trade (MIT) has jurisdiction over industry and trade, just as its name states. The MIT consists of committees and departments as follows.

- Technical Regulation and Metrology Committee
- Industry and Scientific-Technical Development Committee
- Trade and Tourism Regulation Committee.
- Investment Committee
- Competition Protection Committee
- Construction and Housing Service Committee
- Innovative-Industrial Development Department
- Trade Policy Development and Joining WTO Department
- Entrepreneurship Development Department
- Financial Regulation Division
- Strategic Analysis and Development Programs Coordination Division
- Internal Audit and State Financial Asset Control Division

Among these committees, departments and divisions, topics related to logistics are as follows.

- WTO accession
- Encouragement of competition
- Industrial development

(2) WTO Accession

According to the Trade Policy Development and Joining WTO Department, the process of Kazakhstan joining the WTO started in January 1996 when Kazakhstan officially submitted application for entry to the WTO Secretariat. In February 1996, Kazakhstan was granted the status of observer country in the WTO. Simultaneously, the Working Group for Kazakhstan's accession to the WTO was established. The present Working Group consists of 39 countries including Japan.

After the huge volume of reference data and obligatory documents in compliance with the WTO accession

terms had been submitted to the WTO, Kazakhstan completed the informative period of the WTO accession process in 2003 and entered the active phase of the negotiation process with member countries of the Working Group.

Kazakhstan is negotiating for accession multilaterally and bilaterally in the four major directions as follows.

- Institutional issues (review of foreign trade legislation and regulations in compliance with WTO multilateral trade agreements and harmonization of legislation with the WTO codes and regulations)
- Agricultural issues (no subsidies and no protective measures for farmers)
- Bilateral negotiations for admission to the commodity market (definition and coordination of the maximum levels of binding customs import duties with WTO member countries)
- Bilateral negotiations for admission to the services market (coordination of terms for admission of foreign service providers to the Kazakhstan market, such as financial, telecommunications, energy and railway services)

Kazakhstan has signed the protocol for finalization of bilateral negotiations for admission of commodities and services to the Kazakhstan market in the context of Kazakhstan's accession to the WTO. Kazakhstan is preparing to align its laws and regulations in compliance with WTO rules. At present, Kazakhstan completed bilateral negotiations with 16 countries including Japan. The main remaining countries are Canada, Australia and the U.S.

(3) Encouragement of competition

Efficient competitive policy implementation presupposes special legislation in Kazakhstan, creation of a market infrastructure, and law enforcement practice. In this regard, the law regulating competitive policy was enacted. It is Law of the Republic of Kazakhstan as of 7 July, 2006 "On Competition and Limitation of Monopolistic Activity." Along with this in accordance with the basic law, another law was adopted, the Law "On Introduction of Changes and Amendments into Separate Legislative Acts for Control and Regulation of the Natural Monopolies and Market Participants that Possess Dominating Position in the Respective Trade Markets." It is said that the new law is more sophisticated than the previous one. For WTO accession and the creation of an efficient instrument in competition policy, antimonopoly legislation was improved taking international standards into consideration. The basic directions of the competition policies are as follows.

- Suppression of unreasonable interference by the government in the economic activity of the market participants
- Prohibition of market participants' abuse of their dominant position as well as prevention and suppression of monopoly agreements and unfair competition
- Control over economic concentration (prevention of extraordinary concentration of market power, consolidation of companies' dominating position in the market and competition limitation)

The Antimonopoly Agency established by the Law controls monopolies by public companies such as KTZ. The Competition Protection Committee, MIT, has jurisdiction over competitive markets in order to encourage competition. Regarding government control such as the Antimonopoly Agency, for example, it is not clear whether the tariffs of national monopoly corporations are set by measures such as the CPI (Consumer Price Index) minus alpha (productivity goals) or burdened by welfare costs more than operation costs. It seems the latter exists to some extent, from the viewpoint of railway tariffs.

(4) Industrial development

1) Prioritized industries in the “Innovative Industrial Development Strategy of the Republic of Kazakhstan for 2003-2015”

“Innovative Industrial Development Strategy of the Republic of Kazakhstan for 2003-2015” described in Chapter 6 mentioned priority industries as follows.

- Raw materials processing
- Metallurgy
- Grain processing
- Science-intensive and high-tech production
 - Biotechnology (new varieties and gene types of agricultural crops and animals, bacteria strains, etc.)
 - Nuclear technologies
 - Space technologies
 - Creation of new materials, chemical products

These industries were included in a cluster project being implemented by the MIT at present.

2) Cluster project

In 2004, the Kazakhstan Government launched a project for diversification of Kazakhstan’s economy through cluster development in non-extraction sectors of the economy. It includes elaboration of a concrete action plan to raise competitiveness in non-extraction sectors. It aims at increasing production and sustainable economic growth. In general, the project is based on the cluster approach, which strengthens competitiveness and promotes economic development of the regions and country. The cluster approach is substantially to form a certain group of geographically located interconnected companies, suppliers of equipment, parts, specialized services, infrastructure, research facilities, universities and other associated institutions necessary to attain a certain level of synergy economic effects and expand competitive advantages.

After a study of 55,000 enterprises in 12 regions, the government defined seven industries for the cluster approach as follows.

- i) Tourism
- ii) Transport logistics
- iii) Oil and gas machinery building
- iv) Construction materials

- v) Food processing
- vi) Textiles
- vii) Metallurgy

Some of those industries have progressed, but others have not and need assistance. At the same time, the government is working to promote cotton, wine and fish clusters, too. According to the government, the problems of cluster projects are as follows:

- Skill formation needs (maintaining ties between business and science and educational institutions)
- Financing for the development of industries

The directions of the state-run program are as follows.

- Provision of legislative framework to enable cluster development
- Enhancement of Small and Medium Business infrastructure
- Creation of an operation field to accommodate small business

As pilot clusters, interregional professional centres for the training and retraining of technical and maintenance personnel started in Atyrau oblast for the oil and gas sector (2006), in Pavlodar oblast for the fuel and energy sector (2007), in South Kazakhstan oblast (2008) and in East Kazakhstan oblast for mechanical engineering (2009). Several large projects are expected to be implemented in the metallurgical industry and manufacture of construction materials from 2006 to 2007. Therefore, the adoption of specified decrees can decrease project costs and as a result, shorten the payback period and reduce product costs so that Kazakh enterprises can become more competitive. The state's stimulation of actual production is a kind of instrument to create industrial zones. This instrument is being tested in the project of pilot clusters in Astana for construction materials and in Temirtau, Karaganda oblast, for metallurgy-metal processing. The MIT thinks that the possibilities for creating industrial zones in the regions are over. However, the association of the furniture and wood processing industry plans to create an industrial zone, "Almaty Zhihaz," in Almaty oblast for furniture and timber goods production in order to develop and manufacture domestic competitive products.

According to the Prime Minister's announcement dated November 23, 2006, new regional development organizations called SPK (Social Entrepreneur Corporation) will be established in order to promote cluster projects. An SPK is a base for regional development reinvesting profits in activities for fulfilment of residents' society, economy and culture in cooperation with KazyNa (Sustainable Development Fund). It is planned that seven SPKs will be established in Kazakhstan. For example, the SPK in northern Kazakhstan would be located in Kostanai and a pilot model of an SPK would be experimented with in Karaganda.

The MIT is elaborating the SPK and the concept is shown in the Tables 3.3-3 & 3.3-4 and Figures 3.3-1 – 3.3-3.

Since this system is relatively new, it is necessary to pursue progress.

Table 3.3-3 Objectives of SPK



Figure 3.3-1 SPKs in the Regions

Table 3.3-4 Principles of SPK

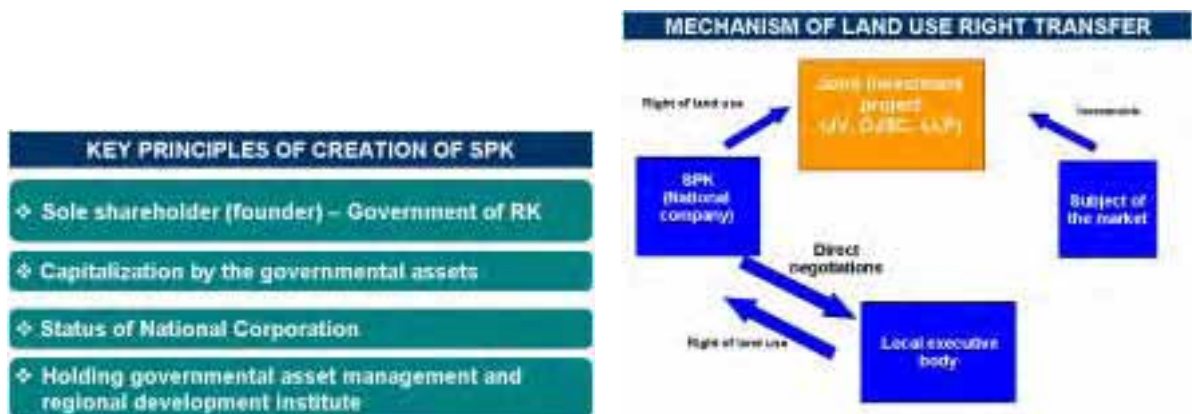


Figure 3.3-2 Mechanism of SPK

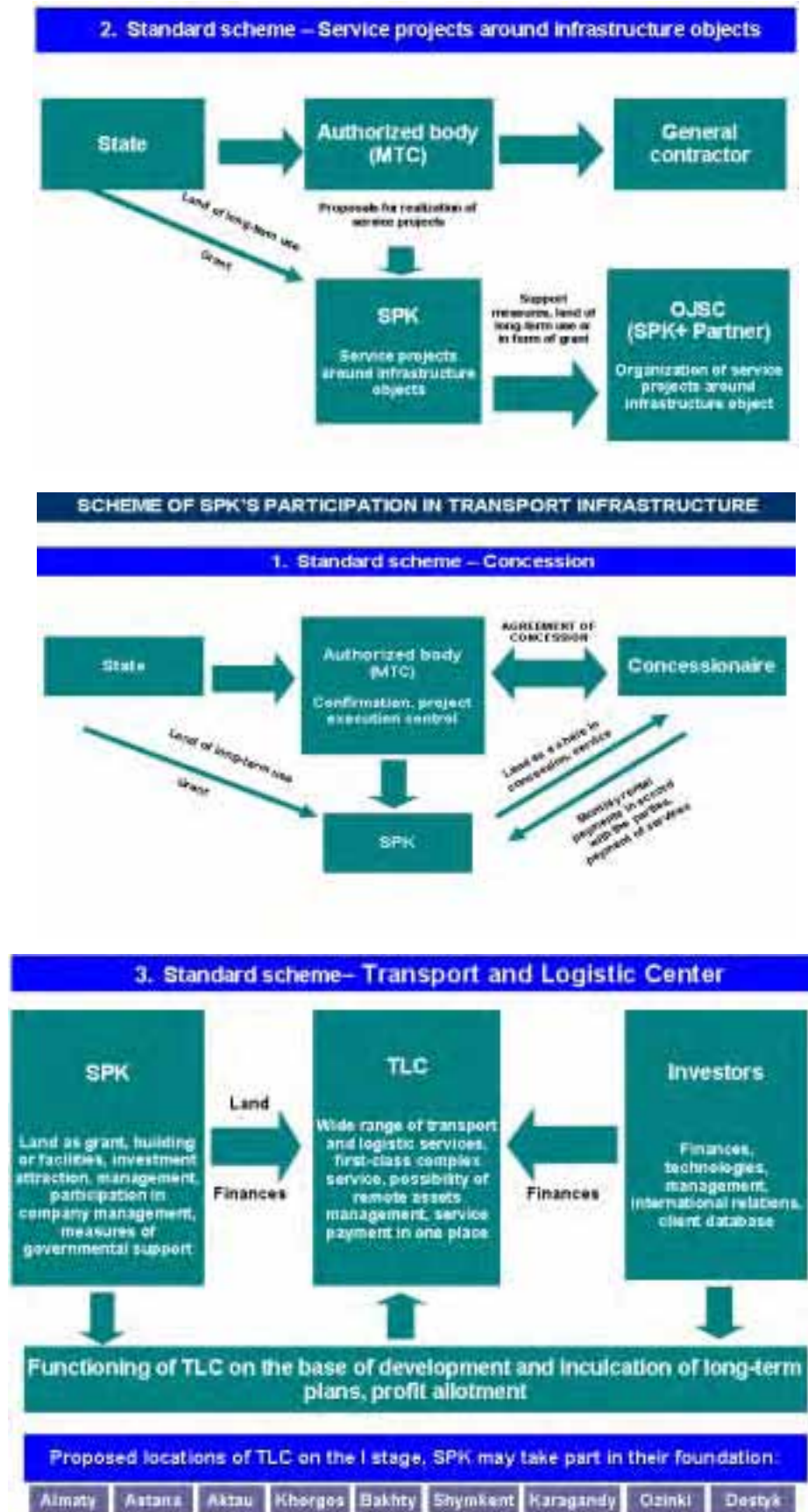


Figure 3.3-3 Scheme of SPK Participation in Transport Infrastructure

3) Technoparks

The “Innovative Industrial Development Strategy of the Republic of Kazakhstan for 2003-2015” mentioned science-intensive and high-tech production as a priority; this was concretized as the technopark project. Technoparks consisting of business incubators, regional innovation funds and venture companies can create innovation. The main task of the technoparks is to ensure favourable conditions for commercialization of R&D by providing innovators with production areas and shared business services.

The technopark system is comprised of two strata. One is national and the other is regional. There are more than forty business incubator zones and plans are to create at least twelve specialized technological business incubator zones and eight training units in technoparks in different oblasts. There are approximately ten technoparks and they are divided into the following two strata by extent of their influence on elements and participants of the R&D system.

- i) National scientific and technological parks (IT-Park: Alatau [Almaty], National Industrial Petrochemical Technopark: Atyrau, Tokamak Technopark of Nuclear Technologies: Kurchatov [East Kazakhstan], Technopark of Space Monitoring: Almaty, Astana and Priozersk) aiming at creation of new industries to ensure the future competitiveness of Kazakhstan’s economy
- ii) Regional technoparks (Almaty Technological Park, Algorithm Technopark: Uralsk, Business-City Technopark, Karaganda) aiming to discover, define and develop the region’s technology potential and meet the region’s demand for innovative products

Three out of ten technoparks are located in the territory of universities (Al-Farabi Kazakhstan National University in Almaty, Satpaev National Polytechnic University in Almaty and Serikbayev Eastern Kazakhstan State Technical University). The other seven technoparks are operating in the territory of industrial production enterprises and R&D centers. Most Kazakhstan technoparks are located in large cities or industrial centers with R&D institutes and highly qualified universities. Approximately 60% of the technoparks are located in Almaty, Atyrau and Karaganda and others are medium-size or small cities such as Ust-Kamenogorsk (East Kazakhstan), Uralsk (West Kazakhstan) and Stepnogorsk (Akmola).

The main clients of incubators are production companies (food production, apparel industry, furniture production, handicraft and souvenir production) and service companies (educational, consulting, construction and repair works). Only 2% of clients are high-tech businesses, while business-incubators should cultivate high-tech companies at the grassroots level. It is difficult, but it seems still a problem. However, non-high-tech industry can sometimes vitalize regions too.

4) Free economic zones

Currently there are free economic zones operating in Kazakhstan, as follows.

- i) Astana- New City (for the use of advanced technologies in construction and the creation of modern infrastructure)
- ii) PIT in Alatau village, Medeu district, Almaty (for the creation of highly effective high-tech and export-oriented production of new information technologies)
- iii) Aktau Sea Port

- iv) Ontustik, Sairam district, South Kazakhstan oblast (for restructuring and modernization of the textile industry, with a designated land area of 200 hectares)

There is discussion about creating the Yertis free economic zone in Pavlodar oblast. The area of this zone is 1,300 ha. It aims at high-tech innovative metallurgical industry producing competitive ferrous and non-ferrous metal products. The feasibility study is under preparation.

In addition, assigning the status of free economic zone to the industrial park in Temirtau, Karaganda oblast, is under study.

5) Border area development

Furthermore, there are international free economic zone plans in border areas. The first plan is for Khorgos, which is a border crossing area for trucks now. This project was jointly planned by the Governments of China and Kazakhstan. In September 2004, a Framework Agreement about creation of the “International Center of Boundary Cooperation Khorgos” was signed with a view to mutually beneficial trade and economic cooperation development and creation of entrepreneurial and investment environment between the two countries. China and Kazakhstan will develop free economic zones along their border. The Free Economic Zone on the Chinese side has an area of 181 km²; 20% of the 12 km² first step area has been completed already. However, the Kazakhstan side of the Free Economic Zone has not been developed yet. The area of the International Center of Boundary Cooperation Khorgos on the Kazakhstan side is 120 hectares, which has not been developed yet. In the free economic zones, an industrial complex making use of both countries’ materials is planned for attracting foreign investment. On the Kazakhstan side, a Joint Stock Company, “International Center of Boundary Cooperation Khorgos,” authorized to develop International Center of Boundary Cooperation Khorgos with the MIT, was established by government decree. The Kazakhstan Free Economic Zone plan below shows a new prospective road in the north, a customs check-point, a transit transport customs check-point, a technical park and railroad facilities. However, the Ministry of Transport and Communications and KTZ do not seem to know about the railway plan.

The Government of China is constructing a new railway track from Urumqi to Khorgos. According to China, it will be completed by 2008. On the other hand, the Government of Kazakhstan decided to build a railway between Khorgos and Saryozek by concession. The length is 235 km and the estimated project costs are 50 billion Tenge. The project is expected to be completed by 2009.

In addition to Khorgos, there are two other border area plans. One is on the border between Russia and Kazakhstan in the west of Kazakhstan. The basic idea of this project is similar to that of Khorgos. Free economic zones are planned on both sides of the border between Russia (Ozinki) and Kazakhstan (Taskala). In the free economic zone, a Russian construction machinery industry is planned.

The other site is Aktau Sea Port Free Economic Zone. These three zones are border adjacent areas and are planned to form a triangle. The operation is targeted at starting in 2014. However, the relationship among or distribution of commodities of the three triangle edges is not clear.

6) Perspective of industrial promotion in Kazakhstan

Based on the cluster projects, technoparks, free economic zones and border area development, the following industries are expected to be promoted.

- Oil and gas machinery and oil refinery products such as plastic and synthesized rubber in the Caspian Sea Region
- Food processing in the north, south and southeast regions
- Textiles in the south region
- Metallurgy industry in the Karaganda and Pavlodar regions

When these industries grow, they will generate a lot of cargos domestically and if they become internationally competitive, the trade (export) will increase. In addition, if the Khorgos, Taskala and Aktau triangle is formed with a close physical relationship, regional development will be interconnected and logistics or export and import cargo flow will increase.



Figure 3.3-4 Khorgos Border Area Development

Implementation of industrial promotion is an issue from the present to the future and requires continuous efforts, especially the private sector's efforts and also the public sector's support.

The cluster and technopark projects depend on promotion implementation in the future and results are not expected immediately.

In order to enable industries to become internationally competitive, it is necessary to establish brands in the domestic market and then enter the international market, or do so simultaneously. As a reference for this kind of method, meticulous tools such as *Isson-Ippin* (One Village—One Product) movement and *Michi no Eki* (Station on the Highway) projects connected with *Isson-Ippin* in Japan are noteworthy.

Actually, there is a study proposed to the JBIC (Japan Bank for International Cooperation): “Kazakhstan: Agricultural and Food Processing Cluster Support Study Project through Technology Transfer from Japan”. According to this study, there are active examples of food processing clusters in Kazakhstan as follows.

- Cluster activities with various industry exchanges in the Kostanai Region
A major dairy product manufacture enterprise is the core, but a group of other related food industry companies supply dairy products or produce processed products using dairy products as materials.
- Grain processing cluster in North Kazakhstan Region
The technopark is centered and traditional food products are developed as commodities. In addition, two leading enterprises in the grain processing cluster are producing bio-ethanol as high-octane gasoline additive with by-products of gluten and yeast feed.
- Grain processing, dairy product processing and fruit and vegetable processing in Almaty
Grain processing, dairy product processing and fruit and vegetable processing are expected to develop as a cluster in Almaty because of close access to big markets.
- City and surrounding agriculture cooperation cluster in Astana
In connection with establishing a fresh food market in a suburb close to Astana, there is a possibility of food development joint work cluster by city and surrounding agriculture cooperation and suggestion of “Road Station” attached to the market.

Detailed study and consultation for projects like those above are necessary for not only food processing but also other cluster industries such as wine and fisheries.

In addition, clusters in Kazakhstan traditionally have a type of vertical integration that is different from the horizontal cooperation for SME (Small and Medium Enterprises) promotion imagined in Japan. Therefore, it may be necessary to start orienting toward the horizontal cooperation type in Kazakhstan.

3.3.3 Customs System

(1) Organization in charge of customs

In Kazakhstan, the Customs Control Committee (CCC) under the Ministry of Finance, Republic of Kazakhstan (hereinafter CCC MF RK) is the authorized agency for customs issues. The structure of CCC MF RK is as follows.

- i) Division of Customs Control Arrangement
- ii) Division of Customs Revenues
- iii) Division of Contraband Control
- iv) IT Division
- v) Division of Finance
- vi) Division of Analysis and Statistics
- vii) Human Resource Division
- viii) Division of Organizational Work and Control
- ix) Division for Arrangement of Customs Control over Energy Resources
- x) Division of Internal Security
- xi) Division of Legal Provision
- xii) Division of International Relations
- xiii) Division of Post- Customs Audit

The system of customs agencies in the Republic of Kazakhstan also includes the territorial subdivisions of CCC MF RK in oblasts and Astana and Almaty (Customs Control Departments), customs, customs posts, check-points and specialized customs institutions.. The customs posts and check-points are located on the border checking points of road and railway as well as airports and ports. The customs posts are also located on the internal territory of the country.

The number of personnel in the customs agencies of the Republic of Kazakhstan consists of approximately 6,000 people. The central department of CCC MF RK has 250 employees.

(2) Legislation

The activities of the customs agencies are based on the Constitution of the Republic of Kazakhstan, Customs Code of the RK, normative legal acts and international treaties ratified by the RK. The Customs Code prescribes seventeen items concerning commodities and transport modes. The Customs Code in English can be downloaded from the CCC web site (www.customs.kz).

Currently programs such as “E-Customs” and “E-Government” are being introduced into customs procedures. It is also necessary to use uniform terms in the tables and text.

(3) Operating hours for customs check-points

According to the law, work days are eight hours, from 9:00 to 19:00, usually with two hours for lunch . However, different check-points may be open during different hours because of work hours in the neighboring country and the procedural time for ministries other than customs. For example, the work

begins from 8:00. Kazakhstan has special agreements with China, Kyrgyz, Uzbekistan, Russia and Turkmenistan for check-point operating hours. The government organizations related to border crossing other than customs are the Ministry of Agriculture (Veterinary Division and Plant Division), Ministry of Health (food safety and diseases), Ministry of Transport and Communications (vehicle permits and weight control) and National Security (immigration and security).

Based on the law, overtime work requires double wages. If customs officials have to work on weekends, they are given holidays at other times. The number of employees is limited, so in practical terms, overtime work is impossible.

(4) Inspection

The inspection of cargos depends on commodity assortment and transport modes. The inspection method is sampling from cargo. There is a green lane system for the CIS countries. A similar system for the Common Economic Area of four countries (Russia, Ukraine, Kazakhstan and Belarus) is being set up. The procedure basically consists of customs registration process and customs control. Concerning inspection or customs clearance, the risk management method becomes important and the post-audit system has an increasingly greater importance.

(5) Customs information systems (computerization)

Information technology is being introduced into customs procedures now. Electronic procedures and data processing will be used. An electronic declaration process will be adopted so that simplification can be attained. Declaration and control will be combined through the electronic systems. The system may be introduced during 2007.

(6) The Revised Kyoto Convention

The CCC MF RK is preparing to join the revised Kyoto Convention, revising legislation in compliance with the Convention. Kazakhstan may become a signatory to the Convention in 2007.

(7) One-Stop Border with Kyrgyz

Kyrgyz and Kazakhstan made a preparatory agreement in 2003. The objective was prevention of narcotics smuggling which inflow from Afghanistan, Tajikistan, etc.

However, coordination with National Security became difficult in 2004. Therefore, a special customs service procedure was proposed and it was decided to conduct it as an experiment. The objective was to clarify what kind of actions to mutually take against narcotics smuggling. Plans were to move from experiment to trial stage. The first phase of the experiment was carried out and people passing the border were inspected. National Security and customs inspected people's baggage for the presence of narcotics. At the same time, Kyrgyz customs officials were stationed on the Kazakhstan side.

The problems identified were as follows.

- Participation of different government organizations
- Integration of information

- Jurisdictional problems

Cargo inspection was not implemented because there was no agreement. Inclusion of cargo requires a special technical process and decree. The agreement is under preparation at present.

Similar activities with Russia are in progress. The stationing issue depends on the condition of facilities: Russia has nine one-stop-border facilities and Kazakhstan has also nine one-stop-border facilities. The agreement will consist of two types: one is construction of transit point between two countries and the other is management of mutual transit points.

(8) TIR Carnet

The TIR Carnet convention was established in 1975 and Kazakhstan became a member of the convention in 1995. Its purpose is to simplify truck freight transport. When cargos are inspected at their points of origin, the cargos are sealed. The seal is not broken, but the carnets are torn off in the transit countries. Final inspection is conducted at the destination point. During transport, the seal is not broken. If the seal is broken, \$5,000 will be compensated. The signatory countries have organizations for compensation. Sixty-four countries are TIR Carnet members. All the CIS countries are the members. China has not entered the convention yet, but it intends to be a signatory.

(9) Customs development program

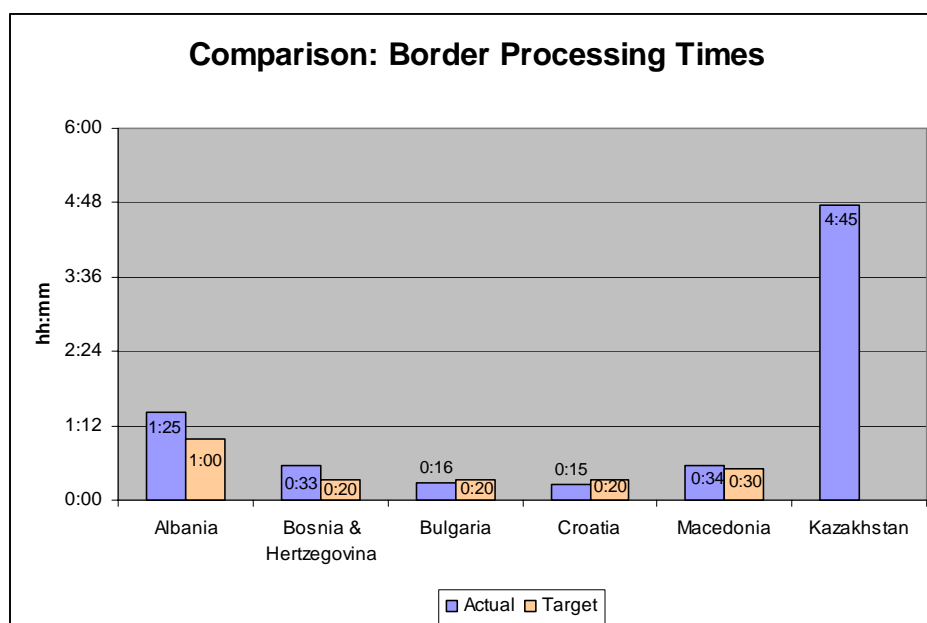
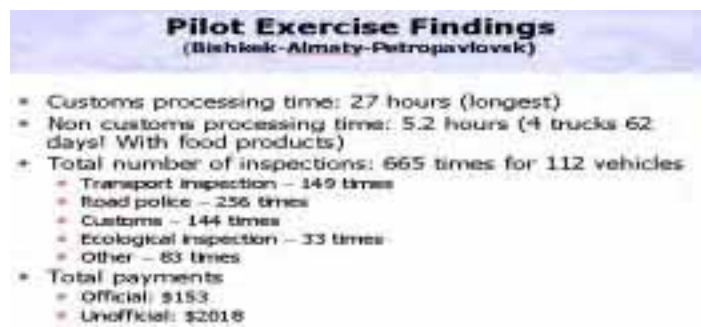
The Customs Development Program for 2004-2006 was implemented and improvement of revenue collection, facilitation of trade, reinforcement of national security, promotion of business competitiveness and combat against unofficial payments progressed. However, more efficient customs service is important for Kazakhstan's competitiveness, investment climate and GDP. The next "Development of the Customs Service for 2007-2010" is under finalization.

The present problems of the customs systems can be described as follows.

- Declaration of goods based on many paper documents
- Lack of comprehensive risk management
- Lack of computer-based network with supervision and other related organizations
- Lack of IT systems
- Lack of training and retraining
- Obsolete equipment and machinery
- Need for joint control with neighboring countries and one-stop border points

According to a World Bank study, a vehicle was checked more than six times between Bishkek-Almaty-Petropavlovsk and in the longest case, travel took twenty-seven hours. (See Table 3.3-5 and Figure 3.3-5)

Table 3.3-5 Border Crossing Procedure Problems



Note: 2003 for Southeastern Europe and 2006 for the pilot survey in Kazakhstan.

Source: World Bank, “Creating a Business Environment Conducive to Competitiveness through Reduction of Corruption and Bureaucracy.”

Figure 3.3-5 Comparison of Border Crossing Times

Compared with border crossing times in Southeastern European countries, that of Kazakhstan is much longer (four hours and 45 minutes).

The World Bank material shows that cost of transporting one truckload of vegetables (20 tons) from Kyrgyzstan to the Russian border is approximately US\$5,000 and informal payments cost an additional US\$2,500.

However, these problems will be gradually solved as described above and by the “Development of the Customs Service for 2007-2010.” In addition, the World Bank will start a “Kazakhstan Customs Development Project” from 2007 supporting the reform of customs in Kazakhstan, and acceleration of reform is expected.

(10) Problems of customs clearance on the Dostyk border

In addition to the physical freight congestion problems in Dostyk, there are time-consuming problems of customs procedure at the border crossing point in Dostyk mentioned by consignors/consignees and forwarders.

However, the customs people strongly believe that delays in customs clearance are caused by deficient document preparation of the Chinese side. This topic is always discussed at the periodic meetings of both countries' border procedure officials, but the Chinese side does not appear to make serious efforts to grapple with this problem. Therefore, Kazakhstan-side customs officials suffer from an overwhelming amount of incoming Chinese miscellaneous commodities and a poorly prepared pile of documents difficult to read. (However, the Chinese side states a different opinion, described in 4.1.2 Customs Systems, Chapter 4 International Logistics Conditions in Eurasia and Analysis of Competitive Routes.)

The minimum documentation necessary for customs clearance procedures on the border consists of the following three types:

- i) Railway Waybill (prepared by the Chinese Railway Company)
- ii) Commodity invoice (prepared by consignors)
- iii) Export declaration (prepared by Chinese customs)

There are supposedly very few documents filled in completely and exactly in accordance with Kazakhstan customs regulations. This phenomenon appears only in incoming freight from China and there is no conspicuous problem concerning freight from Europe and Russia. Most of general cargos from China are sent by small-scale individual stores and small cargos are collected and loaded into one wagon or container. Therefore, the waybills do not show the contents of most of the cargo and it takes a long time to identify the cargo before document examination.

In detail, delays of Chinese cargos on the customs check-point in Dostyk happen in the following sequence:

- i) Overly large volume of small individual shipments (a characteristic of Chinese trade)
- ii) Most of this type of cargo passes through the border with ambiguous and deficient documentation
- iii) Kazakhstan customs try to examine the cargo documents strictly by the country's rule
- iv) Kazakhstan customs traditionally has traditionally had a border control function and is not actively inclined to promote trade
- v) Chinese trade whose priority is to conclude the deal, complete the sale and collect the bills as soon as possible instead of complying with rules
- vi) The difference between Chinese and Kazakhstan characteristics coming across on the Dostyk border

In order to solve the problem, the following measures could be considered.

- i) Exceptional-case setup of customs regulations
For transit cargos, simplify rigid customs clearance procedures with a simple entry check, short transit and exit on the other border. Physically, block trains for container transport making no

stops in Kazakhstan would be desirable.

ii) Seminars on Kazakhstan customs procedures

It may be useful to hold periodic seminars on the preparation of appropriate documents for shippers, forwarders and railway company people in order to help the Chinese side understand Kazakhstan customs procedures, so that documents with exact reporting lead to fast customs clearance.

iii) Granting privilege to excellent shippers

One effective method might be to grant the privilege of customs clearance with a simple check to shippers and forwarders with an excellent record of document preparation in the past. To improve the general level of document preparation, border crossing users should be informed that correct document preparation can help them qualify for fast customs clearance.

3.4 Information and Communication Systems

3.4.1 Current Condition of Information and Communication Infrastructure in Kazakhstan

(1) Diffusion of Information Communication

An ITU (International Telecommunication Union) survey shows ICT (Information Communication Technology) penetration in five Central Asian countries as shown in Table 3.4 -1. All indicators for Central Asian countries are far lower than the world average or the Asian average (which includes Japan, Singapore and other ICT advanced countries). Kazakhstan stands out in high diffusion of telephony including mobile phones among Central Asian countries. It is also higher than the Asian average and the mobile phone penetration rate, especially, is almost equal to the world average.

On the other hand, the Internet penetration rate in Kazakhstan is far lower than the Asian average and is also lower than in Kyrgyz and Uzbekistan. This is due to the low penetration rate of personal computers (PC). PC penetration in Kazakhstan, with ownership of only 1.9 PCs per 100 residents, is far lower than the Asian average (6.51 PCs per 100 residents) and the world average (13.38 PCs per 100 residents).

The number of Internet Hosts (Domains) is also very low compared to the Asian average and the world average. Table 3.4.1-1 shows that the Internet penetration rate in the neighboring countries of Kazakhstan along the Caspian Sea is higher than in Kazakhstan. Those countries can be considered to have an ICT environment ready for receiving ICT-based services to clients and/or forwarders.

“The Global Information Technology Report” issued yearly by the World Economic Forum gives us another type of global indicator. According to the latest version of the Report (2005-2006), Kazakhstan is ranked among 115 countries for each indicator. Figure 3.4.1-1 shows some of the interesting indicators and rankings among 115 countries. (Kyrgyz and Tajikistan were investigated in the Report but Turkmenistan and Uzbekistan are not included. Each indicator is explained in Table 3.4.1-1.)

According to this report, Kazakhstan’s network readiness index is ranked 60th among 115 countries, its readiness component index is 56th and its usage component index is 62nd. This means that Kazakhstan is ranked in the middle level among 115 countries.

In addition to the above analysis, qualified IT personnel are discussed.

Table 3.4.1-2 shows the number of qualified IT personnel in terms of MCP (Microsoft Certified Professionals) and the qualified personnel per person by country. Compared with Russia, Kazakhstan is still short of qualified engineers.

Information from the above analysis can be summarized as follows:

- Diffusion of the Internet at the personal level is lower than Asian and world averages.
- On the other hand, usage of ICT in government, readiness for more ICT in government, and policy-related issues by government toward ICT of Kazakhstan are ranked in a good position.
- Kazakhstan is still short of qualified IT engineers.

Table 3.4.1-1 Penetration of ICT by Country

Country	Population ('000)	Telephone lines per 100 inhabitants	Mobile phone subscribers per 100 inhabitants	AAGR (%)	Internet penetration rate (%)	Number of Internet hosts	No. of Hosts / per 10,000 inhab.
Kazakhstan	14,820	35.44	33.42	90.5	2.7	22,625	15.25
Kyrgyzstan	5,260	18.62	10.29	126.9	5.32	5,601	11.00
Tajikistan	6.51	4.48	4.07	196.3	0.08	154	0.24
Turkmenistan	4,830	7.92	1.01	60.8	0.73	598	1.21
Uzbekistan	26,590	7.96	2.71	68.4	3.32	2,935	1.11
Total/Average for Central Asia	58,010	15.44	10.57	87.1	2.76	31,913	5.50
Total/Average of Asia	3,849,790	38.07	23.22	29.5	9.78	27,986,795	74.22
World Total/Average	6,473,480	52.14	33.95	24	15.17	267,541,17	421.63
Russia	143,500	111.57	83.62	105.6	15.19/	854,310	59.37
Iran	69,520	37.7	10.39	49.6	10.07	7,000/	10.70
P.R.China	1,315,840	56.53	29.9	35.8	8.44/	162,821	1.25
Azerbaijan	8,410	39.63	26.66	39.8	8.07	355	0.42
Japan	128,080	119.86	73.97	7.2	50.2/	16,445,223	1,286.80

Notes: 1) Each indicator was investigated in 2005; 2) Annual Growth rate is the average from 2000 to 2005.

Source: International Telecommunication Union.

Table 3.4.1-2 Qualified MCP by Country in 2003

Country	Number of MCP	MCP per Million Pop.
Kazakhstan	414	27.9
Kyrgyzstan	59	11.2
Tajikistan	15	2.3
Turkmenistan	7	1.4
Uzbekistan	831	31.3
Average for CAC	1,326	22.9
Russia	11,364	79.2
Iran	64	0.9
China	226,077	171.7
Azerbaijan	200	23.8
Japan	131,837	1029.3

Source: World Economic Forum, "The Global Information Technology Report" (2005-2006).

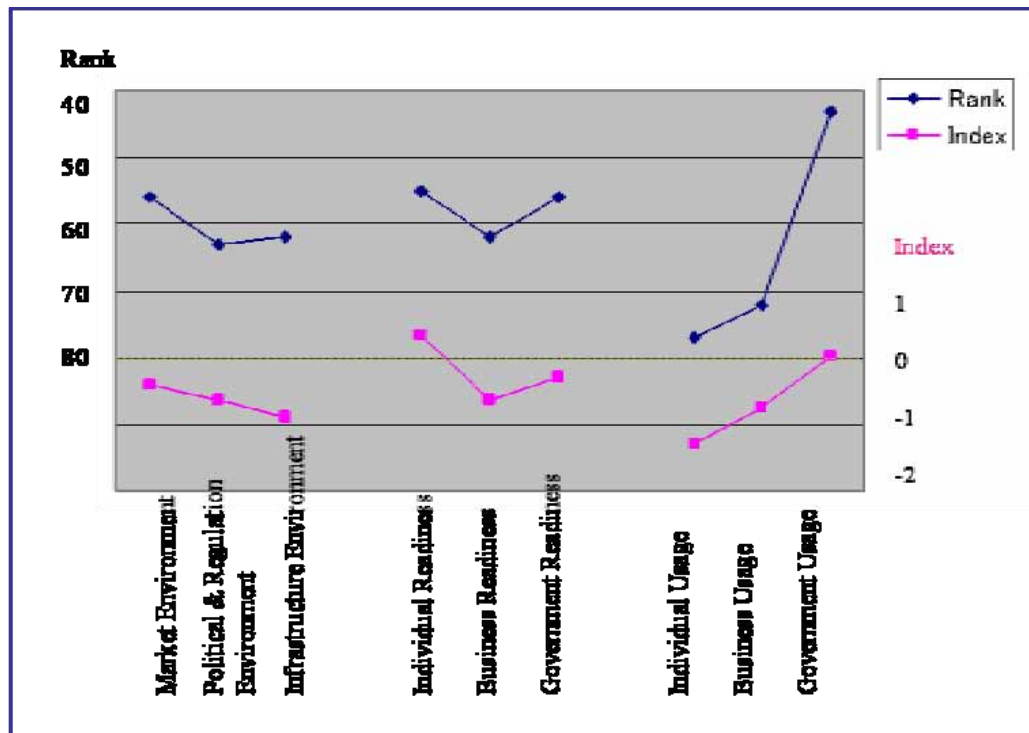


Figure 3.4.1-1 Kazakhstan’s Global Position in the Networked Readiness Index

(2) ICT Infrastructure and Services

Kazakhtelecom, of which the government owns a 51% share, is in a “monopoly” situation for basic telecommunication services in Kazakhstan.

Historically from the era of the USSR, there have been 3 telecommunication operators such as Kazakhtelecom, Transtelecom, which is an affiliate of KTZ, and KazTransCom, which is an affiliate of an oil company.

The framework of the communication network in Kazakhstan is owned exclusively by Kazakhtelecom, although there are two exceptions: Transtelecom owns a few networks along railways and KazTransCom owns some along pipelines. In effect, Kazakhtelecom has a monopoly on inter-city and international services. According to the web site of the Agency for Information and Communication, Kazakhtelecom’s share in fixed line service is higher than 97%. The national telecommunication framework, most of which Kazakhtelecom owns, covers all of Oblasts, and telephone services and data communication services are available in all residential areas. Characteristically, because of the nation’s large territory, satellite use is popular. The second satellite is going will be used before 2009 and the launch of a third is also planned. Wireless Technology such as WiFi or WiMax is also implemented which can cover areas where fiber optic cable is difficult to install. Even in urban areas, avoiding costly fixed lines, new operators are coming into the market with wireless services.

In addition, a fiber optic network running across the Eurasian continent is under construction (Trans Asia Euro). This network connects Beijing and Frankfurt via Kazakhstan, whose role is very important as a hub.

The circuit comes from China into the east of Kazakhstan and goes out to Kyrgyz and Uzbekistan through the southeast. Another route goes west-bound to connect Russia and Azerbaijan. Connecting these international lines with the domestic framework is also being carried out. In the eastern region, a circular route is being built making use of the existing line, and a branch route will reach west-bound to Aktau.

International exchange capacity will be improved along with this international project. Kazakhstan will have 310 Mbps to 620 Mbps exchange capacity with each neighbor (2 to 4 channels where 1 channel has 155 Mbps capacity). This greatly improves access from foreign countries to Kazakhstan and from Kazakhstan to foreign countries.

Apart from the last one-mile access line, it does not seem difficult to develop information networks connecting local offices and/or stations. Furthermore, a new wireless solution is being introduced in the industry, which makes the solution cheaper and easier. This is WiMax technology whose bandwidth is limited to about 50Mbps, but which can reach up to 50 km and is less expensive to install (i.e. installing fiber optic cable costs around US\$ 500k plus construction cost of running the cable underground or on poles. But WiMax costs only about US\$ 4K plus construction fee for only 2 points). The combination of existing and new technologies makes installation of an information network for logistics facilities feasible in a cheaper and quicker way.

Considering the current situation and plan described above, improving the information network connecting branch offices of transport-related organizations in Oblasts and/or stations is not impractical.

There are many operators of new services in competition rather than fixed line services. Mobile phone operators are shown in Table 3.4-3.

Table 3.4-3 Mobile Phone Operators in Kazakhstan as of 2006

Operator	Name of service	Service
Kazakh Telecom	Kcell	GSM/GPRS
Altel	Dalacom	CDMA
Kartel	K Mobile / Beeline	GSM/GPRS
Mobile Telecom Service		GSM/GPRS

Source: JICA Study team from interviews

Internet services are provided by many operators. However, prices are quite expensive so dial-up connection is the most popular for home use. Kazakhtelecom provides an easy-to-use service allowing telephone subscribers to use the Internet only, using a national common number dial without registration or contract and to receive invoices with normal telephone charges. Dial-up Internet connection by prepaid card is offered by many providers.

Table 3.4-4 shows prices for ADSL Internet connection service for corporate users offered by Kazakhtelecom.

Table 3.4-4 Prices for ADSL in Kazakhstan

Unit: Tenge

Speed	Unified	Contracted Traffic		
	Monthly Fix	Monthly	Monthly	Fee For
64 Kbps	47,428	0.1	1200	256
128 Kbps	94,857	0.5	7995	174
256 Kbps	170,706	1.0	15262	166
512 Kbps	341,412	4.0	52310	142
2 Mbps	1,214,552	16.0	181461	130
8 Mbps	4,249,969	64.0	645071	116
10 Mbps	5,312,461	100.0	957440	110

Source: Kazakhtelecom

The monthly charge per 100Kbps for the Internet connection, which is often used in order to evaluate broadband cost, is US\$425 (US\$1 = 126 Tenge). This figure is equivalent to 6,500 times the price in Japan, where broadband cost is the cheapest in the world. (The price for personal use is cheaper than corporate use. So actually this figure is lower.) This is a very high hurdle to diffuse the Internet quickly. And one of the reasons for this is the monopoly structure. In order to improve this situation and promote liberalization, there are plans to establish a competitive operator against Kazakhtelecom

(3) e-Government Project

The e-Government project is promoted by the Agency of the Republic of Kazakhstan for Information and Communication. This agency governs not only the telecommunication market but all of the information communication industry.

All the government agencies are part of this project but the Ministry of Industry and Trade, the Ministry of Education and the Ministry of Agriculture, in particular, play important roles.

The major points of the project are as follows:

- (a) Eliminating the information gap,
- (b) Promoting the software industry,
- (c) Human resource development, and
- (d) Improving government services.

Actions plans on-going include:

- (a) To eliminate the information gap, installing public access terminals nationwide to create an environment allowing residents to access the Internet and government services,
- (b) To build an IT park in Almaty to promote the software industry,
- (c) To implement national qualification system for IT engineers with some incentives for persons qualifying, in order to develop human resources, and
- (d) To construct an e-Government portal to integrate all government online services.

These actions will generate more capacity to develop, operate and maintain information systems for the development of new systems and improve existing systems. Other expectations are improvement of IT literacy and skills as system users by increasing citizens' opportunity to use PCs and to access the Internet.

3.4.2 Current Situation Regarding ICT and Organization of Related Agencies

(1) Current situation

Current information and communication systems and operating organizations related to this study are summarized as shown in Table 3.4.2-1.

Global standard products are utilized for hardware and basic software which are the infrastructure of systems. Each organization appears to use standardized infrastructure. Management and control in technology seem to be good. In the application system area, the influence from Russia is felt in that the basis of some systems was developed during the USSR era, or some systems have been developed in Russia to localize in the Kazakh environment. These systems are functional, but it seems that some of them are not well functioned by operational reasons. Networking is implemented and covers the whole nation by various methods. But like KTZ, not all of the points are networked, due to geographical scale and many points. This could disturb smooth operation of the whole system.

(2) Customs and its Systems

The Customs Control Committee is in charge of restructuring and modernizing customs operations and is discussing funding, including loans from the World Bank. One of the action plans is the development of ICT and an ICT infrastructure.

3.4.3 Issues and Requirements for Information and Communication Systems

Issues and requirements related to ICT raised by related organizations which were mentioned in interviews and including findings by the Study Team are summarized as follows.

Common issues heard from IT organizations were:

- (a) Lack of skilled human resources and
- (b) Difficult management and control of regional offices due to vast geographical distance.

Issue (a) is common all over the world and is not something that can be sorted out by an individual organization. Discussion across agencies might be necessary and the e-Government project will assist this. Some existing systems are based on systems developed in the USSR era or localized software based on Russian development. These appear complete to a certain degree. On the other hand, system platforms such as operating systems like Windows, UNIX and database management system like Informix and Oracle, consist of global standard products basically developed in the USA. Up to now, opportunities for study or system exchange experiences have probably been limited in the CIS countries but active information collection or exchange with countries outside the CIS may have an impact on future improvement.

The country's vast geographical area places unavoidable heavy burdens on operation and maintenance so concrete networking cannot develop naturally. Networking is expensive and more staff education in local offices and facilitation of software and hardware are also costly. It is important to decrease network costs. Liberalization of telecommunication promoted by the AIC, construction of a cross-continental network and a connected nationwide framework network are expected to improve the situation and the e-government project is expected to increase the overall ICT literacy of end users.

Regarding functional issues, tough internal systems within organization is well developed and inter-organizational data communication (between organizations or connecting customers) is missed or not well functioned.

Regarding functional issues, the Study Team notes the possibility that, based on the survey, the following application systems may solve the current issues of the logistics systems and improve operational efficiency.

- Wagon inventory system --- Obtain the correct information about where and how many wagons and instruct effectively, transmitting the information to other locations in order to avoid lack of wagons at a certain location to decrease delays in container transportation due to lack of wagons
- Trace systems --- Systems which trace the location of cargo or container. Certain points are defined along the way to control the location of cargos. There are several types of measures such as using GPS, attaching a barcode or RFID to the surface of containers to be read automatically at the points, or tracing by wagon or train with the linkage to each container. This information can be provided to customers.

According to the interviews, these two application systems are in use. But actually, they are not always well utilized because the network is not fully implemented at all of the necessary sites, and some system users cannot use them correctly or data entry is not easy to keep correct data.

- Field operation support systems --- Implementing mobile terminals in the field to communicate with the control center. This makes collecting information in the field on-going and instructions for operation to the field effective in decreasing waiting time and total operation time due to delay of information.
- Marketing support systems --- Providing information to foreign customers (including forwarders) to "sell" KTZ or other services to potential customers. The easiest solution is developing a web site showing tariffs or time schedules. Aktau Sea Port Company already has such a site, through a third party (www.portaktau.kz). Railway transportation, as well as operation and maintenance organizations, should also have such systems. Apparently, foreign languages such as English and Chinese must be used.

Table 3.4-5 Current IT Situation and Organization of Agencies

Organization	Overview of organization	Information systems hardware / network	Application Systems	IT division
Aktau International Sea Commercial Port	· At Aktau Port only	<ul style="list-style-type: none"> · 150 PCs connected thru fiber optic cables among several buildings at the port. · ADSL internet connection (2Mbps) · Windows servers, PCs 	<ul style="list-style-type: none"> · Internal system—accounting, process management for port work (packaged and tailor-made) · Planning progress information system (web-based for customers) · EDI interchange is proposed. Not approved (paper work is preferable) · Web site maintained by marketing division 	<ul style="list-style-type: none"> · Supervisor and instructor, a several operators, 2 programmers · 2 helpdesk operators
Customs Control Committee	16 branches Customs posts at stations, ports, airports, etc.	<ul style="list-style-type: none"> · Unix server (SolArys) + Informix (DB). 34 in the HO, 100+ in branches · Windows PC · Satellite and Frame Relay network 	<ul style="list-style-type: none"> · All offices have Custom Clearing system (CAIS-I) (Developed in Russia) · CAIS-II is under development. · Online processing will be available (developing in Kazakhstan) · E-Clearance system is in operation. Low usage rate. 	20 staffers in the HO. 100+ including sub-division members in the branches. Roles are operation and maintenance. Development company is decided thru tender process.
KTZ	16 branches 300 cargo stations	<ul style="list-style-type: none"> · 4 mainframes (IBM Z series), 100+ servers · Satellite and cable network · Fiber optic cables along part of railways. Owned by TransTelecom Subsidiary). 	<ul style="list-style-type: none"> · The automated transportation control system is the biggest separated from the USSR railway system. · Systems which provide information on trains departing for next station are available 	<ul style="list-style-type: none"> · 18 staffers in Information division whose role is to design & develop IT systems with outsourced part. · Data center sub division owns 290 staffers for operation & maintenance.

3.5 Stakeholders in Relation to Logistics in Kazakhstan

In general, the logistics system is composed of four types of stakeholders, i.e., shippers, logistics service providers, consumers, and government, as shown in Figure 3.5-1. Each stakeholder has a fundamental role to play for the logistics system to function. Moreover, there is a continuous interaction among these stakeholders to respond to the needs of each actor.

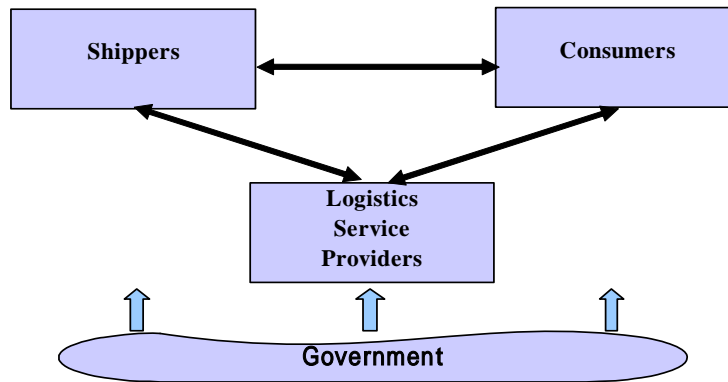


Figure 3.5-1 Stakeholders in Logistics System

In terms of function, the government is the regulator whose role is to provide and/or ensure that the market is fair for all the actors. The government tries to promote the growth of each stakeholder while ensuring that their other interests, such as the quality of environment and others, are not compromised. Shippers are the main customers of logistics service providers. They want their goods to arrive on time at the cheapest cost and in superior quality. Logistics service providers, on the other hand, want to maximize their profit on every transaction they make. As such, they employ several strategies to attain that objective, such as consolidating cargoes, supply chain management, using Information and Communication Technology (ICT) and others. The last stakeholder, which is consumers, wants to have easy access for their daily needs at reasonable cost.

The players composing each group of stakeholders are shown in Table 3.5-1. This table shows that there can be an overlap of the groups that actors belong to. One actor belonging to a particular stakeholder might also be in another group of stakeholders, like the case of wholesalers and retailers.

Table 3.5-1 Stakeholders of the Logistics System

Players	International Logistics
Consignors (Shippers)	• Raw Material Suppliers • Distributors • Manufacturers • Wholesalers and retailers • Others
Logistic Service Providers	• Railway companies • Trucking companies • Marine transport companies • Air transport companies • Terminal companies • Warehouse companies • Freight forwarders
Government	• Ministry of Transport • Ministry of Finance • Customs office
Consignees (Consumers)	• Manufacturers • Wholesalers and retailers • Residents • Others

Table 3.5-2 shows the relationship between the type of international trade and stakeholders. From this table, the following can be said;

- For export and import cargos, consigners and consignees are located in Kazakhstan, respectively. These consigners and consignees know about the characteristics of transport service providers. At the same time, the Government may exert control to select the routes and /or transport modes.
- For transit cargos, consigners / consignees / forwarders are located in countries outside of Kazakhstan. Government, KTZ, and forwarders in Kazakhstan cannot exert control to select routes or mode of transport.
- KTZ and the Kazakhstan Government can only improve the transit environment of the logistics system such as good railway facilities, shorter transshipment and transport times, permission for transit cargos, simplification of customs procedures, etc.

Table 3.5-2 Relationship between Logistics and Stakeholders

Stakeholders	Export	Import	Transit
Consignor (Shipper)			
- in Kazakhstan	●	X	X
- in countries outside Kazakhstan	X	●	●
Consignee (Consumer)			
- in Kazakhstan	X	●	X
- in countries outside Kazakhstan	●	X	●
Logistics Service Provider			
* Transport Service Provider			
- in Kazakhstan	●	●	○
- in countries outside Kazakhstan	●	●	○
* Freight Forwarder			
- in Kazakhstan	●	●	X
- in countries outside Kazakhstan	●	●	●
Government			
* Ministry of Transport			
- in Kazakhstan	●	●	○
- in countries outside Kazakhstan	●	●	●
* Customs Office			
- in Kazakhstan	●	●	●
- in countries outside Kazakhstan	●	●	●
* Ministry of Industry and Trade			
- in Kazakhstan	●	●	X
- in countries outside Kazakhstan	●	●	●

Note: ● Strong relation, ○ Partial relation, × No relation

3.6 Critical Issues and Problems

(1) Trade and Freight Traffic Issues

1) Increase in freight demand

- Domestic freight

The transport cargo volume in Kazakhstan shows an annual high growth rate supported by high economic growth. Such an increase of cargos requires investment in efficient facility construction and operations for domestic cargo transportation.

- International trade and transit

International and transit cargos are increasing dramatically in proportion to the high economic growth of Kazakhstan and the increase in merchandise trade with Japan, China, Korea, Central Asian countries and Russia. According to the JICA Study Team's enterprise survey at Lianyungang Port and Urumqi, demand is quite active. In addition, there is the potential that international and transit cargos will increase greatly from now on.

2) International Trade and Activation of Distribution System

Kazakhstan has made the shift to a market economy policy, activating international trade activity and transactions in response to the economic development of Kazakhstan that has been planned to effect the change from resource dependency to a multiple industrial policy, and must establish a distribution system not only domestically but also internationally.

3) Emerging international merchandise trade and logistics system.

The spread of international trade activities and transactions requires establishment of international logistics systems. Kazakhstan occupies an important position in east-west and north-south transit and a logistics system needs to be established.

(2) Distribution System Issues in Kazakhstan

The logistics system in Kazakhstan is still at the initial stage, far behind in comparison with those of developed countries. Mineral resources such as coal, iron ore and oil account for the majority of cargo transportation in Kazakhstan and are delivered from producing centers to consignees directly by railway as an exclusive and direct delivery system. Large scale general cargo transportation has also an exclusive delivery line. On the other hand, ordinary consignees having no exclusive line depend on delivery to the nearest railway station by a supplier or a transportation company's trucks. In the future, with the development of the market economy and the progress of multiple industrialization, it is anticipated that improvements to the road network, increases in truck ownership and expansion of service areas will induce a change in general cargo transportation from railway to truck.

For reference, there is a modal shift from railway to truck transportation in proportion to the upgrading of

the economic structure accompanied by economic development, as seen in historical changes in utilization of transportation in Japan and China.

General cargos such as garments and electrical machinery, etc. tend to be transported by truck from the standpoints of speedy delivery, just-in-time delivery and door-to-door service, etc. Therefore, in order for general cargos to keep on using railway service in Kazakhstan, issues such as speeding-up the railway transportation system, improving the multiple transportation system and establishing an off-rail transportation system, and improving modal points, communication systems and service are required.

In the distribution system, promoting the streamlining of railway distances only will have a very limited effect. The efficiency of modal changing points, from cargo owner to railway station and from railway station to consignees, must be improved.

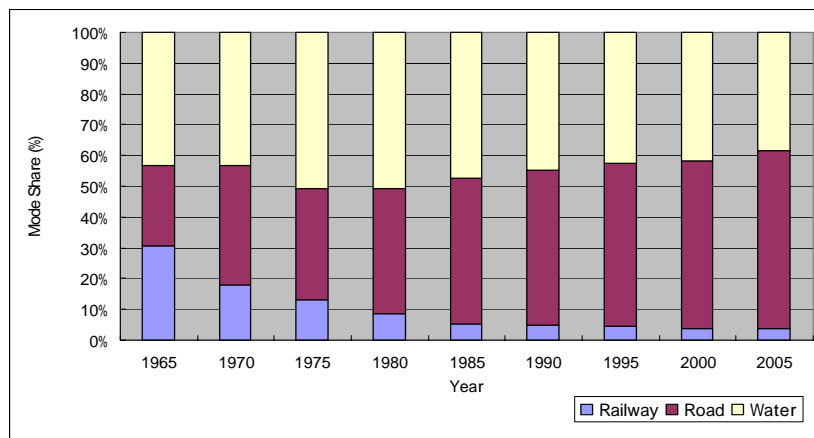


Figure 3.6-1 Transition of Transportation Share in Japan (1965-2005)

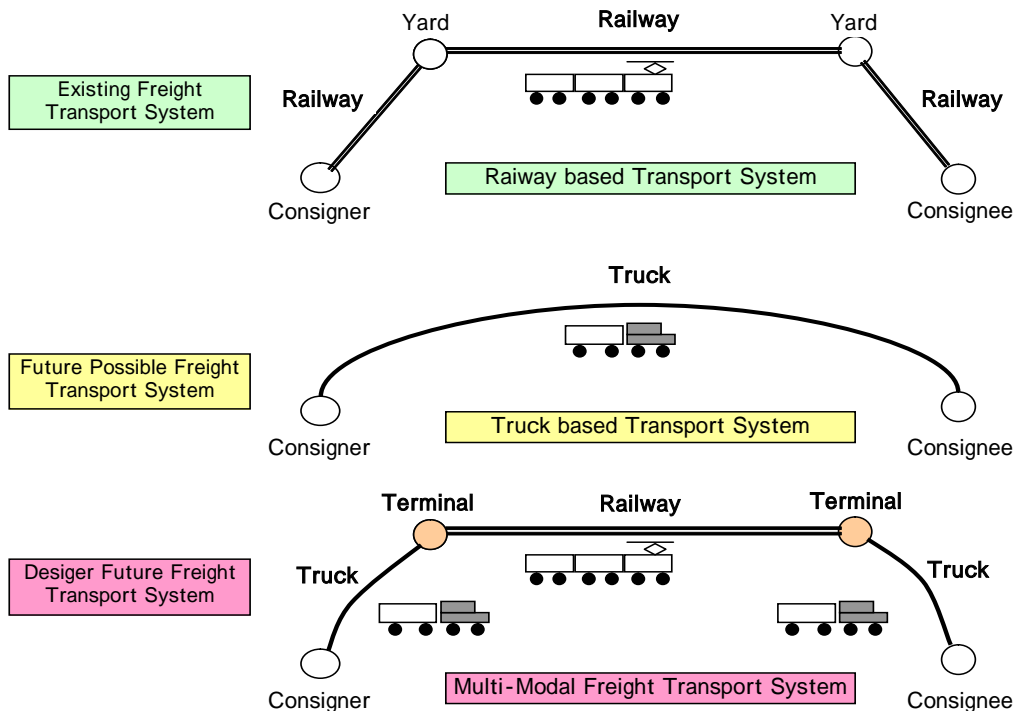


Figure 3.6-2 Future Possible Freight Transport System in the Case of General Cargo

(3) Transport Infrastructure Issues

1) Railway network

The railway networks in Kazakhstan were built in the direction to Russia due to the area's historical background, so the TRACECA (east-west) network nationwide is weak.

2) Aktau Port

The volumes of both crude oil and dry cargos at Aktau Port have reached the limit of the port's capacity and so freight congestion is becoming a concern. The main route of the TRACECA passes Turkmenbashi and this route is the rival of the Kazakhstan route. There are two routes between Aktau and Baku. One is Caspian Sea transport and the other is railway transport via Russia. Since Russia is a rival of Kazakhstan's east-west transit route, costs and time required for Caspian Sea transport must offer advantages over the railway route through Russia. For this purpose, efficiency of physical handling facilities, including application of RORO vessels, speed-up of customs and other procedures, and cost reduction through competition among marine transport and port terminals are essential.

3) Dostyk Terminal

Since container cargos from China are increasing dramatically, there are problems such as lack of transshipment facilities and bogies or carts for containers. In addition, transshipment facilities for not only containers but also other general cargos are reaching the limits of handling capacity.

In addition to physical cargo congestion problems, there is a problem of customs and other time-consuming processing due to the large volume of improperly completed documents on the Chinese side.

(4) Locomotive and Freight Cars

Locomotives and freight cars are decrepit and need to be replaced. Cars for containers are also insufficient in number to match present cargo demand. In addition, the number of containers themselves should also be increased due to shortage of containers available.

(5) Railway operation system

The KTZ's present freight transport system is still based on the method of assembling and disassembling freight cars at each freight yard. This is a cost-effective system for the supply side, but it is far from speedy transport and punctuality for the demand side.

Sales of container transport services should be reinforced and an environment enabling KTZ to operate block trains should be created.

Concerning KTZ's information system, although freight information is partially processed by computers, on-rail information transmission is generally based on telephone and other old methods involving manual work, which lacks precision and speed for information transmission.

(6) Customs Issues

Customs issues are as follows:

- Goods declaration with a lot of paper documents
- Lack of comprehensive risk management
- Lack of computer-based network with proper supervision and other related organizations
- Lack of IT systems
- Lack of training and retraining
- Obsolete equipment and machinery
- Need for joint control with neighboring countries and one-stop border points

However, the reform and improvement of customs from the old Soviet Russia style to the world standard is progressing and these issues are expected to be solved in the medium and long term.

(7) Organizations in relation to logistics

The Kazakhstan government has a strong vertical structure so horizontal relationships, that is, coordination among related ministries and agencies, seems weak and complex continuous logistics transport cannot be assured.

Since logistics centers are planned by various ministries, committees and divisions independently, there seems to be inadequate coordination or collaboration among them.

(8) Industrial Development Issues

Kazakhstan economy's fundamentals are based on its rich natural resource. So the transport of mineral ores keep a share of 75% in railway cargo transportation, while economic activity other than resource related activity is relatively lower and this causes monotonous structure in cargo transport. As a result, it prevents the efficient cargo transportation system developing. For developing the effective and stable logistics system in Kazakhstan, it is important to activate not only the logistics system itself but also regional / industrial development which supports and creates logistics need.

In the areas surrounding the Caspian sea, there is considerable potential for industrial development, using Caspian sea as logistics channel. A part of industrial development is being introduced these days, and this trend might induce the increase of distribution, though industrial development is still pending issue.

It is pointed out these development might be accelerated if suitable logistics system is facilitated in this area.