

ҚАЗАҚСТАН РЕСПУБЛИКАСЫНЫҢ АҒАШТАНҒА АЭРОТРАНСПОРТ АРНАМАЛЫҚ ДАМУ ЖАҒДАЙЫ

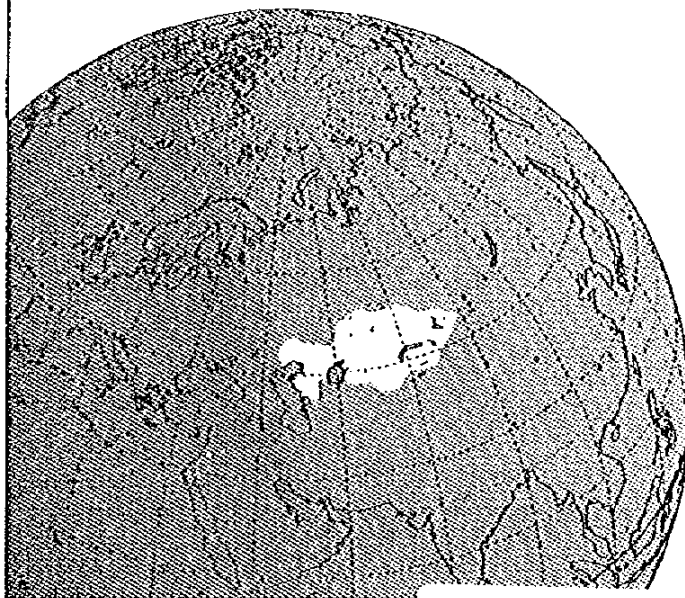
АЭРОТРАНСПОРТ АРНАМАЛЫҚ ДАМУ ЖАҒДАЙЫНЫҢ АҚПАРАТТЫҚ АНАЛИЗІ

THE STUDY
ON
AIR TRANSPORT DEVELOPMENT
IN
THE REPUBLIC OF KAZAKHSTAN

FINAL REPORT

Volume II : Main Report

March 1997



JICA LIBRARY



J 1135550101

ҚАЗАҚСТАН РЕСПУБЛИКАСЫНЫҢ АҒАШТАНҒА АЭРОТРАНСПОРТ АРНАМАЛЫҚ ДАМУ ЖАҒДАЙЫ

№. 52

THE STUDY ON AIR TRANSPORT DEVELOPMENT IN THE REPUBLIC OF KAZAKHSTAN

FINAL REPORT

Volume II : Main Report

March 1997

JICA

940

75

SSF

LIBRARY

№. 52

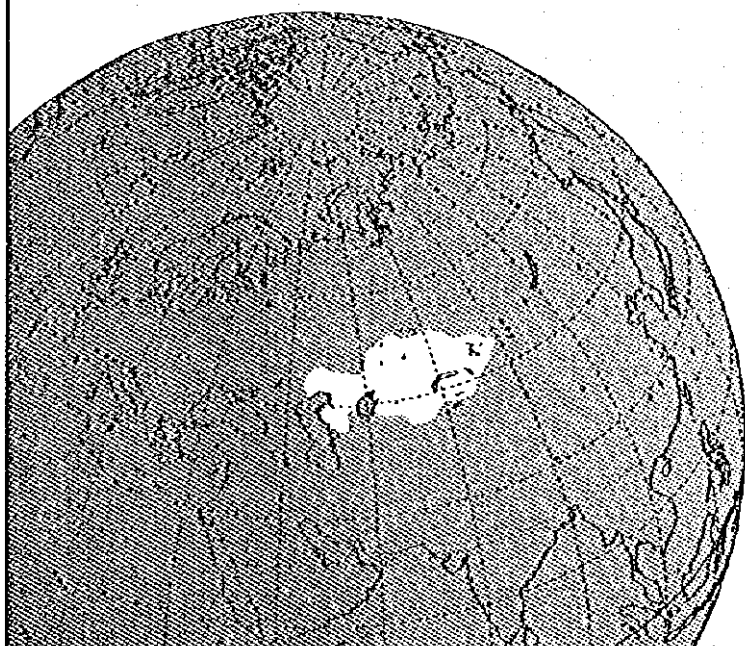
JICA

9703108

JAPAN INTERNATIONAL COOPERATION AGENCY(JICA)

**MINISTRY OF TRANSPORT AND COMMUNICATIONS
THE REPUBLIC OF KAZAKHSTAN**

**THE STUDY
ON
AIR TRANSPORT DEVELOPMENT
IN
THE REPUBLIC OF KAZAKHSTAN**



FINAL REPORT

Volume II : Main Report

March 1997

PACIFIC CONSULTANTS INTERNATIONAL, TOKYO, JAPAN



NOTE

The following exchange rate was adopted throughout this report.

US\$ 1.00 = T 70.3 = Yen 113 (October 1996)

T 0.622 = Yen 1

T: Kazakhstan Tenge

PREFACE

In response to a request from the Government of the Republic of Kazakhstan, the Government of Japan decided to conduct a study on Air Transport Development and entrusted the study to the Japan International Cooperation Agency (JICA).

JICA sent to Kazakhstan a study team headed by Mr. Makoto Tanaka of Pacific Consultants International three times between March 1996 and January 1997.

The team held discussions with the officials concerned of the Government of Kazakhstan, and conducted field surveys at the study area. After the team returned to Japan, further studies were made and the present report was prepared.

I hope that this report will contribute to the promotion of the project and to the enhancement of friendly relations between our two countries.

I wish to express my sincere appreciation to the officials concerned of the Government of Kazakhstan for their close cooperation extended to the team.

March 1997



Kimio Fujita

President

Japan International Cooperation Agency

March 1997

Mr. Kimio Fujita
President
Japan International Cooperation Agency
Tokyo, Japan

Letter of Transmittal

Dear Sir:

We are pleased to submit to you the final report on the Study on Air Transport Development in the Republic of Kazakhstan. The report contains the results of master planning for development of air transport in Kazakhstan (Target Year: 2020), feasibility study on high priority airports to be selected from the master plan (Target Year: 2005), and proposals for enhancing the management and operation of the air carrier component of the National Associated Airlines of Kazakhstan.

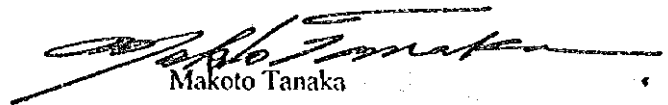
The report presents long term development master plans for the most important nine airports in Kazakhstan. The results of comparison of these airport development plans indicate that the development projects of Akmola, Almaty, Aktau, Aktyubinsk, Atyrau and Pavlodar have high priority and less problems in implementation. These six were selected for the feasibility study accordingly. The feasibility study on the development projects of the six airports indicates that the projects are technically, economically and environmentally feasible. The highest development priority of the six should be accorded to Akmola to serve the new national capital.

For developing the existing Akmola Airport to a gateway of the new capital, we recommend that the Government of Kazakhstan implement this project as a top priority.

Since the development plan premises the relocation of the national capital from Almaty to Akmola, the airport development plan should be reviewed and amended as necessary along with the actual relocation activities. Also it is recommended that all of the activities involved in the design stage of project implementation be conducted in accordance with the laws and standards of Kazakhstan, taking local conditions into account, and in full collaboration with Kazakhstan side.

We wish to take this opportunity to express our sincere gratitude to your Agency, the Ministry of Foreign Affairs, the Ministry of Transport and the Overseas Economic Cooperation Fund of Japan. We also wish to express our deep gratitude to the Ministry of Transport and Communications, Committee for Utilization of Air Space and Civil Aviation and other agencies concerned of the Republic of Kazakhstan for the close cooperation and assistance extended to us during our study.

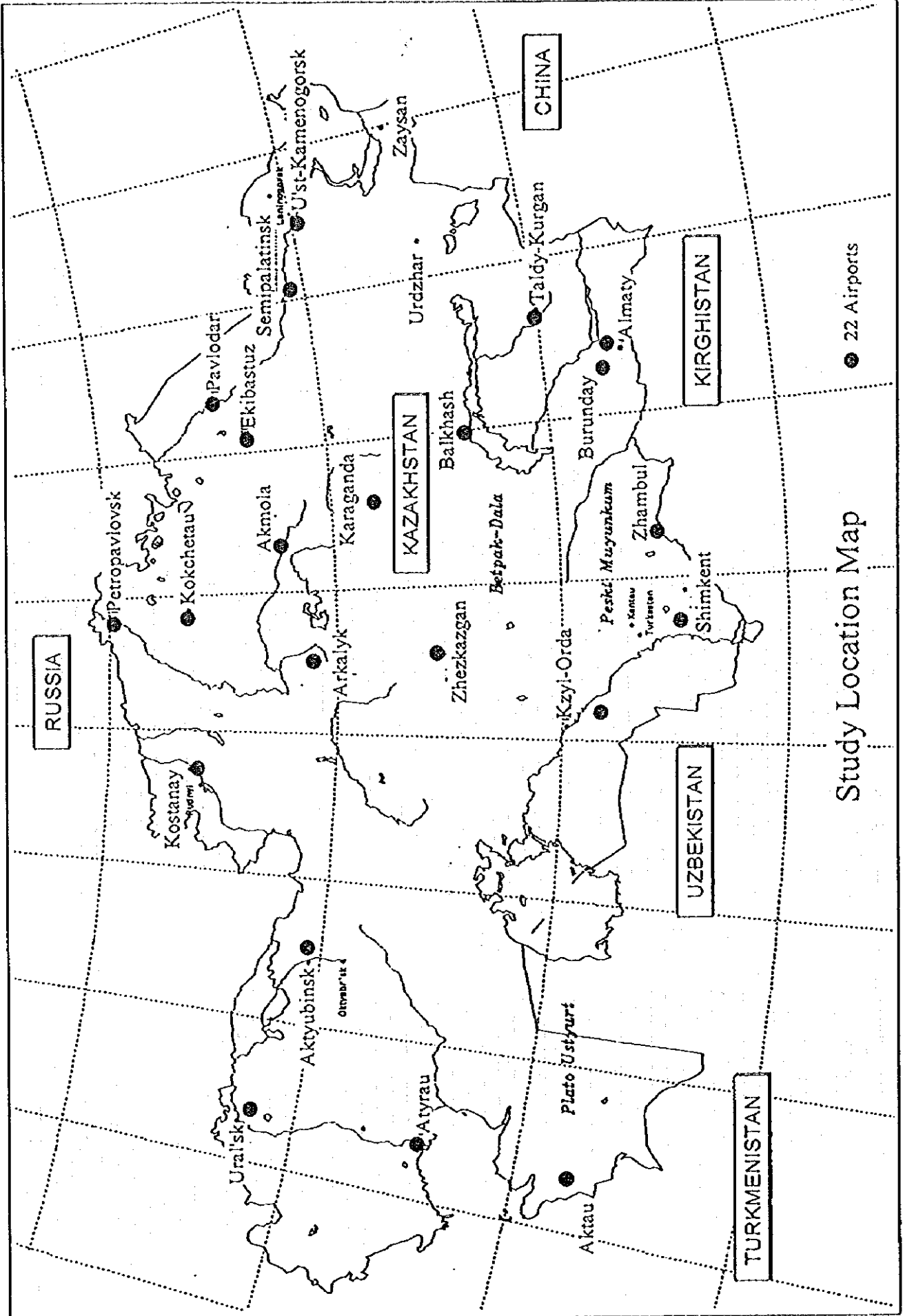
Very truly yours,

A handwritten signature in black ink, appearing to read 'Makoto Tanaka', with a long horizontal flourish extending to the right.

Makoto Tanaka

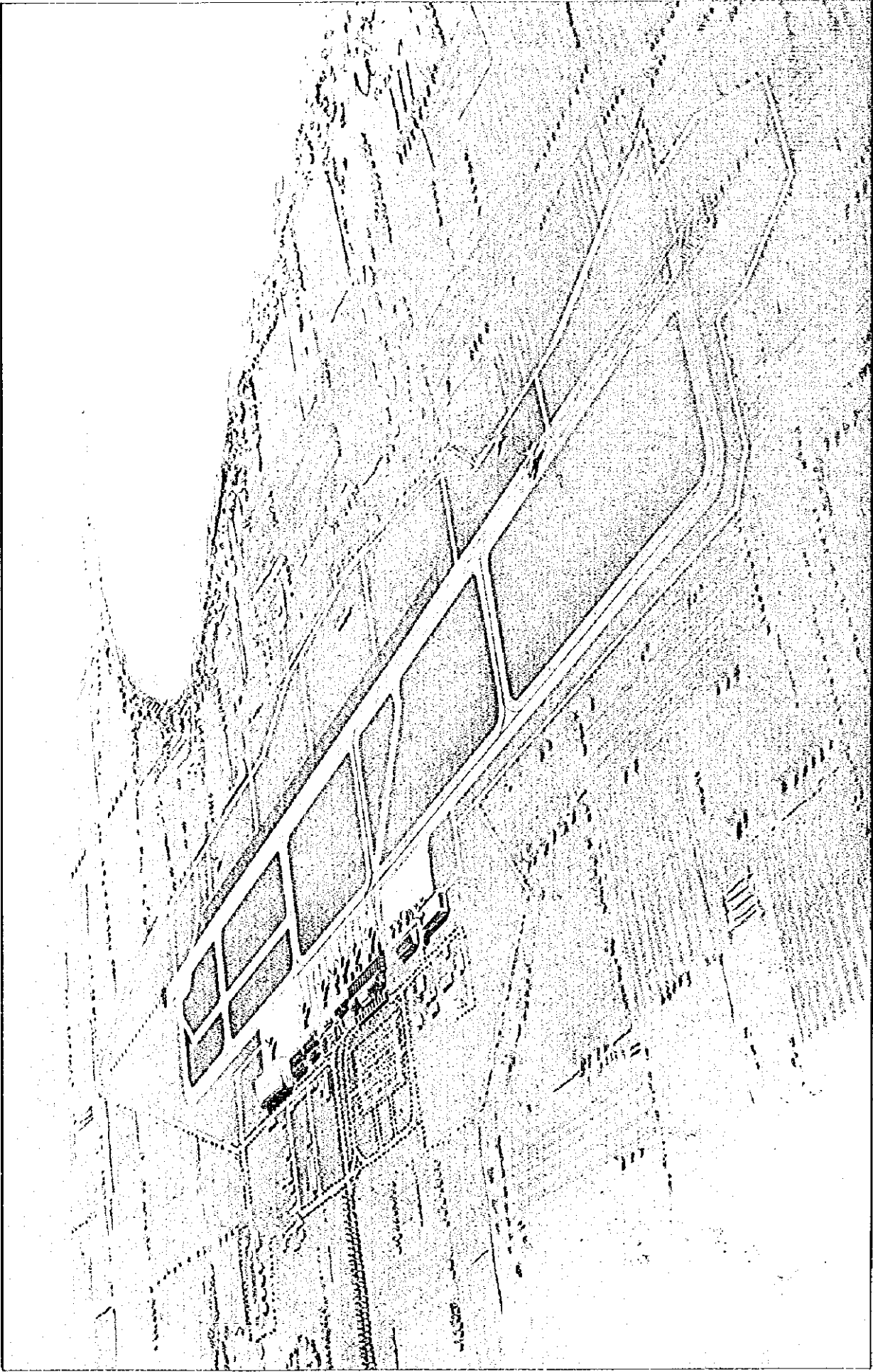
Team Leader

Study Team for the Air Transport Development Project

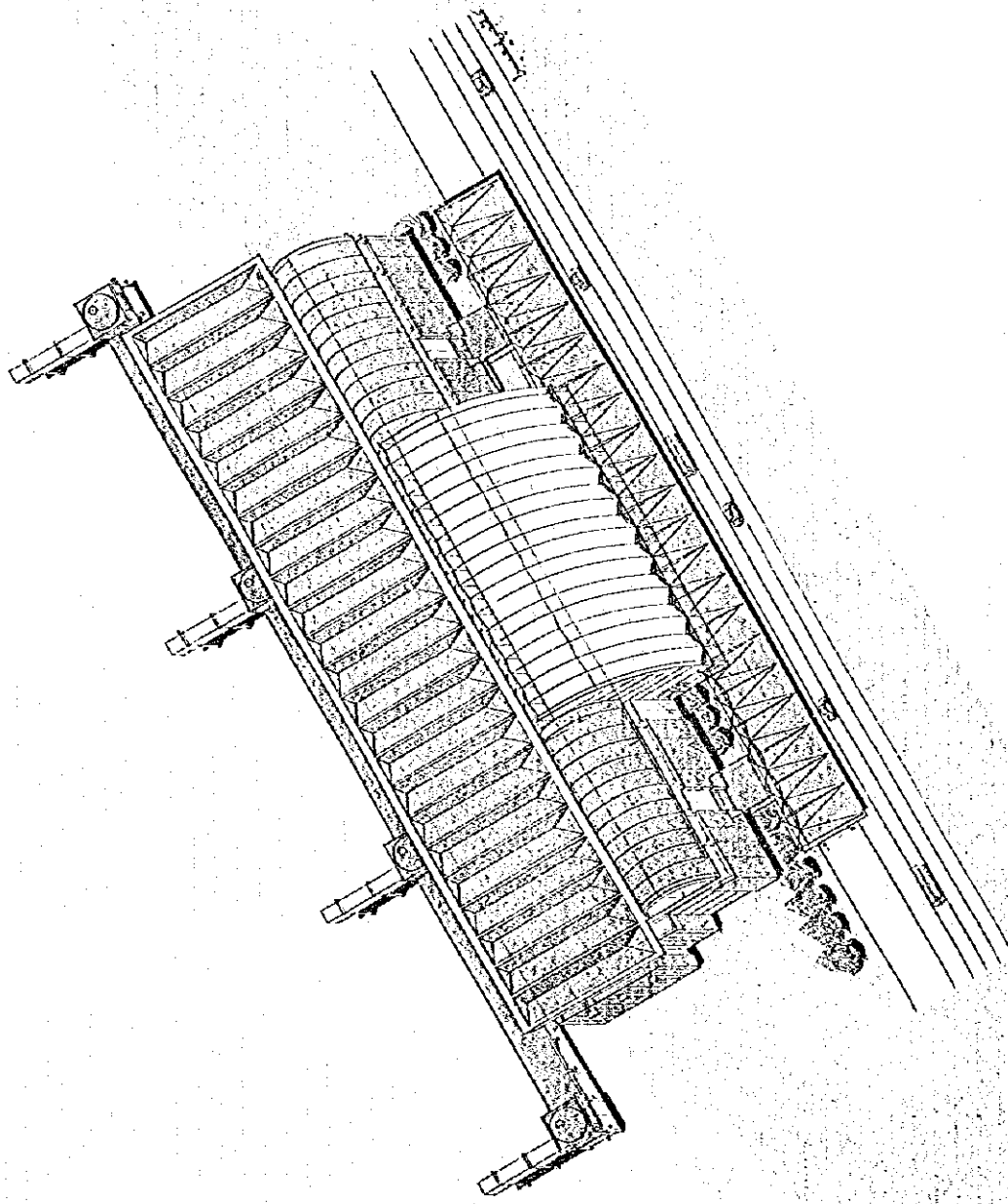


Study Location Map

● 22 Airports



Akmolu International Airport Master Plan Perspective View (Target Year:2020)



Akmola International Airport Passenger Terminal Building Exterior View

**THE STUDY
ON
AIR TRANSPORT DEVELOPMENT
IN
THE REPUBLIC OF KAZAKHISTAN**

**FINAL REPORT
VOLUME I : MAIN REPORT
TABLE OF CONTENTS**

Study Location Map

Chapter 1 Introduction

1.1 General	1-1
1.2 Objectives of the Study	1-2
1.3 Scope and Schedule	
1.3.1 The Scope of the Study	1-2
1.3.2 Study Schedule and Submission of Reports	1-4
1.4 Study Organization	1-5

Chapter 2 Current Conditions of Air Transport in Kazakhstan

2.1 Socio-Economic Conditions in and around Kazakhstan	
2.1.1 General	2-1
2.1.2 Demographic Characteristics.....	2-4
2.1.3 Macro-economy and Regional Industry.....	2-12
2.1.4 Prospects of Economy in Kazakhstan.....	2-23
2.1.5 The Transportation System of Trends in Kazakhstan.....	2-24
2.2 National Policies and Plans	
2.2.1 Development Plans and Economic Policies.....	2-27
2.2.2 Transportation Policies and Plans.....	2-28
2.2.3 National Air Transport Policy and Plan.....	2-29
2.3 Current Conditions of Air Transport	
2.3.1 General	2-32
2.3.2 Air Traffic Statistics	2-35
2.3.3 Air Route Network	2-37
2.3.4 Airways System	2-42
2.3.5 Air Traffic Control Facilities	2-46
2.3.6 Air Traffic Services Operation.....	2-47
2.3.7 Navigation Aids	2-54
2.3.8 The Airport System	2-56
2.3.9 Airport Facilities	2-58
2.3.10 Airport Operations	2-68
2.3.11 Regulation	2-77

Chapter 3 Strategy for National Air Transport Development

3.1 The Generic Transportation System	
3.1.1 Components and Interrelationships.....	3-1
3.1.2 Ownership and Responsibilities.....	3-1
3.2 Strategy for National Air Transport Development	
3.2.1 Background and Context	3-2
3.2.2 Economic Factors	3-3
3.2.3 Safety	3-4
3.2.4 Social and Political Factors	3-5
3.2.5 Framework for Formulating National Policies and Plans for Air Transport Development	3-6
3.3 Air Traffic Demand Forecast	
3.3.1 General	3-7
3.3.2 Air Traffic Demand Classifications	3-10
3.3.3 Major Preconditions	3-11
3.3.4 Methodology and Procedure of Air Passenger Traffic Demand Forecast	3-17
3.3.5 The Results of Air Passenger Traffic Demand Forecast	3-18
3.3.6 Air Cargo Demand Forecast.....	3-35
3.4 Air Route Network	3-38

Chapter 4 National Air Navigation System Development

4.1 The Generic Air Navigation System	4-1
4.2 Review of Air Navigation System Modernization Plan	
4.2.1 General	4-1
4.2.2 ATC System.....	4-2
4.2.3 New Automated ACC.....	4-2
4.2.4 Recommendation.....	4-8
4.3 Review of Airways Network	
4.3.1 Air Route Structure.....	4-8
4.4 Strategy for Development of the Air Navigation System	
4.4.1 Modernization of the system.....	4-13
4.4.2 Rationalization of Civil and Military Airspace.....	4-16
4.4.3 Publication of the Kazakhstan AIP	4-16
4.5 Development Guideline for Air Navigation System Facilities	
4.5.1 General	4-16
4.5.2 Short Term Development Plan for The Year 2005.....	4-18
4.5.3 Long Term Development Plan for The Year 2020	4-20

Chapter 5 National Airport System Development

5.1 The Generic Airport System	
5.1.1 Aeronautical Services.....	5-1

5.1.2	Non- aeronautical Services.....	5-1
5.1.3	Components of Production.....	5-1
5.2	National Airport Development Strategy	5-3
5.3	Airport Classification	5-4
5.4	Operations and Maintenance Planning	
5.4.1	Rescue and Fire Fighting.....	5-7
5.4.2	Security	5-8
5.4.3	Border Controls and Facilitation.....	5-8
5.4.4	Snow Removal from Runways, Aprons and Taxiways	5-10
5.4.5	Maintenance of Runways, Aprons, Taxiways and other Air Side Areas.....	5-10
5.5	Ownership, Management and Organization	
5.5.1	Commentary on Current Ownership, Management and Organizational Issues	5-12
5.5.2	National Airport Commercialization Program.....	5-13
5.5.3	Selected Near Term Efficiency and Effectiveness Improvement Opportunities.....	5-20
5.6	Initial Environmental Evaluation.....	5-39
5.7	Master Planning for Priority Airports	
5.7.1	Identification of Priority Projects for Airports.....	5-62
5.7.2	Facilities Development Guideline	5-62
5.7.3	Facility Development Plans	5-71
5.7.4	Preliminary Cost Estimates	5-93
5.7.5	Implementation Plan of an Airport Project.....	5-93
5.8	Selection of Priority Projects of Airport for Feasibility Study	5-96

Chapter 6 Feasibility Studies for Selected Airports

6.1	Planning and Preliminary Design	6-1
6.1.1	Akmola International Airport	6-6
6.1.2	Almaty International Airport	6-25
6.1.3	Aktau Airport	6-34
6.1.4	Aktyubinsk Airport	6-40
6.1.5	Atyrau Airport	6-46
6.1.6	Pavlodar Airport	6-51
6.2	Land Use Plan	
6.2.1	General	6-55
6.2.2	Current Land Use	6-55
6.2.3	Land Use Plan	6-55
6.3	Construction Plan	6-67
6.4	Cost Estimation	6-69
6.5	Environmental Impact Analysis	

6.5.1	Akmola	6-73
6.5.2	Aktyubinsk	6-79
6.5.3	Almaty	6-83
6.5.4	Atyrau	6-91
6.5.5	Aktau	6-95
6.5.6	Pavlodar	6-96
6.5.7	Summary of the Result of the Environmental Impact Analysis	6-97
6.6	Geological Considerations	
6.6.1	General	6-99
6.6.2	Geological Conditions of Each Airport	6-99
6.7	Economic and Financial Analysis	
6.7.1	General	6-103
6.7.2	Economic Analysis	6-103
6.7.3	Assumption for “without the project” and “with the project”	6-105
6.7.4	Benefits Identification	6-106
6.7.5	Quantification of Incremental Net Benefits by Category.....	6-111
6.7.6	Cost Estimation (Financial and Economic).....	6-128
6.7.7	Economic and Financial Appraisal	6-128
6.8	Implementation Plan	6-147
6.9	Conclusions and Recommendations	
6.9.1	Conclusions.....	6-149
6.9.2	Recommendations.....	6-150

Chapter 7 Modernization of National Airline

7.1	Introduction	
7.1.1	Trends Affecting the National Air Carrier and Demand for Air Travel	7-1
7.1.2	Recent Developments Affecting the National Air Carrier	7-1
7.2	Review of Air Transportation Market in Kazakstan	
7.2.1	Market Demand and Segmentation.....	7-4
7.2.2	Competition.....	7-4
7.2.3	Government Policy Overview	7-17
7.2.4	Conclusions	7-19
7.3	Review of Kazakhstan “Auje Zholy”	
7.3.1	Financial.....	7-21
7.3.2	Organization	7-35
7.3.3	Management	7-39
7.3.4	Planning	7-40
7.3.5	Operations and Safety	7-40
7.3.6	Customer Service.....	7-46

7.3.7	Sales and Distribution	7-47
7.3.8	Marketing	7-49
7.3.9	Revenue Management	7-53
7.3.10	Management Information Systems and Automation	7-53
7.3.11	Market and Route Structure	7-54
7.3.12	Conclusions	7-57
7.4	Recommendations for a Modernization of the Air Carrier	
7.4.1	General	7-58
7.4.2	Airline Simulation	7-58
7.4.3	Management	7-63
7.4.4	Organization	7-63
7.4.5	Training	7-65
7.4.6	Financial	7-65
7.4.7	Customer Service	7-65
7.4.8	Sales and Distribution	7-66
7.4.9	Marketing and Sales	7-66
7.4.10	Operations	7-69
7.4.11	Other	7-70
7.5	Some Potential Areas of Government Policy Development	7-71

Chapter 8 National Air Transport Regulatory Regime Development

8.1	Air Transport Regulatory Regime	
8.1.1	Air Safety Regulation	8-1
8.1.2	Economic Regulation	8-2
8.2	Commentary on the Air Transport Regulatory System in Kazakhstan	
8.2.1	Background	8-4
8.2.2	General Commentary on the Regulatory Regime	8-7
8.2.3	Commentary on the Air Safety Regime	8-8
8.2.4	Commentary on the Economic Regulatory Regime	8-9
8.3	Strategy for Developing the Air Transport Regulatory Regime	
8.3.1	Regulatory Trends	8-10
8.3.2	Key Elements of a General Regulatory Strategy	8-12
8.3.3	Key Elements of a Safety Regulatory Strategy	8-13
8.3.4	Key Elements of an Economic Regulatory Strategy	8-13
8.3.5	Strategy Implementation - Major Considerations	8-13
8.3.6	A Sound Example - Overview of the Civil Aviation Authority of the United Kingdom of Great Britain and Northern Ireland	8-14
8.4	Recommendations	8-15

CHAPTER 1
INTRODUCTION

CHAPTER 1 INTRODUCTION

1.1 General

The Republic of Kazakhstan is an inland country situated in the Central Asia and borders Russia, China, Kirghizstan, Turkmenistan, Uzbekistan, and the Caspian Sea. The total land area is about 2.717 million sq. km (seven times as large as Japan), and its population is approximately 17 million. Because of the size of the country, air transport is an important means of transportation in Kazakhstan.

After the independence in 1991, the Government of Kazakhstan became a full member of the international community. In order to develop the country in this new environment, the government introduced reforms to establish a market-oriented economy instead of the previous command-control economy, and to change its industrial structure from one based on producing raw materials to one producing finished goods.

The changes to the national economy require restructuring of the current transport system to enable easy and reliable access to international markets and to develop transportation capacity. Because of the topography of Kazakhstan, air transport is expected to play vital role in developing international contacts.

Most of the air transportation infrastructure of Kazakhstan is, however, too degraded and outmoded to meet the international standards of service and safety. The Government of Kazakhstan has therefore decided to develop and modernize this infrastructure and has requested the Government of Japan to conduct a study on air transport development in the Republic of Kazakhstan.

In response to a request from the Government of the Republic of Kazakhstan (hereinafter referred to as "the Government of Kazakhstan", GOK), the Government of Japan (GOJ) decided to conduct a Study for Air Transport Development in the Republic of Kazakhstan (hereinafter referred to as "the Study"), in accordance with the relevant laws and regulations in force in Japan.

The Japan International Cooperation Agency (hereinafter referred to as "JICA"), the official agency responsible for the implementation of the technical cooperation programs of the Government of Japan, was entrusted to carry out the Study in close cooperation with the concerned authorities of the Republic of Kazakhstan.

JICA dispatched a team to conduct the Study in Kazakhstan in March 1996, based on the Scope of Work and the Minutes of Meeting for the Study, agreed upon between the Government of Kazakhstan and JICA on November 8th 1995.

1.2 Objectives of the Study

The objectives of the Study were as follows:

- 1) To formulate a master plan for development of air transport in Kazakhstan, - Target Year: 2020
- 2) To conduct a feasibility study on high priority airport(s) to be selected from the master plan, - Target Year: 2005
- 3) To prepare proposals for enhancing the management and operation of the air carrier component of the National Associated Airlines of Kazakhstan
- 4) To transfer technology and knowledge to the Kazakhstan counterparts during the course of the Study.

1.3 Scope and Schedule

1.3.1 The Scope of the Study

The scope of the Study consisted of the following four major phases.

- (1) Study the existing conditions of air transport,
- (2) Formulation of strategies and a master plan for development of air transport,
- (3) Feasibility Study of selected priority project(s) and
- (4) Analyses and recommendations for modernization of the national air carrier.

The four phases consisted of twenty-nine (29) work items shown in **Figure 1.1, "Basic Work Flow"**.

Note: In this study, capital relocation to Akmola was assumed as precondition as follows;

- by the year 2000, fifty thousand residents;
- by the year 2005, an additional hundred thousand residents and;
- by 2010, a further additional hundred thousand residents.

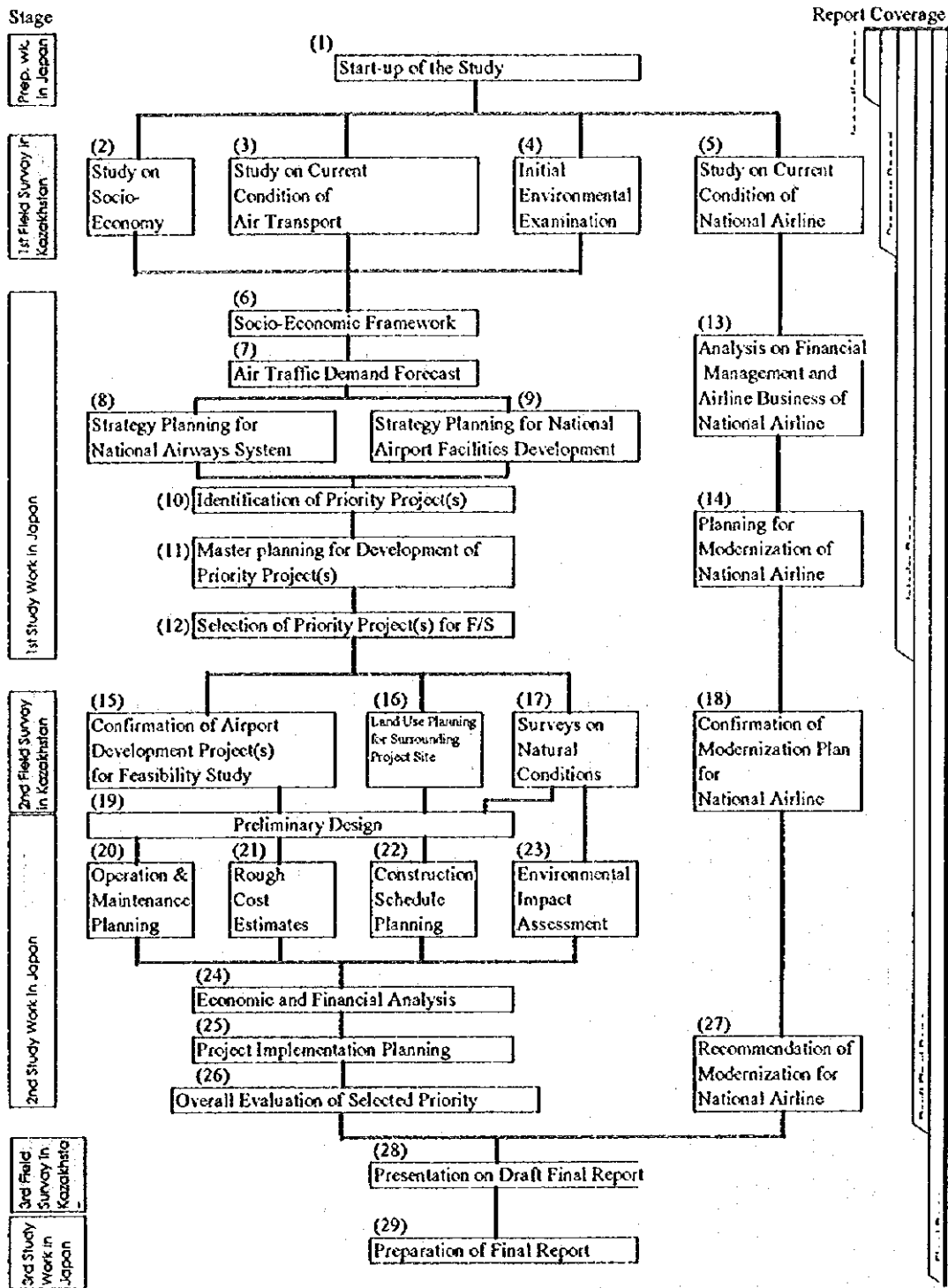


Figure 1.1 Basic Work Flow

1.3.2 Study Schedule and Submission of Reports

The Study started in middle of March, 1996 and has completed by the end of March, 1997. It was divided into seven (7) stages.

- 1) Preparatory Work in Japan - Start-up of the Study and Preparation of Inception Report
- 2) First Field Survey in Kazakhstan - Presentation of Inception Report, Study of Existing Conditions and Preparation of Progress Report
- 3) First Study Work in Japan - Air Traffic Demand Forecast, Master Plan for Air Transport Development, Analysis of National Airline and Preparation of Interim Report
- 4) Second Field Survey in Kazakhstan - Presentation of Interim Report and Surveys for Feasibility Study
- 5) Second Study Work in Japan - Feasibility Study for Priority Project(s), Improvement Plan for National Airlines and Preparation of Draft Final Report
- 6) Third Field Survey in Kazakhstan - Presentation of Draft Final Report
- 7) Third Study Work in Japan - Preparation of Final Report and completion of the Study

Figure 1.2 shows the activity and report preparation at each stage.

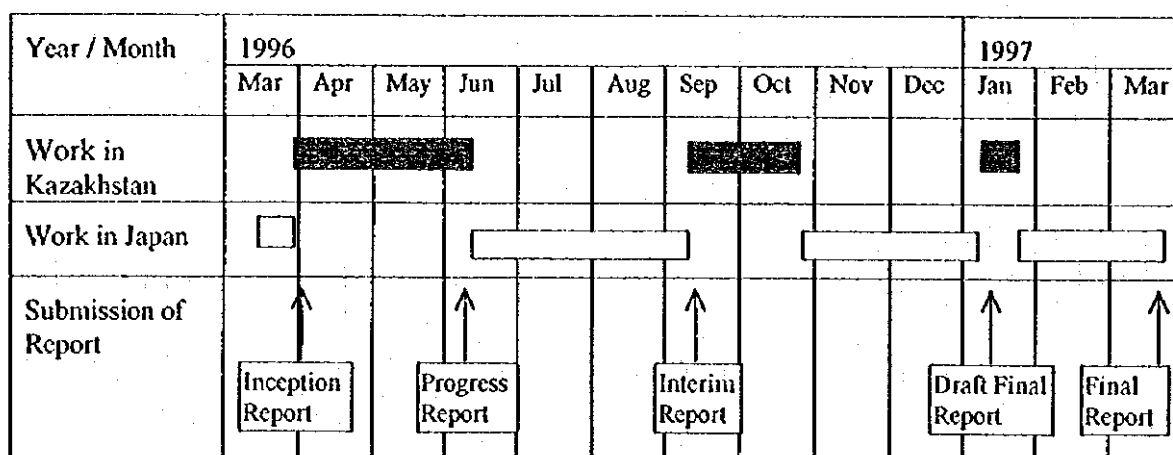


Figure 1.2 Study Schedule

1.4 Study Organization

The Study was carried out by the JICA Study Team under the supervision of the JICA. The Advisory Committee was organized to assist the Study Team. The Study was conducted in close coordination with concerned authorities of the Government of Kazakhstan.

The Counterpart Team was established by the Ministry of Transportation and Communications (MOTC), the counterpart agency for coordination on the Kazakhstan side, to cooperate with the Study Team.

The Steering Committee was established to organize and coordinate the work of the Kazakhstan side. The Steering Committee consisted of the following members;

- Director of Civil Aviation Department, MOTC
- President of Kazakhstan Airlines
- General Director of Kaz Aeronavigation
- Director of Kaz Aero Project
- Committee for the Utilization of Foreign Capital

The overall organizational framework is shown in Figure 1.3.

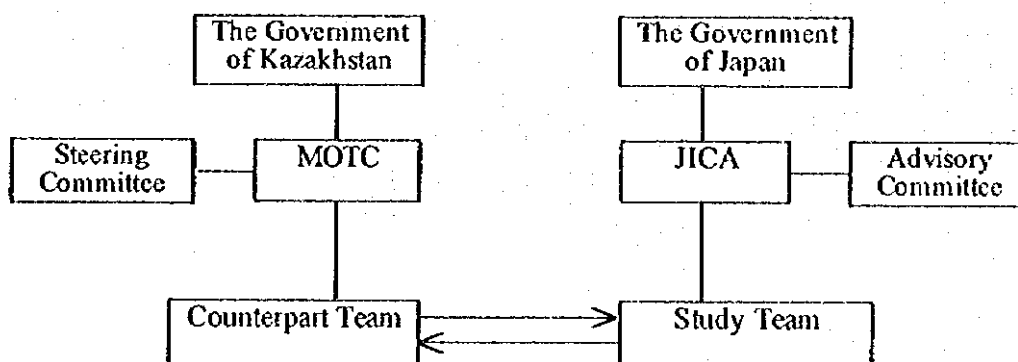


Figure 1.3 Study Organization

The members of the Japanese side and the Kazakhstan side, who were involved in the Study, appear in the following list.

(1) Japanese side

a) The Advisory Committee

- Mr. Shinji MATSUMAE : Leader / Civil Aviation Planning
Deputy Director
Construction Division
Aerodrome Department
Civil Aviation Bureau
Ministry of Transport
- Mr. Takao TAKAHASHI : Airport Facilities Planning
Special Assistant to the Director
Air Traffic Services Planning Division
Air Traffic Services Department
Civil Aviation Bureau
Ministry of Transport
- Mr. Masaki ISHII : Civil Aviation Management
Special Assistant to the Director
Construction Division
Aerodrome Department
Civil Aviation Bureau
Ministry of Transport
- Mr. Minoru Yoshida : Deputy Director
4th Division
Operations Department II
The Overseas Economic Cooperation Fund
(OECE)

b) JICA Coordinator

- Mr. Makoto ASHINO : Deputy Director
1st Social Development Study Division
Social Development Study Department
Japan International Cooperation Agency
- Mr. Toru NAITOH : Coordinator
1st Social Development Study Division
Social Development Study Department
Japan International Cooperation Agency

c) The Study Team

- Mr. Makoto TANAKA : Team Leader / Airport Planner
Mr. Masato TAMURA : Deputy Team Leader / Airport Planner
Mr. Hayato NAGASAWA : Airport Civil Engineer
Mr. Kanji EHARA : Airport Architect
Mr. Shouhei NAGATAKE : Air Navigation System Specialist

Mr. Ryujiro YAMAGISHI	: Demand Forecast / Economic and Financial Analysis Specialist
Mr. Toru YORITATE	: Civil Engineer (Geotechnical Investigation)
Mr. Takenobu SUZUKI	: Environmental Specialist
Mr. Yutaka YAMADA	: Civil Engineer (Construction & Cost Estimates)
(Mr. Guy CHIASSON (former)	: Management & Operations Specialist (Airline Service)
Ms. Jessica MORRIS (successor)	: Management & Operations Specialist (Airline Service)
Mr. Peter E. J. DAVIES	: Management, Operation & Training Specialist (Airport)
Mr. Katsuetzu MASUYA	: Financial Analyst
Mr. Toru BABA	: Translator (Russian / English / Japanese)
Mr. Hidehisa YOSHIDA	: Working Coordinator

(2) Kazakhstan Side

a) Steering Committee

Mr. Salimov Bekpulat	: Acting Director, Chairman, Committee for Utilization of Air Space and Civil Aviation, MOTC
(Mr. Serik Buranbaev	: Director, Civil Aviation Department, MOTC)
Mr. Bekturov R.S.	: President, Air Kazakhstan
(Mr. Dinitry A. Dushimov	: Kazakhstan Airlines)
Mr. Turiskali M. Madigozhin	: General Manager, Kaz Aero Navigation (KAN)
Mr. Raisov A. Raisovich	: Director, Kaz Aero Project

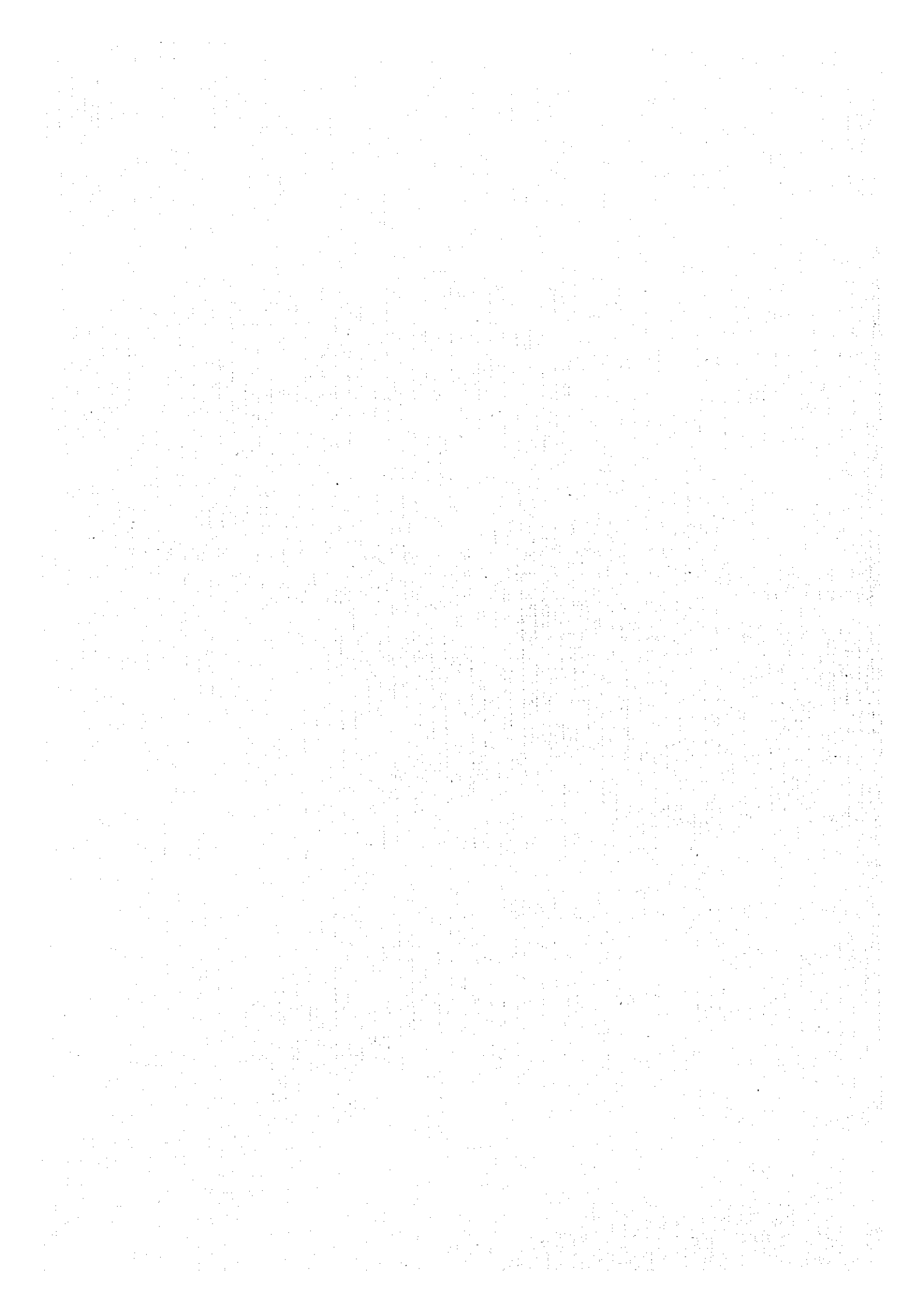
b) Counterpart Team

Mr. Bakatay Naryshev	: Deputy Director, CUASCA, MOTC
Mr. Jumabekov Cadiraly	: First Vice President, Kazakhstan Airlines (Management)
Mr. Buryak I. Gordeevich	: Deputy General Director, KAN (COM)
Mr. Nikitin A. Kupriyanovich	: Deputy General Director, KAN (Finance)
Mr. Sevepyukhin V. Ivanovich	: Deputy General Director, KAN (ATC)
Mr. Goborkhin G. Kirillovich	: Chief Engineer, Kaz Aero Project

Ms. Uysimbaeva G.S. : Chief Specialist, International Relations, CUASCA
(Mr. Iliassov Aiyar Acting Chief, International Affairs, CAD)
Ms Uysimbaeva G.S. : Chief Specialist, International Affairs, CAD

CHAPTER 2

CURRENT CONDITIONS OF AIR TRANSPORT IN KAZAKHSTAN



CHAPTER 2 CURRENT CONDITIONS OF AIR TRANSPORTATION IN KAZAKHISTAN

2.1 Socio - Economic Conditions in and around Kazakhstan

2.1.1 General

(1) Climate and Language

The Republic of Kazakhstan (Until December 1991 the Kazakh Soviet Socialist Republic) is the second largest of the former Soviet republics, extending some 1,900 km from the Volga river in the west to the Altai mountains in the east, and about 1,300 km (800 miles) from the Siberian plain in the north to the Central Asian desert in the south. To the south, it borders on Turkmenistan, Uzbekistan and Kyrgyzstan. To the east, it borders on the People's Republic of China.

There is a long border in the north with the Russian Federation and a coastline of 2,320 km(1,440 miles) on the Caspian Sea in the south-west. The climate is continental, but there are wide variations throughout the territory. Average temperatures in January range from -18°C in the north to -3°C in the south. In July, average temperatures are 19°C in the north and 28°C-30°C in the south. Levels of precipitation also vary. The average annual rainfall in mountainous regions reaches 1,600mm, whereas in the central desert areas it is less than 100mm. Kazakh, one of the Central Turkish group languages was adopted as an official language in September 1989 while Russian remained as an inter-ethnic language.

(2) Recent History

a) Rapid Industrialization and Social Change under Soviet rule

The people of Kazakhstan are descended from Mongol and Turkish tribes that settled in the area around the first century BC. They emerged as a distinct ethnic group from a tribal confederation known as Kazakh Orda, which was formed at the end of 15th century.

After the extended periods of social and political changes, Kazakhstan became a full Republic of the USSR as the Kazakh Soviet Socialist Republic in 1936.

Under the Soviet rule, parts of Kazakhstan were heavily industrialized, while communications and infrastructure were greatly improved. However, Kazakhstan suffered in various ways. The campaign, in the early 1930's, to collectivize agriculture and settle nomadic people, brought about a widespread starvation. A great increase in immigration, accompanied by severe repression, was promoted from the 1930's. Those deported from parts of the USSR during the Second World War (including Germans, Crimean Tartars and Caucasian peoples) were often sent to Kazakhstan, causing resentment among the local inhabitants.

During Nikita Khrushchev's period in office as Soviet leader(1953-64), large areas of previously uncultivated land in Kazakhstan were transformed into arable land

under the "Virgin Lands" scheme. This and other schemes, which included the nuclear testing sites in the eastern Kazakhstan, the Baikonur space centre at Leninsk and huge industrial sites in the north and east of Kazakhstan, all attracted large numbers of ethnic Russians to the republic.

b) Independence and Post-independence Social Movements

As in the other Soviet republics, linguistic and environmental issues were the main subjects of public debate after the introduction of Gorbachev's policy of "glasnost"(openness).

Public complaints about the lack of schooling in the Kazakh language led to a decree, issued in 1987, advocating improvements in the teaching of both Kazakh and Russian. In September 1989, the Kazakh Supreme Soviet (parliament) adopted legislation establishing Kazakh as the official language of the republic.

As a result of the intensive development of Kazakhstan's economy, the Republic suffered from serious environmental problems. In September 1990, an explosion in a factory producing nuclear fuel in Ulba, in eastern Kazakhstan, led to the contamination of a large area by toxic gases.

Against these backgrounds and with the coming of inevitable disruptions in the USSR, Kazakhstan was obliged to select its own future course. After some political and diplomatic maneuvering, on 13 December 1991, together with the other Central Asian Republics, Kazakhstan agreed to join the Commonwealth of Independent States which had been already agreed to by the three Slavic republics (Russia, Ukraine and Belarus). On 16 December 1991, the Republic declared its independence, becoming the last of the CIS republics. Kazakhstan was formally recognized as a cofounder of the CIS at the Almaty meeting on 21 December in 1991.

Some major political changes and legislative measures taken after independence were:

- The new constitution adopted in January 1993 invoked the law of 1989, which designated Kazakh as the state language, with Russian as a language of interethnic language. This was done in response to the increasing demand of Russian citizens and legislators that the Russian language be guaranteed equal status with Kazakh in a new constitution.
- The 1993 constitution defined Kazakhstan as a secular state, and the Government has consistently disavowed any tendency towards Islamic Fundamentalism.
- In February 1993, a new public movement, the Union of Kazakhstan, was established, with a declared aim of promoting social harmony and countering radical nationalism. Its membership represented most of the ethnic groups and regions of Kazakhstan. Later in 1993, the Union was organized as a political

party, the People's Unity Party (PUP).

- In December 1993, the Supreme Kenges voted to dissolve itself and to grant President Nazarbayev the power to rule by decree until the election (in early 1994) to a new, standing legislature (reduced in size from 360 to 177 seats).
- In July 1994, the Supreme Kenges approved the transfer of the capital to the northern city of Akmola (formerly Tselinograd) by approximately the year 2000.
- The constitutional court declared the result of the 1994 general election to be null and void, citing "procedural infringements".
- A referendum on extending of the President's term of office until 1 December 2000, ordered by President Nazarbayev in late March and held on 29 April, approved the extension by more than 95% of votes the cast. Some 91% of the electorate participated in the referendum.
- On 31 August 1995, the new constitution was adopted.

c) Some Major Governmental Policies

i. Relations with CIS and Other Countries

President Nazarbayev strongly defended the preservation of the CIS, and in January 1993, Kazakhstan signed, with six other CIS members, a charter pledging closer political and economic integration.

In early 1994, Kazakhstan and the neighboring countries of Kyrgyzstan and Uzbekistan formed a trilateral economic area, and in February 1995 an Interstate Council was established to supervise its implementation.

The relationship with the neighboring Russian Federation was clarified in May 1992 when the two countries signed a treaty of friendship, co-operation and mutual assistance, which was to be valid for a period of 25 years, and which provided, inter alia, for Russian assistance to establish Kazakhstan's military forces. This treaty was strengthened by further Russian-Kazakh agreements, concluded in January 1995, which provided for a customs union and currency convertibility between the two countries, as well as closer military ties.

In January 1995, an agreement on reciprocal citizenship was signed which granted ethnic minorities of either country the "patronage" of both states. In March 1995, Nazarbayev established a new forum on inter-ethnic issues – the Association of Peoples of Kazakhstan – which was to have the status of a "consultative presidential body".

ii. Formation of Non-nuclear State

After the dissolution of the USSR at the end of 1991, Kazakhstan stated its

commitment to becoming a non-nuclear state, either by destroying its nuclear weapons or transferring these to the Russian Federation. At that time, the Soviet nuclear warheads, still deployed in Kazakhstan, effectively made the country the fourth largest nuclear power in the world.

In September 1992, Kazakhstan's Supreme Kenges ratified the first Strategic Arms Reduction Treaty, which had been signed by the USA and the USSR in July 1991, and the provisions of which affected Kazakhstan as a (nuclear) successor to the USSR. In December 1993, the Kenges ratified the Treaty on the Non-proliferation of Nuclear Weapons. The Republic was to have eliminated or removed all nuclear weapons by the end of the 1990's. USA has provided Kazakhstan with substantial technical and financial aid in return for dismantling the remainder of the republic's nuclear arsenal.

(3) Government

Under the terms of the 1993 Constitution, supreme legislative power is vested in the 177-member Supreme Kenges, which is elected by universal adult suffrage for a five-year term. The President of the Republic, who is directly elected every five years, is the Head of State and holds supreme executive power, in conjunction with the Council of Ministers. The President appoints the Prime Minister and Deputy Prime Ministers, as well as the Ministers of Foreign Affairs, Defense, Finance and Internal Affairs. The remaining ministers are nominated by the Prime Minister. Government appointments are subject to approval by parliament.

For administrative purposes, Kazakhstan is divided into 21 local governments (19 regions and two cities). Under the new constitution adopted on 31 August 1995, supreme legislative power is divided into two Houses; the Upper Chamber and the Lower House. The Upper Chamber consists of 47 members who are elected for two years, and the Lower House consisting of 67 members (called the "Mazhilis") who are elected for four years.

2.1.2 Demographic Characteristics

(1) Total Population

The population in Kazakhstan at the beginning of the year 1995 was 16 million 679 thousands, a decrease of about 307 thousand from the level of 16 million 986 thousands in 1993. The population of Kazakhstan increased rapidly until the 1990's, however, it has been decreasing since 1993 (See Table 2.1.2.1). The main cause of this decrease is the increase of emigration of non-Kazakh ethnic peoples, especially Russian and German (See Table 2.1.2.2 and 2.1.2.3). The natural increase of the population in 1995 was 0.95%, an almost 10% decrease compared to the high rates during the mid-1980's (See Table 2.1.2.4).

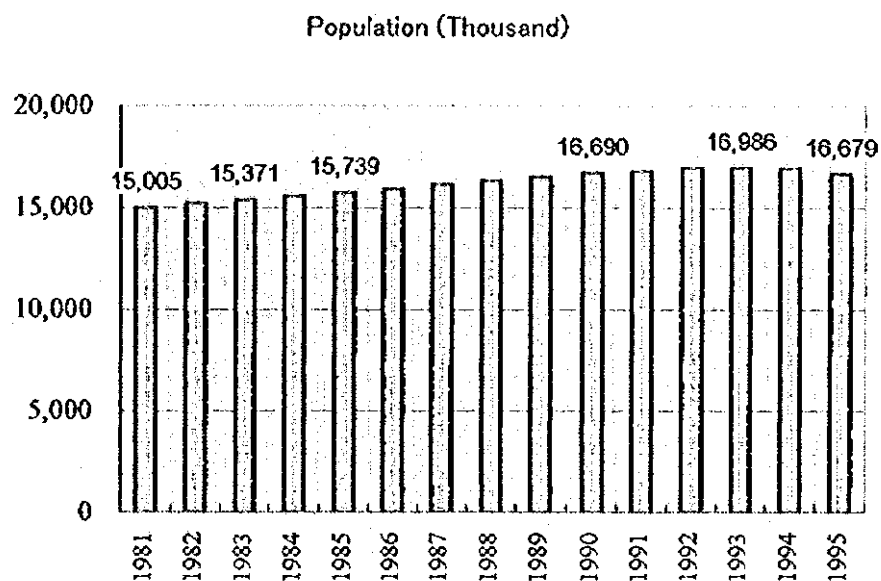


Figure 2.1.2.1 Population

Table 2.1.2.1 The Population in Kazakhstan

Beginning of period		
Year	Population (thousand)	Growth Rate (%)
1981	15,005	-
1982	15,186	1.21
1983	15,371	1.22
1984	15,555	1.20
1985	15,739	1.18
1986	15,915	1.12
1987	16,123	1.31
1988	16,333	1.30
1989	16,528	1.19
1990	16,690	0.98
1991	16,793	0.62
1992	16,964	1.02
1993	16,986	0.13
1994	16,942	-0.26
1995	16,679	-1.55

Data source: Committee of Statistics and Surveys

Table 2.1.2.2 The Population by Principal Ethnic Groups

Nations	Thousand					
	12. Jan. 1989 (at census)	1991	1992	1993	1994	1995
All population	16,465	16,721	16,892	16,914	16,870	16,607
Kazaks	6,535	6,875	7,073	7,288	7,474	7,636
Azerbaijanies	90	96	98	100	102	103
Belarus	183	183	184	182	178	172
Germans	957	845	786	696	614	507
Russians	6,228	6,244	6,257	6,169	6,011	5,770
Tatars	328	335	337	336	330	320
Uzbeks	332	348	356	361	372	379
Ukrainians	896	890	890	875	857	821
Others	916	905	911	901	902	900

Table 2.1.2.3 External Migration of the Population of Kazakhstan

Nations	Totals					
	In migrated		Out migrated		migration growth	
	1993 (a)	1994 (b)	1993 (c)	1994 (d)	1993 (a)-(b)	1994 (b)-(d)
Total	111,274	70,452	333,375	480,839	-222,101	-410,387
Calculated total	99,817	63,143	311,739	452,120	-211,922	-388,977
Kazaks	36,001	19,975	12,514	14,491	23,490	5,484
Azerbaijanies	1,148	671	1,332	1,461	-184	-790
Belarus	1,175	787	5,023	7,207	-3,848	-6,420
Germans	4,089	2,790	88,212	92,586	-84,123	-89,796
Russians	46,352	31,220	170,129	283,154	-123,777	-251,934
Tatars	2,941	2,143	8,273	13,122	-5,329	-10,979
Uzbeks	1,407	983	2,978	3,200	-1,571	-2,217
Ukrainians	6,698	4,574	23,278	36,899	-16,580	-32,325

Data source: Committee of Statistics and Surveys

**Table 2.1.2.4 Approximate Birth, Death, Marriage, Natural increase
infantile mortality crude rates - per 1000 Population**

Year	Birth	Death	Natural increase	Infantile mortality up to 1 year	Marriage
1980	23.9	8.0	15.9	32.7	10.6
1985	25.1	8.0	17.1	30.1	10.1
1986	25.6	7.4	18.2	28.7	10.1
1987	25.7	7.6	18.1	29.2	9.9
1988	24.8	7.7	17.1	29.2	9.9
1989	23.0	7.6	15.4	25.9	10.0
1990	21.7	7.7	14.0	26.1	9.8
1991	21.0	8.0	13.0	27.1	9.8
1992	19.9	8.1	11.8	26.2	8.7
1993	18.6	9.2	9.4	28.1	8.6
1994	18.2	9.5	8.7	27.1	7.3
1995					

Data source: Committee of Statistics and Surveys

(2) Regional Demography

Administratively and territorially, Kazakhstan is divided into 19 states and two special zones (states) of Almaty city and Leninsk city. These are subdivided into Regions, Cities, Districts, Workers' Settlements (small town) and villages (See Table 2.1.2.4).

The population by state is shown in Table 2.1.2.5. However, it is noteworthy that the total population indicated does not match with that in the Table 2.1.2.6 due to the difference in the statistical sources.

In terms of population, the biggest region is South Kazakhstan, the second-biggest region is Karaganda, and Almaty City ranks third. The total population of Almaty City and Almaty state amounts to 2,135.5 which accounts for 12.8 % of the total population of the Republic, exceeding that of the South Kazakhstan. However, the population of Kazakhstan is generally evenly dispersed throughout the Republic.

Population totals by city and village for each state is shown in Table 2.1.2.7. Each of the component ratios of the total population has slightly changed since 1985, The cities where the population is equal to or exceeds 100,000 are shown in Table 2.1.2.8.

Table 2.1.2.5 Territory and Number of administrative units as of Jan.1995

State	Territory Sq.km	Region	City		District	Workers' Settlement	Village
			Total	Republican and State Subordinate			
Republic of Kazakhstan	2,724.9	220	83	50	24	202	2,522
Akmola	92.0	12	6	3	-	13	152
Aktyubinsk	300.6	16	7	1	-	3	153
Almaty	105.7	11	4	2	-	8	131
Atyrau	118.6	8	1	1	-	15	58
East Kazakhstan	97.5	12	6	4	2	19	102
Zhambul	111.3	10	4	4	2	12	145
Zhezkazgan	312.6	7	4	4	-	22	65
West Kazakhstan	151.3	16	2	1	-	4	163
Karaganda	115.4	9	6	5	5	17	106
Kzyl-Orda	226.0	8	3	1	-	11	97
Kokchetau	78.2	16	4	2	-	9	191
Kustanay	113.9	14	4	4	-	13	205
Mangistau	165.6	4	3	2	-	10	22
Pavlodar	124.8	12	3	3	2	8	165
North Kazakhstan	45.0	12	4	1	-	1	150
Scnmpalatinsk	185.8	15	3	2	2	13	149
Taldykorgen	118.5	12	6	2	-	9	136
Turgai	111.8	10	3	1	-	-	141
South Kazakhstan	117.3	16	8	5	3	12	181
Almaty city	-	-	1	1	8	2	-
Leninsk City	-	-	1	1	-	1	1

Source: Committee of Statistics and Analysis

Table 2.1.2.6 Population by State at the beginning of the year

(thousand and %)

State	Item	1985	1990	1991	1992	1993	1994	1995	
Republic of Kazakhstan	Populat.	15,739.2	16,690.3	16,793.1	16,963.6	16,985.7	16,942.4	16,679.1	100.00
	Growth	100.0	106.0	106.7	107.8	107.9	107.6	106.0	
Akmola	Populat.	838.4	879.2	885.4	883.7	880.0	869.6	845.7	5.07
	Growth	100.0	104.9	105.6	105.4	105.0	103.7	100.9	
Akt'yubinsk	Populat.	686.2	747.1	752.9	758.4	758.4	760.2	752.8	4.51
	Growth	100.0	108.9	109.7	110.5	110.5	110.8	109.7	
Almaty	Populat.	915.3	986.6	993.3	965.8	961.4	962.9	963.1	5.77
	Growth	100.0	107.8	108.5	105.5	105.0	105.2	105.2	
Atyrau	Populat.	398.9	411.6	417.1	419.1	453.9	457.7	459.6	2.76
	Growth	100.0	110.7	112.1	112.6	113.8	114.7	115.2	
East Kazakhstan	Populat.	902.4	943.1	949.0	960.3	967.2	961.0	939.5	5.63
	Growth	100.0	104.5	105.2	106.4	107.2	106.5	104.1	
Zhambul	Populat.	995.4	1,055.2	1,056.4	1,059.0	1,056.9	1,052.6	1,039.6	6.23
	Growth	100.0	106.0	106.1	106.4	106.2	105.7	104.4	
Zhezkazgan	Populat.	475.9	499.3	496.2	496.4	494.9	493.4	481.4	2.90
	Growth	100.0	104.9	104.3	104.3	104.0	103.7	101.8	
West Kazakhstan	Populat.	605.2	638.9	648.1	659.9	669.3	674.3	669.8	4.02
	Growth	100.0	105.6	107.1	109.0	110.6	111.4	110.7	
Karaganda	Populat.	1,307.8	1,349.9	1,339.9	1,343.3	1,326.7	1,305.5	1,270.1	7.61
	Growth	100.0	103.2	102.5	102.7	101.4	99.8	97.1	
Kzyl-Orda	Populat.	623.2	658.7	661.9	672.6	598.4	606.3	606.1	3.63
	Growth	100.0	105.7	106.7	107.9	96.0	97.3	97.3	
Kokchetau	Populat.	613.6	667.1	669.4	675.8	676.4	674.9	657.0	3.94
	Growth	100.0	103.7	104.0	105.0	105.1	104.9	102.1	
Kustanay	Populat.	1,005.2	1,062.3	1,074.4	1,086.5	1,088.7	1,082.5	1,055.3	6.33
	Growth	100.0	105.7	106.9	108.1	108.3	107.7	105.0	
Mangistau	Populat.	295.3	325.4	331.7	345.2	346.4	338.5	324.4	1.94
	Growth	100.0	110.2	112.3	116.9	117.3	114.6	109.9	
Pavlodar	Populat.	888.9	951.2	956.9	971.7	973.1	965.9	943.6	5.66
	Growth	100.0	107.0	107.6	109.3	109.5	108.7	106.2	
North Kazakhstan	Populat.	592.6	605.4	610.4	617.5	621.8	620.6	600.9	3.60
	Growth	100.0	102.2	103.0	104.2	104.9	104.7	101.4	
Semipalatinsk	Populat.	810.8	841.6	841.9	846.6	844.2	839.2	811.0	1.86
	Growth	100.0	103.8	103.8	104.4	104.1	103.5	100.0	
Taldykorgan	Populat.	695.7	726.4	731.0	743.2	741.4	737.9	721.5	4.33
	Growth	100.0	104.4	105.1	106.8	106.6	106.1	103.7	
Turgai	Populat.	294.7	301.3	304.6	312.3	313.3	313.2	305.9	1.83
	Growth	100.0	102.2	103.4	106.0	106.3	106.3	103.8	
South Kazakhstan	Populat.	1,718.7	1,858.7	1,879.2	1,912.4	1,911.3	1,969.2	1,987.8	11.92
	Growth	100.0	108.1	109.3	111.3	113.0	114.6	115.7	
Almaty City	Populat.	1,045.0	1,151.3	1,160.4	1,203.8	1,197.9	1,185.4	1,172.4	7.03
	Growth	100.0	110.2	111.0	115.2	114.6	113.4	112.2	
Leninsk City	Populat.					74.1	71.6	68.6	0.41
	Growth					100.0	96.6	92.6	

Source: Committee of Statistics and Analysis.

Table 2.1.2.7 Population on City and Village by Region

(thousand)

State	1985		1990		1991		1992	
	City	Village	City	Village	City	Village	City	Village
Akmola	503.1	335.3	537.0	312.2	542.2	343.2	516.9	336.8
Aktyubinsk	350.9	335.3	407.2	339.9	412.6	340.3	414.7	343.7
Almaty	197.4	717.9	219.8	766.8	221.9	771.4	224.3	741.5
Atyrau	237.0	161.9	270.6	171.0	275.4	171.7	275.8	173.3
East Kazakhstan	572.9	329.5	615.4	327.7	620.1	328.9	624.7	335.6
Zhambul	461.4	531.0	503.3	551.9	507.0	519.4	511.0	518.0
Zhezkazgan	377.4	98.5	391.4	107.9	392.0	104.2	394.0	102.5
West Kazakhstan	240.8	361.4	277.8	361.1	278.4	369.7	270.0	389.9
Karaganda	1,113.0	191.8	1,148.0	201.9	1,142.8	197.1	1,141.1	201.9
Kzyl-Orda	402.3	220.9	427.3	231.4	432.1	232.8	438.7	233.9
Kokchetau	237.7	405.9	261.0	406.1	265.2	404.2	268.2	407.6
Kustanay	505.2	500.0	561.3	501.0	570.7	503.7	576.4	510.1
Mangistau	261.1	31.2	289.2	36.2	295.6	36.1	308.8	36.4
Pavlodar	547.5	311.4	616.0	335.2	625.3	331.6	633.1	338.6
North Kazakhstan	267.9	324.7	290.0	315.4	293.0	317.4	294.9	322.6
Semipalatinsk	404.9	405.9	434.0	407.6	436.4	405.5	438.0	408.6
Taldykorgan	306.6	389.1	327.5	398.9	332.2	398.8	331.7	411.5
Turgai	96.0	198.7	102.1	199.2	103.9	200.7	107.7	204.6
South Kazakhstan	689.4	1,029.3	755.7	1,103.0	761.3	1,117.9	771.8	1,140.6
Almaty City	1,045.0	-	1,151.3	-	1,160.4	-	1,203.8	-
Leninsk City	-	-	-	-	-	-	-	-
Republic of Kazakhstan	8,820.5	6,918.7	9,585.9	7,101.4	9,668.5	7,124.6	9,775.9	7,187.7
Component ratio of city & village	56.01	43.96	57.43	42.57	57.57	42.43	57.63	42.37

State	1993		1994		1995	
	City	Village	City	Village	City	Village
Akmola	536.5	343.5	526.0	343.6	503.5	342.2
Aktyubinsk	410.4	348.0	409.3	350.9	403.3	349.5
Almaty	221.7	739.7	221.3	741.6	213.8	749.8
Atyrau	276.6	177.3	272.3	185.4	272.4	187.2
East Kazakhstan	624.2	343.0	614.4	346.6	597.1	342.4
Zhambul	509.8	517.1	501.4	551.2	483.5	555.1
Zhezkazgan	391.1	103.8	389.9	103.5	383.3	101.1
West Kazakhstan	274.5	391.8	277.1	397.2	274.0	395.8
Karaganda	1,127.5	199.2	1,107.4	198.1	1,077.3	192.8
Kzyl-Orda	362.2	236.2	365.2	241.1	363.0	243.1
Kokchetau	266.4	410.0	261.6	410.3	258.4	398.6
Kustanay	574.3	514.4	568.7	513.8	555.5	499.8
Mangistau	309.7	36.7	272.8	65.7	258.2	66.2
Pavlodar	623.2	349.9	586.4	379.5	577.9	365.7
North Kazakhstan	294.2	327.6	291.6	329.0	282.7	318.2
Semipalatinsk	432.7	411.5	428.1	411.1	407.3	403.7
Taldykorgan	327.4	414.0	322.8	415.1	310.8	410.7
Turgai	107.5	205.8	100.7	212.5	98.0	207.9
South Kazakhstan	776.1	1,165.2	776.2	1,193.0	773.4	1,214.4
Almaty City	1,197.9	-	1,185.4	-	1,172.4	-
Leninsk City	74.1	-	71.6	-	66.8	1.8
Republic of Kazakhstan	9,718.0	7,267.7	9,553.2	7,389.2	9,332.6	7,346.5
Component ratio of city & village	57.21	42.79	56.39	43.61	55.95	44.05

Note: Based on the data of the Committee of Statistics and Analysis.

Table 2.1.2.8 Population of Principle Towns and Cities

(thousand)					
Name of city	Registered	Really inhabited	Name of city	Registered	Really inhabited
Almaty(capital)	1,139.9	1,150.5	Kzyl-Orda	160.6	162.0
Karaganda	567.2	573.7	Kokchetau	140.1	141.4
Chimkent	391.5	397.6	Jezkazgan	107.0	108.7
Semipalatinsk	318.5	320.2	Uralsk	245.1	245.3
Pavlodar	339.0	340.7	Temirtau	207.3	206.1
Ust-Kamenogorsk	324.1	326.3	Aktau	152.9	151.3
Zambul	307.7	310.6	Taldy-Korgan	115.6	116.1
Akmola	278.6	280.2	Ekibastuz	141.2	141.1
Aktyubinsk	258.3	258.9	Rudnyi	126.6	125.7
Petropavlovsk	237.3	239.0	Leninsk	58.4	58.5
Kustanai	231.0	232.1	Leninogorsk	66.2	66.1
Atyrau	144.9	146.9			

Source: Committee of Statistics and Analysis

Table.2.1.2.9 Number of Resident Population of Different Ethnic Groups in 1995

	Total	Kazakh	Azerbaijan	Belrussia	German	Russian	Tatar	Uzbeki	Ukrains	Others
Republic of Kazakhstan	16607091	7636205	102912	171716	507199	5769711	319592	318811	820871	900074
100.0	46.0	0.6	1.0	3.1	34.7	1.9	2.3	4.9	5.4	
Akmola	845710	217159	2078	23222	65992	390785	20515	1630	72476	51853
100.0	25.7	0.2	2.7	7.8	46.2	2.4	0.2	8.6	6.1	
Aktyubinsk	747516	468545	1478	4259	15130	151080	16188	704	66397	20725
100.0	62.7	0.2	0.6	2.0	20.6	2.2	0.1	8.9	2.8	
Almaty	962321	473381	22326	2508	17431	256908	9556	2923	15119	162167
100.0	49.2	2.3	0.3	1.8	26.7	1.0	0.3	1.6	16.9	
Atyrau	452028	377499	112	778	826	49589	4235	427	2131	16131
100.0	83.5	0.0	0.2	0.2	11.0	0.9	0.1	0.5	3.6	
East Kazakhstan	937283	286323	977	4172	16459	588846	8673	1291	12970	17567
100.0	30.5	0.1	0.4	1.8	62.8	0.9	0.1	1.4	1.9	
Zhambul	1029750	622958	13920	2956	23652	225101	10012	23458	24981	76712
100.0	60.5	1.4	0.3	2.3	21.9	1.6	2.3	2.4	7.4	
Zhezkazgan	481991	259033	1330	6192	11021	154011	9350	1069	20662	13923
100.0	53.7	0.3	1.3	2.3	32.0	1.9	0.2	5.4	2.9	
West Kazakhstan	668364	397821	924	5014	3191	213626	13297	334	27458	6699
100.0	59.5	0.1	0.8	0.5	32.0	2.0	0.0	4.1	1.0	
Karaganda	1265584	275776	3835	29336	60716	665516	44382	3640	100189	82194
100.0	21.8	0.3	2.3	4.8	52.6	3.5	0.3	7.9	6.5	
Kzyl-Orda	600329	558830	542	578	653	26312	3873	1616	2002	5923
100.0	93.1	0.1	0.1	0.1	4.4	0.0	0.3	0.3	1.0	
Kokchetau	654918	226438	1025	16533	47519	253430	11901	440	53422	44210
100.0	34.6	0.2	2.5	7.3	38.7	1.8	0.1	8.2	6.8	
Kustanay	1054923	207081	4076	31448	78631	497951	23456	1197	165706	45377
100.0	19.6	0.4	3.0	7.5	47.2	2.2	0.1	15.7	4.3	
Mangistau	325904	216061	4315	1080	304	73579	3873	911	6378	19370
100.0	66.3	1.3	0.3	0.1	22.6	1.2	0.3	2.0	5.9	
Pavlodar	942232	313708	1997	11922	63510	414480	20463	1003	82780	32369
100.0	33.3	0.2	1.3	6.7	44.0	2.2	0.1	8.8	3.4	
North Kazakhstan	600995	124331	1235	6969	29045	369205	16318	330	36260	17272
100.0	20.7	0.2	1.2	4.8	61.4	2.7	0.1	6.0	2.9	
Semipalatinsk	807021	476349	858	3688	27760	258645	18359	939	15007	5490
100.0	59.0	0.1	0.5	3.4	32.0	2.3	0.1	1.9	0.7	
Taldykorgan	716758	415874	1628	1308	12601	189606	10118	1311	8869	65140
100.0	58.0	0.2	0.2	1.8	27.8	1.5	0.2	1.2	9.1	
Turgai	308971	147872	1681	9001	10100	81236	8338	391	30679	19673
100.0	47.9	0.5	2.9	3.3	26.3	2.7	0.1	9.9	6.4	
South Kazakhstan	1974586	1225890	31919	2816	14915	236436	31632	329781	25841	75306
100.0	62.1	1.6	0.1	0.8	12.0	1.6	16.7	1.3	3.8	
Almaty city	1161772	323090	6614	6611	7651	623443	27632	5190	40332	121179
100.0	27.8	0.6	0.6	0.7	53.7	2.4	0.4	3.5	10.1	
Leninsk City	68135	72196		1255	89	36926	1089	190	5512	878
100.0	32.6	0.0	1.8	0.1	51.2	1.6	0.3	8.1	1.3	

Source: Committee of Statistics and Analysis

2.1.3 Macro-economy and Regional Industry

(1) Economic Hardship since 1991 (inflation and disrupted production)

Kazakhstan has been facing economic problems similar to those of other CIS countries making the transition from a centrally planned to a market-based economic system. The Republic has been obliged to seek new markets where there are real needs, through the establishment of a rational set of relative prices which will actually determine some optimum resource allocations as well as achieve real macro economic stability.

The time since the independence of the Kazakhstan is characterized by a painful process of transition from the collapse of the Soviet central planning and internal trading systems. This brought about annual contractions in all sectors of the Kazakh economy during 1991-94, with output severely hampered by widespread payment arrears between enterprises.

Furthermore, as a result of Kazakhstan's traditional dependency on the Russian Federation, and its initial decision to remain within the rouble zone, the country's economy was considerably influenced by changes in Russia, in particular, a dramatic rise in the annual rate of inflation. The foreign exchange rate, which is closely related to the price index, showed dramatic fluctuations during the same period.

However, the drastic monthly and annual rates of inflation experienced during 1992-1994 began to decrease in 1995. The annual rates of inflation (as a percentage of the previous period) in 1995 decreased rapidly to 239.3% for industrial products and 309.6% for consumer goods from 3,018.0% and 2,364.3% respectively in 1994 (See Table 2.1.3.1). The drastic fluctuation in the exchange rates lessened somewhat in 1995 (See Table 2.1.3.2, 2.1.3.3).

Industrial production has followed a rapidly decreasing trend since 1991. However, the monthly rate of decrease lessened in 1995, which may indicate a coming turning point in recovery of production (See Table 2.1.3.4 and 2.1.3.5).

The time serial yearly and monthly productions, up to the year 1995, for each item of extraction, manufacturing and agriculture are shown in Appendix-2.1.2.

**Table 2.1.3.1 Index Number of Producers Price and Wholesale Prices
as a percentage to corresponding period of previous year**

Period	Agricultural Production	Industrial Production	Consumer goods
1992	1,032	2564.1	1344.1
1993	776	1142.8	1146.3
1994			
Jan.	-	1778.5	1730.9
Feb.	-	1817.5	1691.6
Mar.	-	1914.0	1665.5
Jan.-Mar.	1,817	1817.5	1691.7
Apr.	-	2876.9	2115.4
May	-	3129.1	2328.6
Jun.	-	4026.3	2658.0
Apr.-Jun.	2,018	2916.6	2150.8
Jul.	-	4458.9	2751.9
Aug.	-	3981.6	2748.4
Sep.	-	3858.9	2711.3
Jul.-Sep.	2,070	3537.8	2460.3
Oct.	-	3401.8	2464.2
Nov.	-	2688.8	2386.9
Dec.	-	2021.8	2078.8
1994	1,888	3018.0	2361.3
1995			
Jan.	-	1479.1	1441.5
Feb.	-	1156.6	1157.2
Mar.	-	938.5	1015.8
Jan.-Mar.	687	1142.3	979.7
Apr.	-	535.6	674.9
May	-	392.0	512.9
Jun.	-	272.2	393.5
Apr.-Jun.	496	515.3	693.3
Jul.	-	201.2	324.2
Aug.	-	192.5	271.5
Sep.	-	161.1	236.1
Jul.-Sep.	319	319.8	445.3
Oct.	-	147.7	198.9
Nov.	-	145.7	177.9
Dec.	-	140.2	158.1
1995	323	239.8	309.6

Source: Committee of Statistics and Analysis

Table 2.1.3.2 Rate of Exchanges

		in tenge		
		US Dollars	German Monetary Unit	1000 Russian Rubles
1993		2.5751		
1994	Jan.	7.8800	5.6010	5.5758
	Feb.	11.4275	6.5714	7.0414
	Mar.	16.7103	9.8481	9.7148
	Apr.	23.5460	13.9597	13.1877
	May	35.6416	21.4474	17.6910
	Jun.	41.7273	25.4437	22.7033
	Jul.	44.6626	29.7526	21.6806
	Aug.	45.7048	29.4832	20.9390
	Sep.	47.0147	30.4903	21.0260
	Oct.	48.6716	32.1752	16.5097
	Nov.	50.9973	33.6477	15.8557
	Dec.	53.4742	34.3548	16.2632
1994		35.7634	22.8295	15.7259
1995	Jan.	55.4194	36.2274	14.8303
	Feb.	58.7343	39.0496	13.9143
	Mar.	60.5339	42.8371	12.8768
	Apr.	62.0550	45.2200	12.4883
	May	63.1013	45.4032	12.1806
	Jun.	63.5117	45.7083	13.4167
	Jul.	62.5839	45.5032	13.8952
	Aug.	56.6161	39.6984	13.0242
	Sep.	59.8080	40.8677	13.4030
	Oct.	61.4710	43.5448	13.6861
	Nov.	63.2900	45.3200	14.0080
	Dec.	63.9677	44.5832	13.8619
1995		60.9268	42.8302	13.4651

Source: Committee of Statistics and Analysis

Note: The national currency "tenge" was introduced from November 1993 at the change rate at 500 rouble per 1 tenge.

Table 2.1.3.3 Rate of Exchanges-rouble for 1 US\$

Date	Rouble	Date	Rouble
01.01.1992	110.00	01.01.1993	414.50
01.02.1992	110.00	01.02.1993	572.00
01.03.1992	90.00	01.03.1993	593.00
01.04.1992	100.00	01.04.1993	684.00
01.05.1992	100.00	01.05.1993	823.00
01.06.1992	85.00	01.06.1993	994.00
01.07.1992	125.26	01.07.1993	1060.00
01.08.1992	161.20	01.08.1993	989.50
01.09.1992	205.00	01.09.1993	992.50
01.10.1992	254.00	01.10.1993	1169.00
01.11.1992	398.00	01.11.1993	1186.00
01.12.1992	447.00	01.12.1993	1231.00
		01.01.1994	1247.00

**Table.2.1.3.4 Index Number of Industrial Production
(Base Index 1980=100)**

Year	Total Industry	Extraction	Manufacturing	Electricity
1985	118.0	110.0	120.2	133.1
1986	124.0	114.7	126.6	137.9
1987	129.7	118.5	132.3	143.7
1988	134.5	122.9	137.2	143.4
1989	137.9	122.3	141.3	147.3
1990	136.8	119.2	140.6	145.2
1991	135.6	120.4	138.9	143.9
1992	116.9	111.2	117.8	135.1
1993	99.6	92.1	101.0	129.1
1994	71.6	66.3	72.3	109.5
1995	65.9			107.4

(2) Economic Structure

The structure of industrial production has changed during the period of economic hardship since 1991. The following significant changes are evident from the component ratios in the number of employees of different industries (See Table 2.1.3.6).

- The number of employees in the national economy and the material production sector declined heavily to 66.8% and 59.8% over the period 1990 to November 1995, respectively. At the same time, there was rather small decline of 85.2% in the non-material production sector, over the same period.
- The share of material production decreased from 72.2% to 64.6% over the period 1990 to November 1995. There was commensurate increase of non-material production of the same period.

(3) Export and Import

The total level of exportation and importation in 1995(January-November) reached US\$ 4559.3 millions for exports and US\$ 3466.7 millions for imports, which respectively account for about US\$ 1330 millions increase and US\$ 27 millions decrease compared to the previous period. The Republic's largest trading partner was the Russian Federation, accounting for 42.1% and 47.9% of total exports and imports, respectively. Another significant feature is that the trade with the other CIS countries was the next highest after Russia. Besides the CIS countries, other large customers were Germany, Great Britain, Netherlands and Italy in Europe, and China and Korea in Asia (See Table 2.1.3.7).

The geographic distribution or global trade partner countries are shown together with the respective trade amounts in Appendix-2.1.3.

The commodity structure of exports and imports is shown in Table 2.1.3.9. The major export goods are raw materials of oil and metals, while the import commodities are manufactured products of machinery, chemicals, etc. The main exports and imports by category and amount are shown in Appendix-2.1.4.

**Table.2.1.3.5 Index Number of Industrial Production
(Chain Index as a % to corresponding period of previous year)**

Period		Total Industry	Electricity	Period		Total Industry	Electricity
1992		86.2	93.8	1995	Jan.	87.2	91.7
1993		83.9	97.2		Feb.	93.7	95.5
1994	Jan.	72.1	-		Mar.	92.5	100.9
	Feb.	67.7	-		Apr.	87.9	92.8
	Mar.	68.4	81.8		May	85.7	100.0
	Jan-Mar	69.1	88.7		Jun.	89.3	102.7
	Apr.	67.0	85.8		Jul.	92.4	95.9
	May	74.5	84.3		Aug.	89.5	95.0
	Jun.	73.4	81.3		Sep.	87.7	103.6
	Jul.	72.3	83.7		Oct.	89.5	102.4
	Aug.	81.3	85.6		Nov.	92.3	95.8
	Sep.	82.8	86.0		Dec.	95.8	100.9
	Oct.	83.0	80.1	1995		92.1	98.1
	Nov.	85.2	82.4				
	Dec.	86.8	92.1				
1994		71.9	84.8				

**Table 2.1.3.6 Number of Employee in National Economy
- Monthly Average -**

Item	1980		1985		1990		1994				1995							
	Value	%	Value	%	Value	%	Jan.	Jun.	Dec.	Jan.	Jun.	Nov.						
Grand Total	6,043	100.0	6,500	100.0	6,476	100.0	5,305	100.0	5,422	100.0	5,254	100.0	4,902	100.0	4,622	100.0	4,350	100.0
Material Production																		
Industry	1,304	21.6	1,403	21.6	1,360	21.0	1,164	21.9	1,206	22.2	1,154	22.0	1,084	22.1	1,044	22.6	1,012	23.4
Construction	646	10.7	664	10.2	745	11.5	442	8.3	439	8.1	412	7.8	359	7.3	356	7.7	326	7.5
Agriculture	1,187	19.6	1,290	19.8	1,202	18.6	1,167	22.0	1,192	22.0	1,160	22.1	1,026	20.9	809	17.5	610	14.1
Forestry	15	0.2	15	0.2	13	0.2	12	0.2	13	0.2	13	0.2	11	0.2	13	0.3	11	0.3
Transport	671	11.1	731	11.2	610	9.4	455	8.6	454	8.4	412	8.4	415	8.5	402	8.7	399	9.0
Communication	90	1.5	94	1.4	89	1.4	79	1.5	86	1.6	85	1.6	83	1.7	81	1.8	81	1.9
Trade and Public Catering	384	6.4	406	6.2	431	6.7	311	5.9	311	5.7	285	5.5	261	5.3	236	5.1	214	4.9
Supply, Marketing and Purchase	127	2.1	129	2.0	99	1.5	83	1.6	82	1.5	82	1.6	76	1.6	72	1.6	67	1.5
Total	4,523	74.8	4,847	74.6	4,677	72.2	3,808	71.8	3,878	71.5	3,729	71.0	3,404	69.4	3,103	67.1	2,796	64.6
Non-Productive																		
Information, Computer Services	17	0.3	20	0.3	21	0.3	8	0.2	8	0.1	8	0.2	8	0.2	7	0.2	6	0.1
Housing, Municipal Services, Non-productive form of	219	3.6	236	3.6	258	4.0	157	3.0	168	3.1	168	3.2	172	3.5	179	3.9	185	4.3
Health, Physical Culture and Social Insurance	338	5.6	379	5.8	438	6.8	404	7.6	423	7.8	419	8.0	407	8.3	407	8.8	405	9.4
Education	575	9.5	627	9.6	737	11.4	659	12.4	667	12.3	456	8.7	643	13.1	643	13.9	656	15.2
Culture and Art	95	1.6	102	1.6	116	1.8	69	1.3	70	1.3	68	1.3	65	1.3	66	1.4	65	1.5
Science	130	2.2	135	2.1	109	1.7	38	0.7	37	0.7	37	0.7	35	0.7	36	0.8	31	0.8
Geology, Exploitation of Natural Resources and Hydrometeorology	-	0.0	-	0.0	-	0.0	31	0.6	32	0.6	30	0.6	26	0.5	28	0.6	26	0.6
Service																		
Credit and State Insurance	38	0.6	41	0.6	39	0.6	50	0.9	51	0.9	51	1.0	50	1.0	49	1.1	47	1.1
Management Apparatus	124	2.1	132	2.0	102	1.6	118	2.2	125	2.3	126	2.4	124	2.5	137	3.0	139	3.2
Total	1,519	25.1	1,652	25.4	1,799	27.8	1,498	28.2	1,544	28.5	1,527	29.1	1,498	30.6	1,519	32.9	1,534	35.4

Data source: Committee of Statistics and Analysis
Note: The totals of each sector of material and non-material is not equal to the sum of figures of its respective branches.

Table 2.1.3.7 International Trade with Major Countries

mill. US\$

Items	1994		1995(Jan.-Nov.)	
	Export	Import	Export	Import
Total	3230.7	3493.8	4559.3	3466.7
(All countries)	100.0	100.0	100.0	100.0
Russian Federation	1438.3	1262.3	1919.5	1660.0
	44.5	36.1	42.1	47.9
CIS countries				
Belarussia	43.9	64.1	55.6	71.5
	1.4	1.8	1.2	2.1
Kyrgystan	59.8	91.1	70.6	27.2
	1.9	2.6	1.5	0.8
Lithuania	13.4	16.5	109.8	17.0
	0.4	0.5	2.4	0.5
Turkmenistan	25.3	262.5	48.7	224.6
	0.8	7.5	1.1	6.5
Uzbekistan	117.2	269.4	149.9	251.3
	3.6	7.7	3.3	7.2
Ukrains	127.9	119.8	98.0	78.6
	4.0	3.4	2.1	2.3
Subtotal	1216.1	1648.9	1264.8	1495.2
(Other CIS)	37.6	47.2	27.7	43.1
Great Britain	64.9	66.4	96.8	75.6
	2.0	1.9	2.1	2.2
Germany	73.2	293.6	160.0	192.4
	2.3	8.4	3.5	5.5
Italy	42.3	60.7	114.6	29.1
	1.3	1.7	2.5	0.8
China	148.9	69.8	279.8	32.7
	4.6	2.0	6.1	0.9
Netherland	247.8	31.1	468.5	29.6
	7.7	0.9	10.3	0.9
Turkey	49.1	87.2	66.5	117.0
	1.5	2.5	1.5	3.4
Korea	60.0	67.0	81.3	40.8
	1.9	1.9	1.8	1.2
Subtotal	2642.0	2826.8	3890.4	2904.0
(Major countries)	81.8	80.9	85.3	83.8
Other countries	588.7	667.0	668.9	562.7
	18.2	19.1	14.7	16.2

Source: Committee of Statistic and Analysis

Table 2.1.3.8 Export - Import Transactions by Type of Payment

Mill. US\$

	1992	1994	1995 (Jan-Nov)
Export total	1489.3	3230.7	4559.3
in convertible currencies	791.4	1077.5	2224.4
in native currencies	135.4	-	1012.5
in barter transactions	562.5	912.1	1006.4
Import total	468.8	3493.8	3466.7
in convertible currencies	156.9	1992.4	1692.8
in native currencies	162.4	-	916.8
in barter transactions	149.5	477.7	501.1
Balance: Total	1020.5	-263.1	1092.6
in convertible currencies	634.5	-914.9	531.6
in native currencies	-27.0	0.0	95.7
in barter transactions	413.0	434.4	502.3

Source: Committee of Statistics and Analysis

Table 2.1.3.9 Commodity Structure of Exports and Imports

Items	Export				Items	Import			
	1991		1995			1991		1995	
	Mill.US\$	%	Mill.US\$	%		Mill.US\$	%	Mill.US\$	%
Food	199.8	8.9	501.0	13.4	Food	358.9	4.7	470.6	5.4
Non-food					Non-food				
Consumer goods	27.7	1.2	15.0	0.4	Consumer goods	256.9	3.4	182.8	2.1
Chemicals	351.3	15.7	179.6	4.8	Chemical	318.9	4.6	419.2	4.9
Machinery	93.6	4.2	119.8	3.2	Machinery *	774.7	10.3	1,103.2	12.8
Metals:	1,296.1	57.8	2,240.5	59.8	Energy	979.7	13.0	1,017.6	12.1
- Ferrous metals	600.6	26.8	973.0	26.0	- Gas	369.5	4.9	385.5	4.5
- Copper	424.5	18.9	638.7	17.0	- Electricity	336.7	4.5	185.4	2.1
- Zinc	113.4	5.1	141.7	3.9	- Fuel	273.5	3.6	476.7	5.5
- Lead	24.5	1.1	34.9	0.9	Vehicles	271.7	3.6	302.1	3.5
Oil products	1,083.7	48.4	1,362.3	36.4	Others	503.1	6.7	448.0	5.2
Others	178.5	8.0	568.8	15.2					
Total	2,240.6	100.0	3,747.5	100.0	Total	7,556.6	100.0	8,638.7	100.0

*: including electrical equipment

Source: Goskomstat

(4) **Balance of Payments**

The balance of payments for Kazakhstan is shown in Table 2.1.3.10. Totally, the current account recorded deficits while the capital account recorded surpluses, and the overall balance for each year showed surpluses.

Table 2.1.3.10 Balance of Payments

Item	1993	1991				1995			
		Jan.-Mar.	Apr.-Jun.	Jul.-Sep.	Oct.-Dec.	Jan.-Mar.	Apr.-Jun.	Jul.-Sep.	Oct.-Dec.
Current Account	-745.8	-438.7	-336.1	-107.5	36.8	-810.5	-231.2	-57.0	-99.3
Goods	-1204.8	-418.3	-306.4	-124.8	-19.8	-869.3	-213.6	29.7	56.0
Export f.o.b	3323.5	489.7	881.3	865.4	1047.5	3283.9	804.8	1270.3	1626.9
Import f.o.b	-4528.3	-908.0	-1187.7	-990.2	-1067.3	-4153.2	-1018.4	-1240.6	-1682.9
Services	490.2	-33.6	-39.6	22.1	30.8	-20.3	-3.9	-26.2	-32.3
Income	-103.8	1.2	-13.8	-13.0	-22.1	-47.7	-17.1	-59.0	-23.0
Current Transfer	72.5	12.0	23.7	13.2	47.9	96.8	3.4	-1.5	12.0
Capital & financial account	1456.3	259.5	33.6	-61.2	-173.3	58.6	116.0	359.4	70.6
Capital Transfer	-604.8	-197.6	-291.8	-320.5	-262.5	-1065.4	-183.4	-181.5	-172.8
Direct investment	227.8	185.9	160.3	152.6	136.2	635.0	122.9	117.9	106.7
Portfolio investment	-0.2	-8.9	0.0	12.6	8.9	12.6	0.0	30.0	0.0
Other investment	1833.5	270.1	168.1	91.1	-55.9	476.4	176.5	393.0	136.7
Net errors and Omissions	-356.5	412.8	242.4	162.5	358.5	1176.2	212.9	-69.7	159.7
Overall balance	351.0	233.6	-60.1	-1.2	222.0	391.3	97.7	232.7	131.0
Reserve assets	-354.0	-233.6	60.1	1.2	-222.0	-391.3	-97.7	-232.7	-131.0

Source: Committee of Statistics and Analysis

(5) Employee Wages in Kazakhstan

The real wages of workers in Kazakhstan has declined drastically since 1991. According to estimates, the average monthly wage fell to 178.5 rubles in 1991 from 265.0 rubles in 1990, and it fell further to 61.2 rubles in 1992. However, since introduction of the tenge as the national currency in November of 1993, real wages have been trending upwards, accompanied by a stabilization of prices (See Table 2.1.3.11).

Table 2.1.3.11 Estimate of Average Real Wages of All Workers

Period	Nominal Wage (Roubles)	In % to previous period	In % to Constant Year	Constant Wage Roubles (1990=100)	Tenge Constant (in Tenge) (1993=100)	Tenge per US\$	US Dollar
1980	167	-		167.0	-	-	-
1985	187	-		187.0	-	-	-
1986	193	-		193.0	-	-	-
1987	199	-		199.0	-	-	-
1988	215	-		215.0	-	-	-
1989	234	-		234.0	-	-	-
1990	265	-	100.0	265.0	-	-	-
1991	441	247.1	247.1	178.5	-	-	-
1992	4625	3060.8	7563.2	61.2	-	-	-
1993 *	61000	2265.0	171307.3	37.4			
1993	(in Tenge) 128	(2265) 100.0	100.0	-	128.0	2.6	49.7
1994	Jan. 331	142.6	142.6	-	232.1	7.9	42.0
	Feb. 370	124.2	177.1	-	208.9	11.4	32.4
	Mar. 475	117.4	207.9	-	228.4	16.7	28.4
	Apr. 807	131.8	274.0	-	294.5	23.5	34.3
	May 1029	133.8	366.7	-	280.6	35.6	28.9
	Jun. 1357	145.9	535.0	-	253.7	41.7	32.5
	Jul. 1726	125.4	670.9	-	257.3	44.7	38.6
	Aug. 1971	113.3	760.1	-	259.3	45.7	43.1
	Sep. 2451	109.7	833.8	-	293.9	47.0	52.1
	Oct. 3091	120.1	1001.4	-	308.7	48.7	63.5
	Nov. 3360	114.2	1143.6	-	293.8	51.0	65.9
	Dec. 4241	110.2	1260.3	-	336.5	53.5	79.3
1995	Jan. 3571	108.9	1372.4	-	260.2	55.4	64.4
	Feb. 3650	106.7	1464.4	-	249.3	59.7	61.1
	Mar. 4162	105.1	1539.1	-	270.4	60.5	68.8
	Apr. 4282	103.2	1588.3	-	269.6	62.1	69.0
	May 4613	102.7	1631.2	-	282.8	63.1	73.1
	Jun. 4830	102.3	1668.7	-	289.4	63.5	76.0
	Jul. 5185	102.9	1717.1	-	302.0	62.6	82.8
	Aug. 5352	102.1	1753.2	-	305.3	56.6	94.5
	Sep. 5729	102.4	1795.2	-	319.1	59.8	95.8
	Oct. 5963	101.1	1868.8	-	319.1	61.5	97.0
	Nov. 6191	101.4	1951.1	-	317.5	63.3	97.9

(6) Gross Domestic Products (GDP)

According to rough estimates, the GDP has substantially increased to 49,206 million tenge in 1995 from 26,838 in 1993, a growth of 180% (See Table 2.1.3.12).

Table 2.1.3.12 Gross Domestic Product

Year	1992	1993	1994	1995
Current Price	Mil.Roubles	Mill.Tenge		
Gross Output of goods and services	2,885,445	56,823	941,426	1,992,862.9
Intermediate consumption	1,669,663	28,173	510,250	1,085,152.5
Conditionally Discounted Produce of the bank services	178,618	3,959	20,690	-
Gross added Value	1,037,164	24,691	410,486	907,710.0
Value added Tax	167,409	2,093	39,430	84,791.6
Tax on Import	9,043	54	-	-
Gross Domestic Product	1,213,616	26,838	449,916	992,502.0
Estimate of real GDP (1993=100 based on price index)		26,838	35,756	49,205.5
In % to Price in 1993		100	1,258	2,017.1

Note: Data of 1995 is forecast data.

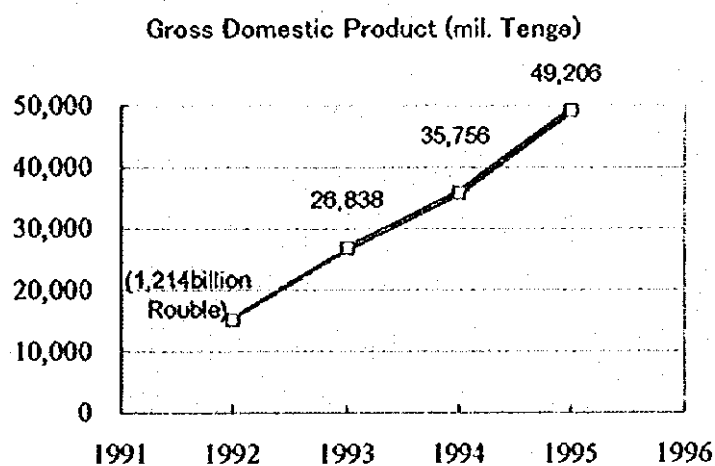


Figure 2.1.3.1 Gross Domestic Product

(7) Regional Economy

a) Regional gross domestic products(RGDP)

The RGDP's by region are shown in Table 2.1.3.13. It is noteworthy that the RGDP per capital differs considerably by region, indicating considerable differences in productivity between regions.

Table 2.1.3.13 RGDP by Region

State	1993		1994		1995		
	GDP million	Ratio %	GDP million	Ratio %	Populat. -1000	GDP per Capita	In % Total=100
Akmola	1,552.8	5.8	22,147.9	4.9	845.7	26,188.8	97.1
Aktubinsk	1,456.8	5.4	20,853.1	4.6	752.8	27,700.7	102.7
Almaty	764.8	2.8	12,982.3	2.9	963.1	13,479.7	50.0
Atyrau	618.1	2.3	20,746.0	4.6	459.6	45,139.3	167.3
East Kazakhstan	1,636.6	6.1	39,793.8	8.8	939.5	42,356.4	157.0
Zhambul	870.5	3.2	9,858.2	2.2	1,039.6	9,482.7	35.2
Zhezkazgan	880.2	3.3	22,380.1	5.0	484.4	46,201.7	171.3
West Kazakhstan	868.0	3.2	11,005.3	2.4	669.8	16,430.7	60.9
Karaganda	3,117.4	11.6	62,919.5	14.0	1,270.1	49,539.0	183.6
Kzyl-Orda	542.9	2.0	8,300.7	1.8	606.1	13,695.3	50.8
Kokchetau	1,146.3	4.3	20,748.8	4.6	657.0	31,581.1	117.1
Kustanay	2,174.1	8.1	36,108.8	8.0	1,055.3	34,216.6	126.8
Mangistau	532.3	2.0	19,972.9	4.4	324.4	61,568.7	228.2
Pavlodar	3,369.5	12.6	46,274.3	10.3	943.6	49,040.2	181.8
North Kazakhstan	1,069.7	4.0	10,574.1	2.4	600.9	17,597.1	65.2
Seimipalatinsk	1,221.3	4.6	13,298.0	3.0	811.0	16,397.0	60.8
Taldykorgen	769.4	2.9	6,258.8	1.4	721.5	8,674.7	32.2
Turgai	748.8	2.8	6,120.5	1.4	305.9	20,008.2	74.2
South Kazakhstan	1,436.5	5.4	15,164.6	3.4	1,987.8	7,628.8	28.3
Almaty City	2,041.3	7.6	44,408.3	9.9	1,172.4	37,878.1	140.4
Leninsk City	21.1	0.1	-	0.0	68.6	-	0.0
Total	26,838.3	100.0	449,916.0	100.0	16,679.1	26,974.8	100.0

Source: Committee of Statistics and Analysis

2.1.4 Prospects of Economy in Kazakhstan

At present, there is no short-term or long-term economic development plan. This may be due to some unforeseeable factors due to the problems of transition to a market-based economy. On the other hand the Kazakhstan's economy has recently showed signs of stabilization and a recovery in prices and production. However, some more time may be needed to establish a nation-wide, market-based, labor division so that an appropriate allocation of resources may be achieved. According to the Ministry of Economy, the annual growth rates of GDP are forecast to be 102.0% for 1996-1997.

A draft long-term economic development plan has recently been completed by the Scientific Research Institute of Economy and Marketing, under the Ministry of Economy. GDP forecasts for 1996-2010 from that plan are shown in Table 2.1.4.1.

Table 2.1.4.1 Dynamics of Important Macroeconomics Indicators

Indicators	1995 estimated	Forecast		
		2000	2005	2010
Gross domestic products	86-88	111-115	117-122	123-128
Commodity output	85-88	112-116	117-122	122-127
Agriculture gross output	69-73	91-96	101-106	112-114
Capital investments from account of all finance sources	71-73	119-119	120-120	120-128
Retail commodity turnover	51	110-116	118-122	120-114
Transport turnover of goods	82	106	119	125
Consumer price index in % to December of previous year	158-162	122-126	110-112	106-108
Number of unemployment in % to work resources	8.2	9.5	10.7	9.5
Volume of foreign trade turnover included:	107	105	105	110
	116	129	110	111
	99	91	100	107
In % to gross domestic products				
State budget revenues included:	18-20	38-40	43-45	47-48
Taxes	11-13	28-30	33-35	37-38
State budget deficit	3-4	5-6	4-5	3-4
State budget disbursements to clear off debt:				
External	0.9	2-2.5	2.5-3	2.5-3
Internal	0.7	1.5-2	2.5-3	3.5-4

Source: Scientific Research Institute of Economy and Marketing

2.1.5 The Transportation system of Trends in Kazakhstan

Figure 2.1.5.1 shows current surface transportation system in Kazakhstan.

Kazakhstan has suffered considerably. After the disruption of USSR, the freight and passenger demand for all transportation modes have drastically decreased due to tremendous drops in real wage and impaired production. Most of peoples can not afford discretionary travel. The trends in the transportation of freight and passengers for different modes are shown in Table 2.1.5.1. However it should be noticed that the railway passenger and air cargo transportation has traced exceptional trends. Among passenger transportation modes, the railway alone has been saved from big drop in passenger traffic. The railway passenger traffic continued to increase even after the disruption of the USSR until 1993 in contrast to those traffic of other transportation modes. This phenomenon comes from the upsurge of emigrant passengers by railway which is much cheaper to travel and carry big luggage than air transportation. The deputy manager on marketing at Almaty airport told that, for example, peoples who emigrant by train for Moscow (it takes about three days and nights) can hardly get railway tickets. While the increase of air cargo transportation is told to have been brought about by the growing trend of shopping tours for the middle east and other countries.

Anyhow as clear from the table, the traffic demand for all transport modes may still be decreasing and its early recovery can not be expected until a recovery in the populations earning power. Transportation by railway, bus and aviation by region(state) in 1990-1994 are shown in Appendix-2.1.5.

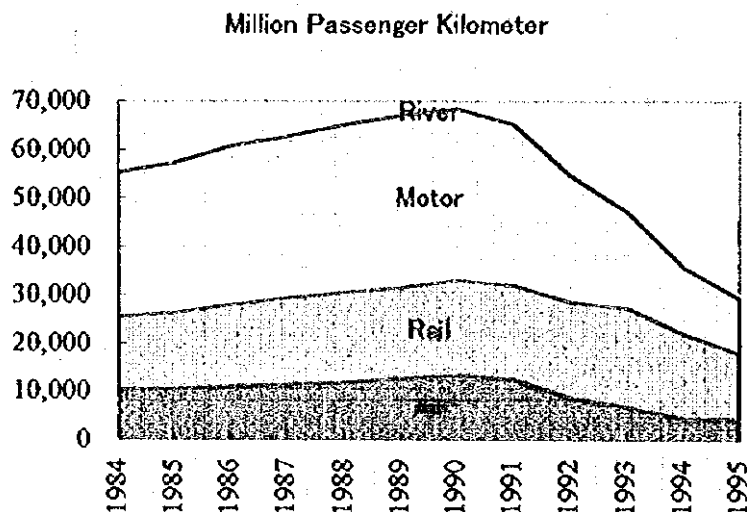


Figure 2.1.5.2 Transportation Statistics (1) Passenger

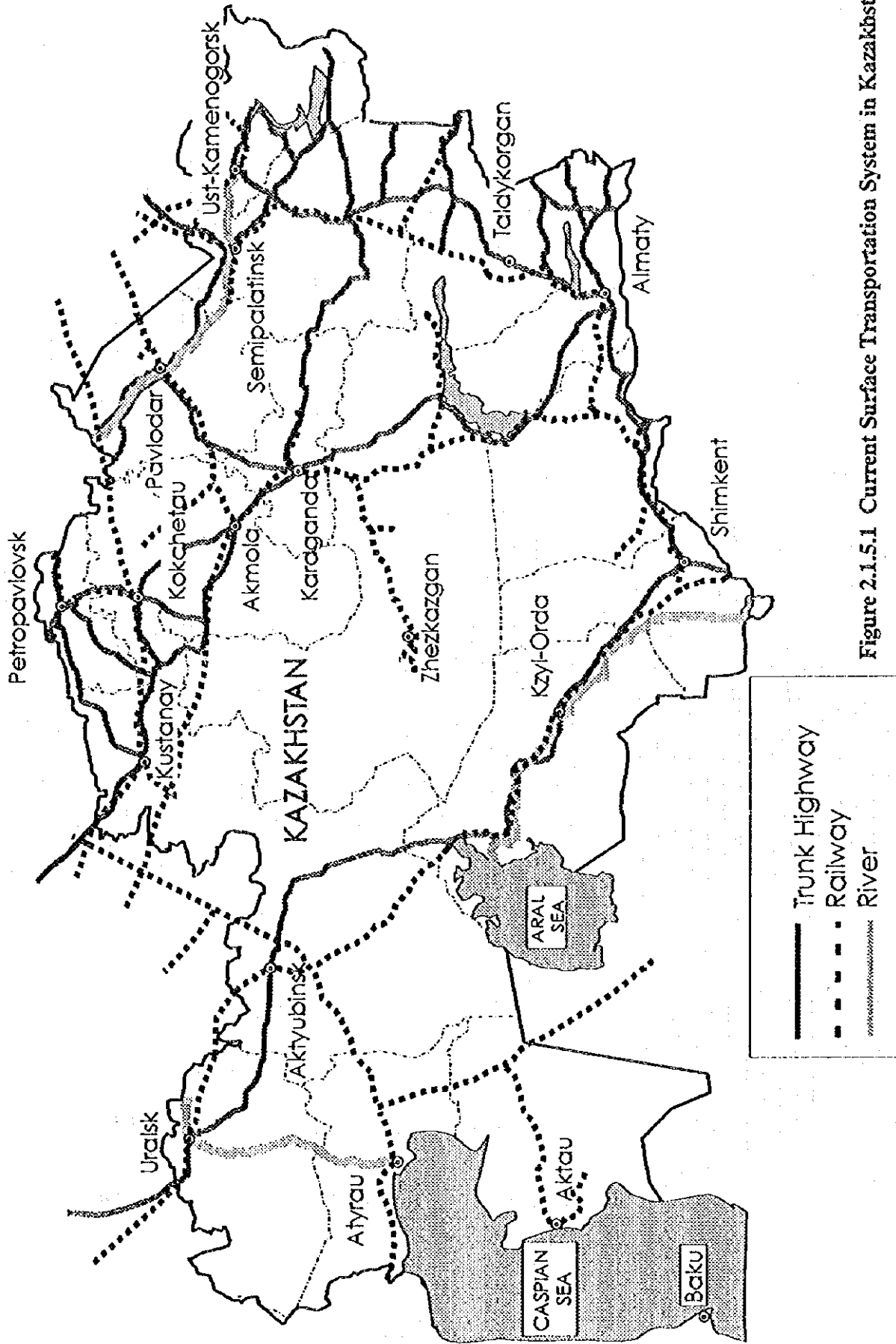


Figure 2.1.5.1 Current Surface Transportation System in Kazakhstan

Table 2.1.5.1 Freight Traffic of General Use and Passenger Traffic

Period	Freight Traffic in mil. net-ton-km					Passenger Traffic in mil. pax-km				
	Railway	Air	Motor	River	Total	Railway	Air	Motor	River	Total
1984	373,074	102	16,710	3,209	393,095	15,019	10,523	29,808	94	55,444
1985	382,507	99	17,721	3,437	403,764	15,749	10,491	30,939	101	57,280
1986	397,907	100	18,515	3,613	420,135	16,922	11,040	32,751	113	60,829
1987	404,583	91	18,062	3,761	427,097	17,888	11,423	33,342	106	62,759
1988	416,875	90	19,247	3,962	440,174	18,637	11,759	34,686	102	65,184
1989	409,573	88	19,404	3,857	432,922	18,921	12,657	35,384	105	67,067
1990	406,963	80	18,544	3,851	429,438	19,734	13,291	35,355	113	68,493
1991	374,230	67	17,916	3,426	395,669	19,365	12,584	33,234	100	65,283
1992	286,109	63	14,705	2,523	308,400	19,671	8,843	26,204	36	51,751
1993	192,258	66	10,000	1,546	203,870	20,507	6,826	19,868	22	47,223
1994	11,392	3	275	-	11,670	1,489	255	1,210	-	2,951
Jan.	11,392	3	275	-	11,670	1,489	255	1,210	-	2,951
Feb.	9,815	3	262	-	10,080	1,365	260	1,139	-	2,761
Mar.	12,551	3	340	-	12,897	1,696	346	1,365	-	3,407
Apr.	12,740	2	362	16	13,120	1,518	251	1,248	0	3,020
May	12,841	6	344	93	13,287	1,531	291	1,267	1	3,093
Jun.	12,159	5	366	80	12,610	1,897	398	1,223	2	3,520
Jul.	11,974	4	370	146	12,441	2,051	486	1,074	1	3,612
Aug.	12,817	6	305	127	13,285	2,132	513	1,036	1	3,682
Sep.	13,791	7	364	124	14,289	1,471	360	1,021	1	2,853
Oct.	13,654	7	392	102	14,155	1,521	341	962	0	2,824
Nov.	12,802	8	284	38	13,132	1,721	335	1,040	0	2,596
Dec.	11,976	9	284	14	12,283	1,423	326	1,039	0	2,788
1994	146,777	87	3,866	818	151,548	17,475	4,573	13,630	6	35,684
1995	10,606	9	143	-	10,758	1,354	303	969	-	2,626
Jan.	10,606	9	143	-	10,758	1,354	303	969	-	2,626
Feb.	9,941	7	154	-	10,102	1,140	278	944	-	2,362
Mar.	11,202	9	153	-	11,364	1,377	278	1,008	-	2,663
Apr.	9,659	8	144	-	9,811	1,431	296	1,014	-	2,741
May	10,785	8	165	-	10,958	1,282	307	1,045	-	2,634
Jun.	7,995	7	143	-	8,145	1,182	369	1,027	-	2,578
Jul.	9,509	6	147	-	9,662	1,313	475	932	-	2,720
Aug.	10,598	7	164	-	10,769	1,348	494	979	-	2,821
Sep.	11,245	12	187	-	11,444	1,192	422	955	-	2,569
Oct.	11,657	10	186	-	11,853	1,152	359	886	-	2,397
Nov.	11,347	10	150	-	11,507	1,137	372	891	-	2,350
Dec.	10,243	9	136	-	10,388	1,291	340	899	-	2,529
1995	123,863	120	1,892	-	125,875	13,412	4,461	11,404	-	29,270

Source: Committee of Statistics and Analysis

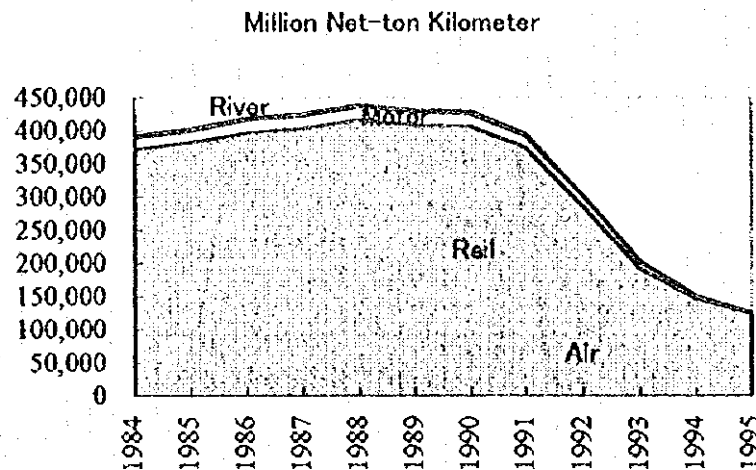


Figure 2.1.5.2 Transportation Statistics (2) Freight

2.2 National Policies and Plans

2.2.1 Development Plans and Economic Policies

Since the Republic of Kazakhstan was established in 1991, it has embarked on a transition to a market economy from the previous centrally planned economy. To establish a market economy, many changes are required such as: reform of land ownership, introduction of the national currency exchange, monetary reform, taxation reform, reform of the social security system, etc.. The current program has stressed: privatization of state-owned companies, liberalization of prices, monetary reforms and reform of related regulations.

Due to the scale of the changes, a lack of experience with a market economy and the impacts of economic disruptions in surrounding countries, the Republic has encountered many difficulties. The economy has been progressively stabilized through the efforts and experiences of the Government and population as a whole.

Before independence, Kazakhstan was integrated into the former USSR economic system in which its main role was to supply raw materials, such as grains and underground resources, and in return receive other products and foods, from the other republics of the Union. Kazakhstan, as an independent country, has made efforts to reform its imbalanced industrial structure and to become economically self-sustainable. At the same time, the state has tried to enhance the utilization of its rich underground resources: oil, natural gas, coal, uranium, copper, lead, zinc, etc., not only to develop these industries but also to stabilize the economy at the time being. The Government's strategy, therefore, to give a high priority to developing is to develop the following industries:

- a. fuel and energy
- b. metallurgy
- c. transportation and communications
- d. consumer products

Transportation and communication will provide the infrastructure to support the development of the other industries.

In order to implement these strategies under very difficult conditions, it is necessary to establish and develop economic relations with other countries which did not exist prior to independence. This is particularly important given the geographically location of Kazakhstan. The introduction of foreign investment, promotion of international trade, creation of new international markets and the promotion of international friendships are all part of the strategy.

The Republic has also tried to strengthen the historical friendly relationships with Russia and the other CIS states, which have similar structures and culture to Kazakhstan and share industrial ties. It has also tried to develop ties with the other Central Asian countries through the Economic Cooperation Organization(ECO).

One of the major national priorities is the relocation of the capital from Almaty to Akmola. In 1994, the Supreme Kenges (the National Parliament) approved

proposals to transfer the capital from the south to the northern city of Akmola by approximately the year 2000. The relocation was originally proposed by President Nazarbaev. He cited various problems associated with the present capital of Almaty: overcrowding, environmental problems, close to a national border and in an earthquake zone. The move will be a difficult prospect, however, particularly in view of the precarious financial condition of the country.

2.2.2 Transportation Policies and Plans

The role of the transport in Kazakhstan, as a constituent republic of the former USSR, was to support the distribution system of a centrally planned economy and to provide social services. The surface transportation structures were configured to center on Moscow, the focal point of the former USSR.

About 90% of the cargo was transported by railway but the extensive railway system was not configured to meet the needs of an independent state. The national road system is underdeveloped with a density of 5 km of paved road per 1,000 km². Water transportation and pipelines for oil and gas transportation are also generally underdeveloped, and configured to support the needs of the former USSR. There has been virtually no development of multi-modal transportation links.

Air transportation was well developed during the time of the USSR and used mainly as a social service to provide citizens cheap and easy access to locations which could not be reached by road and rail. However the dramatic diminution of demand since the end of the USSR in late 1991 (up to 80% reduction) has resulted in a commensurate under utilization of the air transportation infrastructure and workforce. There are no comprehensive national transportation policies or plans as such. These are now being developed. However, there are some clear and acknowledged roles for transportation in Kazakhstan's transition to a market economy.

Since independence, it has become necessary to reconstruct the domestic transportation network to ensure national integrity and promote regional development. At the same time, it is necessary to secure access to international markets.

To achieve this goal, there are specific initiatives for each mode:

- Railways
 - a. Formation of a domestic network for passengers and cargo.
 - b. Implementation of Trans-Asia and Euro-Asia railway plans to connect Asia and Europe.
- Road transport
 - a. Improvement of inter-city passenger transport
 - b. Formation of international transportation links for passengers and cargo

- Water transport
 - a. Connection of the sole port Aktau to the international marine network on the Caspian Sea
- Air transport
 - a. Improvement of international and domestic transportation for passengers and cargo
 - b. Improvements to meet international standards

2.2.3 National Air Transport Policies and Plans

Kazakhstan is a large country with a sparse population and an undeveloped surface transportation system with poor inter-city and inter-region links. Air transport, therefore, is vital to the nation and will remain so far the foreseeable future, particularly for passenger transportation. Since independence, air transportation has also become an important means of linking Kazakhstan with the international community.

The Republic became a member of the International Civil Aviation Organization (ICAO) in 1992 and has established international routes through bilateral air service agreements. Such agreements have been signed or ratified with 35 countries.

Many problems have been experienced since independence, including;

- deterioration of aircraft, facilities, equipment and systems
- non-compliance with the international standards
- unclear responsibilities for control and regulation
- drastic diminution of demand (about an 80% reduction since 1990)
- reduced and increased costs for the National Associated Airlines of Kazakhstan (Kaz Air)
- financial difficulties experienced by the national government

A number of the initiatives has been taken to address specific needs.

(1) Establishment and Strengthening of the Civil Aviation Department

Kaz Air, the state-owned company, at its inception in August 1993 was originally constituted like the Aeroflot with the air carrier, airport, air navigation and regulatory functions highly integrated. The Government subsequently became aware that this structure was not conducive to effective and efficient air transport operations in a market environment and decided to disassemble it. The Civil Aviation Department (CAD) of the Ministry of Transportation and Communications (MOTC) was created in January, 1994, to assume the national policy making and regulatory roles.

The Government has decided to increase the resources of the CAD to enable it better to fulfill its functions. As of 1 June, 1996, the number of staff of this organization will be more than doubled to 40 persons. Furthermore, the CAD has been tasked with developing a proposal to transform itself into an entity, which can ensure the Government meets its obligations under the Civil Aviation Law.

(2) Establishment of Kaz Aeronavigation

Air navigation services had been handled by the various subsidiary companies of Kaz Air. The government was aware that these kind of services should be delivered by a separate government owned entity so Kaz Aeronavigation was created on 1 June, 1995. It assumed control of all navigation services and it is fully dependent on user fees for its operation.

Kaz Aeronavigation has, for the past 3 to 4 years, been engaged in a program to upgrade enroute air navigation services. There are 18 Area Control Centers (ACC's); 3 of these, at Almaty, Aktyubinsk and Akmola, will be upgraded and automated by the year 1999.

(3) Promulgation of Civil Aviation Law

Shortly after the termination of the USSR, the 12 CIS republics formed the Interstate Aviation Committee (MAC) located in Moscow. Its primary role is safety regulation with most of the expertise coming from Russia.

In order to strengthen the air transportation policy and regulatory role of the national government, the first National Civil Aviation Law was promulgated through a presidential decree in December 1995. However, 31 provisions of the new air law had not been implemented because of the shortage of CAD's human resources. It is expected that this problem will be largely resolved with the strengthened CAD.

(4) Reorganization of Kaz Air

During the first part of 1996, the financial condition of Kaz Air became extremely precarious such that it was close to bankruptcy. Under the Prime Minister's decree of 30 April, 1996, a senior official of the Kazakhstan Commercial Bank has appointed as a new president of Kaz Air to conduct a thorough assessment of its financial and operational condition and to report his findings to the Government. At the end of three month period, all of airports were to be separated from Kaz Air. The air carrier component was to be consolidated into a single entity "Air Kazakhstan". The Kaz aviation construction company and the Civil Aviation Academy were also to be separated.

(5) Seeking Foreign Investment

Due to the countries economic difficulties, the Government already stopped financing air transport development and has become heavily indebted to Kaz Air.

The Government is seeking foreign investment to ensure the future economic viability of the airport and airline components of Kaz Air. The only current major restriction on the foreign ownership of any enterprise due for privatization is that 51% of the equity must remain under the government ownership. Significant foreign investment interest has only demonstrated in developing the airports of Almaty, Atyrau and Akmola. No such interest has been shown in the air carrier component of Kaz Air.

2.3 Current Condition of Air Transport

2.3.1 General

The current condition of air transport of Kazakhstan can best be understood through a review of the historical perspective and current issues related to safety, economic efficiency, levels of service and development prerogatives.

(1) The Historical Perspective

When the USSR was in existence, all air transportation activity and infrastructure came under Aeroflot, an organization comprising approximately 500,000 persons. Aeroflot was geographically decentralized, with units existing in each of the 15 constituent republics of the USSR and the 18 constituent republics of Russia. Each of these units, however, was functionally integrated such that, with few exceptions, air carrier, general aviation, airport, air navigation and regulatory services were combined in each of the regional units. Most of these units were devoted exclusively to intra-USSR operations with all international services controlled from Moscow, and the Moscow Sheremetyevo and Tashkent airport being the only international gateways. Air transportation was provided primarily as a social services with little regard for market-based economic forces.

When the USSR ceased to exist in late 1991, each of the newly independent states, including Kazakhstan, effectively inherited the Aeroflot component that been assigned to it as a constituent republic of the USSR. The National Associated Airlines of Kazakhstan (Kaz Air) was formed from this component in August 1993. At inception, it was structured on the Aeroflot model in that it was decentralized geographically with most of the 28 new units functionally integrated. Each of these units, 100% of the shares were owned by the National Government, with a provision that 10% would later be distributed to its workforce. That distribution has yet to take place.

The Air Navigation Services components of the Kaz Air units were separated and collectively formed into another joint stock company, wholly owned by the Government and called Kaz Aeronavigation, on 1 June, 1995. Kaz Air was then only responsible for air carriers services and airports. On 30 April, 1996, the Government decided that the airport and air carrier components of Kaz Air were to be separated after a three months financial investigation by the new president of Kaz Air.

(2) Air Safety

All air transportation activity should be conducted within an acceptable safety framework. Much of the aircraft fleet, airport facilities and navigational aids in use in Kazakhstan are well maintained and operated, given the difficulties in obtaining spare parts, etc. Most of the equipment, however, is outmoded by international standards. For example, 70% of Kaz Aeronavigation's radio communications equipment and 58% of its other equipment (radar, nav aids, etc.) is considered obsolete.

Aircraft accidents have increased since independence because of non compliance by newly emerging air carriers with established safety regulations. The problem is compounded by a lack of enforcement or even adequate oversight by the Government regulatory organizations.

Modernization of Air Traffic Services has commenced with a program covering the ACC's of Almaty, Akmola and Aktyubinsk. No such program exists for ATS at most airports where the START system is used, comprising two small cabs near the runway instead of single elevated control towers built to international standards. These cabs also infringe ICAO standards and recommended practices regarding obstacles at runway strips and the penetration of transition surfaces.

Airport lighting systems and markings are often also at variance with ICAO SARPS. Airport pavements have generally been well maintained but often the overall level of deterioration is such that major reconstruction work is required. Friction coefficient measurements are generally made at airports experiencing snow and ice covering during winter. These are not always made at other airports where heavy rubber deposits can significantly reduce friction when surfaces are wet.

(3) Low Economic Efficiency

a) Excess Capacity

Immediately after the USSR ceased to exist, there was rapid and dramatic decline in all air transport activity, e.g. up to 80% totally in Kazakhstan and also at some locations. Because there has been very little recovery from these low levels, revenues are low and there is considerable excess capacity throughout the whole system.

An important component of this excess capacity is a large and underutilized workforce. Kaz Air had an estimated workforce of about 22,000 persons to in April, 1996. The number of employees has not be changed significantly despite persistently low revenues due to low demand. This size of workforce is far in excess of what is required to maintain, operate and manage the system now or in the foreseeable future.

Regarding air navigation services, ground control Approach equipment continues to be used alongside ILS equipment. Both provide approach guidance to landing aircraft but, in most other countries, GCA's were regarded as redundant and removed after ILS's were installed. In Kazakhstan, GCA's are used for military operations and to back up the ILS.

Despite this excess capacity, many large scale and costly development projects are still being seriously considered at most locations. Some of these have been started seemingly without any proper market assessment or business planning. Most remain uncompleted due to a shortage of funding.

Most airports have no master plans for their development. Facilities are being designed and built in an uncoordinated manner. Master plans provide for well coordinated and efficient airport development in response to demand forecasts.

b) **Low Productivity**

The standard of general and technical education and training in Kazakhstan is high as was the case in the former USSR. Despite this and low compensation levels, however, overall productivity is low. A primary example of this is the low number of flying hours by air crew and low aircraft utilization.

This problem primarily comes from systemic over manning, the lack of a service orientated culture throughout the workforce, poor internal communications and information systems and outmoded management systems.

c) **Poor Quality of Services**

A market economy is by its very nature customer-orientated. Commercial organizations working in this environment need to produce goods and services in response to customer's needs at acceptable prices. There is a noticeable lack of customer-orientation and, therefore, a generally low level of services within Kazakhstan's air transportation organizations. Route planning, flight scheduling and services provided on the ground and in the air are often conducted without sufficient attention to customer's need. Signage and public address systems, even at international airports, rarely use the English language along with Russian and Kazakh.

d) **Lack of Understandings of Investment Management in a Market Environment**

There is a wide spread perception among managers at all levels within the air transportation system that most problems can be solved by increased funding alone. Coupled with this, is an almost total lack of awareness of the criteria that potential investors routinely use to assess risk and return, and of the conditions which are applied when they commit funds for extended periods.

e) **Changes Needed for Sustained Development**

The major problems which currently impair the efficiency and effectiveness of the Kazakhstan National Air Transportation System have been discussed only briefly. These apply to all institutions to some degree and are multi-faceted by nature. For sustained development, all need to be addressed concurrently, and in a focused and coordinated manner.

2.3.2 Air Traffic Statistics

The yearly traffic departures at all of major airports have been decreasing since 1990 (See Table 2.3.2.1). At the Almaty airport the number of passengers has decreased by 60% to 858,808 in 1995 from 2,138,332 in 1990. Departing cargo tonnage at Almaty in 1995 has also decreased by more than 60% since 1990. At Karaganda airport, departing traffic volume of passengers and cargo traffic in 1995 decreased to 112,096 passengers and 68.6 tons from 675,360 passengers and 2,779.5 tons in 1990 only 16.5% and 2.5% of the respective levels in 1990.

It is noteworthy that the total cargo ton-kilometers carried in Kazakhstan was 117.6% in 1995 which recorded the highest index number since 1984 (1984 equals 100%) (See Table 2.1.5.1).

Most air passengers traveled for vacation and recreation purposes before 1991, but now most air passengers are traveling for business and official purposes.

Another characteristic point is that the air passenger travel on short routes has decreased sharply. On a typical short air route the frequency of air service dropped from 4 flights/week to only one flight/week.

It should be not, however, that the total passenger-km has not decreased so drastically as the total number of air passengers carried. This may be due to the longer distances traveled.

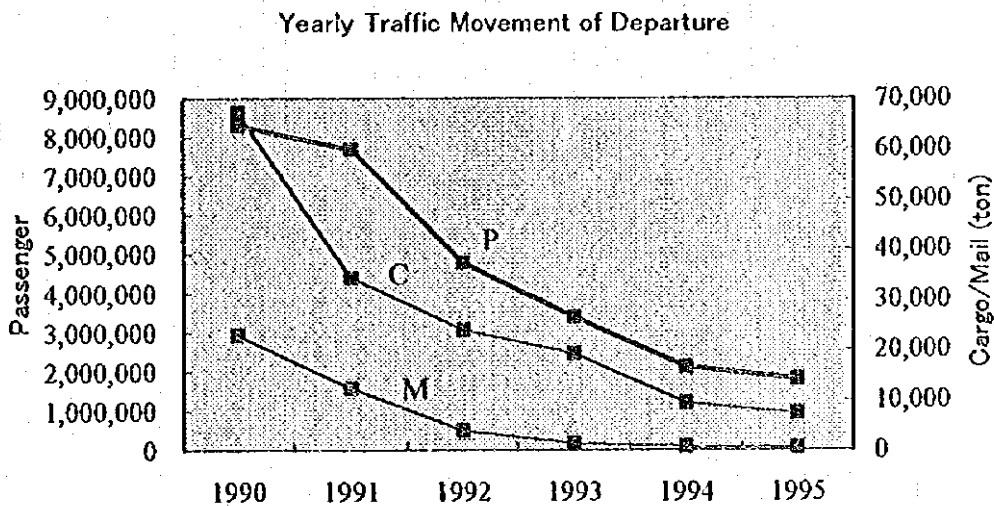


Figure 2.3.2.1 Air Traffic Statistics

Table 2.3.2.1 Yearly Traffic Movement of Departure

Name of Airport	Year	Passengers	Cargo (tonn)	Mail (tonn)	Name of Airport	Year	Passengers	Cargo (tonn)	Mail (tonn)
Akmola	1990	423,183	2105.4	3025.6	Kokchetau	1990	201,218	2473.5	136.3
	1991	380,432	1244.2	1748.2		1991	200,210	1555.1	81.4
	1992	202,294	713.5	55.3		1992	13,461	837.9	23.9
	1993	124,811	434.2	12.8		1993	88,474	190.2	6.1
	1994	74,654	167.6	0.8		1994	36,008	38.1	1.1
	1995	70,908	102.8	0.7		1995	26,182	25.2	2.3
Akt'yubinsk	1990	421,958	4400.7	1370.1	Kustanay	1990	409,518	2769.8	413.3
	1991	352,614	2537.7	864.3		1991	394,704	1692.3	192.2
	1992	172,893	507.3	256.1		1992	249,952	656.0	55.5
	1993	88,790	175.9	43.2		1993	158,663	208.4	12.6
	1994	44,585	68.8	1.5		1994	55,096	81.1	5.6
	1995	37,672	43.4	0.1		1995	51,194	46.7	4.3
Almaty	1990	2,138,332	12066.0	10420.8	Kzyl Orda	1990	222,435	710.8	303.8
	1991	2,125,740	9689.5	5459.5		1991	186,306	668.7	125.4
	1992	1,564,671	10182.6	2185.2		1992	106,752	148.6	22.6
	1993	1,279,541	12479.5	773.0		1993	65,919	64.3	3.8
	1994	906,138	4685.3	413.1		1994	52,800	79.9	2.0
	1995	858,808	4570.9	303.6		1995	41,695	67.5	1.7
Arkalyk	1990	175,955	187.1	203.6	Aktai	1990	487,935	4126.8	174.7
	1991	140,360	140.7	363.2		1991	447,904	3419.8	135.9
	1992	8,103	140.3	128.4		1992	333,261	1701.4	40.5
	1993	47,338	74.3	3.9		1993	241,142	134.6	14.7
	1994	19,076	55.4	2.5		1994	130,992	761.3	6.7
	1995	8,913	7.2	1.4		1995	129,563	464.8	4.7
Balkhash	1990	80,869	903.9	44.8	Pavlodar	1990	439,762	1119.1	341.2
	1991	75,002	584.3	19.9		1991	394,890	902.9	101.9
	1992	52,099	149.6	6.6		1992	250,056	459.3	44.5
	1993	39,120	93.8	3.4		1993	149,923	331.3	11.1
	1994	21,267	11.8	2.1		1994	95,269	140.8	7.6
	1995	11,592	7.7	1.4		1995	71,613	75.3	5.5
Shimkent	1990	288,519	1986.2	827.3	Petropavlovsk	1990	142,707	1324.0	50.3
	1991	268,066	2012.8	408.9		1991	119,149	986.9	36.8
	1992	179,080	1754.8	131.0		1992	71,670	486.2	9.9
	1993	161,063	1608.6	10.4		1993	41,068	348.8	0.4
	1994	136,081	1389.8	12.2		1994	18,238	51.4	0.7
	1995	90,131	904.3	9.8		1995	8,288	28.5	1.8
Zhanbul	1990	242,181	622.2	141.3	Sempalatinsk	1990	366,206	3056.0	636.6
	1991	217,774	882.1	114.9		1991	342,186	2286.1	214.7
	1992	136,787	903.7	33.2		1992	198,358	1222.7	113.6
	1993	87,028	619.4	6.5		1993	132,596	606.7	81.6
	1994	46,911	497.5	3.0		1994	57,196	106.4	30.5
	1995	26,496	67.8	-		1995	31,621	19.8	25.6
Zhezkazgan	1990	202,362	369.9	408.5	Ural'sk	1990	182,699	742.2	470.1
	1991	192,715	362.5	198.1		1991	145,426	480.3	152.1
	1992	132,479	148.8	28.0		1992	82,053	422.7	25.3
	1993	9,508	99.5	11.9		1993	53,565	142.2	5.9
	1994	55,071	66.8	2.9		1994	36,907	188.0	3.1
	1995	44,323	37.4	5.1		1995	29,287	198.3	-
Atyrau	1990	524,151	1039.4	745.6	Ust-Kamenogorsk	1990	667,761	24430.0	1995.0
	1991	429,125	859.5	261.9		1991	639,420	1825.0	1410.0
	1992	276,891	617.9	35.0		1992	377,118	1457.0	666.0
	1993	160,975	539.2	9.3		1993	217,009	524.0	345.0
	1994	101,218	328.5	6.0		1994	119,642	365.0	172.0
	1995	81,538	99.9	5.2		1995	70,977	498.0	90.0
Karaganda	1990	675,360	2779.5	1155.6	Source: Kazakhstan Airline				
	1991	633,968	2021.4	388.7					
	1992	386,383	1060.1	73.3					
	1993	254,121	474.8	18.3					
	1994	120,047	267.2	12.9					
	1995	112,096	68.6	13.2					

2.3.3 Air Route Network

Kaz Air's network serves 54 destinations which are found listed in its May 1, 1996 schedule of flights and in Table 2.3.3.1 below. These destinations are grouped in three distinct geographical areas described as follows:

(1) Domestic within Kazakhstan

The network within Kazakhstan links 24 airports. A large portion of these services do not originate from, terminate at or transit Almaty, Kaz Air's main center of operation, as many services operate strictly between regional or interior city pairs.

Akmola and Karaganda are the only cities with twice a day, same time of day departures to and from Almaty. Zhambul, Zhezkazgan, Kzyl-Orda, Pavlodar and Shimbent also have daily same time of day departures but only once each day. The remaining points are served on varying days and times of day, some city pairs only once a week.

See Figure 2.3.3.1 for Network within Kazakhstan.

(2) From Kazakhstan to other CIS countries

All of Kaz Air's flights to and from Moscow land at Domodedovo airport, a domestic rather than an international gateway airport. Although far less important than in pre-independence days, some of the long established traffic patterns remain, making Moscow the most important destination on the CIS network of Kaz Air.

From Almaty, the service is daily, with a significant number of regional scheduled and charter flights operating directly from outlying points such as Pavlodar, Zhambul, Karaganda, Kostanay, Atyrau, Aktau, Aktyubinsk, Uralsk, Ust-Kamenogorsk and Akmola.

Other CIS destinations are: Novosibirsk, Omsk, Mineral'nyye Vody, Samara, Tashkent, Kiev, Saint Petersburg, Ekatherinburg, Krasnodar, Rostov on Don, Baku, Nukus and Kaliningrad for a total of 17 points, in many cases, served by only one or two flights per week. See Figure 2.3.3.2.

(3) International to non CIS destinations

Kaz Air's international, non CIS network serves 13 destinations and is the frequency limited, especially to the major Western European gateways where the competition is strongest. It must be remembered that international traffic, is the only market segment to register growth in the last three years.

Twice weekly services are offered to Frankfurt, Beijing, Ulgii and Urumqi while Budapest, Vienna, Istanbul, Delhi and Tel Aviv are served once weekly. There are two "Scheduled Charter flights" each week to Hanover and Sharjah while Athens,

Budapest, Vienna, Istanbul, Delhi and Tel Aviv are served once weekly. There are two "Scheduled Charter flights" each week to Hanover and Sharjah while Athens, Warsaw both have once a week "scheduled charter flights".

See Figure 2.3.3.3.

Table 2.3.3.1 Kaz Air's Network

Points served as of 1 May, 1996

Within Kazakhstan	CIS Countries	International outside CIS
Aktau	Ashkhabad	Athens*
Akmola	Astrakhan	Beijing
Aktogay	Baku	Budapest
Aktyubinsk	Ekatherinburg	Frankfurt
Almaty	Irkutsk	Hanover*
Arkalyk	Kaliningrad	Istanbul
Atyrau	Kiev	New Delhi
Balkhash	Krasnodar	Sharjah*
Ekibastuz	Mineral'nyye Vody	Tel Aviv
Karaganda	Moscow Domodedovo	Ulgii
Kokchetau	Novosibirsk	Urumqi
Kostanay	Nukus	Vienna
Kzyl-Orda	Omsk	Warsaw*
Pavlodar	Rostov on Don	
Petropavlovsk	Samara	
Semipalatinsk	Saint Petersburg	
Shimkent	Tashkent	
Taldy-Kurgan		
Urdzhar		
Uralsk		
Ust-Kamenogorsk		
Zaysan		
Zhezkazgan		
Zhambul		
24	17	13

Source: Kaz Air's Schedule May 1, 1996

Note: * "Scheduled Charter service"

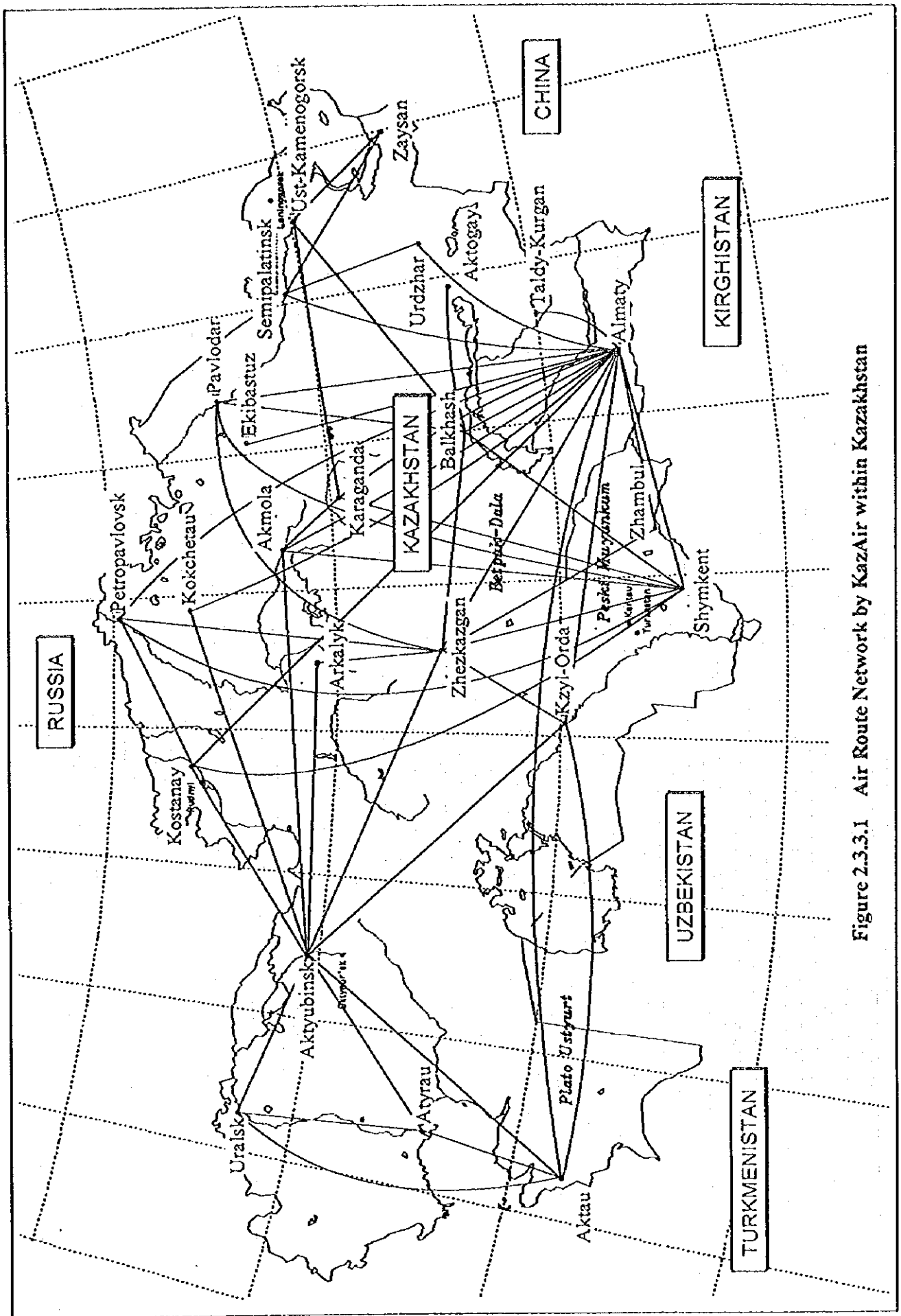


Figure 2.3.3.1 Air Route Network by KazAir within Kazakhstan

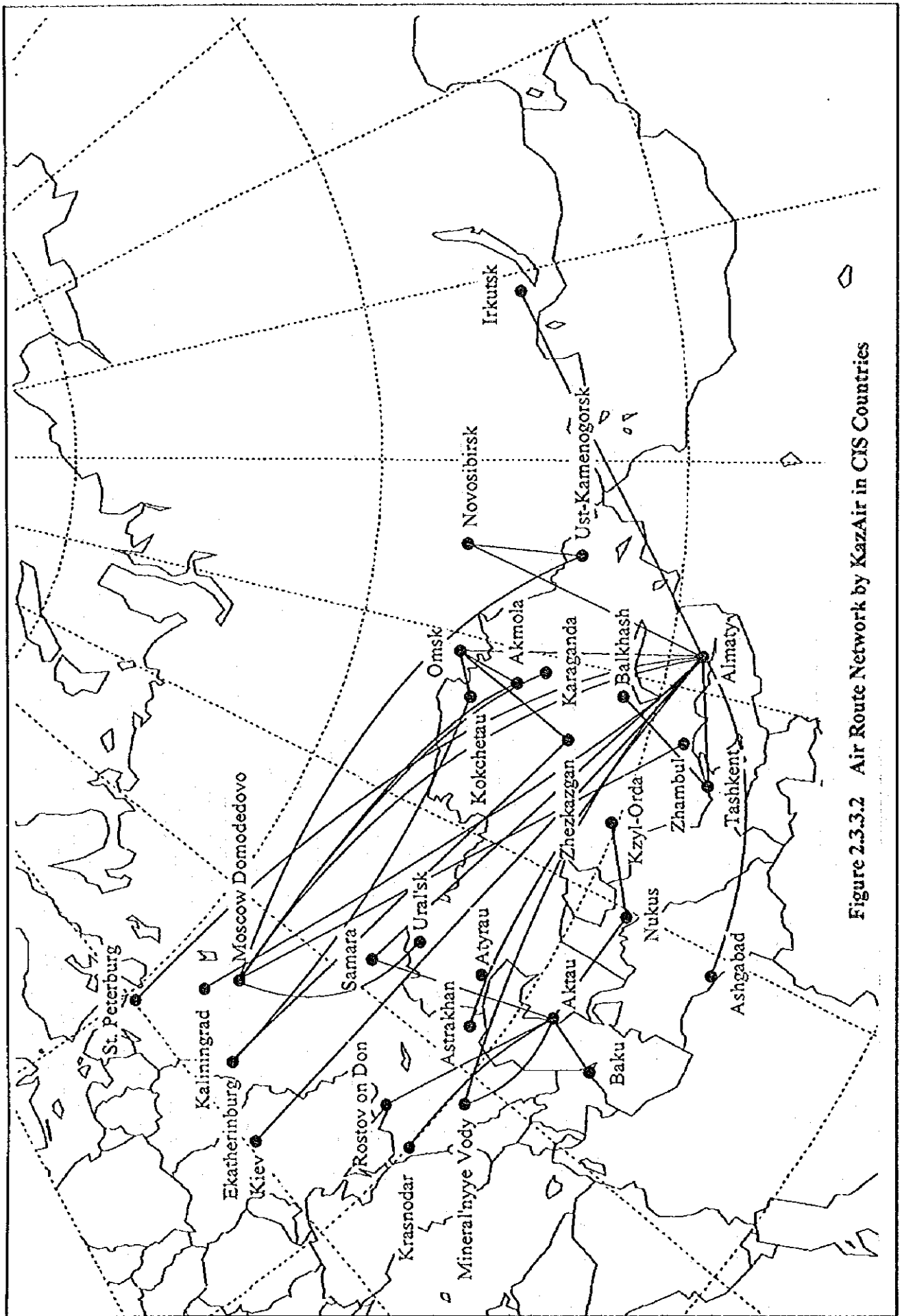


Figure 2.3.3.2 Air Route Network by KazAir in CIS Countries

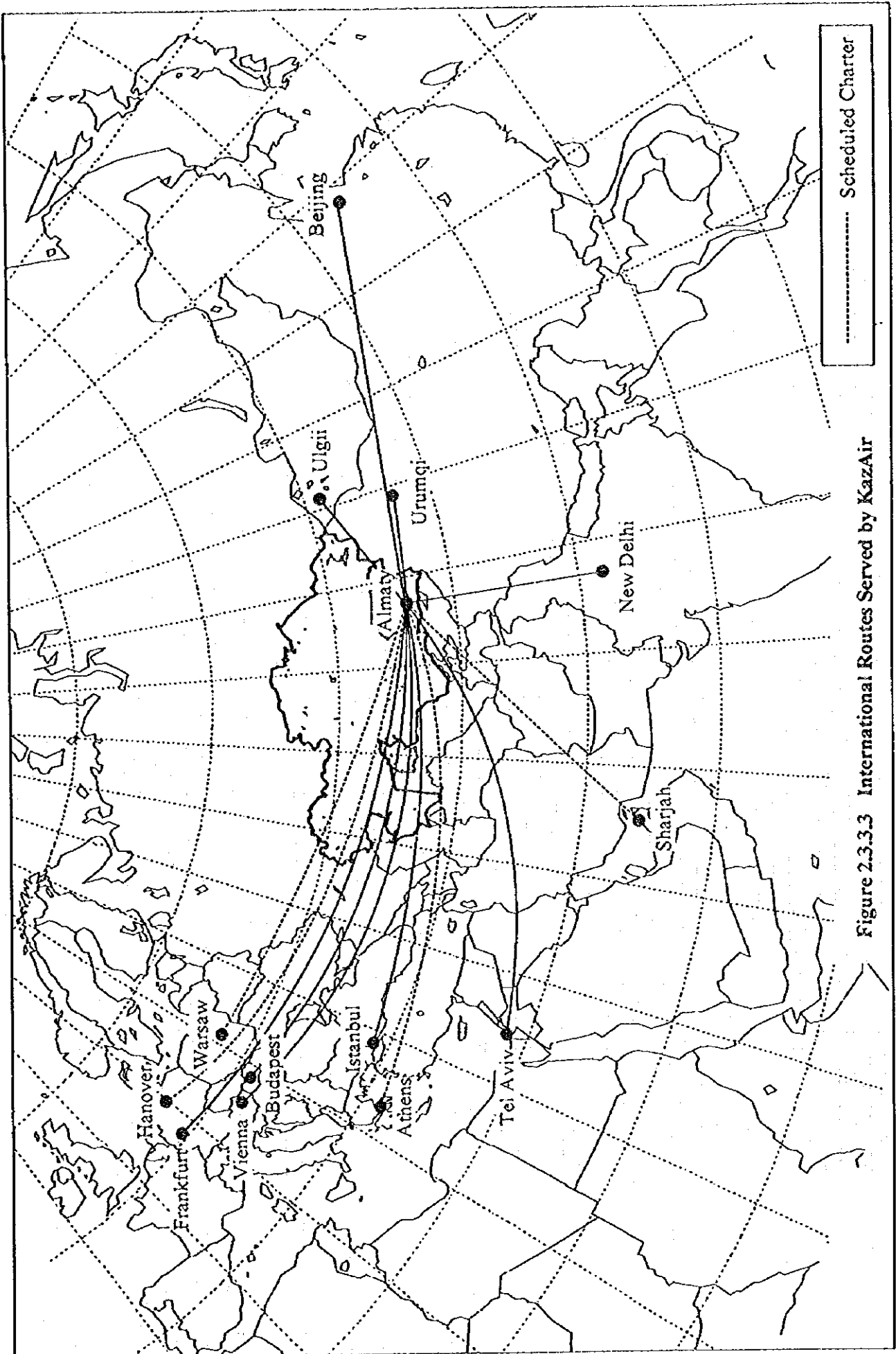


Figure 2.3.3.3 International Routes Served by KazAir

2.3.4 Airways System

(1) Ownership and Responsibilities

The authority responsible for the provision of ATS within the Kazakhstan Flight Information Regions is Kazaeronavigatsia which has existed as a separate state-owned enterprise since 1 June 1995. The Civil Aviation Department of the Ministry of Transport and Communications is responsible for regulating the safety of the Airways System.

Kazaeronavigatsia has three departments

- The Navigation Department
- The Finance Department
- The Air Traffic Department

One of Kazaeronavigatsia's functions is keeping flight number information (both Enroute and Terminal) and collecting air navigation services charges.

(2) Air Space Management Organization

Kazaeronavigatsia controls air space of airways and Terminal Control Areas (TMA), and the rest of Kazakhstan's airspace is controlled by the military.

(3) Flight Information Region

The airspace of Kazakhstan is divided into 9 FIR's (Table 2.3.4.1), and normally an FIR has several Area Control Centers (ACC).

Table 2.3.4.1 Kazakhstan's Flight Information Regions and Area Control Centers

Flight Information Regions	Area Control Centers	Category
Almaty	Almaty Balkhash Zhambul	Main
Zhezkazgan	Zhezkazgan	
Kzyl-Orda	Kzyl-Orda Aralsk	Main
Atyrau	Atyrau Aktau	Main
Uralsk	Uralsk	
Aktyubinsk	Aktyubinsk	
Kostanay	Kostanay Arkalyk	Main
Akmola	Akmola Karaganda Petropavlosk	Main
Semipalatinsk	Semipalatinsk Pavlodar Ayaguz	Main Auxiliary

(4) Area Control Center

The airways of Kazakhstan are controlled by 18 ACC's. The existing 18 ACC's will be consolidated into 3 automated ACC's at Almaty, Aktyubinsk, and Akmola. Tentative dates for completion of automated ACC's are in: 1996 at Almaty, 1997 Aktyubinsk and in 1999 at Akmola. The dates for consolidating the other ACC's are not known this time.

a) ACC Categories

There are 3 categories among ACC's.

- Main ACC
- ACC
- Auxiliary ACC (AJAGUZ)

b) Upper and Lower Airspace

The airspace is divided into upper and lower regions. The dividing height is 6,100m. Flight level 6,000 m is in lower airspace. VFR flight is not authorized above 6,000m.

c) Military Sector

Normally, an ACC comprises military and civil sectors. The military sector is manned by military personnel. Civil and military sector controllers are located side-by-side or in different rooms within the ACC's.

(5) Terminal Control Area (TMA)

The dimensions of the TMA are usually within a radius of 80 - 100 km and an altitude limitation of about 4,500 m depending on airport characteristics. (In the case of Aktau, these dimensions are 60 km and 3,000 m. Almaty's upper limit is 5,700m)

(6) Airways

There are two kinds of airway, "route" and "line":

1. route
 - VFR flight is not authorized.
 - Width of the route is 10 km.
 - Mainly used by heavy jet aircraft.
2. line (CAT-I)
 - Both IFR and VFR flight are authorized.
 - Width of the route is 10 km.
 - Mainly used by medium sized aircraft.
3. line (CAT-II)
 - Mainly used by VFR aircraft.
 - Width of the route is 4 km.

(7) ICAO Airspace Classification

The ICAO air space classification system (category A through G) is not applied in Kazakhstan, but it is being considered for future use.

2.3.5 Air Traffic Control Facilities

(1) Operational Equipment

Generally, the following operational equipment are installed in ACC's and approach control offices in Kazakhstan.

1. Radar display
2. Microphones
3. Radio communication selector panels
4. Telephone
5. Clocks
6. Recorders (in EQ room, 16 channels)
7. Graphic system
8. Weather displays including altimeter settings, wind speed and direction display
9. Aerodrome lighting panel (at GCA position)
10. VDF (VHF DF)

Remarks

Flight progress strips are not used by the controllers, instead a "Graphic system" is used for in the event of radar failure.

Head sets are not used because controllers are reluctant to use them when traffic is not heavy.

RSBN (the code name is "Mikhail") displays are installed at some ACC's and approach control consoles indicating aircraft position by distance and azimuth.

Light guns are not provided in the control tower or START.

Normally, the aerodrome lighting panel is installed in the control tower and operated by tower controllers. In Kazakhstan, however, it is installed in the GCA or approach control console and operated by the GCA final controller or approach controller.

The storage period of recorded tapes is determined by airport category. 120 hours (5 days) for CAT-I and CAT-II airports, and 48 hours (2 days) for CAT-III airports. The actual storage period is determined by the number of tapes owned by the ATC facilities.

(2) Radar

The average age of the present radars is 14 years. The GCA's are Czech made and the other radars are made in Russia.

a) Enroute

Each ACC has its own Air Route Surveillance Radar (ARSR). The ARSR is a primary radar. Eighteen ARSR's with range of 350 km (8,000 m / 10,000 m) cover Kazakhstan airspace. The update rate of the ARSR is 3 rpm but variable to 6 rpm when traffic is heavy.

b) Terminal

Airport Surveillance Radars (ASR's) with Secondary Surveillance Radar (SSR) are located in the main airports and used for approach control. The coverage of the radar is about 150 km and its update rate is 10 rpm.

Precision Approach Radars (PAR) are also installed to provide GCA services.

c) Radar Data Processing system

i. Terminal

At present, the Radar Data Processing (RDP) systems are in operation at main airports. The system processes radar data fed by the ASR and provides air traffic controllers with numeric information on circular displays as shown **Figure 2.3.5.1**. The current RDP system is simple and has no capabilities such as conflict alert and MSAW (Minimum Safe Altitude Warning) functions.

ii. Enroute

A new radar data processing system from the Siemens company of Germany has been installed at Almaty ACC and is undergoing final adjustments. The same system will be installed at Aktyubinsk ACC during the second half of 1997 and Akmola during the first half of 1999 by a subcontract with Thomson-CSF. The system processes radar data fed by the ACC's radars and provides ACC controllers with Alpha Numeric data on the square type plan view displays. The system has a multi-radar data processing function but only Almaty radar is used until other several enroute radar sites are linked to Almaty ACC. The new RDP system has a MSAW function too, but no Conflict Alert System. Because the level of air traffic activity for the ACC's is not high enough to require that function. Twelve different kinds of colors are used for video maps, and the ACC boundary, TMA, approach path, etc. are shown in different colors.

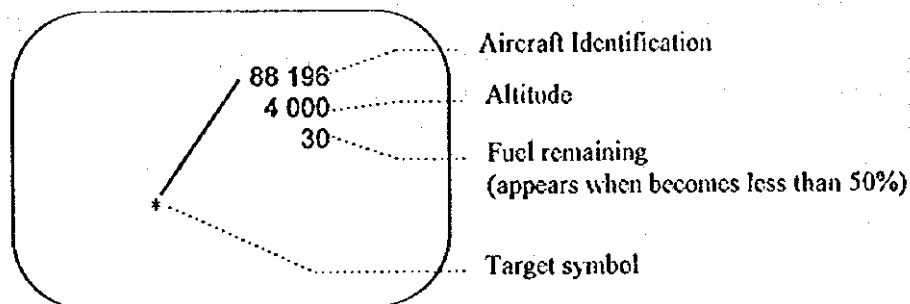


Figure 2.3.5.1 RDP Display (Terminal)

(3) Communications Equipment

a) Telephone

Each ACC has hot lines (direct land line) with neighboring ACC's except for Urumqi in China. All ACC's have reliable direct telephone links with ATC facilities in Kazakhstan and CIS countries.

b) Aeronautical Fixed Telecommunications Network (AFTN)

The AFTN network in Kazakhstan is shown in Figure 2.3.5.2. Almaty Communications Center works as a key station and automatically exchanges information for aircraft operations such as flight planning messages, weather messages, NOTAM's, etc. The speed between main communication centers in Russia is 2,400 bits/sec and 100 bits/sec between ACC's in Kazakhstan.

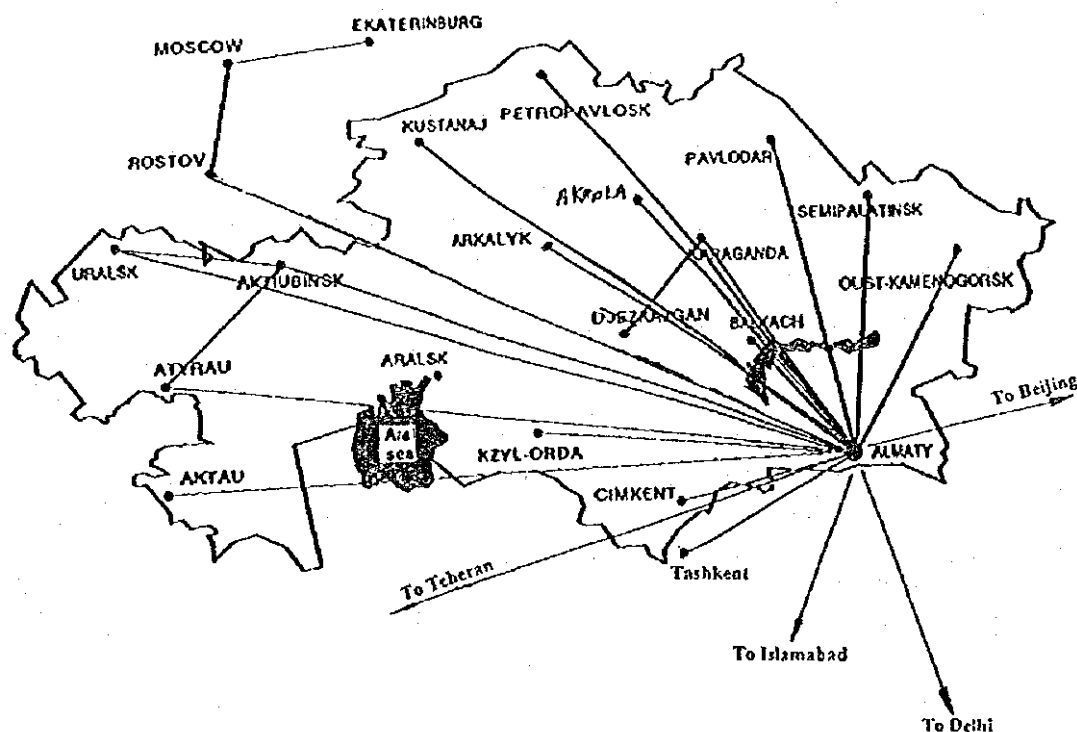


Fig. 2.3.5.2 AFTN Network

c) Air Ground Communication

Each control position of ATC units has its own discrete frequency, but START and GCA final controllers use a common frequency, because close coordination is required between them when the aircraft is making a GCA approach. The average age of air/ground communications equipment is about 15 years but it is still generally working well.

The present ACC air / ground communication sites will be linked to the 3 new ACC's by land-line or by leased satellite links in future.

2.3.6 Air Traffic Services Operation

(1) Legal Authority

The legal authority for Air Traffic Services in Kazakhstan is the National Civil Aviation Law which was promulgated by a presidential decree in December, 1995.

(2) ATS Rules

ATS rules and regulations provided by the Republic of Kazakhstan remain the same as stipulated by the AIP (Aeronautical Information Publication) of Russia.

(3) ATS Organization

Figure 2.3.6.1 shows the ATS organization of Almaty airport. Almaty's ATC / AIS facilities under the ATC service manager are manned by 186 personnel and

144 of these are air traffic controllers.

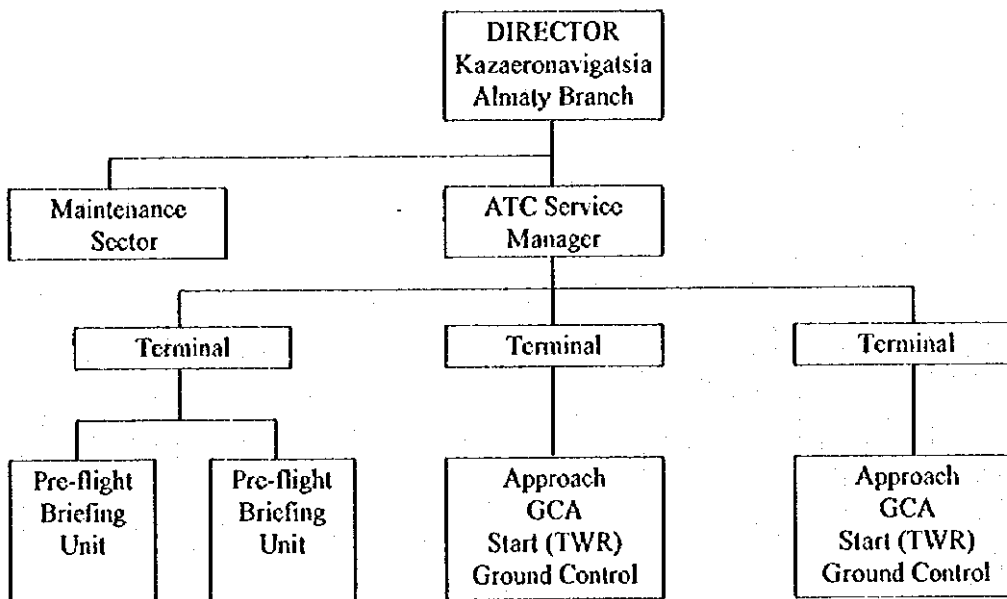


Fig. 2.3.6.1 ATS Organization Chart

(4) Air Traffic Control

Type of ATC Service

The types of air traffic control in Kazakhstan appear below. These ATC facilities are all located within the airport.

- Area Control (ACC)
- Approach Control (Approach)
- GCA

- Aerodrome Control (START or Control Tower)

- a) ACC

Normally the ACC and Approach Control Office are located in the same room. The ACC's area is into 2 or 3 sectors and each sector console is equipped with the circular plan view display of air route surveillance radar.

- i. ACC Category

There is no difference among main, ordinary and auxiliary ACC's regarding air traffic control. The difference in ACC categories arises from the relations with the military and other agencies concerned.

- ii. Military Sector

Most ACC's of Kazakhstan have civil and military sectors. The civil sector controls airways and terminal area and military sector controls off airways. When vectoring aircraft outside of airways, prior coordination and permission of military sector is required. A military aircraft flying in airways or terminal control areas is controlled by civil sectors. Personnel in civil and military sectors closely cooperate in coordinating and planning the use of their airspace.

- iii. ATC Agreement

Each ACC has ATC agreements with adjacent centers. These agreements are bilateral coordination agreements for the exchange of flight information.

- iv. Radar Coverage

Each ACC has its own enroute radar (ARSR). But, the radar coverage is incomplete over the Kazakhstan territory. Ten minutes separation is required outside of the radar coverage.

- v. Radar Hand-off

Hand-off of aircraft to the adjacent ACC's are practiced by radar identification of azimuth and range and phone coordination. Silent transfers of control is unable due to lack of RDP systems in ACC's.

- vi. Graphic System

Strips are not used in ACC's. A "Graphic System" is used which is designed to enable controllers to locate the position of aircraft in the event of radar failure.

- vii. Traffic Volume

Air traffic activities of ACC's are shown in Tables 2.3.6.1 to 2.3.6.4

Table 2.3.6.1 Terminal Air Traffic Activity

	Atyrau		Karaganda		Uralsk	
	Airport	Approach	Airport	Approach	Airport	Approach
1992	30,150	16,190	22,487	16,190		
1993	25,248	15,124	17,942	15,135		
1994	10,405	8,469	7,824	6,488	3,900	2,320
1995	9,861	8,220	6,880	5,788	1,203	440

Table 2.3.6.2 Air Traffic Activity at Kzyl-Orda

	Airport	ACC	Remarks
1993	8,411	89,543 (15,114)	The number in Parentheses shows International flights
1994	4,188	66,437 (9,167)	
1995	3,414	67,496 (12,359)	

Table 2.3.6.3 Air Traffic Activity at Almaty ACC

	1993	1994	1995
Number of Flight per day	200~210	120~140	110~120
Number of Flight per year	76,233	47,450 (EST)	42,137

Table 2.3.6.4 Air Traffic Activity at ACC's

	1992	1993	1994	1995
Atyrau	42,060	41,040	52,070	17,920
Karaganda	34,066	26,384	16,515	14,275
Uralsk			75,540	32,404
Kzyl-Orda		89,543	66,437	67,496
Pavlodar		28,495		
Aktau		36,000	24,000	21,000
Aktyubinsk		48,160		
Almaty		76,233	47,450	42,137
Akmola				

viii. ATIS

Automatic Terminal Information Service (ATIS) is normally done in the ACC's by a information personnel under the supervision of controllers.

b) Approach Control

Approach control has 2 or 3 control positions. If the approach control facility has 3 control positions, the function is shared by the approach, feeder, and final (GCA) positions. The approach and feeder positions are equipped with ASR displays and PAR for final positioning.

i. Krug (Circle Controller)

The feeder position is called "Krug". Krug is Russian and means "circle" or "turn". The function of the Krug, circle controller, is as follows:

- Issues approach clearance.
- Gives the following information to arriving aircraft.
 1. Location of aircraft (if necessary,)
 2. Runway in use
 3. Local altimeter setting
 4. Transition level
 5. Status of runway and coefficient of friction
 6. Dangerous weather condition (when applicable)
 7. Height of clouds, visibility, wind speed and direction (when the ATIS is not operating or as requested by pilot)
- Transition Altitude
Transition altitude varies due to its airport characteristics. But normally transition height (departure) is 500 m and transition level (Arrival) is FL (Flight Level) 1,200 m. In the case of Almaty airport, the transition height from QFE to QNE is 800 m and QNE to QFE is 1,800 m due to the mountain near the airport. The airspace between 800 m and 1,800 m is considered as a buffer zone and level flight is not authorized therein

c) Control Tower

i. START

In Kazakhstan, aerodrome control is normally done from control cabs called "START" which are located near the both ends of the runway. Each START is manned by one controller and the START near the runway in use plays the role of "Main" and the other START becomes "Sub". The START controllers main job is to confirm the status of the runway (the runway is clear or not). START controllers issue landing and take-off clearance to VFR aircraft but they are unable to issue landing clearance to IFR flight. The landing clearance for IFR flight is issued by the GCA or Approach Controller after coordinating with the START controller. Light guns (a signal lamp used when radio failure occurs) are not supplied to the START's.

ii. Control Zone

“Control Zones” or “Airport Traffic Areas” are not established in Kazakhstan, but there are “Landing and Taking-off Areas”. Their horizontal and vertical limits varies due to airport activity but is normally within 25 km from the airport and up to 500m.

iii. Construction of Control Tower

The function of Almaty aerodrome control is shared by the ground control tower and one and two story low control cabs called “START” and they are located different places.

This separation requires unnecessary coordination work and will not be able to cope with increased traffic volume in the future. To maintain safe and efficient operation of the aerodrome control, the ground control tower and START cabs should be combined into an ordinary control tower, and the tower should be of the required height. The aerodrome control tower provides control service to arriving and departing aircraft and to aircraft flying in the vicinity of the aerodrome. In addition, an aerodrome controller is responsible for maintaining a continuous watch on all visible operations including aircraft, vehicle and personnel in the maneuvering area. The height of the tower should, therefore, be such that at normal eye level (about 1.5 m above the floor of the tower cab) the controller is provided with the visual surveillance previously described. The higher the tower, the more easily the surveillance is attained.

d) Separation Standards

i. Vertical Separation

- up to 8,100 m: 300 m
- up to 12,100 m: 500 m
- up to 12,100 m: 1,000 m (airspace above 12,100 m is for military use only)

ii. Lateral Separation (under radar control): 10 km

iii. Longitudinal Separation

- On airways: 30 km (under radar control)
- In approach area: 20 km (under radar control)
- Procedural control: 10 minutes

e) Training

The controllers training is given in:

- St. Petersburg in Russia: 4 years course
- Kirov in Russia: 2.5 years course
- Aktyubinsk in Kazakhstan: 4 years course
- Riga* in Latvia: 4 years course

*Riga’s 4 years course is divided into two parts. The first 2.5 years is a basic course and the latter 1.5 years is applied training.

The lowest age for applicant to those ATC's schools is 17 years.

f) **Work Schedule**

Controllers are on duty for 34 hours a week, and maintenance staff and other ATS shift workers are on duty for 41 hours per week.

g) **Flight Plan Filing**

i. **Repetitive Flight Plan**

Airlines pilots do not file flight plans each time for the same journey, because "Repetitive flight plan procedures" are applied by the airline. When requesting ATC clearance, pilots only notify the controller of the proposed altitude.

ii. **International Transit Flight**

An ICAO flight plan should be submitted at least 3 hours before entry into Kazakhstan's airspace for a transit flight through the airspace.

(5) **Aeronautical Information Service (AIS)**

The function of the AIS is to provide aeronautical information for the territory of Kazakhstan and is responsible for: providing pre-flight briefing to pilots; the handling of NOTAM's; and reviewing, amending and updating the Aeronautical Information Publication (AIP) published by Russia. Kazakhstan uses the Russian AIP and the differences are published in the Aeronautical Information Circulars (AIC).

(6) **Weather Service**

a) **Meteorological Observation System**

The meteorological observation site is normally located at the first floor of the START and provides cloud height, amount of cloud and other latest weather information to air traffic control facilities. Runway Visual Range (RVR) equipment are installed at main airports. The observation site is manned by 2 meteorologists.

b) **Weather Forecasting and Briefing Office**

The weather forecasting and briefing office is located adjacent to the AIS briefing office and provides meteorological data to flight crew members. Information from the meteorological satellite system is used for weather forecasting. This office is also manned by meteorologists.

c) **VOLMET (Voice Meteorological Broadcast)**

VOLMET is not used in Kazakhstan due to a lack of funds.

(7) **Management and Organization**

Kazaeronavigatsia (KAN) was established as a government-owned company responsible for providing terminal and enroute air navigation services to civil air traffic in Kazakhstan on 1 June, 1995. Prior to this, air navigation service units had been an integral part of Kaz Air. It should be note that KAN only has authority over

ANS units at 19 of Kazakhstan's 22 airport locations. The ANS units at Urzhar, Zaysan and Ekibastuz are too small to belong to KAN. There are currently 18 ACC's, most of which are located at airports, under the control of KAN.

KAN's total workforce is 2941 persons. Of these, 2825 are located at the field sites and 116 at headquarters. The largest categories of employees are Air Traffic Controllers, and Maintenance Engineers and Technicians, comprising 711 and 847 persons respectively. Another 21 persons are employed as Aeronautical Information Services Specialists. Table 2.3.6.5 refers.

The dramatic decline in aircraft movements since 1991 has not resulted in a commensurate decline in KAN's workforce. In fact using the staffing standards inherited from the USSR, the ATC and maintenance workforce is considered to be about 133 and 150 persons below strength respectively. KAN's senior management is now considering consolidating some services at certain airports and reducing the hours of service to reduce the current and foreseeable over capacity. The ACC automation program will also eventually reduce staffing requirements. Through natural attrition and by severely limiting the numbers of new recruits into KAN, senior management is estimating reductions of up to 50 % in some employment categories by the year 2003.

Table 2.3.6.5 Kaz Aeronavigation Staffing

Location	Total	Air Traffic Controllers	Maintenance Engineers	Maintenance Technicians	Aeronautical Info. Service	Others
Almaty	478	105	61	64	11	237
Akmola	154	41	20	32	-	61
Aktau	145	42	21	33	-	49
Aktyubinsk	257	65	21	39	5	127
Kzyl-Orda	197	44*	18	55	-	80
Uralsk	157	41	17	26	-	73
Atyrau	225	54	25	32	-	114
Zhambul	110	24	11	32	-	43
Karaganda	248	77	39	35	-	97
Kostanay	200	49	25	29	-	97
Pavlodar	140	37	15	25	-	63
Semipalat'k	150	37**	20	28	-	65
Arkalyk	100	23	10	22	-	45
Balkhash	95	15	15	20	-	45
Zhezhgagan	77	15	13	10	-	39
Petropavlosk	92	26	12	19	-	35
Total Field Units	2825	695	343	501	16	1270
Headquarters	116	16	3	-	5	92
Grand Total	2941	711#	346	501	21	1362**

Notes: * The staff for Aralsk ACC is included in Kzyl-Orda ACC
 ** The staff for Ajaguz ACC may be included in Semipalatinsk ACC
 *** Includes about 450 Communications/Operations personnel
 # A figure of about 1000 controllers was also given

(8) Financial Management

KAN is totally dependent on user charges for its revenues which are collected through the Almaty Headquarters. Most of the revenues are from foreign carriers while Kaz Air is seriously in arrears in its payments. It was not possible to obtain any financial information on KAN, but it was stated that revenues were sufficient to cover expenses. There was some intimation, however, that the intention to reduce the workforce was attributable to financial constraints.

2.3.7 Navigation Aids

(1) Type of NAVAIDS

Kazakhstan uses the following NAVAIDS:

- RSBN
- NDB
- VOR
- VOR/DME
- ILS
- VDF

(2) RSBN

There are 9 RSBN's in Kazakhstan. The RSBN's are specific to the CIS countries and are used for domestic flights. These systems are located within the airport boundaries, provide range and azimuth information, and are used as both enroute NAVAIDS and ILS locator beacons.

(3) NDB

In Kazakhstan, NDB's are used:

- to define Low and Medium Frequency airways;
- as a locator for ILS's; and
- as a non-precision instrument approach aid.

Most of Kazakhstan's air route structure is based on NDB's. These equipment are old (NDB's made in 1968 are still used) and will be replaced by VOR's for international air routes. The NDB's will continue to be used in Kazakhstan as air navigation aids for domestic air routes.

(4) VOR/DME

There is one VOR and there are 9 VOR/DME sites in Kazakhstan. Old Russian made NDB's will be replaced by VOR/DME's made in Germany (Alcatel) and a VOR/DME route structure will be established for international flights. The following are newly installed VOR/DME's:

Aktyubinsk : Installed in 1995

Atyrau	: Awaiting commissioning
Karaganda	: Installed 31 March 1996. Flight checked 13 April 1996. Awaiting commissioning
Uralsk	: Commissioned 20 May, 1996

(5) ILS

There are Russian made ILS systems at 20 airports and, at 14 of these, ILS's are installed at both ends of the runway. Renewal of the ILS system at Karaganda was carried out from 1990 to 1991.

(6) VDF

A VDF is installed in each ACC. VDF is of particular value in locating lost aircraft on radar and as a guide to aerodromes. The VDF equipment is collocated with ACC radar and a strobe of light flashes from the center of the radar display in the direction of the radar target.

(7) Aeronautical Ground Lights

The following aeronautical ground lighting systems are in operation at main airports in Kazakhstan:

- Precision approach lighting system (CAT-1)
- Runway edge lights
- Runway threshold lights
- Taxiway edge lights

Although a Czech made PAPI is in Karaganda airport, Visual Approach Slope Indicator System (VASIS) or Precision Approach Path Indicators (PAPI) are normally not installed in airports in Kazakhstan; however, a lighting system which substitutes VASIS or PAPI is installed near the runway threshold. There are several airports whose approach lighting systems do not satisfy ICAO standards. At such airports, the ILS approach is done by raising the minimums of DH (Decision Height) and RVR (Runway Visual Range).

(8) Flight Check

Flight checking of air navigation aids in Kazakhstan is done by two AN-26 aircraft based at Petropavlovsk.

Notes: 1.58% of the 451 units of major electronic systems (radar, ILS, etc.) are considered obsolete.

2.70% Of the 5553 units of telecommunications equipment is considered obsolete.

2.3.8 The Airport System

(1) General

There are 21 large and medium size airports in Kazakhstan used primarily for regular air services. Besides these, there are more than 100 aerodromes used for general aviation services, such as oil exploration and agricultural work. Almaty and Aktyubinsk have been designated as international airports. Almaty is the international gateway airport and is also a hub for the domestic air transportation network. The government intends to designate a further 9 airports for international operations: Aktau, Atyrau and Uralsk in the western area; Ust-Kamenogorsk in the eastern area; Zhambul and Shinkent in the southern area; Karaganda and Akmola in the central area; and Kostanay in the northern area.

(2) Ownership

At the beginning of the First Field Survey on 1 April, 1996, all 20 of the 21 airports were constituent components of Kazakhstan Airlines. The exceptions were at Ekibastuz and Atyrau. The former was operated by the local government and the latter under a joint venture arrangement which will be described further on.

Integrated air carrier/airport enterprises were established as separate legal subsidiaries of Kazakhstan Airlines at all locations except for Almaty, where a discrete air carrier and a discrete airport enterprise were established. At all other 19 locations, 100% of the equity was owned by the national government, except for Shinkent, where 10% of the total equity of the enterprise at that location had been distributed to the employees. It was the Government's intention to conduct similar equity distributions at each of the other constituent enterprises but, up to October 1996, there was no evidence that this had ever been done. The State Property Committee was the custodian of all the equity owned by the Government, including the undistributed equity earmarked for employees.

The first significant departure from this ownership framework occurred at Atyrau. On 14 April 1994, the Atyrau subsidiary of Kazakhstan Airlines entered into an agreement with the Magdenil Ground Services and Transport Company of Ankara, Turkey. The two parties created a closed joint stock company 'ATMA-ATYRAU AIRPORT AND TRANSPORT INC.' to manage, operate and develop Atyrau airport. Magdenil is providing most of the additional managerial and operational expertise, and is financing the reconstruction and modernization of most of the airport's facilities and equipment. ATMA is the majority owner of the fuel farm and also owns the following immovable, vehicles and equipment.

- Terminal building
- Heating system
- Water & sewerage systems
- Rescue & fire fighting buildings and equipment
- V.I.P building
- Customs building
- Garage & maintenance building & facilities

- ATMA office building
- Staff dining hall
- Dormitory building
- Market building
- Cargo building & medical center
- Equipment and material warehouses
- All ground handling vehicles & equipment

ATMA has the exclusive right to provide all passenger and cargo handling services at Atyrau airport.

Prime Ministerial Decree Number 533 of 30 April, 1996 required, among many other things, that the State Property Committee "separate from the statutory fund of the national joint stock company 'Kazakhstan Airlines' the state's portfolio of stocks of 'Almaty City Airport' joint stock company". It appears that this action was taken to enable future privatization action.

In early June 1996, the Government, represented by the State Property Committee, entered into a contract with a consortium led by Lufthansa Airport Ground Services to manage Almaty airport for a 10 year period. The equity of the airport company (100% owned by the Government but separated from the statutory fund of national JSC Kazakhstan airlines as just indicated) was to be held in trust until a privatization proposal had been approved which would allow the consortium to acquire 51% of this equity with the Government retaining ownership of the remainder.

It is not known if any privatization action has taken place but, according to the authoritative weekly newspaper "Panorama", an entity called Lufthansa/Almaty Airport Ground Services which uses the acronym of LATAS has been managing the airport since mid-August 1996.

Prime Ministerial Decree Number 1030, issued on 20 August, 1996, specified 10 airports to be separated from Kazakhstan Airlines and reincorporated as open joint stock companies by 10 September, 1996: Aktyubinsk, Akmola, Aktau, Atyrau, Karaganda, Kostanay, Pavlodar, Uralsk and Shimkent. It is not know how this decree will affect the ATMA closed joint stock company at Atyrau. The decree went on to state that, at the remaining airports, the combined air carrier/airport enterprises would continue with the air carrier component providing: agricultural, aerial survey and domestic passenger cargo services.

In October 1996, the Civil Aviation Department advised that the separation had taken place at all of these locations except Karaganda and Shimkent.

In an article published in the 28 September edition of Panorama, it was announced that the Prime Minister had approved a request from the Governor of Aktyubinsk to privatize Aktyubinsk Airport. The transaction was to be conducted by the Aktyubinsk Regional Privatization Committee by closed tender.