

RRP:KAZ 28403

# **ASIAN DEVELOPMENT BANK**

**REPORT AND RECOMMENDATION**

**OF THE**

**PRESIDENT**

**TO THE**

**BOARD OF DIRECTORS**

**ON A**

**PROPOSED LOAN AND**

**TECHNICAL ASSISTANCE GRANTS**

**TO THE**

**REPUBLIC OF KAZAKSTAN**

**FOR THE**

**ROAD REHABILITATION PROJECT**

**July 1996**

## CURRENCY EQUIVALENT

(as of 1 May 1996)

Currency Unit	—	Tenge
\$1.00	=	Tenge 65.00
Tenge 1.00	=	\$0.0154

## ABBREVIATIONS

ADTA	-	Advisory Technical Assistance
ASSHTO	-	American Association of State Highway and Transportation Officials
ATD	-	Auto Transport Department
BME	-	Benefit Monitoring and Evaluation
DOR	-	Department of Roads
EBRD	-	European Bank for Reconstruction and Development
EIRR	-	Economic Internal Rate of Return
FSU	-	Former Soviet Union
GDP	-	Gross Domestic Product
HDM	-	Highway Design Model
HRD	-	Human Resources Development
ICB	-	International Competitive Bidding
IEE	-	Initial Environment Examination
JICA	-	Japan International Cooperation Agency
MIU	-	Maintenance Implementation Unit
MOTC	-	Ministry of Transport and Communications
MTR	-	Midterm Review
NRDP	-	National Road Development Plan
OCR	-	Ordinary Capital Resources
ORA	-	Oblast Road Authority
PA	-	Project Administration
PIU	-	Project Implementation Unit
PMS	-	Pavement Management System
PPTA	-	Project Preparatory Technical Assistance
PSC	-	Project Steering Committee
RMD	-	Road Maintenance Depot
RSPS	-	Road Sector Policy Statement
SRA	-	State Road Authority
TA	-	Technical Assistance
USAID	-	United States Agency for International Assistance
VOC	-	Vehicle Operating Cost
vpd	-	vehicles per day

## NOTES

- (i) The fiscal year (FY) of the Government ends on 31 December.
- (ii) In this Report, "\$" refers to US dollars.

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## LOAN AND PROJECT SUMMARY

<b>Borrower</b>	:	Republic of Kazakhstan
<b>Project Description</b>	:	The Project includes rehabilitation of the road from Gulshad to Akysytau within the Almaty-Akmola corridor, developing road maintenance capacity in the same corridor, and provision of consulting services for detailed design and construction supervision and road maintenance assistance. The Project will also assist the Government in developing the road sector by supporting policy reform and strengthening road sector institutions.
<b>Classification</b>	:	Economic Growth.
<b>Environmental Assessment</b>	:	Category B — an initial environmental examination was undertaken.
<b>Rationale</b>	:	Efficient transport services are essential to the development of domestic and international trade as Kazakhstan moves towards a market-based economy. The country's economic activities are concentrated in two regions: western and northern. The northern region contains most of the heavy industries, coal mines, gold deposits, a big grain farm belt, and most refineries and petrochemical complexes. The western region produces oil and gas, including from North Caspian and Tengiz oil fields. Almaty, the capital, is the largest city and key center of finance and commerce. Efficient transport services between Almaty and the northern region are essential to support domestic and international trade. The Almaty-Akmola road running northwest from Almaty is the most important link and transport corridor in the country. Poor maintenance has resulted in serious deterioration of most roads. The rehabilitation of the national road network interconnecting the key centers of the country and routine maintenance of the roads, including the newly rehabilitated sections, are essential for Kazakhstan's economic development and to improve transport safety. Policy and institutional reforms will enhance the road sector's capability to respond more effectively to market demands.
<b>Objectives and Scope</b>	:	The prime objective of the Project is the rehabilitation of the road section between Gulshad and Akysytau in the Almaty-Akmola corridor, accompanied by maintenance of road sections along that corridor and establishment of a road maintenance system. The Project will also assist the Government to (i) implement market-oriented policy and regulatory reforms, (ii) implement institutional restructuring, (iii)

increase road funding through improved cost recovery measures, (iv) develop institutional capacity, and (v) prepare a human resource development plan. The scope of the Project comprises:

- (i) rehabilitation of about 192 kilometer of the road section between Gulshad and Aksytau in the Almaty-Akmola corridor, including consulting services for detailed design and construction supervision;
- (ii) road maintenance and capacity improvement within the Almaty-Akmola corridor through the provision of (a) maintenance equipment, (b) materials, (c) human resources, (d) consulting services to establish a road maintenance system, (e) preparation of manuals, and (f) training of road maintenance crews; and
- (iii) consulting services for benefit monitoring and evaluation of the Project road, as well as for detailed design of road sections selected for rehabilitation under the proposed second road project.

## Cost Estimates

(\$ million)			
Item	Foreign Exchange	Local Currency	Total Cost
<b>A. Base Cost</b>			
1. Road Rehabilitation Civil Works	19.50	16.70	36.20
2. Road Maintenance Equipment, Materials and Manpower	5.50	13.50	19.00
3. Consulting Services	<u>3.70</u>	<u>1.40</u>	<u>5.10</u>
Subtotal	28.70	31.60	60.30
<b>B. Contingencies</b>			
1. Physical	2.87	3.15	6.02
2. Price	<u>2.23</u>	<u>2.25</u>	<u>4.48</u>
Subtotal	5.10	5.40	10.50
<b>C. Interest and Other Charges During Construction</b>			
	<u>6.20</u>	—	<u>6.20</u>
Total	40.00	37.00	77.00

**Financing Plan**

(\$ million)

Source	Foreign Exchange	Local Currency	Total Cost
Bank	40.00	10.00	50.00
Government	-	27.00	27.00
<b>Total</b>	<b>40.00</b>	<b>37.00</b>	<b>77.00</b>

- Loan Amount and Terms** : A loan from ordinary capital resources (OCR) in an amount of \$50 million on the Bank's standard terms and conditions for OCR loans, including an interest rate to be determined in accordance with the Bank's pool-based variable lending rate system, a commitment charge of 0.75 percent per year, and an amortization period of 24 years inclusive of a grace period of 4 years.
- Period of Utilization** : Until 30 November 2000.
- Implementation Arrangements** : The Ministry of Transport and Communications will establish the Project Steering Committee to oversee the implementation of the Project and sector reforms, and the Department of Roads will establish the Project Implementation Unit and the Maintenance Implementation Unit to handle day-to-day implementation activities of the rehabilitation and road maintenance components of the Project, respectively.
- Executing Agency** : Department of Roads
- Procurement** : All procurement to be financed under the loan will be carried out in accordance with the Bank's *Guidelines for Procurement*. Civil works for the road rehabilitation will be procured on an international competitive bidding basis while the road maintenance component will be implemented using force account procedures.
- Consulting Services** : About 293 person-months of consulting services comprising 118 person-months of international consultants and 175 person-months of domestic consultants are required to implement the rehabilitation and road maintenance components, including benefit monitoring and evaluation services. All consultants to be financed under the loan will be selected and engaged in accordance with

the Bank's *Guidelines on the Use of Consultants*. The consultants for detailed design and construction supervision and maintenance assistance have been selected and engaged through advance recruitment action. In addition, consulting services are included in the Project for detailed engineering design of road sections to be rehabilitated under a proposed second road rehabilitation project.

**Estimated Project  
Completion Date**

: 30 May 2000.

**Project Benefits**

: The Project will (i) facilitate efficient movement of domestic and international freight and passengers on the Project road through reduced transportation costs and time, (ii) improve sector policies and the regulatory environment for developing the road sector, (iii) establish road maintenance procedures and improve safety on the road, (iv) assist the development of the private construction industry, and (v) improve cost recovery from road users. The economic internal rate of return for the Project road is estimated at 21.5 percent.

**Technical Assistance**

: An advisory technical assistance grant of \$750,000 will assist the Government to improve its policy and regulatory framework for the road and road transport sector, strengthen the road sector institutions, and improve road funding by developing a broader approach to cost recovery. A project preparatory technical assistance grant of \$250,000 will be provided for feasibility studies of the road sections to be rehabilitated under a proposed second road rehabilitation project.

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## I. THE PROPOSAL

1. I submit for your approval the following Report and Recommendation on (i) a proposed loan to the Republic of Kazakhstan for the Road Rehabilitation Project, and (ii) proposed advisory technical assistance for Institutional Strengthening of the Road Sector. The Report also describes proposed project preparatory technical assistance for a Feasibility Study of Selected Priority Road Sections, and if the proposed loan is approved by the Board, I, acting under the authority delegated to me by the Board, shall approve such technical assistance.

## II. INTRODUCTION

2. Because of Kazakhstan's large size and low population density,<sup>1</sup> dispersed natural resources and centers of economic activity, and land-locked location, one of the key considerations for its future economic development is the provision of efficient and cost-effective transport services through improved transport infrastructure. The existing main rail lines and highways run in a northwest to southeast direction to meet their earlier primary objective of transporting freight and passengers between Russia and Kazakhstan and other Central Asian Republics of the former Soviet Union (FSU). Because Kazakhstan was a main source for raw materials and intermediate products for the FSU, the transport network, particularly rail and road, is fairly well developed but its conditions are not satisfactory. The poor quality of transport infrastructure results in increased transport costs and constrains the country's economic development.

3. The National Road Development Plan (NRDP) prepared by the Ministry of Transport and Communications (MOTC) in 1993 identified the need for more than 60 percent of the existing national roads to be rehabilitated; the condition of the road network has been deteriorating rapidly since then. The Government has accorded high priority and has requested Bank assistance for improving the road transport services by rehabilitating the national road network interconnecting key centers of the country and by establishing an effective road maintenance system to prevent further deterioration of roads.

4. The feasibility study for the proposed Project was prepared by the consultants engaged under the Bank's project preparatory technical assistance (PPTA),<sup>2</sup> which was completed in February 1996. Fact-finding was undertaken in February-March 1996 to discuss key sector and policy issues and review the preparatory work. An Appraisal Mission visited Kazakhstan from 7-17 May 1996.<sup>3</sup> The Mission held discussions on sector strategies and institutional reforms with officials of the concerned Government entities and representatives of transport organizations and external agencies active in the transport sector. This Report is based on the findings of the Bank missions, their discussions with Government officials and road sector representatives, various reports and data provided by the Government and the Department of Roads (DOR), and the findings of the PPTA. Loan negotiations with the authorized representatives of the Government were conducted in Manila from 24-26 July 1996. If approved, the proposed loan will be the Bank's first to the transport sector of Kazakhstan.

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<sup>1</sup> Size: 2,700,000 square kilometer (km<sup>2</sup>) and population density: 6.3 inhabitants/km<sup>2</sup>.

<sup>2</sup> TA No. 2285-KAZ: *Preparation of a Road Rehabilitation Project*, for \$600,000, approved on 11 January 1995.

<sup>3</sup> The Bank Mission comprised Sangpa Tamang (Mission Leader, Project Engineer), David Green (Senior Economist) and Makoto Ojima (Project Economist). Gulen Atay (Counsel) participated in fact-finding.

### III. BACKGROUND

#### A. The Transport Sector

##### 1. General

5. The major characteristic of the transport sector in Kazakhstan is the high demand for transport services compared to the size of the economy. The Kazak economy has been the most freight-transport intensive in the world.<sup>1</sup> The high demand for freight transport services has been due to (i) Kazakhstan's unusual geographical characteristics (vast territory and scattered population, natural resources, and activities); and (ii) the existing trade pattern resulting from (a) the FSU's specialized economy; (b) Kazakhstan's earlier role as the source for raw materials and intermediate products for the FSU, and (c) the previous underpricing of freight transport services. While the demand for public transport modes (the highest demand of 68.5 billion passenger-kilometer [km] was in 1990) does not have the unusual intensity of freight transport, the tariffs for passenger transport also need to reflect the cost of services.

6. The transport demand has fallen drastically since the break up of the FSU and the start of economic restructuring in 1992. The 158.9 billion freight ton-km recorded in 1994 was only 35 percent of the 1990 figure of 455.9 billion ton-km. In passenger traffic, the 68.5 billion passenger-km recorded in 1990 was reduced by nearly half, to 35.7 billion passenger-km in 1994 (see Appendix 1). However, these dramatic decreases need to be put in the context of the somewhat artificial nature of the demand for transport in a centrally planned economy, where (i) tariffs and fares were set without consideration of the cost of the services provided, and (ii) weaknesses in the statistical systems whereby the data do not capture the freight carried in private trucks.<sup>2</sup> As a result, the official statistics somewhat overstate the decline in freight traffic.

7. The transport sector in Kazakhstan comprises roads, railways, civil aviation, and inland waterways. Because of the economy's heavy dependence on coal-based energy production, railways play the dominant role in freight transport, carrying more than 80 percent of all freight, while most of the remainder of the traffic is carried by road. The breakdown of freight transport by products shows that the largest activity in the transport sector is the movement of raw materials and intermediary products. In 1991, almost 60 percent of the total tonnage carried by the railways on the country's entire transport system was coal, mineral ore, steel, and chemical products, and more than 50 percent of the total ton-km on public road transport was for construction materials (see Appendix 2).

8. As in all market economies, transport demand will become much more diversified. Specific quality features such as speed, reliability, short waiting time, minimization of losses and damages, and the ability to move small loads efficiently will become much more important than in the past. Such cargo requires flexible, cost-efficient transport services that are market

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<sup>1</sup> In 1994, Kazakhstan had a transport intensity of about 4 ton-kilometer(km) of freight per dollar of gross domestic product (GDP) at purchasing power parity compared with 2.6 ton-km/\$ for Russia, 1.5 ton-km/\$ for Ukraine, 0.7 ton-km/\$ for the People's Republic of China, 0.5 ton-km/\$ for the United States, and 0.3 ton-km/\$ for Germany (World Bank, *Transport Sector Review*, August 1995).

<sup>2</sup> Transitional economies often lack statistical systems to record private sector activities.

responsive. With the inherently greater suitability of road transport over rail for meeting the increased demand for specialized services, a substantial shift in the modal shares can be expected between the road and rail transport. The extent of possible changes is shown in Appendix 3, comparing the road share of cargo in selected countries.

9. The extent of Kazakhstan's transport infrastructure is adequate to serve the present economy's requirements for transport services but its condition is not satisfactory. The poor quality of assets in the transport sector is a major constraint and the funds for maintenance and rehabilitation have been insufficient. Also, the existing transport system was developed to serve the needs of a centrally planned economy and is unable to serve the needs of the emerging market economy. This is reflected by the past excessive investment and high staffing levels in activities that are no longer appropriate or useful (e.g., large centralized vehicle repair centers and work stations). In contrast, under-investment and human resource shortages prevail in areas that are needed to support a market-oriented transport sector (e.g., there are no competent private road contractors), and distorted prices and the resulting subsidies have provided inappropriate signals to the market.

## **2. Transport Planning and Coordination**

10. The MOTC is responsible for policy, regulation, planning, and development of the transport sector. It is supported by the Cabinet of Ministers and the Ministry of Economy, both of which are involved in developing the Government's overall reform program and prioritizing capital expenditures. MOTC is divided into six departments.<sup>1</sup> The Auto Transport Department (ATD) is responsible for formulating road transport policy and monitoring its implementation, regulating and coordinating the various road transport operations, and licensing operators. Although its role identifies the objectives related to planning and creating an optimal road transport network, improving service levels and road transport technology, facilitating the road transport sector's transition to a market economy, and reducing transport costs, the absence of any formal policy guidelines has limited ATD's ability to achieve these objectives (see paras. 31 and 32).

11. DOR in MOTC, in its present form, was established in January 1995. It is responsible for formulating, planning, and administering road policies, programs, and projects, including programming and budgeting for road activities and management of the Road Fund (see para. 37). Because of its recent establishment, DOR has not yet fully developed its capabilities to carry out its assigned roles (see para. 34).

## **3. The Road Sector**

### **a. The Road Network**

12. The road network in Kazakhstan provides adequate services to all 19 *oblasts* (provinces), connections to communities and links to neighboring countries. The national (republican) road network comprises 17,380 km (93 percent are paved), of which 11,170 km has

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<sup>1</sup> The six departments are Roads, Railways, Auto Transport, Air Transport, Communications, and Water Transport.

been identified for rehabilitation under NRDP (see Appendix 4). There are 70,461 km of provincial (regional) roads (57 percent paved) and 22,600 km of urban roads (65 percent paved). In addition to the above classified road network, there are 57,000 km of rural (economic) roads (5 percent paved). Roads are divided into five design categories, which are distinguished mainly by carriageway width (see Appendix 5). As of 1994, about 37 percent of the national roads were Category I, 11 percent were Category II, 30 percent Category III, and the remaining 22 percent Category IV.

13. The condition of the roads is deteriorating rapidly. An analysis by the World Bank in 1995 indicated that more than 1,000 km of the national road network were becoming unusable every year. The deterioration rate may even be faster considering that more heavy long-distance trucks (more than 10 tons) have started to use the roads that were designed for maximum permissible single-axle loads of 6 tons. In view of the increasing role of road transport, the effect of such a deterioration of the national road network on the economy is serious.

#### **b. Road Financing and User Charges**

14. The extreme shortage of funds for road maintenance and rehabilitation is the most important constraint to improving the road infrastructure of Kazakhstan. Funding for the roads, which in constant terms was more or less stable before 1991 at about 570 million roubles annually,<sup>1</sup> was increased by 20 percent in 1992 and 1993 when the Road Fund was operative.<sup>2</sup> In 1994, there was a drastic decrease in road funding when the severe fiscal constraints led to a de facto collapse of the Road Fund system. The expenditures in 1994 were about 20-25 percent of what they had been in the late 1980s and early 1990s.

15. As a share of gross domestic product (GDP), public investment in the road sector has dropped from about 1.2 percent in 1990 to 0.3 percent of GDP during 1994 and lower still in 1995. Total road expenditure needs to be increased to about 2.0 - 2.5 percent of GDP to cover rehabilitation and maintenance requirements and avoid major reconstruction costs in the near future. Recognizing the severe under-investment in the road sector that has led to road deterioration at a much faster pace than normally expected and to arrest further deterioration, the Government is mobilizing external and internal resources, and has reestablished the Road Fund from the beginning of 1996.

#### **c. Road Administration**

##### **i. Organizational Structure**

16. While Kazakhstan was under the FSU, road works were carried out with the help of the Motor Road Department. After independence in December 1991, the Government issued Decree No. 1251 (dated 21 June 1993) (i) restructuring the Motor Road Department to form a joint stock holding company, Kazakhstan Zoldhary (Kazzhol), and other joint stock companies under it to manage the Government's interest in the road sector; and (ii) establishing a Road Department comprising about 18 people to help MOTC plan and program investments in the

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<sup>1</sup> \$1 = 0.59 rouble in 1990 midyear.

<sup>2</sup> World Bank, *Transport Sector Review*, August 1995.

road sector. The Kazzhol was reorganized and privatized in the beginning of 1996 and all governmental functions related to the road sector were transferred to the Road Department, which was restructured into DOR from early January 1996. The DOR exercises its responsibilities through the State Road Authority (SRA) and 19 oblast road authorities (ORAs) under it. The SRA and ORAs are essentially divisions of DOR responsible for implementation and operational aspects of the road sector projects and programs in Almaty and each of the 19 *oblasts*. The organizational structure of DOR is given in Appendix 6.

## ii. Planning and Budgeting

17. In the past, road expenditure plans and budgets were prepared on the basis of periodic assessments of road conditions, using norms and technical judgement to decide the level of interventions that were required and their degree of priority. The economic optimization of investments and relating expenditures to user charges were not undertaken. With the drastic reduction in road financing and restructuring of the road sector institutions, the planning and budgeting system collapsed. To determine the broad expenditure priorities in accordance with road traffic, road conditions, and possible types of intervention, the European Union and the World Bank are proposing assistance for developing a pavement management system using the World Bank's Highway Design and Maintenance Standards Model (HDM, version 3).<sup>1</sup> With planned improvement in survey and data collection mechanisms, the pavement management system will help determine the most economic intervention levels, timing, costing, and prioritizing of periodic maintenance by road segments.

## d. Road Standards and Safety

18. The FSU's road standards, which classify the roads into five design categories, and technical specifications continue to be used in Kazakhstan. The design methods, technical specifications, and quality control testing methods differ from those used in other countries and do not appear to have a proper economic basis.<sup>2</sup> The quality of construction is rarely of an acceptable standard, which is attributed to the poor quality of construction materials used, inefficient equipment fleet, and inadequate quality control. Design methods and standards, technologies, and specifications should be reviewed to determine required improvements in these areas.<sup>3</sup>

19. Road safety is also a major concern in Kazakhstan. There were 19 deaths per 10,000 vehicles (compared with 3-4 in West European countries) caused by road accidents in 1991, the last year for which country-wide statistics on road safety are available. Although the traffic police routinely collect data on reported accidents and submit reports to the Central

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<sup>1</sup> An improved version of HDM 3 (HDM 4) is being developed jointly by the Bank (through TA No. 5549: *Highway Development and Management Research*, for \$600,000, approved on 28 October 1993), the World Bank, Transport Research Laboratory (UK), and others.

<sup>2</sup> While the design speeds and the resulting geometric road characteristics are higher than those in Western Europe and North America, the number and width of lanes and width of shoulders are not related to the level of service required and road capacity criteria, indicating lesser consideration to economic justification at the design stage.

<sup>3</sup> The Bank is planning a regional technical assistance to review road design and construction standards in the three Central Asian Republic member countries (Kazakhstan, Kyrgyz Republic, and Uzbekistan).

Statistical Office, the data are not processed and analyzed in a manner that identifies black spots and enables corrective measures to be taken. A high number of accidents are attributed to alcohol intake, which indicates the need to tackle the accident problem by more intensive education and law enforcement. A regional technical assistance (TA) financed by the Bank<sup>1</sup> is being implemented covering a number of countries, including Kazakhstan. The TA is aimed at (i) increasing understanding of the factors influencing road safety; (ii) developing strategies, initiatives, and training courses so that the Bank is better able to assist its developing member countries; and (iii) identifying actions to strengthen the capability within the Bank and the developing member countries to tackle the growing road safety problems of the region.

#### **e. Vehicle Traffic and Fleet**

20. The weighted average traffic flow on the national road network is about 2,500 vehicles per day (vpd) and on provincial roads about 1,000 vpd. Very few roads have traffic of more than 5,000 vpd. Traffic flows on the national roads are probably overestimated and are actually in the range of 1,000 to 1,500 vpd. The traffic composition in general comprises about 50 percent trucks, 7 percent buses, and the remaining 43 percent, cars. Car traffic is expected to increase with increasing private car ownership under a market-based economy.

21. The motorized vehicle fleet in 1994 comprised about 1.9 million vehicles, of which 500,000 were trucks, 200,000 buses, and 1.2 million cars. About 95 percent of the cars are privately owned. Previously, most trucks and buses were operated by state organizations; however, since the introduction of the privatization program and auctions, about 84 percent of the trucks and 20 percent of the buses are now owned by private individuals; the balance is owned and operated by State-owned transport companies. The vehicle fleet is dominated by makes from the FSU. This reflects the inherited fleet from the FSU, and a continuing preference for these makes because they are generally cheaper and can be easily maintained. Foreign modern buses are being provided under the World Bank's Urban Transport Project. Some trucking companies have procured second-hand trucks of larger capacity and of more modern design, mainly for use on transnational routes. A substantial number of cars, most of them second-hand, are now being imported privately from Western Europe, but foreign models account for less than 20 percent of the country's car fleet.

#### **f. Road Transport Industry**

22. Because of the sharp contraction in demand, the average annual utilization per truck has fallen from about 150,000 ton-km per truck in 1991 to less than 35,000 ton-km per truck in 1994. This implies a current average annual utilization of less than 5,000 km per truck compared with 50,000 to 100,000 km per truck a year earlier, which would normally be regarded as an economic level of usage. The more efficient companies are taking initiatives to improve their capacities by introducing larger and more modern diesel-driven units in their fleet and scrapping the smaller and older petroleum-driven trucks. Recorded bus utilization has also fallen slightly. The average annual utilization is about 70,000 km compared with internationally accepted utilization levels of about 80,000 km.

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<sup>1</sup> TA No. 5620: *Regional Initiatives in Road Safety*, for \$600,000, approved on 4 January 1995.

23. The road transport industry was included in the Government's Program of Destatization and Privatization for 1993 - 1995 (Stage II).<sup>1</sup> The regulations for privatization of the trucking industry are given in the Decree No. 3/14 dated 23 September 1993. Privatization of trucking enterprises is following a two-stage process; first, the trucks are auctioned and then the enterprise is corporatized and sold either through a small-scale or a mass privatization program. The United States Agency for International Assistance (USAID) is providing assistance to the Government to help in this regard.<sup>2</sup> The passenger freight services are effectively monopolized by regional passenger associations that plan services, set fares, and supply fuel and spare parts to the operating enterprises. In urban areas, the fares are very low and services are heavily subsidized. Potentially profitable passenger service routes do exist (for example, intercity and international routes), but bus enterprises do not have the freedom to set service levels and fares. MOTC is preparing for consideration by the Cabinet of Ministers a policy paper, that would (i) describe present service levels, costs, and revenues in the bus industry; and (ii) consider possible options for the future, including privatization. The Road Sector Policy Statement (RSPS) prepared with Bank assistance will provide a framework for such a policy paper (see para. 32). Assistance for setting up appropriate regulations for urban public transport and governance systems for state-owned public transport enterprises is being provided by the World Bank under its Urban Transport Project.

#### **B. Government Policies and Plans**

24. The Government's overall policy objectives for the transport sector include: (i) ensuring the provision and maintenance of adequate transport infrastructure to support transition to a market-based economy; (ii) privatizing transport operations and promoting competition among operators, while addressing safety and environmental concerns; and (iii) increasing transport sector revenues. The strategy through which these objectives will be implemented includes (i) developing a transport policy for the coming decade; (ii) increasing financial provisions for rehabilitation and maintenance of the road network; (iii) privatizing road transport operations and dismantling licensing controls that hinder competition; (iv) promoting, in collaboration with neighboring countries, the most efficient means of transport for large loads over long distances; (v) privatizing inland waterway transport; (vi) improving civil aviation infrastructure and supporting services that encourage operations by foreign and local airlines; and (vii) increasing cost recovery within the sector through appropriate pricing and taxation policies.

#### **C. External Assistance**

25. Prior to 1991, no external assistance to the road sector was provided. The existing road networks were built by the FSU by mobilizing its own resources with limited cost recovery considerations. Since 1991, assistance has been limited to the World Bank financing the Urban Transport Project and a TA project that reviewed the status of the transport sector in 1995, and TA from Japan International Cooperation Agency (JICA) to carry out the feasibility study of road

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<sup>1</sup> The National Program of Privatization and Restructuring of the State Property in the Republic of Kazakhstan for 1996-1998 is under preparation.

<sup>2</sup> The two ongoing USAID projects are the Small-Scale Privatization and Enterprise Support Project and Mass Privatization Project.

sections in the western provinces of Kazakhstan. The European Bank for Reconstruction and Development (EBRD) has helped DOR evaluate the existing road conditions through its TA program. Bank assistance to the sector has been limited to a PPTA (see para. 4). With the implementation of the Project and related policy and institutional development support, MOTC is expecting to receive more external assistance to develop the road sector in the future. The Bank, World Bank, and the Islamic Development Bank assistance will be utilized mainly to rehabilitate the 1,235-km Almaty-Akmola road and the Japanese Government assistance will focus on improving the roads in western Kazakhstan.<sup>1</sup>

#### **D. Lessons Learned**

26. Although the Project will be the Bank's first road sector project in Kazakhstan, valuable experience has been gained from a number of similar interventions such as the transport projects in Mongolia<sup>2</sup> and Kyrgyz Republic,<sup>3</sup> which are undergoing similar rapid transitions to market-based economies. The Bank's initial implementation experience with those projects has demonstrated that the skills are available to implement straightforward infrastructure projects and has highlighted the need for investments to be accompanied by comprehensive support for policy reform and institutional strengthening, significant consultant assistance, and human resource development programs. These lessons have been taken into account in designing the Project. The World Bank and EBRD have shared their experiences with implementing loans in Kazakhstan, particularly with regard to identifying the role for central coordinating agencies, such as the Ministry of Economy and Committee for Utilization of Foreign Capital, and identifying sources for counterpart funds, and the lessons learned have also been reflected in the Project design. During Project processing, the Mission also held discussions with USAID, which has considerable experience in assisting the Government to privatize Government assets and corporatize state-owned enterprises.

#### **E. The Bank's Operational and Sector Strategy**

27. The main objective of the Bank's interim operational strategy for Kazakhstan is to facilitate the country's transition to a market economy. This objective entails (i) supporting macroeconomic and sectoral policy reforms in close coordination with the World Bank and International Monetary Fund; (ii) institutional strengthening and human resource development; and (iii) support for selected sectoral infrastructure projects, consistent with economic and fiscal developments. In addition to policy-based lending,<sup>4</sup> program lending in agriculture,<sup>5</sup> and

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<sup>1</sup> The World Bank's first road rehabilitation project for \$100 million (earlier included as part of their 1998 program) is now expected to be approved in the first quarter of 1997 and the Japanese Government is expected to assist the Government in rehabilitating the road sections in western Kazakhstan after completion of the JICA feasibility study. The Islamic Development Bank is considering to undertake the feasibility study of Karaganda-Akmola road.

<sup>2</sup> Loan No. 1256-MON: *Ulaanbaatar Airport*, for \$36 million, approved on 17 August 1993; and Loan No. 1364-MON(SF): *Roads Development*, for \$25 million, approved on 22 August 1995.

<sup>3</sup> Loan No. 1444-KGZ(SF): *Road Rehabilitation*, for \$50 million, approved on 13 June 1996.

<sup>4</sup> Loan No.11337-KAZ: *Special Assistance Project*, for an amount equivalent to \$40 million, was approved by the Bank on 6 December 1994 to provide quick disbursing foreign exchange to support macroeconomic stabilization and the country's economic transformation.

<sup>5</sup> Loan No. 1405-KAZ(SF): *Agriculture Sector Program*, for \$100 million equivalent, approved on 23 November 1995.



project lending in education,<sup>1</sup> the Bank's operations aim at arresting the rapidly deteriorating long-term potential of the country by investing in physical infrastructure, focusing on the infrastructure rehabilitation projects that do not require intensive management and are within the implementation capacity of the Government. The operational strategy focuses on addressing issues such as the policy and regulatory environment, sector restructuring, cost recovery, efficiency pricing, commercialization, enterprise reform, capacity building, and human development.

28. The Bank's sectoral strategy supports the Government's ongoing economic transition to a market-based economy by assisting to (i) develop an efficient policy and regulatory framework; (ii) corporatize/commercialize and, where appropriate, privatize transport operations and entities; (iii) restructure Government organizations so that they can respond efficiently to market demands; (iv) create an environment in the transport sector to encourage private sector participation; (v) promote competition in the provision and operations of transport facilities and services; (vi) increase funding by improving tax and duties collection, enhancing cost recovery, and removing subsidy-induced distortions in pricing of transport services; (vii) rehabilitate road infrastructure and improve maintenance operations and safety standards of infrastructure facilities; (viii) develop human resources; and (ix) protect the environment by improving environmental standards.

#### **F. Sector Reform and Policy Dialogue**

29. The transition to a market economy requires major changes to the role of the Government in the transport sector. The Government is divesting itself of the responsibilities of implementing sector activities that could be commercialized/privatized and is focusing on core tasks, which include (i) establishing an appropriate policy, legal, and regulatory framework for the sector; (ii) providing and maintaining public infrastructure, comprising the road and rail networks, and civil aviation facilities; and (iii) ensuring efficient operation of transport services. On 27 November 1995, the Government issued a decree (No. 1598) that restructured the previous Road Department into DOR and established SRA and ORAs from the beginning of 1996. Under the decree, the rights of the road infrastructure proprietorship were transferred from the state-owned joint stock company, Kazzhol (which had been established earlier to manage the Government's interests and to manage the joint-stock companies in the road sector) to DOR effective January 1996. This restructuring has separated functions of the government from activities that are commercial in nature, and which can be eventually privatized. While this was right step towards improving transparency and efficiency, further significant reforms are required to define clearly the overall role of the Government in terms of its core business services and regulatory functions, as the sector is progressively deregulated.

30. To improve the development of the road sector, the Bank's policy dialogue during processing of the Project has focused on (i) establishing an enabling policy and regulatory environment that is consistent with the requirements of a market economy; (ii) institutional restructuring and strengthening of DOR, (iii) establishing a road maintenance system and implementing it in a selected road corridor, (iii) establishing a financial framework that increases

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<sup>1</sup> Loan No. 1420-KAZ(SF): *Educational Rehabilitation and Management Improvement Project*, for \$20 million equivalent, approved on 11 January 1996.

financing for the development and maintenance of the road network through improved cost recovery and appropriate tax administration, and (iv) developing human resource and institutional capacity. The Government has agreed to implement the following recommendations:

## **1. Road Sector Policy and Regulatory Framework**

31. The changes in the management of the economy indicate that the Government is exerting efforts to implement appropriate policies, which for the road sector include (i) administrative decentralization; (ii) institutional restructuring; and (iii) corporatization /commercialization and privatization of state-owned enterprises. The Government's commitment to implement market-based reforms for the road sector needs to be translated into a set of specific policies and guidelines through the framework for a road sector policy statement, the main objectives of which will be (i) creating a proper business and regulatory environment and enhancing the role of private sector; (ii) opening up as much of the transport system as possible to competition; (iii) improving efficiency of the state-owned transport enterprises; and (iv) developing road safety and environmental standards.

32. The Road Sector Policy Statement (RSPS) that was prepared in consultation with the Bank, was formally adopted by MOTC with effect from 31 March 1996 (see Appendix 7). MOTC has agreed to implement some of the sector reform measures included in the RSPS within the agreed time (see para. 74). The RSPS provides the basis for updating the existing Road Act to cover, among other things, regulations on (i) the organizations and jurisdictions of sector institutions, including delineation of responsibilities between regulation/supervision that could be carried out by the Government and for implementation by the private sector; (ii) road infrastructure, including road classification according to functional and administrative considerations, planning considerations, technical designs, construction, maintenance, supervision, and road management systems; (iii) the road transport industry and its operation and management covering licensing, tariffs and fares, and organizational aspects; (iv) motor vehicles for registration and licensing; inspection; control of vehicular dimensions, weights, and emissions; licensing of repair/workshops; and requirements regarding nonmotorized vehicles; (v) road traffic management and control, including movement of traffic on roads, speed limits, responsibilities of drivers, road signs, signals and markings, and regulation and enforcement; and (vi) user charges and cost recovery, including identification of various classes of road users and a longterm strategy for road-user cost recovery. The Road Act will be updated in line with RSPS with assistance to be provided under the proposed advisory technical assistance (ADTA) (see para. 64).

## **2. Institutional Restructuring and Private Sector Participation**

33. The Government's privatization program in the sector is in a state of transition. During 1991-1995, Kazakhstan embarked on a program of commercialization and privatization of state enterprises, transforming them into joint stock companies and transferring shares to the employees. The major achievement of the Government's commercialization program has been the separation of companies into stand-alone entities, each responsible for its own expenses and revenues. Privatization in this context has taken place faster than expected, but the expanded role for the private sector to participate in the road sector has yet to be recognized and identified. A number of road transport companies are not financially viable, and may not become so until the fiscal crisis diminishes to the extent that public investment in the road sector

increases significantly. Key issues include (i) establishing an enabling sector policy environment by delineating the roles of the sector institutions assigning responsibilities for regulatory versus implementing functions, (ii) restructuring and strengthening the Government institutions, and (iii) expanding the role of the private sector.

34. The institutions in the road sector comprise DOR, ATD, Kazzhol and other joint-stock companies, the Design Institute (Kazdorproject), and the Research Institute (Kazdornii). Until December 1995, DOR was a comparatively small division within MOTC. Following the issuance of Decree No. 1598, the institutional restructuring is being carried out by (i) strengthening DOR through the establishment of SRA and 19 ORAs with staff transferred from Kazzhol and newly recruited, (ii) privatizing the subsidiaries of Kazzhol and reorganizing and developing Kazzhol to take up its new role as a holding company for joint-stock road construction companies and to act as a contractors' federation, (iii) transferring the noncommercial functions of Kazdornii to DOR,<sup>1</sup> and (iv) strengthening ATD. With the help of the consultants under the ADTA, support will be provided to the newly established SRA and selected ORAs to help establish the required operating, financial, accounting, and management information systems and to train their staff in tendering, contract management, and construction supervision (see para. 64). Assistance to ATD is being provided by the World Bank through its Urban Transport Project.

### 3. Road Maintenance

35. Kazakhstan has inherited its infrastructure and technical standards from the FSU and continues to rely on Russia and other countries of the FSU for spare parts and equipment. Although DOR has a large fleet of road construction and maintenance equipment, much of it is obsolete and inoperable because funds are lacking for spare parts. Under the centrally planned economy, road construction was undertaken by a Government-owned construction department. The private sector has not developed the capacity for road construction and maintenance because of a number of factors, such as uncertainty arising from the low level of road construction by the Government, the need for large capital investment to own heavy construction equipment, and the lack of knowledge and experience in tendering, contract administration, and construction supervision. The approach envisaged by the Government is to carry out road rehabilitation, periodic maintenance and construction through tendering to privately-owned road construction companies and private contractors once they are properly developed. Routine maintenance of the road network will remain with DOR until a proper routine road maintenance management system has been developed and institutionalized, and could be integrated at a later date with the Pavement Management System (PMS) to be developed under the World Bank and the European Union assistance (para. 17).

36. In the absence of capable private sector contractors and taking into account the geographical isolation and difficulties associated with routine road maintenance by contract, DOR will have to carry out the routine maintenance of roads with the help of its maintenance crews. DOR needs to maintain a minimum amount of equipment for routine maintenance and to handle

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<sup>1</sup> The main road sector data base used to be maintained and research work carried out by Kazdornii. However, following its privatization, there has been neither support nor incentive to update the data base or carry out new research work.

potential emergencies/calamities. To help DOR with routine maintenance of the Almaty-Akmola road, of which the proposed Project is a 192-km section, the Project will strengthen DOR's selected road maintenance depots (RMDs) along the road corridor by providing maintenance equipment, establishing maintenance systems, preparing manuals, and training maintenance crews to carry out maintenance of the road.

#### **4. Road Funding and Cost Recovery**

37. The level of Government expenditure in the road sector is inadequate. In 1994, a study carried out by the World Bank estimated that more than \$492 million (Tenge 32 billion) was required for maintenance of 17,400 km of national and 70,500 km of regional roads, but the actual appropriations were \$29.5 million (Tenge 1,918 million), or only 6 percent of the estimated requirement. As a consequence of concerns raised by the Bank in 1995 on the severe shortage of funds for the road sector and need to improve the situation through reestablishment of the Road Fund, the Government approved MOTC's proposal to establish a dedicated Road Fund and issued the corresponding Decree No. 2701 on 21 December 1995.<sup>1</sup> The Road Fund collection for 1996 is expected to amount to \$125.0 million. Implementation of Decree No. 2701 introduces the user-pay approach to road funding and improves funding for road maintenance. However, the decree may not fully address the sector's financial problems. The Government has recognized that a broader approach to cost recovery is needed to strengthen medium- to long-term financing. The proposed ADTA will recommend establishment of appropriate cost recovery targets and will develop strategies for achieving those targets (see para. 64) including determining the appropriateness of phasing out the Road Fund in the light of the beneficial fiscal considerations and limiting the period the Road Fund is to remain in place. The Government has agreed to adopt the recommendations by 31 December 1997 (see para. 74).

#### **5. Human Resource Development**

38. Capacity building of the newly reorganized DOR will need to be carried out from the basic levels, introducing new structures, systems, technologies, and interorganizational relationships. The DOR staff are technically qualified and competent but they are not experienced with functioning in the market-oriented environment. Planning and management frameworks are yet to be established within DOR, particularly relating to accounting, financial, and management information aspects. To give particular attention to the human resource requirements of the road sector, a human resource development plan will be prepared under the proposed ADTA and emphasis will be given to establishing systems and developing the basic skills of SRA and ORA staff through on-the-job training. This process will be facilitated through the ADTA and implementation of the Project with the help of international consultants. On-the-job training and transfer of expertise to local counterpart staff have been included in the terms of reference of the construction supervision and road maintenance consultants.

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<sup>1</sup> The Road Fund comprises (i) 0.5 percent tax on the revenues of all enterprises, (ii) a Tenge 3.0 per liter tax on gasoline and diesel, and (iii) taxes on heavy vehicles (more than 10 tons) and international freight traffic (rates will be determined for specific cases taking into account the axle load, length and condition of the road to be traveled, and nationality).

## IV. THE PROJECT

### A. Rationale

39. Efficient transport services are essential to support the development of domestic and international trade as Kazakhstan moves towards a market-based economy. The country's economic activities are concentrated in two regions: western and northern. The northern region contains most of the industries, coal mines, gold deposits, and a big grain farm belt and the western region produces oil and gas, including from the North Caspian and Tengiz oil fields. Karaganda's steel mill, the largest industrial enterprise, Pavlodar's tractor company, the largest equipment and machinery enterprise in Kazakhstan, and most refineries and petrochemical complexes are located in the northern area. Almaty, the current capital, is the largest city and key center of finance, commerce and industry such as textiles and canned goods plants. The proposal to move Kazakhstan's capital from Almaty to Akmola was announced in mid-1995 and the Government is planning to implement the move over the 1996 to 1999 period. Since the economy, which is in transition, needs to be supported by efficient transport services and road transport is expected to play more significant role than in the past (see para. 8), the current deterioration of road infrastructure needs to be arrested, starting with the sections of the Almaty-Akmola road that is running in the northwestern direction. The Almaty-Akmola road is the most important link and transport corridor in the country.

40. Lack of maintenance in the past has resulted in the serious deterioration of a number roads. A pavement condition survey conducted in 1992-1993 indicated that 52 percent of Kazakhstan's national roads were in poor condition, 32 percent were in fair condition, and 16 percent were good quality roads.<sup>1</sup> The NRDP, in 1993, identified the need to rehabilitate 11,170 km out of the 17,400 km of national roads. However, because of budgetary constraints, little road rehabilitation work has been undertaken since then, and the condition of the road network has been deteriorating rapidly; this was confirmed by road roughness surveys conducted in 1994. Rehabilitation and routine maintenance of the national road network interconnecting the key centers of the country are essential for Kazakhstan's economic development and to improve transport safety.

41. The ongoing transformation from a command to a market-based economy requires promotion of efficient domestic and international trade. To support this transformation, it is necessary to improve the key road links and prevent their deterioration in future with regular maintenance. A review of the NRDP carried out by the PPTA consultants identified the road interconnecting Almaty and Akmola as the top priority link needing urgent rehabilitation followed by proper road maintenance to enable efficient movement of freight and passengers. The rehabilitation proposed under the Project is for the strategic section of that road and the first externally assisted road project to be implemented in Kazakhstan. The Government is expecting to mobilize additional external resources and to maintain the momentum that will be generated by the implementation of the Project (see para. 25).

42. The associated ADTA will help the Government develop road sector policies appropriate for a market-oriented economy. Policy and institutional reforms will improve the road

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<sup>1</sup> The figures for a typical industrialized country would be about 5 percent poor, 15 percent fair, and 80 percent good condition roads.

sector's capability to respond more effectively to market demands. The development of efficient public and private sector enterprises, involved in delivering transport services and constructing roads, will be facilitated by the Project and the proposed ADTA. The study for cost recovery from road users will result in a more broad-based and rational set of cost recovery targets, which is necessary to sustain investments in the road sector.

## **B. Objectives and Scope**

43. The prime objective of the Project is the rehabilitation of the road section between Gulshad and Aksytau in the Almaty-Akmola corridor, accompanied by maintenance of road sections along that corridor and establishment of a routine road maintenance system. The Project will also assist the Government to implement market-oriented policy, regulatory reforms, and institutional restructuring; increase road funding through improved cost recovery measures; develop institutional capacity; and prepare a human resource development plan.

44. The scope of the Project comprises (i) rehabilitation of about 192 km of the road section between Gulshad and Aksytau in the Almaty-Akmola corridor, including consulting services for detailed design and construction supervision; (ii) road maintenance and capacity improvement within the Almaty-Akmola corridor through the provision of maintenance equipment, materials, human resources, and consulting services for establishing a road maintenance system, preparing manuals, and training of road maintenance crews; and (iii) consulting services for benefit monitoring and evaluation of the Project road, as well as for detailed design of road sections selected for rehabilitation under the proposed second road project.

## **C. Technical Justification**

45. Much of the road between Almaty and Akmola was completed before 1978 and was designed according to FSU road standards. Poor construction of the road and the lack of maintenance have constrained traffic development and the effective utilization of the road capacity. The volume of traffic had been increasing until the early 1990s, but since 1991, traffic volumes have been declining because of the downturn in the economy, following the country's transition to a market economy. Freight and passenger vehicle traffic in 1995 for the Project area is estimated at about 1,200 average annual daily traffic. The traffic forecasts for the Project road have been based on the estimated 1995 traffic data and average annual growth rate of GDP of 3 percent from 1997 to 1999 and 4 percent after the year 2000. The expected shift in the modal shares of traffic from rail to road transport and the anticipated improvements in road maintenance will lead to increased traffic, which justifies rehabilitation of the Project road.

46. The road from Gulshad to Aksytau is the most heavily damaged section within the Almaty-Akmola corridor. The predominant defects are rutting,<sup>1</sup> depressions, potholes, and bleeding.<sup>2</sup> Rutting has occurred along most of the road. Extensive potholes have also

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<sup>1</sup> Furrows made by truck wheels which develop due to densification and deformation in lower pavement layers under traffic loading and/or plastic flow in bituminous surfaces under high temperatures and tire pressures (normally form where the bituminous materials are soft).

<sup>2</sup> Bleeding occurs when asphalt fills the voids of the bituminous pavement mix during hot weather and then expands to form a film of bituminous material on to the road surface that creates a shiny, glasslike, reflecting surface that usually becomes quite sticky; it is caused by excessive asphalt or tars in the mix, excess application of bituminous sealant, or low air void content in the mix.

developed, which affect the driving speed and riding quality. Bleeding of the bituminous surface, which has occurred in several stretches, is attributable to past methods of paving the road surface, reflecting a lack of quality control. Urgent rehabilitation is required to prevent the road from deteriorating further and to restore and preserve the integrity of previous investments. The rehabilitation will consist of reconstructing failed embankments, providing crushed aggregate base course, surfacing with asphalt concrete, and improving shoulders and drainage facilities.

47. The maintenance component of the Project has been designed to establish improved road maintenance systems and procedures. This will enable DOR to maintain the Project road and the other road sections covering about 400 km in the Almaty-Akmola corridor in a more economic and effective manner and prevent their deterioration. Since much of the road maintenance equipment is old and inoperable, the equipment proposed under the Project will complement the existing useful equipment in RMDs along the Almaty-Akmola road corridor (see Appendix 8).

#### **D. Cost Estimates**

48. The total cost of the Project is estimated at \$77 million equivalent, of which \$40 million (52 percent) is the foreign exchange cost and \$37 million equivalent (48 percent) is the local currency cost. The cost estimates are summarized in Table 1; for details see Appendix 9.

**Table 1: Summary of Project Cost Estimates**  
(\$ million)

Item	Foreign Exchange	Local Currency	Total Cost
<b>1. Road Rehabilitation</b>			
Civil Works	19.50	16.70	36.20
<b>2. Road Maintenance</b>			
Equipment, Materials, and Human Resources	5.50	13.50	19.00
<b>3. Consulting Services</b>			
(i) Detailed Design and Construction Supervision of Road Rehabilitation, Road Maintenance Assistance, and Benefit Monitoring and Evaluation Services	3.40	1.30	4.70
(ii) Detailed Design of Other Selected Priority Road Sections	0.30	0.10	0.40
<b>Base Costs</b>	<b>28.70</b>	<b>31.60</b>	<b>60.30</b>
<b>4. Contingencies</b>	5.10	5.40	10.50
<b>5. Interest and Other Charges During Construction</b>	6.20	-	6.20
<b>Total</b>	<b>40.00</b>	<b>37.00</b>	<b>77.00</b>

## E. Financing Plan

49. The proposed Bank loan of \$50 million will finance the full foreign exchange cost (\$40 million) and part of the local currency expenditure (\$10 million). The local cost financing by the Bank, which represents 20 percent of the loan amount and 27 percent of the local currency expenditure, will cover the cost (excluding taxes) of civil works for the rehabilitation component and domestic consultants' services. The local cost financing for the rehabilitation component of the Project will assure timely procurement of local road construction materials, and that for domestic consultants will facilitate their timely recruitment and thus help ensure implementation of the Project. The proposed Bank loan will cover 65 percent of the total Project cost, which is above the standard limit of 60 percent for Group B countries. The proposed Bank loan financing of the local costs is consistent with the Board of Director's decision (6 October 1994) to classify Kazakhstan as a Group B country, but to provide on a temporary basis, up to 80 percent of project cost financing in view of the major economic depression and the continuing fiscal crisis that reduces the Government's ability to sustain development expenditures. The remaining local currency cost of \$27 million will be provided by the Government from its own resources. The Government has assured the Bank that the funds (in addition to the loan proceeds) required to implement the Project will be made available from the Road Fund or other sources as may be considered necessary. The financing plan is summarized in Table 2.

Table 2: Financing Plan  
(\$ million)

Source	Foreign Currency	Local Currency	Total Cost	Percent of Project Cost
Bank	40.00	10.00	50.00	64.9
Government	-	27.00	27.00	35.1
<b>Total</b>	<b>40.00</b>	<b>37.00</b>	<b>77.00</b>	<b>100.0</b>

50. The Borrower will be the Republic of Kazakhstan. The Bank loan will be from the Bank's ordinary capital resources under the US dollar facility, and will have a repayment period of 24 years, including a grace period of 4 years corresponding to the expected implementation period for the Project. The interest rate will be determined in accordance with the Bank's pool-based variable lending rate system for US dollar loans, and the commitment charge will be 0.75 percent per annum in accordance with the Bank's current policy.

## F. Implementation Arrangements

51. In June 1996, MOTC established, and will maintain for the duration of the Project, a Project Steering Committee (PSC) to (i) oversee and coordinate all Project activities, including liaison among agencies involved in the implementation of the Project, and sector reforms agreed with the Bank; (ii) review the status of Project implementation; (iii) monitor progress achieved and resolve difficulties encountered; and (iv) serve as a forum for discussions on, and review of, the Project's impact on regional development. The PSC will be chaired by the Minister of MOTC (or his representative), and its members will be the Director of DOR, Project Manager, Maintenance Manager, and representatives from the Committee for Utilization of Foreign Capital and the Ministry of Economy. The PSC will meet at least twice a year, and more often if required.



52. To ensure cost-effective and timely implementation of the Project, DOR established the Project Implementation Unit (PIU) in May 1996 headed by a qualified Project Manager, to handle the rehabilitation component of the Project, and will establish by March 1997 an adequately staffed Maintenance Implementation Unit (MIU), headed by a Maintenance Manager to implement the maintenance component. The Project Manager will be supported by road engineers, a materials and soil engineer, a bridge engineer, and supporting financial and clerical staff. The PIU and MIU will remain adequately staffed throughout the Project implementation period and will be assisted by the consultants to be engaged for detailed design and construction supervision, and road maintenance assistance. The PIU and MIU will be responsible for day-to-day implementation of the Project and will provide the necessary liaison between DOR, contractors, suppliers, and the Bank.

### **1. Implementation Schedule**

53. The Project is expected to be implemented over a four-year period commencing by mid-1996 and ending by mid-2000 (see Appendix 10).

### **2. Procurement**

54. To encourage international competition and participation of joint ventures of international and local contractors, the rehabilitation of the 192 km section of the Almaty-Akmola road will be carried out under a single civil works contract financed by the Bank. Its procurement will be carried out in accordance with the Bank's *Guidelines for Procurement* using international competitive bidding (ICB) procedures (see Appendix 11). The road maintenance package will be implemented using force account procedures. The procurement of maintenance equipment will be undertaken through ICB and the road maintenance materials, to be financed by the Government, will be procured following its local competitive bidding procedures. Because of the relatively short construction season from April to October when roads are free of snow, and given the need to undertake the rehabilitation and maintenance works as early as possible to arrest further deterioration of the Project road, the Government proposed to commence the works at the beginning of the 1997 construction season. Since this was possible only if the preconstruction activities were carried out prior to Board consideration of the Project, the Bank approved the Government's request for advance procurement action for the road rehabilitation and road maintenance equipment contracts.<sup>1</sup> The Government has been advised that Bank approval of such advanced procurement action does not commit the Bank to financing the Project.

### **3. Consulting Services**

55. Consulting services are required from an international consulting firm in association with the local consultants for detailed design and construction supervision of the road rehabilitation component, road maintenance assistance, and benefit monitoring and evaluation. Consultants to be financed under the loan will be selected and engaged in accordance with the Bank's *Guidelines on the Use of Consultants*. About 293 person-months will

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<sup>1</sup> Bank approval was reported in the June 1996 edition of the *Asian Development Bank Business Opportunities* (ADBBO).

be required (about 118 person-months of international consultants and about 175 person-months of domestic consultants). In providing the services, the international consultants will ensure that on-the-job training and transfer of expertise are provided to DOR staff and domestic design and supervision companies. To facilitate the advance procurement action and to enable DOR to supervise detailed engineering design of the Project road carried out under Government financing with the help of domestic consultants, the Bank has approved the Government's request for advanced recruitment of the consultants for detailed design and construction supervision, and retroactive financing, in principle, of \$1.5 million for expenditures incurred for these services after 1 July 1996 and prior to date of loan effectiveness.<sup>1</sup> The Government has been advised that Bank approval of advance recruitment action and retroactive financing, in principle, does not constitute a commitment on the part of the Bank to finance the Project. The outline terms of reference for these services are shown in Appendix 12.

56. In addition, consulting services have been included in the Project for undertaking detailed design of other selected road sections that are to be rehabilitated under a proposed second road rehabilitation project included in the Bank's 1999 country program. About 12 person-months of international and 25 person-months of domestic consultants will be required. The consultants will be selected and engaged in accordance with the Bank's *Guidelines on the Use of Consultants*.

#### **4. Midterm Review**

57. In 1998, the Bank and the Government will carry out a midterm review of the Project to (i) examine the Government's progress in implementing sector reforms, (ii) review the implementation of the Project and determine compliance with relevant standards, and (iii) examine compliance with assurances and provisions of the Loan Agreement.

#### **5. Reports, Accounts, and Audit**

58. DOR will prepare and submit to the Bank quarterly reports on the progress of Project implementation. DOR will maintain separate accounts for the Project and have them audited by the Government audit authority, as soon as it is established, within nine months of the end of the financial year. Until then, loan proceeds may be used to finance the auditing of the accounts and preparation of auditor's report. The audited accounts and auditor's report, in English, prepared in accordance with internationally accepted accounting standards, will be furnished to the Bank within nine months of the end of the financial year. To facilitate post-evaluation of the Project, DOR will furnish to the Bank within three months of physical completion of the Project, a completion report covering the execution and initial operation of the Project facilities.

#### **6. Benefit Monitoring and Evaluation**

59. A system for recording the baseline data, including traffic data, and collecting the statistics for monitoring the Project benefits will be established with the assistance of the consultants to be engaged under the Project. DOR will evaluate the Project benefits with the

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<sup>1</sup> Bank approval was reported in the June 1996 issue of the ADBBO.

assistance of the consultants and monitor and report on physical, financial, economic, and social aspects of the Project during its implementation. These activities will be reviewed by the Bank on the basis of the quarterly reports and thorough review missions. The Project Framework (see Appendix 13) will be the key tool in monitoring the performance of the Project and TA.

#### **G. Executing Agency**

60. Under the guidance of the Minister of Transport and Communications, DOR will be the Executing Agency for the Project. DOR will discharge its functions through the PIU and MIU, assisted by the international consultants.

61. Under the existing organizational setup (see para. 16), implementation of civil works, including preparation of detailed design and tender documents, bidding, contracting, and supervision of works, are the responsibilities of SRA. SRA is headed by the Regional Director who reports to the Director of DOR. The PIU and MIU have been established within SRA under its Construction Supervision, and Traffic Management and Road Safety Divisions, respectively. Implementation of the road rehabilitation component will be carried out in close collaboration with the ORAs concerned. The road maintenance component will be implemented with the assistance of the ORAs, particularly those in Almaty and Zezkazgan *oblasts*, to enable them to take over the maintenance of the roads.

#### **H. Environmental and Social Measures**

62. An initial environment examination (IEE) of the Project has been carried out by the PPTA consultants in line with the Bank's *Environmental Guidelines for Selected Infrastructure Projects*. The IEE has indicated that there are no significant adverse environmental impacts associated with the Project, which consists of rehabilitating the road along its existing alignment and does not involve any acquisition of land or rights-of-way. Consultants to be engaged for detailed design and construction supervision of the Project will supervise and monitor (i) selection and restoration of borrow areas and quarries, (ii) use of water for construction purposes, (iii) control of hazardous and toxic materials, and (iv) impairment of downstream water quality. These environmental monitoring and mitigating measures have been incorporated in the consultants' terms of reference. The Government has assured the Bank that it will address adequately any potential environmental impacts of the Project during both design and implementation.

63. Since rehabilitation will be carried out on the existing road, there are no relocation, resettlement or compensation issues involved in the Project. The Project will (i) generate about 1,000 person-years of local employment; (ii) improve road riding quality and reduce driver and passenger fatigue; and (iii) reduce transport costs and facilitate improved transport services, which will generate additional economic and commercial activities. The Project will have no adverse impact on vulnerable groups or human uplifting dimension.

## I. Technical Assistance

### 1. Advisory

64. The Government has requested an ADTA to help implement reforms in the road sector. The objectives of the ADTA include assisting the Government in (for details, see the terms reference in Appendix 14):

- (i) developing an appropriate legal framework for the road and road transport sector, including updating the existing Road Act ;
- (ii) developing institutional structure, defining the role, and establishing an operating system for DOR (particularly for the newly established SRA and selected ORAs), so that it can respond efficiently to market demands;
- (iii) strengthening the financial and planning capabilities of DOR (particularly the newly established SRA and selected ORAs);
- (iv) developing a broader approach to cost recovery to ensure adequate funding for the road sector; and
- (v) developing human resources for the road sector.

65. Consultants to be engaged under the ADTA will help the SRA and selected ORAs establish operating, financial, accounting, and management information systems, and will train their staff in tendering procedures, project management, contract administration, and construction supervision. In order to address these urgent issues and mobilize the ADTA consultants as soon as possible, the Government requested advance action for the recruitment of consultants. Because such action is essential to provide timely assistance to DOR at the initial phase of its restructuring, the Bank has approved it.<sup>1</sup> The Government has been advised that approval of advance action does not commit the Bank to finance the ADTA.

66. About 23 person-months of international consultants and 20 person-months of domestic consultants will be required to implement the ADTA over a eight-month period. The international consulting firm, which is being selected and engaged by the Bank in accordance with the Bank's *Guidelines on the Use of Consultants*, will form an association with a suitably qualified domestic consulting firm. The total cost of the ADTA is estimated at \$770,000 equivalent; comprising \$645,000 in foreign exchange costs and \$125,000 equivalent in local currency expenditures. It is proposed that the Bank provide a grant of \$750,000 to finance the entire foreign exchange cost and \$105,000 of the local currency expenditures, and that the Government finance the remaining \$20,000 equivalent (see Appendix 15). The ADTA will be provided by the Bank on a grant basis.

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<sup>1</sup> Bank approval was reported in the June 1996 issue of the ADBBO.

## 2. Project Preparatory

67. The Government has also requested the Bank to provide a PPTA to prepare feasibility studies of other selected high priority road sections recommended under TA No. 2285-KAZ, for which detailed design will be subsequently prepared under the Project (see para. 56). About 8 person-months of international and 12 person-months of domestic consultants will be required to prepare the feasibility studies over a five-month period. The international consulting firm, which will be selected and engaged by the Bank in accordance with the Bank's *Guidelines on the Use of Consultants*, will form an association with a suitably qualified firm of domestic consultants. The terms of reference for the proposed PPTA are shown in Appendix 16. The total cost of the PPTA is estimated at \$270,000 equivalent comprising \$180,000 in foreign exchange costs and \$70,000 equivalent in local currency expenditures. It is proposed that the Bank provide a technical assistance grant of \$250,000 to finance the entire foreign exchange cost and \$50,000 of local currency expenditures and that the Government finance the remaining \$20,000 equivalent of local currency expenditures (see Appendix 17). The PPTA will be provided by the Bank on a grant basis.

## V. PROJECT JUSTIFICATION

68. Following a review of the NRDP by Bank consultants, a priority list of 3,800 km of national roads was recommended for rehabilitation.<sup>1</sup> Of these, 1,200 km were subjected to detailed screening based on the relevant criteria such as traffic, economic and population data and the condition of the roads. The screening identified the road from Almaty to Akmola as the most important road link needing to be rehabilitated. In the Almaty-Akmola corridor, the road from Saryshagan to Akmola, 730 km long, was found to have the highest priority. Of the 730 km, detailed economic evaluation was carried out for the Gulshad-Karaganda road, which is 407 km long. The 192 km section from Gulshad to Aksytau is included in the Project and the remaining 215 km is proposed to be taken up under the World Bank's road rehabilitation project.

69. The economic evaluation has been carried out based on a comparison of the "without" and "with" Project scenarios. Benefit streams for the Project road accrue mainly through savings in vehicle operating costs (VOCs) and rehabilitation and maintenance costs. Under the "without" Project scenario, the VOCs and road rehabilitation and maintenance costs will continue to increase because of the rapidly deteriorating condition of the existing road. Under the "with" Project scenario, improved road conditions will reduce the VOCs and routine and periodic maintenance costs. The economic internal rate of return (EIRR) has been derived by estimating the benefits accruing over a period of 20 years from 2000, which covers the economic life of the improved roads, while construction costs were spread over the implementation period of 4 years starting in 1996. Costs and benefits were estimated net of taxes and duties and expressed in constant 1996 prices.

70. On this basis, the EIRR is estimated at 21.5 percent. Sensitivity analysis has been carried out to test the effects of possible unfavorable changes in the key parameters that determine Project costs and benefits. This analysis has indicated that the Project will continue to be economically viable even under the most adverse scenario, involving a 10 percent cost increase and a 10 percent decrease in benefits. The results of the analysis are summarized in Table 3. The data and methodology underlying the EIRR calculations are shown in Appendix 18.

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<sup>1</sup> Under TA No. 2285-KAZ: *Preparation of a Road Rehabilitation Project*, for \$600,000, approved on 11 January 1995.

Table 3: Sensitivity Analysis for the Project Road

Sensitivity Test	Percentage Change	EIRR (%)	Sensitivity Indicator <sup>a</sup>
1. Base Case	—	21.5	—
2. Capital Cost	10% increase	19.5	0.93
3. Benefits	10% reduction	19.5	0.93
4. Implementation Delay by One Year	—	19.2	—
5. Combination of 2, 3, and 4	—	15.8	—

$$^a \text{ Sensitivity Indicator} = \frac{\text{Change in the EIRR (\%)}}{\text{Change in Variable Tested (\%)}}$$

71. The Project has been formulated in a manner that will help reduce potential risks. To minimize the risk of delays during implementation, the Bank has approved advance action for recruitment of consultants and procurement, and retroactive financing, in principle, for consultants (see paras. 53 and 54). The Project does not involve any unique or sophisticated technology and is not expected to face any major technical or managerial risks. DOR's capabilities in project implementation have been carefully reviewed; DOR has adequate numbers of qualified and skilled staff to implement the Project satisfactorily with the assistance of consultants. The use of ICB procedures and the contract packaging will minimize the potential for logistical difficulties during Project implementation. To minimize the risk of substandard quality control during construction, the consultants for detailed design and construction supervision and road maintenance assistance will assume overall responsibility for materials testing and quality control on site.

72. Given the current high fiscal deficits in Kazakhstan, particular attention needs to be given to delays in implementation because of a shortage of counterpart funds. This significant potential risk has been mitigated by the implementation of the Road Fund Decree since January 1996, the agreement on medium- and long-term reform measures to help increase resource mobilization and cost recovery, and the Government assurance to make adequate counterpart funds available from the Road Fund or other resources as may be considered necessary.

73. Since the Project is the first multilateral assistance to the road sector, DOR is not familiar with the Bank's policies and procedures. To address the risks posed by DOR's unfamiliarity, several steps have been or will be taken. These include (i) incorporating in the Project design lessons learned from implementing projects in other countries of similar geographical area and economic conditions, as well as experiences of other multilateral and bilateral institutions; (ii) preparing a detailed Project administration memorandum; (iii) supervising implementation through regular review and midterm review missions; and (iv) implementing a broad strategy to familiarize the executing agencies in Kazakhstan with the Bank's policies and procedures.<sup>1</sup>

<sup>1</sup> TA No. 2174-KAZ: *Seminar on Bank Operational Policies and Procedures in 1995 and 1996*, for \$85,000, approved on 28 September 1994 and TA No. 2222-KAZ: *Institutional Support*, for 554,000, approved on 6 December 1994.

## VI. ASSURANCES

74. The Government has given the following assurances, in addition to the standard assurances, which are incorporated in the Loan Agreement:

(i) **Sector Reforms**

- (a) By no later than 30 June 1997, the Government will form a Committee for Transport Sector Legal Reforms which will undertake, with the help of consultants financed under the ADTA, a comprehensive review of the existing legislation in the road and road transport sector; update the existing Road Act for Parliament's consideration; issue regulations consistent with the RSPS; and make amendments, if necessary, to the existing legislation to ensure consistency with the revised Road Act and the RSPS. The Committee will be chaired by the Minister, MOTC (or his representative) and its members will include representatives of the Ministry of Justice, ATD, DOR, and one member from the Parliamentary Standing Committee on Transport and Communications.
- (b) By no later than 31 December 1997, MOTC will establish the National Transport Advisory Committee as required under the RSPS. The National Transport Advisory Committee will be chaired by the Minister, MOTC (or his representative) and its members will include representatives of the Ministry of Economy, DOR, ATD, state-owned transport enterprises, and the private sector.

- (ii) **Cost Recovery:** By 30 June 1998, the Government will adopt measures to improve cost recovery from road users taking into account the recommendations made in this regard under the ADTA.

- (iii) **Environment:** The Government will ensure that appropriate environmental protection and safety devices are included in the design of the Project facilities as detailed in the engineering design; and will implement the Project, and operate and maintain the Project facilities, in accordance with the IEE and the Bank's *Environmental Guidelines for Selected Infrastructure Projects*.

**VII. RECOMMENDATION**

75. I am satisfied that the proposed loan and technical assistance would comply with the Articles of Agreement of the Bank and recommend that the Board approve:

- (i) the loan of \$50 million to the Republic of Kazakhstan for the Road Rehabilitation Project from the Bank's ordinary capital resources, with interest to be determined in accordance with the Bank's pool-based variable lending rate system for US dollar loans and with an amortization period of 24 years, including a grace period of 4 years, and such other terms and conditions as are substantially in accordance with those set forth in the draft Loan Agreement presented to the Board; and
- (ii) the provision of technical assistance in an amount not exceeding the equivalent of \$750,000, on a grant basis, to the Government of the Republic of Kazakhstan for Institutional Strengthening of the Road Sector.

MITSUO SATO  
President

30 July 1996



## APPENDIXES

<b>Number</b>	<b>Title</b>	<b>Page</b>	<b>Cited on (page,para.)</b>
1.	Transport Demand	27	2,6
2.	Road and Rail Freight Volumes (1991)	28	2,7
3.	Relative Shares of Road and Rail Freight Transport Volume in Selected Countries	29	3,8
4.	Roads in the National Road Development Plan	30	4,12
5.	Road Classification and Standards	31	4,12
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9.	Project Cost Estimates and Financing Plan	44	15,48
10.	Implementation Schedule	45	17,53
11.	Proposed Contract Packages	46	17,54
12.	Outline Terms of Reference for Consulting Services for Detailed Design and Construction Supervision, Road Maintenance Assistance, and Benefit Monitoring and Evaluation	47	18,55
13.	Project Framework	59	19,59
14.	Outline Terms of Reference for Technical Assistance for Institutional Strengthening of the Road Sector	62	20,64
15.	Cost Estimates for Institutional Strengthening of the Road Sector	67	20,66
16.	Outline Terms of Reference for Technical Assistance for the Feasibility Study of Selected Priority Road Sections	68	21,67

Number	Title	Page	Cited on (page,para.)
17.	Cost Estimates for Technical Assistance for the Feasibility Study of Selected Priority Road Sections	71	21,67
18.	Methodology for Determining the Economic Internal Rate of Return	72	21,70

**SUPPLEMENTARY APPENDIX**  
(available upon request)

- A. Traffic Forecasts
- B. Outline Terms of Reference for Consulting Services for Detailed Design of Selected Priority Road Sections
- C. Summary Initial Environment Examination

## TRANSPORT DEMAND

Transport Mode	Year				
	1990	1991	1992	1993	1994
<b>A. Freight Transport</b>					
<b>1. Demand (in billion ton-kilometers)</b>					
Railway	407.00	374.00	286.00	192.00	147.00
Road	45.00	44.00	40.00	29.00	11.00 <sup>a</sup>
Water	3.80	3.40	2.50	1.50	0.80
Air	0.09	0.10	0.08	0.06	0.07
<b>Total</b>	<b>455.89</b>	<b>421.50</b>	<b>328.58</b>	<b>222.56</b>	<b>158.87</b>
Railway (percent)	89.3	88.7	87.0	86.3	92.5
Road (percent)	9.9	10.4	12.2	13.0	6.9
Water (percent)	0.8	0.8	0.8	0.7	0.5
Air (percent)	—	—	—	—	—
<b>2. Demand (in million tons)</b>					
Railway	345.00	328.00	289.00	261.00	173.00
Road	2,236.00	2,154.00	2,011.00	1,382.00	550.00 <sup>a</sup>
Water	11.00	11.00	7.00	4.00	2.00
Air	0.07	0.05	0.03	0.03	0.03
<b>Total</b>	<b>2,592.07</b>	<b>2,493.05</b>	<b>2,307.03</b>	<b>1,647.03</b>	<b>725.03</b>
Railway (percent)	13.3	13.2	12.5	15.8	23.9
Road (percent)	86.3	86.4	87.2	83.9	75.9
Water (percent)	0.4	0.4	0.3	0.2	0.3
Air (percent)	—	—	—	—	—
<b>B. Passenger Transport</b>					
<b>1. Demand (in billion passenger-kilometers)</b>					
Railway	19.70	19.40	19.70	20.50	17.50
Road	35.40	33.20	26.20	19.90	13.60 <sup>b</sup>
Water	0.10	0.10	0.04	0.02	0.01
Air	13.30	12.60	8.80	6.80	4.60
<b>Total</b>	<b>68.50</b>	<b>65.30</b>	<b>54.74</b>	<b>47.22</b>	<b>35.71</b>
Railway (percent)	28.8	29.7	36.0	43.4	49.0
Road (percent)	51.7	50.8	47.9	42.1	38.1
Water (percent)	0.1	0.2	0.1	—	—
Air (percent)	19.4	19.3	16.1	14.4	12.9
<b>2. Demand (in million passengers)</b>					
Railway	42.6	40.0	39.7	41.2	35.2
Road	3,844.4	3,540.8	2,946.3	2,599.7	1,776.7 <sup>b</sup>
Water	3.1	3.1	1.6	1.2	0.6
Air	8.6	7.9	5.2	3.6	2.4
<b>Total</b>	<b>3,898.7</b>	<b>3,591.8</b>	<b>2,992.8</b>	<b>2,645.7</b>	<b>1,814.9</b>
Railway (percent)	1.1	1.1	1.3	1.6	1.9
Road (percent)	98.6	98.6	98.4	98.3	98.0
Water (percent)	0.1	0.1	0.1	—	—
Air (percent)	0.2	0.2	0.2	0.1	0.1

<sup>a</sup> This reflects official statistics and may not include substantial traffic carried by privatized trucking companies.

<sup>b</sup> This reflects official statistics and may not include traffic carried by privatized bus companies.

Source: World Bank, Transport Sector Review, August 1995 and Staff Estimates.

## ROAD AND RAIL FREIGHT VOLUMES (1991)

Type of Cargo	Ton-km (billion)	Percent
<b>A. Road Freight Volume by Type of Cargo</b>		
Raw Materials	2.7	6
Consumer Goods	0.9	2
Agriculture (Grain)	3.1	7
Steel and Machinery	1.8	4
Construction Materials	24.4	55
Containers and Packages	0.9	2
Other	10.6	24
Total	44.3	100
<b>B. Rail Freight Volume by Type of Cargo (1991)</b>		
Coal and Coke	157.2	42
Petroleum Products	26.2	7
Cement and Wood	7.5	2
Ore (Iron, Magnesium and Sulphur)	37.4	10
Ferrous Metal	7.5	2
Grains and Grain Products	15.0	4
Chemical and Mineral Fertilizers	15.0	4
Others	108.5	29
Total	374.2	100

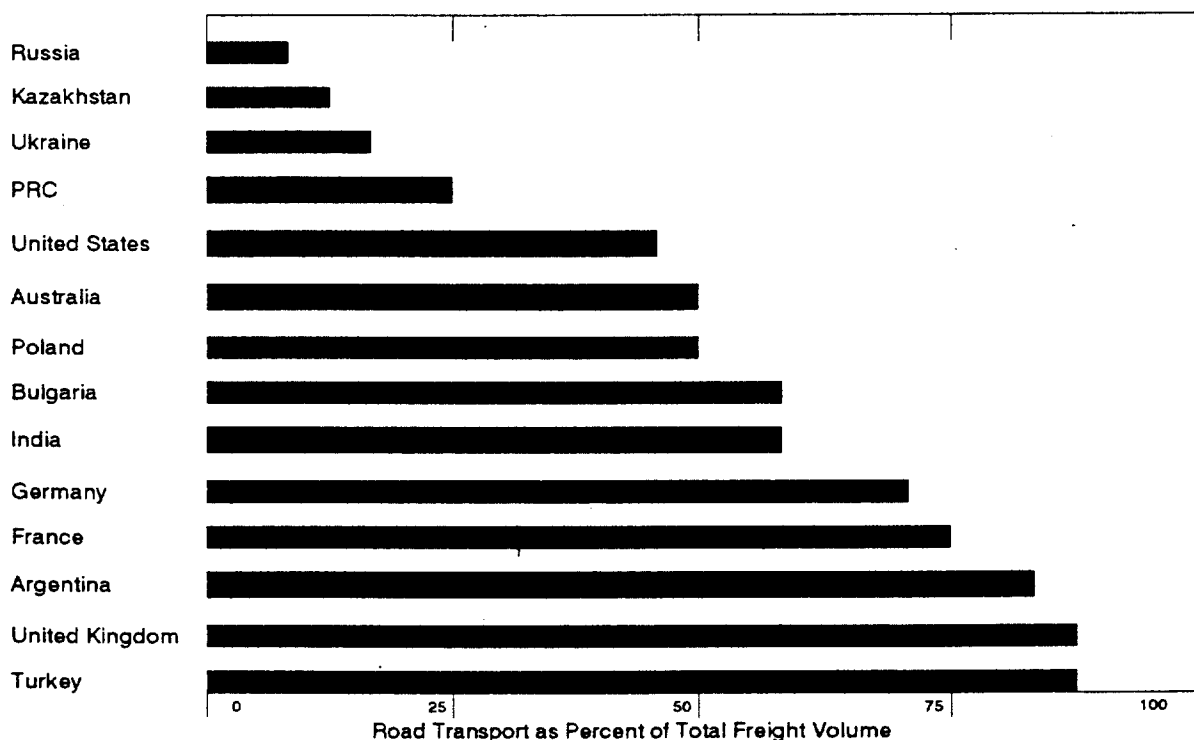
Source: World Bank, Transport Sector Review, August 1995.

# RELATIVE SHARES OF ROAD AND RAIL FREIGHT TRANSPORT VOLUME IN SELECTED COUNTRIES (1992)

Table: Share of Road and Rail Freight Volumes as Percentage of Total (Road + Rail)

Country	Rail Transport		Road Transport	
	Billion Ton-km	Percent	Billion Ton-km	Percent
Russia	2,250	90	263	10
Kazakhstan	286	88	40	12
Ukraine	336	84	65	16
People's Republic of China (PRC)	1,157	75	375	25
United States	1,576	57	1,190	43
Australia	89	50	88	50
Poland	58	50	59	50
Bulgaria	8	42	11	58
India	246	42	345	58
Germany	81	29	203	71
France	49	25	148	75
Argentina	8	12	60	88
United Kingdom	16	11	136	89
Turkey	6	11	68	89

Figure: Share of Road Freight Volume as Percentage of Total (Road+Rail)



Source: World Bank, Transport Sector Review, August 1995 and Staff Estimates

## ROADS IN THE NATIONAL ROAD DEVELOPMENT PLAN

Road	Length (km)
1. Almaty–Akmola–Ekaterinburg	2,120
2. Dossar–Opomaya–Aktau	770
3. Shymkent–Kzyl Orda–Aralsk–Samara	2,060
4. Omsk–Pavlodar–Maikapchagai	1,100
5. Khorgos–Almaty–Bishkek–Shymkent–Tashkent	1,160
6. Almaty–Ust–Kamenogorsk	1,070
7. Kzyl Orda–Dzhezkazgan–Petropavlovsk	1,510
8. Astrahan–Aktyubinsk	900
9. Akmola–Petropavlovsk	480
<b>Total</b>	<b>11,170</b>

## ROAD CLASSIFICATION AND STANDARDS

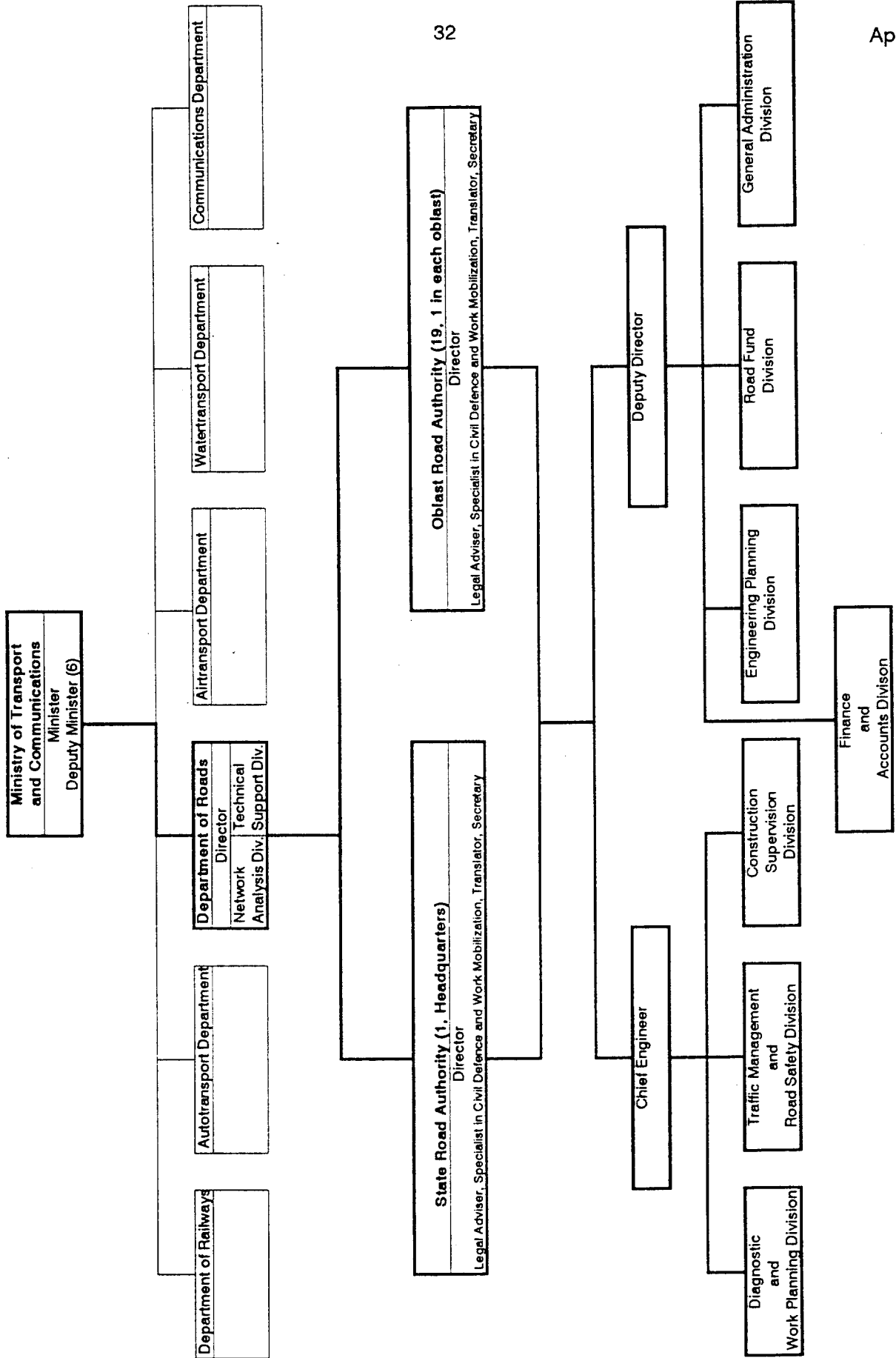
Road Category	Traffic Volume (ADT)		Design Speed (km/hour)		No. of Lanes	Lane Width (m)	Shoulder Width		Median Width	
	PCU	Vehicles	Normal	Difficult			Paved (m)	Unpaved (m)	Paved (m)	Unpaved (m)
I	>14,000	>7,000	150 or 120	120 or 100	4, 6 or 8	3.75	0.75	3.00	1	4 or 5
II	6,000–14,000	3,000–7,000	120	100	2	3.75	0.75	3.00	–	–
III	2,000–6,000	1,000–7,000	100	80	2	3.50	0.50	2.00	–	–
IV	200–2,000	100–1,000	80	60	2	3.00	0.50	1.50	–	–
V	<200	<100	60	40	1	4.75	–	1.75	–	–

Source: Department of Roads

ADT = Average Daily Traffic

PCU = Passenger Car Units

# ORGANIZATION STRUCTURE OF THE DEPARTMENT OF ROADS





## ROAD SECTOR POLICY STATEMENT

### A. Introduction

1. Since 1991, Kazakhstan's economy is in the process of transition from a centrally planned to a market economy. Reform measures included privatization, price and trade liberalization and introduction, in 1993 of the Tenge as the national currency. The Government intends to take measures and initiatives to improve corporate governance of public and private enterprises. All sectors of the economy are being restructured and strengthened.

2. Because of the large size [2.7 million square kilometer (sq km)] and low population density (6.3 habitants/sq km), dispersed natural resources and centers of economic activity and land-locked location of Kazakhstan, its economy is one of most transport intensive in the world. Therefore, the future economic development will depend on the improvement of transport infrastructure and the provision of cost-effective transport services. The network was developed essentially to meet their earlier primary objective of transporting freight and passengers between Russia and Kazakhstan and other Central Asian Republics of the former Soviet Union (FSU). Kazakhstan's transport sector, excluding pipelines, is dominated by rail and road transport. The main rail lines and highways are situated in a northwest to southeast direction to meet, in the past, their primary objective of transporting freight and passenger between Russia and Kazakhstan and other Central Asian Republics of the former Soviet Union.

3. Efficient transport services are essential to support Kazakhstan's ongoing and planned initiatives that will generate economic growth. The road transport carries about 39 percent of freight and 40 percent of passenger traffic. The road sector needs to be strengthened to support the development of a market economy. Policy and institutional reforms are required to improve institutional capability so that the sector can respond efficiently to market demands. With inherently greater flexibility for the movement of high value general cargoes and passengers, road transport is expected to play an increasingly important role as Kazakhstan completes its transition from a command to a market economy. The development of efficient road transport system for Kazakhstan to support the emerging market economy is an important element in the Government's Public Investment Program.

### B. Underlying Principles

4. The Statement is founded on the following principles which underlie the reforms to which the Government is committed and being carried out now:

- (i) The long-term development of Kazakhstan depends critically on an efficient, low-cost transport system - one in which the available resources of capital, labor, equipment, and materials are used in the most economically productive way.
- (ii) The key to achieving efficiency and low costs lies in the incentives associated with competitive markets, whereby, transport suppliers compete to increase market share, reduce costs, and improve standards of service to the benefit of transport users.

- (iii) The Government continues to be concerned about the affordability of transport services and the social and economic impacts of transport prices. It recognizes, however, that the price controls are not the most effective way of containing costs and improving efficiency since they discourage investment and other measures to improve efficiency. Under free market conditions, price control would generally be unnecessary because competition would keep prices to a minimum, consistent with costs. Only in exceptional cases (for example, where there is limited competition or subsidies are considered to be in the national interest) would price control be justified, and then only on temporary basis, with the costs and benefits carefully monitored.
- (iv) Under a more market-oriented system for transport, the essential role of Government will be limited to the aspects mentioned under paragraph 6 and 7 of this Statement.
- (v) The state-owned transport enterprises will play a role in fostering competition with the private sector, but in fulfilling this role they should operate as independent commercial enterprises, with progressively less government involvement in their management decisions. As shareholder on behalf of the public, the Government will hold their managers accountable for financial performance. Where there is evidence that their role can be equally or better performed by the private sector, they may be privatized.

## **C. Policy Objectives**

5. The objectives of the policies set out in this Statement are as follows:

- (i) to put in place business and regulatory environment in which -
  - (a) customers of transport services are free to choose between competing alternatives on the basis of price and quality of service,
  - (b) providers of transport services, when all the standards have been maintained, are not restricted by Government intervention in tailoring their services in response to the needs of customers,
  - (c) there is no Government discrimination (through regulations, price controls or other interventions) between government-owned and private operators of transport services - i.e. they are treated on an equal basis,
  - (d) prices, set by market forces, reflect the real cost to the economy of the resources consumed, and are not distorted by Government controls, subsidies and other interventions, and

- (ii) to open up as much of the transport system as possible to competition;
- (iii) to facilitate upgrading and rehabilitation of road transport infrastructure by making road users pay for portion of the infrastructure related costs which result from their use of the system;
- (iv) to raise the efficiency of the state transport enterprises by granting their management greater autonomy and providing incentives to run their business along commercial lines while, at the same time, holding them accountable for their financial performance; and
- (v) to protect safety and environmental standards and the interests of the socially or economically disadvantaged, in the latter instance by making provision for temporarily but carefully targeted support.

#### **D. The Roles of the Government**

6. The role of the Government in the transport system will be limited to those necessary to fulfil social and other national objectives. These include:

- (i) programming and planning of the transport policies, programs and projects, including mobilizing resources;
- (ii) monitoring developments, performance and efficiency of the transport system, including prices; and
- (iii) regulating market entry and the licensing of transport services with the aim of:
  - (a) ensuring competition and preventing the development of monopoly situations,
  - (b) making transport services efficient and providing transport services to the customers at the lowest prices,
  - (c) preventing imposition of discretionary license conditions to discriminate between new and existing operators, and
  - (d) ensuring that adequate safety and environmental standards are maintained.

7. Given the competitive advantage of road transport in handling the emerging traffic and the Government's social democratic approach for developing its economy by following "open" policy and improving external relations, the issue of development of a reliable road transport system has been given more priority by the Government. The road projects will be implemented by mobilizing domestic and foreign resources, as is being done now.

#### **E. Organizational Structure and Sector Management Development**

8. The following approach will be taken for improving the sector management and organizational structure, the basic considerations for the development of road and road transport sector:

- (i) The road department will be responsible for preparing sector policies and establishing a legal framework which will involve:
  - (a) preparing legislation, as required, for the rational development of the road sector and supervising its implementation;
  - (b) creating a legal, regulatory and policy environment to foster competition to prevent a monopoly situation and prevent discrimination on the basis of ownership of the enterprises (through regulations, price control, or other interventions);
  - (c) programming and planning of the road sector policies, programs and projects, taking into account the overall development objective of the country and mobilizing resources (state, private, foreign) to provide efficient road transport services;
  - (d) identifying the sources of funds for implementation of the policy, programs and projects and establishing a clear policy on the efficient use of resources;
  - (e) establishing technical standards for the road and road transport infrastructure and services, and defining performance indicators;
  - (f) regulating vehicle size, weight and road worthiness;
  - (g) developing and implementing human resource development policies and programs;
  - (h) developing rational road user cost recovery practices to meet operation and maintenance and part of construction costs of the road infrastructure;
  - (i) ensuring environmental, social and road safety standards;
- (ii) Institutional restructuring of the Department of Roads (DOR), Research and Design Institutes, Kazakhstan Zoldhary (Kazzhol) and Auto Transport Department will be carried out taking into account their functions, roles and responsibilities. The restructuring will initially comprise of:
  - (a) strengthening of DOR by moving staff from the Institutes and Kazzhol to DOR for forming a proper department to undertake planning and programming, technical development and implementation/supervision functions.
  - (b) privatizing the subsidiaries of Kazzhol and reorganizing and developing Kazzhol to take up a new role as a holding company for joint-stock road construction companies and act as a contractor's federation, providing services to its members on legal

advice, the provision of technical and commercial information, training, consultation with the Government, and a focal point for sharing experiences and joint initiatives.

- (c) commercializing the services of Research Institutes (Kazdornii) and Design Institutes (Kazdorproekt), which can be well defined and progress can be objectively monitored; those services which can not be commercialized will function under the administrative control of DOR;
- (d) reorganizing and developing Auto Transport Department to carry out its responsibilities which include: (i) formulating road transport sector policy, including privatization policy, (ii) regulating road transport, including licensing commercial and entrepreneurial operations, (iii) regulating traffic, including licensing of driver and preparing traffic rules, (iv) controlling cost and quality of services, (v) preparing road transport act, and (vi) ensuring safety and environmental requirements.

9. In order to take account of the views of transport owners and operators both within and outside the Government, a National Transport Advisory Committee (NTAC) will be established in the Ministry of Transport and Communications. The NTAC will be chaired by the Minister of Transport and Communications (or representative) and its members will be comprised of the representatives of Ministry of Economy, Committee on Utilization of Foreign Capital, Roads Department, Auto Transport Department) and Police Department, State-owned road and transport enterprises and the private sector. The role of NTAC will be:

- (i) to discuss and recommend to the Government the ways of improving transport efficiency in the interests of both customers and suppliers of transport services,
- (ii) to promote dialogue on transport issues (such as obtaining adequate fuel and credit supplies for the industry, and in developing tax system helpful to the sector), and
- (iii) to comment on the Government's policy proposals and programs in the road and road transport sector.

#### **F. Sector Privatization**

10. The Government's privatization process to involve the private sector in all manner of road and road transport services, including participation in the road infrastructure development, will be continued. Existing regulations and practices which inhibit or prevent private sector participation will be amended. The operations of the State-owned road transport enterprises and departments will be reviewed with the aim of identifying areas which would benefit from greater competition.

11. The Government's aim is to privatize all those operations of the State-owned enterprises which are essentially commercial in nature. The Government's privatization process has focused on the change in the ownerships but the management of the privatized firms need to be fully privatized. Management and operation of a state road and road transport enterprises will be guided by this Statement and based on the Performance Contract (see paragraph 16) executed between the Government and the State-owned enterprises. Once the enterprises are managed and operated on commercial principles, steps will be taken to put existing private enterprises on a proper commercial footing, including progressively less Government involvement in the affairs of commercialized public sector and private enterprises.

12. Since roads and bridges are State properties, proper maintenance of these infrastructure assets will be the responsibility of the Department of Roads by establishing proper road maintenance management system.

13. Privatization of road construction operation will be given priority. The existing Government assets with the Kazzhol will be progressively privatized by adopting an approach that will consist of

- (i) transferring the governmental responsibilities of the road sector [see paragraph 10 (i)] from Kazzhol to Department of Roads; and
- (ii) privatizing Kazzhol and its joint-stock road construction companies for carrying out all construction related activities and to take up its new role as outlined under paragraph 10 (ii) (b) above.

#### **G. State-Owned Enterprises**

14. The State-owned auto-transport enterprises will play a role in fostering competition with the private sector, but in fulfilling this role they will operate as independent commercial enterprises, with progressively less Government involvement in their management decisions. As shareholder on behalf of the public, the Government will hold their managers accountable for financial performance. Where there is evidence that their role can be equally or better performed by the private sector, the State-owned enterprises may be privatized.

15. The construction of roads and bridges will be financed by the Road Fund and other internal and/or external funding sources. Construction contracts will be awarded through competitive bidding amongst the State-owned and private road construction enterprises.

16. All State-owned enterprises will be required to prepare a corporate plan. In selected cases where competitive bidding is not feasible, the State-owned enterprises will be asked to carry out the construction on the basis of negotiated Performance Contracts between the enterprise and the Government (represented by the Ministry of Transport and Communications). The Performance Contracts will specify:

- (i) the general rule and criteria governing the legal status of the enterprise, the commercialization of its services, the delegation of financial and management autonomy and the procedures by which management will be held accountable for performance;

- (ii) general accounting principles and procedures, including restructuring of the accounts, the principles governing valuation and depreciation of assets, treatment of capital grants, loans and other forms of Government assistance, valuation of fuel and foreign exchange transactions, the method to be used for cost specific services and traffics, and debt restructuring/retiring arrangements;
- (iii) agreed annual financial performance targets;
- (iv) the arrangement governing services which are not profitable but are performed at the request of the Government, including procedures to be used for identifying and costing these, the prices to be levied and specific arrangements for financing the associated losses through Government transfers;
- (v) the prevailing broader macro-economic climate, including Government policies on the exchange rate, the allocation and pricing of fuel, and access to foreign exchange and capital; and
- (vi) the measures which will be taken by the Government to move towards a more competitive functioning of the transport market and to expose the enterprise to competition.

17. State-owned enterprises will be free to enter into joint venture and other cooperative arrangements with private investors, including foreign partners, subject to prevailing laws governing trade, finance and foreign investment. Such arrangements will be prohibited, however, if they are likely to result in a diminution of competitive environment.

18. In order that they can attract and retain high calibre staff, the State-owned enterprises will be free from restrictions of salaries and incentives for Government employees.

19. New administrative arrangements will be put in place by the Ministry of Transport and Communications to supervise sector performance and negotiate and monitor performance of State-owned enterprises.

#### **H. Regulation of Transport Services**

20. Existing regulations governing the licensing of transport business and services will be reviewed with the aim of eliminating those which are no longer effective or consistent with the Government's market oriented policies. Wherever possible, the aim will be to allow market forces to establish appropriate capacity levels, service standards and prices.

21. Controls intended to protect Government road infrastructure and safety standards (for example, control over vehicle weights, dimensions and road worthiness), including their associated enforcement procedures, will be strengthened.

22. Existing vehicle inspection system will be strengthened to ensure the road worthiness of the vehicles in accordance with the required technical standards.

23. Transport customers will be free to choose between competing transport alternatives on the basis of price and level of service. The existing arrangement of allocating freight by the government departments, particularly by Ministries of Agriculture and Industry and military columns, acting as a support mechanism for inefficient fleet of trucks, and on the basis of queuing by other transport enterprises will be progressively discontinued. Whereas the transport customers will be free to negotiate conditions directly with the operators on the basis of price and quality of service, the role of local (Oblast) government will be limited to monitoring and regulating, including licensing, inspection and safety audit.

24. To facilitate free marketing and to extend the range of services available to customers, the role of freight forwarding agencies will be enhanced. Freight forwarders will be encouraged to negotiate and arrange inter-modal transport services, thus facilitating door-to-door transport arrangements, and to offer services directly themselves.

25. The existing system of contracting the transporters to operate the intercity and city passenger transport services by a system of cross-subsidy whereby routes are allocated between operators on a rotating basis will be discontinued. The route allocation will be on a basis of, either lowest offered cost of operation which will be applicable for the services of a non-commercial nature (the services to be performed under the Performance Contracts) and are in the public interest or highest route license bid.

26. Since the licensing and monitoring functions in the case of freight and passenger transport are non-commercial in nature, the Government will consider establishing an organization (Road Transport Board) under each Oblast to perform these functions on behalf of the Auto Transport Department. The licensing system will cover provision of commercial freight and passenger road services, including provision of services to agriculture and industry sectors but excluding freight forwarding services.

#### **I. Fuel Supply**

27. There are about 2000 fuel stations operating in Kazakhstan which are less in number than required for retailing the fuel supply. The Government will make land available to the private sector for opening additional retail stations.

28. About 70 per cent of the fuel supply which includes importation, transportation and retailing have been privatized. The further privatization of fuel supply will be continued with the objective of increasing efficiency and cost effectiveness.

#### **J. Pricing, Cost Recovery and Subsidy**

29. All transport fares and tariffs will be progressively liberalized in line with the market demand (once the Government is assured that competitive transport services have been established).

30. Transport operating costs and transport prices will be analyzed and arrangements will be made to keep the transport operating costs and transport prices comparable by, as far as possible, reducing the transport prices, where it is found that prices are significantly higher than costs.



31. Financing for road construction and maintenance will be derived from the Road Fund. The Road Fund will essentially finance the routine and periodic maintenance expenditures and will be in place to meet the near-term financial needs. To strengthen medium to long-term financing, the Government will take an approach to develop a more broad-based philosophy and approach to cost recovery, which should be implemented to achieve a set of clear cost recovery targets by examining the various classes of road users for more equitable taxation, and determining the impact of various cost-inducing factors. The Government gives priority to prepare the analysis and develop an appropriate cost recovery from the road users closely related to wear and tear for which they are responsible, and that can be implemented within the context of the road and road transport sector in Kazakhstan.

32. Once the strategy for the recovery of the road user charges has been determined, the system will be introduced for charging the road users for their use of road infrastructure to meet the operation and maintenance costs. The allocations will be made to meet the road infrastructure maintenance requirements and the balance, if any, will be utilized for construction and/or improvement of roads.

33. In cases where the Government determines that services of a non-commercial nature are in the public interest, contracts for their provision will be offered to transport operators (both private and government-owned) which contain incentives to minimize costs. By this process, subsidies for such services will be clearly identified and their cost-effectiveness can be regularly reviewed.

#### **K. Planning, Budgeting and Development Priorities**

34. Kazakhstan's existing road network, particularly of National roads, needs to be improved. To implement a systematic road rehabilitation program in future, a transport planning and budgeting process will be developed to ensure that projects with demonstrated economic priority are funded and the road users participate in the selection of projects. The road expenditure plans and budgets will be prepared based on a system that helps optimize the economic benefits of the funds provided by the central and local governments and by international financing agencies. Priority will be given to establishing simple procedures for preparing expenditure plans and budgets.

35. The Government will progressively remove its controls over the budgets of the State-owned enterprises. Provided they are in accordance with the relevant Performance Contract and meet prevailing regulations of the Ministry of Finance, decisions about the investment plans and priorities of these enterprises will be made by their management alone. The costs of any capital, loans or other inputs, whether provided by the Government or the private sector, will be fully borne by the enterprise.

36. The State transport enterprises are permitted to hold their own local and foreign exchange bank accounts in accordance with the existing laws and will be permitted to retain their revenues, subject only to withholding tax which may be set from time to time by the Government laws.

## **L. Human Resources**

37. To ensure development and effective operation of the sector, it is essential that qualified personnel (technical, financial and accounting) are recruited, trained and retained. For this purpose, a human resource development master plan will be prepared and its implementation will be given priority.

38. Training in foreign language, particularly in English, will receive immediate attention and suitable instruction will be made available as soon as possible.

## **M. Road and Road Transport Sector Legislation**

39. The existing transport laws and regulations will need to be made fully compatible with the policies set out in this Statement. The Ministry of Transport and Communications will form a Committee for Transport Sector Legal Reforms which will, in consultation with the Ministry of Justice, undertake a comprehensive review and overhaul of the legal framework governing the road transport sector to enable preparation of a road and road transport act (the Road Act). The Committee will be chaired by Minister for Transport and Communications (or representative) and its members will comprise the representatives of Ministry of Justice, Auto Transport Department, Department of Roads and one member from Parliamentary Standing Committee on Transport and Communications.

40. The Road Act will regulate the effects arising from the implementation of the sector development program, namely to:

- (i) develop an organizational structure, management practices, investment principles and regulatory measures;
- (ii) privatize operations which are essentially commercial in nature and fostering competition;
- (iii) define roles and functions of policy making and regulatory organizations, rights and duties of operators and interest of transport customers; and
- (iv) regulate the relationship between the road sector agencies and foreign and domestic companies, entities or persons.

41. The Government will create a legal basis for participation in the road construction and maintenance by public, private and foreign enterprises or combinations thereof.

## EQUIPMENT FOR ROAD MAINTENANCE DEPOTS

	Item	Road Maintenance Depot No. 43 (Zhezkeazgan) km 1908 – km 1647		Road Maintenance Depot No. 39 (Zhezkeazgan) km 1647 – km 1548		Road Maintenance Depot No. 50 (Karaganda) km 1548 – km 1482		Road Maintenance Depot No. 2 (Karaganda) km 1482 – km 1300		Total			Further Requirement						
		Road Repair Unit 1 and 2		Road Repair Unit 1		Road Repair Unit 1		Road Repair Unit 1		Avail	Req	Total	No.	Unit Cost	Total Cost	Total + Spares			
		Staff: 47 Road: 262 km	Available Required Total	Staff: 23 Road: 99 km	Available Required Total	Staff: 50 Road: 66 km	Available Required Total	Staff: 50 Road: 180 km	Available Required Total										
1.	Bulldozer Below 100 HP Above 100 HP	1 –	1 1	2 1	1 1	1 1	1 1	1 1	1 1	2 2	4 3	7 5	3 3	100 120	300.0 360.0	345.0 414.0			
2.	Bulldozer Wheel Type	–	–	–	–	2	–	1	1	1	0	1	1	110	110.0	126.5			
3.	Excavator	–	1	–	1	1	–	1	–	1	2	4	2	160	320.0	368.0			
4.	Grader	1	1	1	1	2	–	2	1	3	6	9	3	185	555.0	638.3			
6.	Snow Plough	3	1	1	1	3	–	3	1	2	6	8	2	150	300.0	345.0			
7.	Vibratory Roller	1	1	1	1	1	–	1	1	2	2	3	5	50.0	150.0	172.5			
8.	Asphalt Paver	–	1	–	–	–	–	–	–	–	2	1	3	160.0	160.0	184.0			
9.	Lowbed Trailer	–	1	–	1	1	–	–	–	–	–	3	3	25.0	75.0	86.3			
10.	Truck Tractor	–	1	–	–	–	–	–	1	1	2	1	3	45.0	45.0	51.8			
11.	Dump Truck	3	3	1	2	3	2	2	2	4	8	9	9	45.0	405.0	465.8			
12.	Bitumen Distributor	3	3	1	1	2	1	1	–	1	6	7	1	85.0	85.0	97.7			
13.	Loader	–	1	1	1	1	1	1	1	2	3	4	4	70.0	280.0	322.0			
14.	Water Tanker	–	1	1	1	2	1	–	1	2	3	6	3	50.0	150.0	172.5			
15.	Pick-up 4x4	–	2	2	1	1	–	–	2	2	–	5	5	25.0	125.0	143.8			
16.	Pick-up Dbl Cab 4x4	–	2	2	1	1	–	–	2	2	–	6	6	30.0	180.0	207.0			
17.	Patch Repair Machine	–	1	1	1	1	–	1	1	1	–	4	4	125.0	500.0	575.0			
18.	Mobile Workshop	–	1	1	–	1	–	1	1	1	–	3	3	225.0	675.0	776.2			
19.	Unimoc Universal Machine	–	1	1	–	1	–	1	1	1	–	4	4	225.0	900.0	1,035.0			
20.	Milling Machine	–	1	1	–	–	–	–	–	–	–	1	1	600.0	600.0	690.0			
	Total	11	19	30	7	15	22	18	5	21	14	18	31	46	57	103	57	4,775.0	5,491.3

Note: The Road Maintenance Equipment will be further reviewed at the time of preparing the equipment specifications.

Source: Department of Roads and Staff Estimates.

**COST ESTIMATES AND FINANCING PLAN**  
(\$ million)

Item	Foreign Exchange	Local Currency	Total Costs
<b>I. Bank Financing</b>			
1. Rehabilitation of Gulshad-Aksytaa Road			
Civil works	19.50	7.50	27.00
2. Road Maintenance			
a. Equipment	5.50	—	5.50
b. Materials	—	—	—
c. Manpower	—	—	—
3. Consulting Services			
a. Detailed Design and Construction Supervision of Road Rehabilitation, Road Maintenance Assistance and Benefit Monitoring and Evaluation Services	3.40	1.00	4.40
b. Detailed Design of Other Selected Priority Road Sections	0.30	0.10	0.40
4. Contingencies			
a. Physical <sup>a</sup>	2.87	0.85	3.72
b. Price <sup>b</sup>	2.23	0.55	2.78
5. Interest and Other Charges During Construction	6.20	—	6.20
Total (I)	40.00	10.00	50.00
<b>II. Government Financing</b>			
1. Rehabilitation of Gulshad-Aksytaa Road			
Civil works	—	9.20	9.20
2. Road Maintenance			
a. Equipment	—	0.30	0.30
b. Materials	—	9.30	9.30
c. Manpower	—	3.90	3.90
3. Consulting Services			
a. Detailed Design and Construction Supervision of Road Rehabilitation, Road Maintenance Assistance and Benefit Monitoring and Evaluation Services	—	0.30	0.30
b. Detailed Design of Other Selected Priority Road Sections	—	—	—
4. Contingencies			
a. Physical <sup>a</sup>	—	2.30	2.30
b. Price <sup>b</sup>	—	1.70	1.70
5. Interest and Other Charges During Construction	—	—	—
Total (II)	0.00	27.00	27.00
<b>GRAND TOTAL (I+II)</b>	<b>40.00</b>	<b>37.00</b>	<b>77.00</b>

<sup>a</sup> Equivalent to 10 percent of the base cost.

Item	1996												1997												1998												1999												2000																						
	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D											
A. Road Rehabilitation Civil Works	Pre-Qualification & Tendering												Mobilize												Construction												Winter Break												Construction																						
	XXXX XX XX XX XX																																																																						
B. Road Maintenance Road Maintenance Equipment	Tendering												Supply																																																										
	XXXX XX XX XX XX												XXXX XX XX XX XX																																																										
C. Consulting Services Detailed Design and Construction Supervision, Road Maintenance Assistance and Benefit Monitoring Services	Recruitment of Consultants												Detailed Design & Tendering												Service												Winter Break												Service																						
	XXXX XX XX																																																																						
D. Technical Assistance for Institutional Strengthening of Road Sector	Recruitment of Consultants												Fieldwork																								Recruitment of Consultants												Service																						
E. Technical Assistance for Feasibility Study of Selected Road Sections	Recruitment of Consultants												Fieldwork																								Recruitment of Consultants												Fieldwork																						

## PROPOSED CONTRACT PACKAGES

Contract Description	Number of Contracts	Estimated Contract Value (\$ million)	Procurement Method
<b>A. Road Rehabilitation</b>			
Civil Works for Rehabilitation of 192 km of Road Section from Gulshad–Aksytau	1	36.20	ICB
<b>B. Road Maintenance</b>			
Equipment	1	5.50	ICB
<b>C. Consulting Services</b>			
Detailed Design and Construction Supervision, Road Maintenance Assistance, and Benefit Monitoring and Evaluation	1	4.40	ICR
Consulting Services for Detailed Design of Selected Priority Road Sections	1	0.40	ICR

ICB: international competitive bidding; LCB: local competitive bidding; ICR: international competitive recruitment.

**OUTLINE TERMS OF REFERENCE  
FOR CONSULTING SERVICES FOR DETAILED DESIGN AND  
CONSTRUCTION SUPERVISION, ROAD MAINTENANCE ASSISTANCE,  
AND BENEFIT MONITORING AND EVALUATION**

1. The consulting services will comprise three parts:

- Part I : Detailed Design and Construction Supervision (for rehabilitation of the road section from Gulshad to Aksytaa);
- Part II : Road Maintenance Assistance; and
- Part III : Benefit Monitoring and Evaluation (of the Project road from Gulshad to Aksytaa).

**A. Detailed Design and Construction Supervision**

**1. Objectives**

2. The main objectives of Part I the consulting services is to ensure that the proposed rehabilitation and procurement of equipment under the Project are undertaken in an economical and efficient manner, consistent with widely accepted engineering standards and practices for such works, and to the satisfaction of the Government and the Bank. In providing the services, the consultants should use, to the extent possible, locally available expertise. Also, they should make a special effort to ensure that on-the-job training and transfer of engineering and project management expertise are provided by the internationally recruited consultants to the Department of Roads (DOR) and local design and supervision companies.

**2. Scope of the Services**

3. The consulting services will be required for supervising the detailed design and carrying out construction supervision of the rehabilitation component of the Project, tendering, and procurement of equipment. The detailed design and tendering will be carried out in such a way that the implementation of the civil works could start by the beginning of the 1997 construction season to enable completion by the end of 1999 construction season. In all stages, the consultants will ensure compliance with relevant international engineering standards wherever practicable.

**a. Design, Tendering, and Procurement**

**i. Preparation of Design and Tender Documents**

4. Undertake the following activities leading to the supervision of detailed designs for rehabilitation Gulshad-Aksytaa road (to be prepared by the local consultants under Government financing); and the preparation of a tender documents to be given to prequalified contractors:

- (i) Ensure that a complete topographic/geodetic survey of the road section and bridges has been carried out.
- (ii) Supervise the survey of road cross-sections at intervals, unless local conditions require closer intervals to provide the necessary details for earthwork quantity calculation with an accuracy of 5 percent of the final quantities.
- (iii) Supervise the survey to determine the hydrographic/topographic riverbed profile and cross-section at bridge sites.
- (iv) Ensure that the engineering investigations to determine the quality of (a) existing base, subbase, and subgrade materials, where required, through auger boring along the centerline of the road at appropriate intervals and depths; (b) underground structures, if required, by drilling at each abutment and pier; and (c) materials with test pits at the proposed material source sites has been carried out.
- (v) Supervise the analysis and testing on disturbed and undisturbed soil samples and construction material samples in accordance with the American Association of State Highway and Transportation Officials (AASHTO) and ASTM standards.
- (vi) Supervise soil testing for classification as per AASHTO and determination of dry density/moisture content relationship and bearing capacity by the California Bearing Capacity Ratio test on representative samples of the different types of soil.
- (vii) Check the tests on undisturbed soil samples to determine their classification, shear strength, compressibility, and shrinkage.
- (viii) Help identify the material source sites after evaluating of alternative sources established during preliminary engineering design and test materials on these sites for (a) grain size distribution, (b) liquid limit, (c) plasticity index, (d) Los Angeles Abrasion, (e) unit weight and water absorption, (f) chemical water analysis, (g) soundness, and (h) sand equivalent.
- (ix) Supervise hydrological and drainage surveys for existing bridge sites to assess the trend of water course, stream/river velocity, maximum flood levels, flood prone areas, drainage characteristics and conditions, and the extension and nature of catchment basins from the available data (physical, geological, and topographical maps; aerial photographs; climatology reports and maps; and flood control projects details) and field investigations.



- (x) Check hydrological and drainage survey to assess the flood prone areas, drainage characteristics, and conditions keeping in view the climatic conditions of the area.
- (xi) Verify the tests on rock samples to determine their classification and shear strength.
- (xii) Based on the above considerations, surveys, and investigations (including laboratory investigations), the local consultants will carry out detailed engineering designs for rehabilitation of road structures, bridges, drainage, intersections, and pavement. The international consultants will check the detailed designs and ensure that the designs are in compliance with the international engineering standards.
- (xiii) Ensure that the detailed design incorporates appropriate environmental monitoring and mitigation measures to be undertaken during the rehabilitation of the Project road, including
  - (a) proper selection and restoration of borrow areas and quarries,
  - (b) the abstraction of water for construction purposes in the areas of population,
  - (c) control of hazardous and toxic materials, and
  - (d) impairment of downstream water quality.
- (xiv) Check the detailed design of ancillary works such as, inter alia, pavement markings, traffic signs, landscaping, detour roads, and structures for environmental mitigation/protection.
- (xvi) Check quantities and unit prices for all the items of works. The unit price will comprise direct costs (cost of materials including transport, handling, storage, and miscellaneous expenses; cost of construction plant and equipment including rental rates or depreciation, wages, fuel, and maintenance; and cost of labor including salaries and allowances) and indirect costs (overhead, profit, and taxes), will be broken down into foreign currency, local currency, and tax components.
- (xvii) Check specifications for specific items or methods of construction, measurement and payment.
- (xviii) Ensure preparation of specifications for road rehabilitation in sufficient detail to ensure high quality of work.
- (xix) Prepare an indicative Project implementation schedule.

- (xx) Prepare tender documents and Project cost analysis for the road rehabilitation. Submit them to DOR and the Bank for approval — the cost will be broken down into foreign exchange and local currency portions.
- (xxi) Combine the above documents into a comprehensive design brief and a bid package to be distributed to the contractors.

#### **ii. Assist DOR in the Prequalification of Contractors**

5. Carry out the following to ensure timely prequalification of suitable contractors: (i) prepare the necessary prequalification and tender documents in anticipation of the civil works that will be undertaken under the contract, and prequalify the contractors following the international competitive bidding (ICB) procedures in accordance with the Bank's *Guidelines for Procurement*; and (ii) provide necessary assistance in the invitation, review, and evaluation of prequalification submissions. The consultants will also assist the Government to prepare a recommended list of contractors and in the preparation of invitations to prequalified firms for the bid packages.

#### **iii. Assist DOR in the Invitation and Evaluation of Contractors' Proposals**

6. Assist DOR in the following matters relating to bidding and evaluation of bids for two packages for rehabilitation of the Project road by (i) issuing tender documents to prequalified bidders; (ii) providing on-site assistance to prequalified contractors in identifying sources of local materials and labor and understanding the Project objectives, designs, and specifications; (iii) organizing prebid conferences for prequalified and invited bidders; (iv) providing interpretation of plans, specifications, and contract conditions; (v) evaluating bids in accordance with the Bank's *Handbook on Bid Evaluation*, and preparing evaluation reports; and (vi) preparing documents necessary to finalize the contracts with the successful bidders and providing advisory assistance to DOR in (a) completing the signing of contracts and issuing orders to proceed; and (b) procuring equipment according to procedures agreed upon between the Bank and DOR.

#### **iv. Design and Mobilization Review**

7. Conduct the following prior to the commencement of construction: (i) review and approval of selected contractor's designs, working drawings, and specifications during mobilization and the commencement of construction; and (ii) review and approval of the contractor's plans for mobilization and establishment of contracting operations.

#### **v. Procurement of Equipment**

8. The consultants will review the existing road maintenance equipment with road maintenance units along the Almaty-Akmola road, and the list of the equipment proposed to be procured under the Project. This review will explicitly indicate the plans of other external agencies to provide road maintenance, particularly the World Bank and the Government of Japan, to ensure that there is no duplication in the equipment to be provided by the external funding community.

9. Based on this, the consultants will review the requirement for equipment and prepare (i) specifications for road maintenance and workshop vans in sufficient detail to ensure high quality equipment; and (ii) cost analysis separately for maintenance equipment and workshop vans (the cost will be broken down into foreign exchange and local currency portions). The specifications and analysis will be submitted to DOR and the Bank for approval. Bidding documents for procurement of road maintenance and workshop van following the ICB procedures will be prepared.

10. The consultants will provide assistance to DOR in the following matters relating to bidding and evaluation of bids for the ICB equipment package: (i) issuing tender documents to bidders; (ii) identifying local materials and labor and understanding the Project objectives, designs, and specifications; (iii) organizing prebid conferences for bidders; (iv) providing interpretation of specifications and contract conditions; (v) evaluating bids in accordance with the Bank's *Handbook on Bid Evaluation* and preparing bid evaluation reports; and (vi) preparing documents necessary to finalize the contracts with the successful bidders and providing advisory assistance to DOR in completing the signing of contracts, and issuing orders for supplying and commissioning the equipment.

11. In addition, the consultants will assist DOR in the procurement of technical support equipment following the Bank's international shopping procedures.

#### **b. Supervision of Construction**

12. For road rehabilitation component, carry out all duties ascribed to "The Engineer" in the "International Conditions of Contract" issued by the International Federation of Consulting Engineers. The consultants' tasks will include, but not necessarily be limited to

- (i) organizing and supervising preconstruction conferences;
- (ii) monitoring the setting out of the works by the contractors;
- (iii) checking and inspecting, for DOR's approval, all working drawings and as-built drawings prepared by the contractor;
- (iv) reviewing the contractors' quality control program;
- (v) inspecting and testing all materials and works to ensure that they comply with the specifications, and giving immediate notice to the contractors in the event that such materials and works do not comply with specifications;
- (vi) preparing recommendations to DOR on acceptance or rejection of any part or parts of the completed works;
- (vii) advising DOR on changes in plans or specifications that may prove necessary or desirable during construction together with preparing the necessary revised plans or specifications for any changes that DOR and the Bank may approve;

- (viii) measuring the quantities of approved and accepted works and materials and checking and certifying contractors' monthly invoices;
- (ix) periodically checking the remaining quantities and undertaking constant monitoring of the Project costs;
- (x) examining and making recommendations to DOR and the Bank on claims arising from the contractors for extensions of time, payments for extra work, and other matters as may arise from time to time;
- (xi) negotiating with the contractors and recommending to DOR the rates for any unscheduled items of work that may arise;
- (xii) preparing monthly reports to DOR and the Bank for the whole program of works;
- (xiii) upon completion of construction, carrying out an inspection of the works and facilities and certifying to DOR the date of the commencement of the 12-month maintenance periods; and
- (xiv) preparing a Project completion report.

### **3. Other**

13. The consultants will provide any additional services related to the Project upon request and approval of the Government on the basis of justifiable and mutually acceptable billing rate/costs. Such additional services will also be subject to prior approval by the Bank.

### **4. Required Expertise**

14. Approximately 180 person-months (80 person-months of international consultants and 100 person-months of local consultants) will be needed. The international consultants will form an association with a suitably qualified firm of local consultants. The consultants will have expertise in the following areas: (i) planning and designing of roads and bridges; (ii) surveys of roads and bridges; (iii) construction supervision, quality control, and inspection of road and bridge projects; (iv) procurement of construction services, workshop, and road construction equipment under ICB procedures for multilateral lending institutions; (v) construction management of road and bridge projects; (vi) supervision of road rehabilitation works; and (vii) operation and management of heavy earth moving equipment.

### **5. Submission of Reports, Documents, and Drawings**

15. The consultants are required to submit various reports/documents in the numbers and at the times indicated in Table 1.

Table 1: Consultants' Reports for Part I

		No. of copies	
Reports/Documents/Drawings	Timing of Submission	Bank	Government
<b>A. Design, Tendering and Procurement</b>			
1. Detailed Designs and Detailed Cost Estimates and Design Brief	Third quarter of 1996	1	3
		3	3
2. Equipment Specification and Cost Estimates	Third quarter of 1996	1	3
3. Monthly Progress Report	Every month	3	3
4. Prequalification Document and Prequalification Evaluation Report	Third quarter of 1996	3	20
5. Draft Tender Documents (including Draft Contract) and Tender Evaluation Report	Third quarter of 1996	3	5
6. Signed Contract	First quarter of 1997		
<b>B. Supervision of Construction</b>			
1. Monthly Progress Report	Every month	1	3
2. Quarterly Progress Report	Every quarter	1	3
3. Contract Completion Report	Soon after completion of contract	1	3
4. Maintenance Period Completion Report	One year after the completion	2	3
5. Project Completion Report	Within six months of Project completion		

## 6. Schedule

14. Tendering and procurement will take about 10 months and construction supervision will take place over an approximate 39-month period, including final testing, commissioning, hand-over, and preparation of the Project completion report.

## 7. Local Project Office and Logistics

15. The DOR will be responsible for providing Project offices in Almaty during tendering, contract award, mobilization, and construction supervision. The consultants will be responsible for equipping the offices with furniture, computer, copier, telephone, and facsimile machine support; for hiring appropriate local administrative staff; and for providing their own means of local transportation. The DOR will also provide within the Project office, furnished office space with administrative support for the Project Manager to assist in administration and management of the Project.

## **B. Road Maintenance Assistance**

### **1. Objectives**

16. The main objectives of Part II of the consulting services are to:

- (i) prepare repair and maintenance standards for sealed roads, and train in their applications through both classroom and on-the-job training;
- (ii) prepare specifications for collection of basic data for use in prioritizing maintenance activities, and train in use of the data;
- (iii) assist DOR to establish six road maintenance depots with an appropriate computer-aided system for basic accounting operations, resource management, and maintenance operations, and train the counterpart staff to enable them to the future maintenance operations.

### **2. Scope of the Services**

#### **a. Routine Maintenance Standards and System**

##### **i. Maintenance Standards for Sealed Roads**

17. The consultants will prepare specifications and performance measures in Kazakhstan for the following operations:

- (i) maintenance of drainage channels;
- (ii) maintenance of unsealed shoulders;
- (iii) maintenance of waterways at culverts;
- (iv) construction of cutoff drains ("French drains"); and
- (v) preparation of base and construction of road structure and sealed surface rehabilitation for
  - (a) potholes (of maximum horizontal dimension less than 600 mm ), using hot bitumen and graded aggregate; and
  - (b) wider areas of failure, including short lengths extending essentially over the width of the road.

18. In preparing these standards, the consultants shall take into account the recommendations of the Ministry of Ecology and Biological Resources and the code for environmental practice for road works.

## ii. Basic Data for Use in Prioritizing Maintenance Activities

19. The consultants will:

- (i) establish a reference system for locating defects on any seal road; and
- (ii) define measurements of defects for at least the following components:
  - (a) shoulder (in particular, too high and not sloping away from the carriageway);
  - (b) side drainage channels (inadequacy of invert level and location relative to edge of seal);
  - (c) other drainage channels (availability of adequate means of discharging water from side drainage channels, e.g., flumes, or sumps and culverts to pass flow to low side of road);
  - (c) potholes;
  - (d) failed structures (block cracked asphalt concrete; heaving of surface);
  - (e) break at edge of asphalt concrete (particularly at narrow lanes and intersections);
  - (f) subsidence at culvert or bridge abutment; and
  - (g) prioritization of maintenance tasks.

## iii. Maintenance System for Road Maintenance Depots

20. The consultants will

- (i) prepare a preliminary estimate of budget requirements for maintenance of sealed roads, and prepare instructions in Russian for assembling basic cost information from road maintenance depots (labor, materials, equipment, electricity, heating, property, etc.), and for times required for personnel and plant for specific maintenance operations;
- (ii) establish a spreadsheet for recording unit costs, and for developing costs of operations (taking overheads into account), suitable for budgeting purposes; and
- (iii) establish a spreadsheet to enable performance of depots to be measured month by month against the program, and expenditure to be compared against the budget.

## iv. Field Implementation

21. The consultants will implement the routine road maintenance system on the selected sections of the road comprising about six depots where the equipment has been

supplied and has been finance by the loan. Particular attention will given to (i) inspecting the implementation of specification requirements; (ii) encouraging the development of interaction between ;laboratory and field personnel, and in general unifying theory and practice; and (iii) providing any necessary support and direction.

22. The consultants will prepare additional course/support materials and other instructions in the Russian language concerning the application of documents produced by the consultants, and instruct the road maintenance personnel in the depots using classroom methods as well as in the field. The training material should also include, in Russian, the code of environmental practice for road works.

#### **b. Other**

23. The consultants will provide any additional services related to the Project upon request and approval of the Government on the basis of justifiable and mutually acceptable billing rate/costs. Such additional services will also be subject to prior approval by the Bank.

### **3. Required Expertise**

24. Approximately 30 person-months of international consultants and 60 person-months of domestic consultants will be needed. The international consultants will form an association with a suitably qualified firm of local consultants. The consultants will have expertise in the following areas: (i) planning and designing of roads and bridges ; (ii) development of road maintenance management systems; (iii) quality control, and inspection, and condition survey of the roads and road structures; and (iv) accounting and budgeting for road maintenance works.

### **4. Submission of Reports**

25. The consultants will submit the reports indicated in Table 2 in the numbers and at the times indicated.

**Table 2: Consultants' Report for Part III**

Reports	Timing of Submission	No. of copies	
		Bank	Government
Inception Report	Within two weeks	2	2
Monthly Progress Report	Every month	1	1
Draft Proposal for Establishing a Maintenance Management System	Within two months	4	5
Road Maintenance Manuals and Specifications for Sealed Roads	Within six months	2	20
Draft Report on Field Assistance and Training	One month prior to completion of the assignment	2	5
Final Report on Field Assistance and Training	As soon as the assignment has been completed	2	5



## **5. Schedule**

14. That tendering and procurement of the road maintenance equipment will take about 12 months and the consultant's assignment should start from mid-1997 and continue for approximate period of 30 months.

## **6. Local Project Office and Logistics**

15. The DOR will be responsible for providing Project offices in Almaty and in the provinces where the road maintenance depots are located. The consultants will be responsible for equipping the offices with computer, copier, telephone, and facsimile machine support, for hiring appropriate local administrative staff, and for providing their own means of local transportation. The DOR will also provide within the Project office, furnished office space with administrative support for the Maintenance Manager to assist in administration and management of the Project.

## **C. Benefit Monitoring and Evaluation**

1. The objective of Part III of the consulting services is to measure the performance of national road improvements and the impacts of these improvements on the area served and establish a system to carry out benefit monitoring and evaluation (BME) of national roads within DOR.
2. The scope of the consulting services will include
  - (i) preparing a detailed program and appropriate formats for data collection and analysis necessary in monitoring and evaluating the socioeconomic impact of the Project in the influence areas;
  - (ii) compiling and analyzing the traffic and socioeconomic data from the surveys conducted such as the initial baseline survey, completion survey, and full development survey; and update the previous surveys conducted;
  - (iii) establishing an interactive computerized system for the BME of road projects, including freight and passenger charges for domestic and international traffic;
  - (iv) monitoring the continued appropriateness of the BME methodology selected;
  - (v) conducting on-the-job training of the counterpart staff in conducting the BME of national roads; and
  - (vi) submitting to the Bank and DOR a report of their findings and operation of the system established.
3. The Government will provide the consultants with:
  - (i) a copy of the final report of the feasibility study of the Project road,

- (ii) available maps,
- (iii) data of previous survey conducted, and
- (iv) technical staff from central and provincial offices to assist the consultants.

4. Approximately 8 person-months of international consultants and 15 person-months of domestic consultants will be needed. The international consultants will form an association with a suitably qualified firm of domestic consultants. The consultants will have expertise in the transport economics and highway engineering.

5. The consultants will submit the reports indicated in Table 3 in the numbers and at the times indicated.

**Table 3: Consultants' Report for Part III**

Reports	Timing of Submission	No. of Copies	
		Bank	Government
Inception Report	Within two weeks	2	2
Draft Final Report	Two weeks prior to completion	2	3
Final Report	Within a month after receipt of comments from the Bank and the Government	2	6

14. That the consulting services will be for about 4 months and the consultant's assignment should start from the beginning of 2000.

15. The DOR will be responsible for providing Project offices in Almaty. The consultants will be responsible for equipping the offices with computer, copier, telephone, and facsimile machine support, for hiring appropriate local administrative staff, and for providing their own means of local transportation.

## PROJECT FRAMEWORK

Design Summary	Project Targets (Verifiable Indicators)	Monitoring Mechanisms	Risks/Assumptions
<b>Goal</b> To rehabilitate and maintain roads to arrest the ongoing decline in the potential for future sustainable development.	1. Deterioration of about 600 km of road section in Almaty–Akmola corridor arrested through rehabilitation and maintenance. 2. Department of Roads' (DOR's) capability improved for project management and supervision, contract administration and road maintenance. 3. Road sector policy environment improved for private sector to participate.	– Project completion review and subsequent Project administration (PA) missions. – Project midterm review (MTR) and subsequent PA missions. – Project MTR, subsequent PA, and project processing missions.	* The Government will improve its civil service conditions to retain trained staff. * The Government will continue to open its economy.
<b>Purpose</b> To improve the 1. road infrastructure through rehabilitation and maintenance for efficient movement of freight and passengers, 2. institutional capacity, and 3. policy support environment.	1.1 Economic internal rate of return (EIRR) of about 21.5 percent on the Project road achieved by the year 2000. 1.2 International roughness index of the roads maintained under the Project measured less than 4 m/km. 2.1 The systems (management information, accounting, and project management) in State Road Authority (SRA) and selected oblast road authorities (ORAs) established. 2.3 Routine road maintenance management system on selected road maintenance depots (RMDs); about six RMDs established. 2.4 Medium-term human resources development (HRD) plan adopted. 3.1 The Road Sector Policy Statement (RSPS) adopted with effect from 31 March 1998. 3.2 The Road Act updated. 3.3 Rationalized road–user cost recovery system implemented.	– Economic internal rate of return assessment in benefit monitoring and evaluation report. – Road roughness assessment in benefit monitoring and evaluation report. – PA missions and progress report of the consultants. – PA missions and progress report of the consultants. – HRD plan. – Completed. – Advisory Technical Assistance (ADTA) consultants' report. – Enactment of the updated Road Act.	* The Government will continue to address capacity development issues recognizing their importance and by mobilizing adequate resources in future. * Inadequate resources for implementing issues covered by RSPS. * Delay in enacting the updated Road Act.
<b>Project Components/Outputs</b> Rehabilitation of about 192 km section of deteriorated paved national road, feasibility study, and detailed design of about 200 km of other selected road sections and maintenance of selected sections of the road in Almaty–Akmola corridor.	1.1 Rehabilitation of 192 km road section completed by the end 1999. 1.2 Feasibility study and detailed design of 200 km roads prepared by the end of 1998. 1.3 Maintenance of about 600 km of road progressing satisfactorily and other RMDs identified for introduction of the road maintenance system.	– PA missions and progress reports. – PA missions and consultants' feasibility study and design reports. – PA missions and progress reports.	* Inadequate budget allocation for rehabilitation and maintenance in general.

Design Summary		Project Targets (Verifiable Indicators)	Monitoring Mechanisms	Risks/Assumptions
2.1	Strengthening of DOR by establishing an SRA and 19 ORAs.	2.1.1 Number of staff under DOR increased. 2.1.2 Qualified staff mobilized under DOR. 2.1.3 Quality of DOR's project output improved.	- PA Missions. - PA Missions. - PA Missions.	
2.2	Enhancement of SRA's capability to implement projects.	2.2 On-the-job training of counterpart staff and exposure of domestic consultants in project management, supervision and administration by international consultants for construction supervision completed.	- PA missions and progress reports.	* Limited ability of counterpart staff to learn and accept new ideas and knowledge due to language problem.
2.3	Enhancement of the road maintenance capacities of SRA and ORAs.	2.3 Road maintenance standards prepared, maintenance training conducted, maintenance equipment delivered, and maintenance program successfully implemented and being expanded to cover more roads.	- Maintenance manuals, standards PA missions, and progress reports.	* Adequate fund allocation from Road Fund for road maintenance in general.
2.4	Implementation of HRD plan.	2.4.1 Improved institutional structure and setup implemented. 2.4.2 Number of staff being trained within and outside the country increased.	- MTR and PA missions. - MTR and Project completion report (PCR) missions.	
3.1	Adoption of RSPS.	3.1.1 Progressively greater responsibility and autonomy being given to functioning of state-owned and private enterprises. 3.1.2 Committee for Legal Reform formed by 30 June 1997. 3.1.3 National Transport Advisory Committee established by 31 December 1997.	- ADTA consultants' final report. - PA review missions and ADTA consultants' report. - PA review missions and ADTA consultants' report.	
3.2	Implementation of Road Fund Decree.	3.2 Road Fund collected in accordance with the Road Fund estimate.	- Budget document of DOR.	* Difficulty in collecting Road Fund.
3.3	Adoption of recommendations for rationalized road-user cost recovery practices.	3.3 Improved cost recovery measures adopted by 31 December 1997 and incorporated in the updated Road Act.	- The Road Act.	* Government opposition to increase tax on fuels.
3.4	Implementation of the updated Road Act.	3.4.1 Organizational jurisdictions of sector institutions defined and clarified. 3.4.2 Road infrastructure classified. 3.4.3 Policies regarding road industry licensing, tariffs, and fares updated. 3.4.4 Policies regarding motor vehicles registration, licensing, inspection, and weight and dimension control updated. 3.4.5 Policies regarding road user-cost recovery adopted.	- PA missions. - DOR's road standards and specifications. - Freight tariffs and passenger fares. - PA missions. - DOR's budget and tax returns of the items through which cost recovery has been proposed.	
<b>Activities</b>				
1.1	Providing adequate counterpart funds for the Project implementation.	1.1 Funds allocated from Road Fund.	- DOR budget estimate.	* In case of shortage, Government will allocate additional funds.
1.2	Recruiting detailed design and construction supervision consultants.	1.2 Consultants recruited in August 1996.	- Contract documents	
1.3	Carrying out survey and design.	1.3 Survey and detailed designs completed by October 1996.	- Survey and design reports.	
1.4	Awarding of contracts	1.4 Civil works contract awarded by March 1997.	Progress reports and PA missions	* Limited international competition.
1.5	Carrying out road rehabilitation and maintenance of selected road sections.	1.5 Rehabilitation completed by October 1999 and routine road maintenance continues to be implemented satisfactorily.	- Progress reports and PA missions	
1.6	Supervising the construction and on-the-job training of counterpart staff.	1.6 Construction supervision completed by October 1999 and DOR, SRA, and ORA staff trained in construction supervision and contract administration.	- Progress reports and PA missions - MTR, PCR, and future Bank missions	

Design Summary		Project Targets (Verifiable Indicators)	Monitoring Mechanisms	Risks/Assumptions
2.1	Establishing an SRA and 19 ORAs.	2.1 Decree no. 1598 establishing SRA and ORAs issued on 27 November 1995.	- Completed	
2.2	Recruiting ADTA consultants.	2.2 ADTA consultants recruited by mid-1996.	- Contract documents	
2.3	Introducing works accounting, financial and management information systems in SRA and selected ORAs.	2.3 Systems introduced in DOR from the beginning of 1998.	- PA missions	
2.4	Recruiting detailed design and construction supervision consultants.	2.4 Consultants recruited by mid-1996.	- Contract documents	
2.5	Recruiting road maintenance assistance consultants.	2.5 Consultants recruited by mid-1996.	- Contract documents	
2.6	Preparing road maintenance standards and manuals.	2.6 Maintenance manual prepared and approved for implementation by the end of 1997.	- PA missions and progress reports.	
2.7	Training of road maintenance staff.	2.7 Training continued until mid-2000.	- MTR and PCR missions and progress reports.	
2.8	Procuring road maintenance equipment.	2.8 Equipment procured by September 1997.	- Contract documents and PA missions.	
2.9	Reviewing the organizational structure, roles, responsibilities, and functions of DOR and properly defining them and preparing HRD plan for DOR.	2.9 HRD plan prepared; Four DOR staff trained abroad.	- Consultants final report.	
3.1	Preparing RSPS and adopting it.	3.1 Ministry of Transport Communications adopted RSPS with effect from 31 March 1996.	- Completed.	
3.2	Enacting Road Fund Decree.	3.2 Road Fund Decree no. 2701 issued on 27 December 1995.	- Completed.	
3.3	Carrying out the road-users cost recovery study by ADTA consultants.	3.3 Cost recovery proposals reviewed by Bank and the Government and incorporated in the Road Act.	- ADTA consultants' report.	
3.4	Updating Road Act with the help of ADTA consultants.	3.4 Road Act reviewed by the Bank and the Government; the Road Act approved by the Government by December 1997.	- Draft Road Act. - MTR and PA missions.	
		<b>INPUTS/RESOURCES</b> <b>Project Costs (\$ million)</b> (including taxes)		
		<b>1. Rehabilitation:</b> Civil Works 36.20		
		<b>2. Road Maintenance</b> Equipment, Materials & Manpower 19.00		
		<b>3. Consulting Services</b> (i) Detailed Design & Construction 4.70 Supervision, Maintenance Assistance and Benefit Monitoring		
		(ii) Detailed Design of Selected Roads 0.40		
		<b>4. Contingencies:</b> 10.50		
		<b>5. IDC</b> 6.20		
		<b>Total</b> 77.00		

## **OUTLINE TERMS OF REFERENCE FOR TECHNICAL ASSISTANCE FOR INSTITUTIONAL STRENGTHENING OF THE ROAD SECTOR**

### **A. Objectives**

1. Because the Government is restructuring the road sector organizations and the restructuring will be continued during the implementation of the proposed Roads Development Project (the Project), the Government has requested for an advisory technical assistance to assist in the implementation and formulation of key aspects of the restructuring process. The most recent and important initiatives undertaken by the Government are

- (i) restructuring the Ministry of Transport and Communications by transferring the rights of the road infrastructure proprietorship from Kazzhol to the Department of Roads (DOR), strengthening DOR, and reforming Kazzhol; and
- (ii) adopting the Road Sector Policy Statement (RSPS) to establish a platform for policy restructuring.

2. The TA consists of two parts. The main objectives of Part A will be to assist in (i) refining the organization structure and roles of DOR, particularly of the State Road Authority (SRA) and selected oblast road authorities (ORAs); (ii) establishing initial operation systems and strengthening the financial and planning capability of SRA and ORAs; and (iii) developing human resources for the road sector.

3. The main objectives of Part B of the TA will be to (i) assist in developing a legal framework for the road and road transport sector; and (ii) develop a more broad-based approach to cost recovery from various classes of road users, and determine the impact of various cost inducing factors.

4. The TA will play an important role in facilitating the development of focused and accountable operations of DOR and ORAs after clear delineation of Government functions and commercial activities, which could be privatized at a later date. In providing the services, the consultants will use, to the extent possible, locally available expertise. Also, the consultants will make a special effort to ensure that on-the-job training and transfer of expertise are provided to the staff of DOR, SRA, and ORAs.

### **B. Scope of Services**

5. About 33 person-months of international consultants and 20 person-months of domestic consultants will be required.

#### **1. Part A: Institutional Strengthening of the Road Sector**

6. Part A of the TA will be undertaken in line with RSPS and will take into account the various aspects being developed/included in Part B. Part A of the TA will consist of three components:

**a. Organizational Development**

7. The consultants will assist the Government to

- (i) establish a system in DOR to monitor, review, and update its policies, programs, and projects taking into account the overall responsibilities of DOR such as (a) formulating road sector policy, including privatization policy; (b) programming and budgeting road activities; (c) mobilizing resources and funding road activities, including management of the Road Fund<sup>1</sup>; (d) maintaining centralized road inventory; and (v) controlling cost and quality of works;
- (ii) finalize the reallocation of activities between DOR, SRA, and ORAs to achieve focused and accountable operations by the Government; and
- (iii) design and implement an appropriate organizational structure for DOR in line with its roles, responsibilities, and functions.

**b. Capacity Development**

8. The focus will be in developing the institutional capacities of SRA and ORAs to implement the road projects so that they could respond efficiently to the market demands. The consultants will

- (i) develop simple procedures for screening the road network and prioritizing the road sections that will enable the SRA and ORAs to prepare their work programs and budgets;
- (ii) develop and implement a simple and relevant works accounting, financial, and management system and provide on-the-job training to the staff of SRA and selected ORAs on the objectives and operation of the system;
- (iii) prepare sample prequalification and tender documents that will be relevant and appropriate for the size and the type of works SRA and ORAs are expected to handle for competitive bidding, taking into account the existing laws and regulations and development of the local contracting industry; and
- (iv) train SRA and ORA staff in prequalifying bidders, tendering, and contract management.

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<sup>1</sup> The Road Fund comprises (i) 0.5 percent tax on the revenues of all enterprises, (ii) 3.0 tenge per liter tax on gasoline and diesel, and (iii) taxes on heavy vehicles (more than 10 tons) and international freight traffic. (Rates will be determined for specific cases taking into account number of axles and axle load, distance to be travelled and the nationality.)

9. For about four suitable selected candidates from DOR, the consultants will prepare an overseas short-course training program of about 4 person-months for skill upgrading covering road design and construction management, including bid evaluation and award of contracts. The candidates selected for the training must have adequate language skills to benefit from the training.

### **c. Human Resources Development**

10. The consultant will review the road sector's existing human resources (in relation to its needs over next five years) to (i) identify the skills by appropriate category that are required for the sector; (ii) identify the nature of training required to upgrade the skill base identified under (i) above; and (iii) identify an approach, including sources of possible finance, to implement the training strategy. Based on this work, the consultants will prepare a human resource development plan for the road sector.

## **2. Part B: Road Act and Cost Recovery**

### **a. Road and Road Transport Act and Regulations**

11. Based on the policy direction in RSPS, the consultants will

- (i) study the existing Road Fund Decree (No. 2701) and determine appropriateness of phasing out the Road Fund in the light of beneficial considerations and limiting the Road Fund to remain in place;
- (ii) review (in conjunction with relevant service departments) all existing laws and regulations governing the road and road transport sector, including the interim transport regulation;
- (iii) in close coordination with the Committee for Transport Sector Legal Reform and the international consultants engaged under other road projects financed by the external agencies, update the existing Road and Road Transport Act (the Road Act) and its implementing regulations covering, among other things (a) the organization, responsibilities, and powers of the Government departments, agencies, and subdivisions concerned with the construction, operation, and or maintenance of roads and areas of cooperation in that respect with private sector entities; (b) the organization, responsibilities, and powers of Government departments, agencies, and subdivisions concerned with overseeing the use of roads; (c) classification of roads according to their function and role; (d) road transport industry and its operation and management, including licensing, tariffs and fares, and organization aspects; (e) registration and licensing of motorized vehicles, inspection, dimension and weight controls, and repair/workshop licensing; (f) road traffic management and control including movement of traffic on roads, speed limits, responsibilities of drivers, road signs signals and markings, and regulation and enforcement; (g) user charges and cost recovery including identification of various classes of road users (to be included in the revised Road Act after



acceptance of the consultants recommendations by the Government and the Bank); and (h) other issues concerning the road and road transport sector that would require regulation; and

- (iv) recommend amendments, if necessary, of existing road and road transport legislation to make it consistent with the objectives of the RSPS and with the revised Road Act and to bring it up to date with modern technological conditions.

12. In assisting to prepare the draft legislation and amendments to existing legislation, the consultants will liaise with the Ministry of Justice to ensure overall consistency with the existing legal framework.

#### **b. Cost Recovery**

13. The interim policy of trying to meet the funding for the road construction and maintenance from the Road Fund needs to be rationalized. The consultants will undertake a study to (i) recommend the appropriate policy for road-user cost recovery; (ii) identify the various classes of road users; (iii) develop an efficient and practical scheme to provide for more equitable taxation of road users; and (iv) recommend a longer term strategy of road-user cost recovery. To achieve the above, the consultants will analyze the overall balance between revenues and expenditures relating to the usage of the road networks; the analysis will distinguish between capital expenditures, maintenance, administration, and indirect costs/revenues, and focus on the possibility of initially charging the road users the operational and maintenance cost of their use of transport infrastructure.

#### **C. Required Expertise**

14. For Part A (Institutional Strengthening), the consultants must have extensive experience: (i) organizational strategy, design, planning, and operations of a road department; (ii) works accounting and financial management in the context of road works and management information systems for a road department; and (iii) human resource planning, development, and training in road construction management and planning.

15. For Part B (the Road Act and Cost Recovery), the consultants must have extensive experience in (i) law, in particular advising on the legal framework in transitional economies and drafting legislation, preferably being familiar with civil law legal systems and having experience with road and road sector legislation; and (ii) road investment planning, budgeting, and cost recovery, particularly in developing equitable taxation of road users and longer term road users' cost recovery strategies.

#### **D. Implementation Arrangements**

16. DOR will be the Executing Agency and will provide overall guidance for the activities to be carried out under the TA. DOR will appoint suitable senior counterparts who will be responsible for the day-to-day supervision and coordination activities, including monitoring progress achieved and resolution of any difficulties that may arise during implementation.

## **E. Submission of Reports**

17. For Part A, the consultants are required to submit to the Government and the Bank five copies each of reports/documents as provided under the contract schedule, including (i) an inception report that provides an organizational systems and human resources review of DOR; (ii) a human resource development plan; (iii) a systems and capacity development plan for SRA and ORAs that identifies the proposed chart of accounts, reporting and responsibility centers, implementation schedule, hardware and software requirements, and system training needs; (iv) a midterm report that summarizes the implementation of TA activities and updated time frame for implementation of the remaining TA activities; (vii) a draft final report that summarizes the results of the TA activities and their implementations, and identifies activities that need to be pursued to consolidate the institutional strengthening and human resource development activities conducted under the TA; and (viii) a final report.

18. For Part B, the consultants are required to submit to the Government (three copies) and the Bank (two copies) of different reports/documents as provided under the contract schedule, including (i) an inception report that provides a summary of the existing legislation concerning the road and road transport sector; (ii) an outline for updating/developing the proposed Road and Road Transport Act and Regulations and road-user costs recovery study; (iii) a midterm report that summarizes progress on the preparation of the two reports and an updated outline for implementation of the remaining portion of the activities, including changes proposed, if any; (iv) a draft final Road Act and Regulations and road-users' costs recovery study (including appropriate recommendations); and (v) final reports in the form of a final draft Road and Road Transport Act and Regulations and Road Users' Cost Recovery Study.

## **F. Timing**

19. The consulting services are expected to start in mid-1996 and should be completed in no later than the mid-1997.

**COST ESTIMATES FOR  
INSTITUTIONAL STRENGTHENING OF THE ROAD SECTOR  
(\$'000)**

Item	Foreign Exchange	Local Currency	Total Costs
<b>A. Bank Financing</b>			
<b>Part A: Institutional Strengthening</b>			
1. International Consultants			
a. Remuneration	200.00	—	200.00
b. Per Diem <sup>a</sup>	20.00	—	20.00
c. International Travel <sup>a</sup>	20.00	—	20.00
d. Local Travel	—	10.00	10.00
2. Local Consultants			
a. Remuneration	—	60.00	60.00
b. Per Diem	—	7.00	7.00
c. Local Travel	—	8.00	8.00
3. Vehicle Hiring	—	15.00	15.00
4. Computers, Software, Office Equipment, and Supplies	10.00	—	10.00
5. Translation, Secretary, and Logistical Support	10.00	—	10.00
6. Contingencies	50.00	5.00	55.00
<b>Subtotal: Part A</b>	<b>310.00</b>	<b>105.00</b>	<b>415.00</b>
<b>Part B: Road Act and Cost Recovery</b>			
1. International Consultants			
a. Remuneration	234.00	—	234.00
b. Per Diem <sup>a</sup>	28.00	—	28.00
c. International Travel	18.00	—	18.00
2. Reports and Communications	5.00	—	5.00
3. Computers, Software, Office Equipment, and Supplies	10.00	—	10.00
4. Contingencies	40.00	—	40.00
<b>Subtotal: Part B</b>	<b>335.00</b>	<b>—</b>	<b>335.00</b>
<b>Subtotal (A)</b>	<b>645.00</b>	<b>105.00</b>	<b>750.00</b>
<b>B. Government Financing</b>			
Administrative Costs (office space, support staff, secretaries, communications, salaries of counterpart staff, office supplies, statistics, maps, and technical data).	—	20.00	20.00
<b>Subtotal (B)</b>	<b>—</b>	<b>20.00</b>	<b>20.00</b>
<b>Total (A+B)</b>	<b>645.00</b>	<b>125.00</b>	<b>770.00</b>

<sup>a</sup> Includes provision for Department of Roads officials to attend contract negotiations and engage in policy dialogue at the Bank Headquarters.

## OUTLINE TERMS OF REFERENCE FOR TECHNICAL ASSISTANCE FOR THE FEASIBILITY STUDY OF SELECTED PRIORITY ROAD SECTIONS

### A. Scope

1. Under the technical assistance (TA), the prefeasibility and feasibility studies, particularly the report prepared under the Bank's TA No. 2285-KAZ: Preparation of a Road Rehabilitation Project, will be reviewed for undertaking the detailed feasibility study of about 200 km of priority road sections.

### B. Broad Terms of Reference

2. Based on the National Road Development Plan and the study carried out under the Bank TA No. 2285-KAZ, select about 200 km of road sections that are acceptable to the government and the Bank for undertaking more detailed economic analysis to determine the viability of rehabilitation in accordance with the Bank's *Guidelines for Economic Analysis of Projects*. The broad tasks for the TA will include, but not necessarily limited to, the following:

- (i) Assess past and expected future economic developments in the road influence areas taking into account the ongoing shift to a market-oriented economy.
- (ii) Carry out reconnaissance and necessary field investigations and data collection such as traffic counts and commodity surveys to develop sufficiently detailed information on the present pattern of movement of goods and people and of traffic by various modes in the Project area.
- (iii) Forecast future movements of goods and people and transport demand based on the expected level of traffic (including the effect of tariffs in the traffic forecast).
- (iv) Analyze the interaction between road and rail to come to a conclusion as to the future role of railways. Considering the role of railways in the future, evaluate routes and level of improvement in relation to terrain, soils, and traffic.
- (v) Assess the appropriate rehabilitation requirement for each road segment for the forecast traffic and undertake preliminary engineering design.
- (vi) Estimate the costs, including a breakdown of foreign exchange (border price plus transport and handling costs) and local currency costs, taxes, and contingencies, of rehabilitating each link.
- (vii) Prepare present and future socioeconomic profiles by counties/cities and development perspectives within the zone of influence of the roads. Also prepare a socioeconomic profile for the areas to be served by the improved roads. Data to be collected includes population, income, occupation profile, and other relevant socioeconomic data of the people

in the areas. Describe fully how the proposed rehabilitation of the road may help improve peoples livelihoods. Assess in both qualitative and qualitative manners possible socioeconomic impacts by the proposed rehabilitation in terms of poverty alleviation in the roads influence areas.

- (viii) Based upon the investment plans for rehabilitating the road, recommend priority components to form a project suitable for financing by the international financing agencies.
- (ix) Based upon the existing traffic counts and origin-destination survey, obtain any additional necessary information on the present pattern of traffic by vehicle type and mode in the zones of influence of the roads.
- (x) Assess the possibility of passenger and goods traffic diversion from other transport modes along the road, taking into account transport costs and other relevant factors.
- (xi) Review capacity assessment of existing roads and assess effects of the capacity constraints to vehicle operating costs (VOCs).
- (xii) Review parameters for traffic diversions from the other roads and modes to the study roads, including effects of capacity constraints of the existing roads.
- (xiii) Prepare traffic forecasts in vehicles per day by representative vehicle types on the and estimate possible generated traffic arising from improved road transport and diverted traffic from the existing roads. Traffic diversion from existing railways should also be assessed, as appropriate. Based on the effects of proposed road rehabilitation, prepare traffic forecasts for the roads.
- (xiv) Review available VOCs by vehicle type, calculate VOCs for the existing and proposed road sections, and quantify the benefits divided into VOC savings for normal, generated, and diverted traffic, including savings that would result from the reduced congestion and travel distance, road maintenance cost savings, and other benefits such as reduction in road accident costs.
- (xv) Estimate the economic benefits of rehabilitating each road segment "with" and "without" the rehabilitation, preferably assess the VOC for various types of vehicles by using the World Bank's Highway Design and Maintenance Standards Model (HDM-III) Computer Model.
- (xvi) Estimate the economic internal rate of return, based on a traffic assignment for the existing roads and rehabilitated roads. In calculating the economic internal rate of return, identify tradeable and nontradeable components of the Project costs and border price value of tradeable components.

- (xvii) Undertake sensitivity tests by appropriately varying benefits ( $\pm 10$  percent), project costs ( $\pm 10$  percent), the implementation period (one-year delay), traffic diversion ( $\pm 10$  percent), toll rate ( $\pm 10$  percent) and combination of these factors. Sensitivity analysis should be based on key monitorable factors such as capital costs, traffic growth rate, VOC levels, etc.
- (xviii) Based on the foregoing, propose a phased Project suitable for external assistance that is technically sound and economically viable, prepare a Project implementation schedule, recommend the most appropriate forms of procurement and construction, and assess whether a Project office is required.
- (xix) Recommend a benefit monitoring and evaluation system that can be used after completion of the rehabilitation of the roads.

### C. Expertise Required

3. International consulting firm(s) will be recruited in accordance with the Bank's *Guidelines on the Use of Consultants*. A team of consultants will be engaged to undertake the economic evaluation of the road sections. About 8 person-months of international consulting services will be requested for the TA as defined in the terms of reference. The international consultants will be required in the fields of highway engineering and transport economics, and about 12 person-months of domestic consultants are required in the fields of traffic engineering and highway engineering.

### D. Reporting

4. The consultants will submit the reports listed in Table 1 in the numbers and at the times indicated.

Table 1: Consultants' Report

Reports	Timing of Submission	No. of Copies	
		Bank	Government
Inception Report	Within two Weeks	2	2
Monthly Progress Report	Every Month	1	1
Draft Final Report	Within six months	4	5
Final Report	Within a month after receipt of comments from the Bank and the Government	5	6

### E. Schedule

14. The consulting services will be needed for about 6 months and the consultant's assignment will start from mid-1997.

**COST ESTIMATES FOR TECHNICAL ASSISTANCE FOR THE  
FEASIBILITY STUDY OF SELECTED PRIORITY ROAD SECTIONS  
(\$'000)**

Item	Foreign Exchange	Local Currency	Total Costs
<b>A. Bank Financing</b>			
1. International Consultants			
a. Remuneration	126.00	—	126.00
b. Per Diem	21.00	—	21.00
c. International Travel	10.00	—	10.00
d. Local Travel	—	5.00	5.00
1. Local Consultants			
a. Remuneration	—	27.00	27.00
b. Per Diem	—	4.00	4.00
c. Local Travel	—	4.00	4.00
3. Vehicle Hiring	—	6.00	6.00
4. Computers, Softwares, Office Equipment, and Supplies	8.00	—	8.00
5. Translation, Secretary, and Logistical Support	8.00	—	8.00
6. Contingencies	<u>27.00</u>	<u>4.00</u>	<u>31.00</u>
Subtotal (A)	200.00	50.00	250.00
<b>B. Government Financing</b>			
Administrative Costs (office space, support staff, secretaries, communications, salaries of counterpart staff, office supplies, statistics, maps, and technical data).	—	<u>20.00</u>	<u>20.00</u>
Subtotal (B)		20.00	20.00
<b>Total (A+B)</b>	<b>200.00</b>	<b>70.00</b>	<b>270.00</b>

## METHODOLOGY FOR DETERMINING THE ECONOMIC INTERNAL RATE OF RETURN

### A. General

1. Prior to undertaking the detailed economic analysis, the priority roads identified by the National Road Development Plan (a road rehabilitation and improvement program prepared by the Ministry of Transport and Communications in 1993) were reviewed by the Project preparatory technical assistance (PPTA) consultants. The review resulted in the selection of 15 roads, including the road from Almaty to Akmola. Of the 15 roads, a road section from Gulshad to Karaganda (407 km) was analyzed as an important road link requiring urgent rehabilitation. Road condition and preliminary rehabilitation designs were assessed. The preliminary rehabilitation design included (i) establishing preliminary design standards and methodology, (ii) identifying homogenous sections, (iii) identifying typical rehabilitation cases, (iv) determining pavement strength requirements, (v) evaluating and selecting pavement alternatives;<sup>1</sup> and (vi) establishing preliminary pavement rehabilitation solutions.

2. The economic assessment was then conducted based on the comparison of the "with" and "without" Project scenarios. Under the "without" Project scenario, the road section, due to continuing deterioration, will result in increasing vehicle operating costs (VOCs) and road rehabilitation and maintenance costs. Under the "with" Project scenario, however, improved road conditions will reduce VOCs as well as routine and periodic maintenance costs. The economic internal rate of return (EIRR) was derived by taking into account the benefit accruing over an estimated period of 20 years from 2000, which covers the economic life of the improved road section, while construction costs were spread to cover an implementation period. Costs and benefits were estimated net of taxes and duties and expressed in constant 1996 prices.<sup>2</sup>

### B. Selection of Priority Roads

3. The National Road Development Plan (NRDP) identified for rehabilitation or upgrading of about 11,170 km of national roads to be implemented during a 15-year period. Of these, the 15 priority roads comprised 3,800 km, of which 1,200 km were subjected to detailed screening based on the set of criteria including (i) importance of the corridor to the development of Kazakhstan and international trade, (ii) road condition, (iii) traffic volume, (iv) population density and economic activities in the influence areas, and (v) environmental considerations. The Almaty-Akmola road emerged as the top priority road link because (i) its corridor connects the two most important regions in the country in terms of economic activity and concentration of population and is part of the important international corridor; (ii) its condition is poor/fair, with several long sections classified as poor/very poor; and (iii) the corridor has a medium to high level of traffic flow ranging from 1,200 to 3,300 annual average daily traffic in 1994. It was further decided that the feasibility study be undertaken for the Gulshad-Karaganda road section (407 km) of the Almaty - Akmola road where the most extensive rehabilitation work is urgently required road is severely damaged. The Project road is a 192-km section of the Gulshad-Karaganda road; the remaining 215 km is proposed for rehabilitation under the World Bank's project.

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<sup>1</sup> The alternative pavement structures comprise layers of varying thickness of dense asphaltic concrete, open graded asphaltic concrete, crushed stone base course, and sand/gravel subbase.

<sup>2</sup> A conversion factor of 1.0 was assumed for the economic analysis as no conversion factor estimate was available at the time of preparing this Report.



### C. Costs

4. The economic costs of implementing the Project have been estimated based on the financial costs of civil works, maintenance and technical support equipment, and consulting services. Financial costs are divided into foreign and local costs. The economic costs for the foreign component are expressed in border prices plus transport and handling costs, while the financial local costs are converted into economic costs excluding transfer payments such as social charges and income taxes. Periodic maintenance of asphalt concrete road surface is assumed to take place during the operation of the Project.

### D. Benefits

5. The main sources of economic benefits from the Project are (i) savings in VOCs, which accounted for more than 90 percent of gross benefits, and (ii) savings in periodic and routine maintenance costs. In estimating benefits, the financial benefits were adjusted to economic benefits by applying the same approach as in the estimation of economic costs. Economic VOC for different vehicle categories under "with" and "without" Project scenarios were estimated by using the VOC submodel of the Highway Design Model (HDM version 3). Input data required by the Model included road characteristics, description of typical vehicles prevailing on the Project road, vehicle utilization and operation data including unit costs, and other relevant data. These data were obtained from vehicle dealers, transport operators, and government organizations. VOC savings will accrue primarily from improvement in the road surface as measured by a roughness indicator. Based on the traffic projections and improved road surface, VOC savings by vehicle category in US dollars per vehicle-km are presented in Table 1. As a result of reduction in VOC by about 10-20 percent depending on vehicle type, it was assumed that extra traffic would be generated, the impact of which on the economic benefit was tested separately and found to be minimal. Savings in VOC for transit international traffic, with neither destination nor origin in the country, account for about 20 percent for trucks and 5 percent for cars (including buses and others), and have not been taken into account because these benefits do not accrue directly to the economy of Kazakhstan.

Table 1: Vehicle Operating Costs by Vehicle Type  
(\$/vehicle-km)

Scenario	Car	Minibus	Bus	2-Axle Truck	3-Axle Truck	4-Axle Truck	5-Axle Truck
Without Project <sup>a</sup>	0.17	0.23	0.40	0.47	0.74	1.04	1.17
With Project <sup>b</sup>	0.14	0.20	0.36	0.41	0.59	0.85	0.95
VOC Saving	0.03	0.03	0.04	0.06	0.15	0.19	0.22

<sup>a</sup> for an international roughness indicator (IRI) of 7.8.

<sup>b</sup> for an IRI of 3.4.

6. Under "without" Project case, in order to prevent further deterioration of the road surface, essential annual routine maintenance works would be required to keep the road open to traffic, such as repair of potholes and patching. This is estimated to cost annually \$5,300 per km at economic cost. "With" the Project, pavement and drainage would be improved and therefore routine maintenance would cost only \$2,500 per km, saving of 53 percent. Periodic maintenance under the "without" Project case would involve surface dressing every 3 years at the economic cost of \$13,800 per km while "with" the Project periodic maintenance would comprise an asphalt concrete overlay at an interval of 7 years costing \$31,800 per km. This would result in substantial savings in terms of present value.

#### **E. Results of Economic Analysis**

7. The EIRR has been estimated at 21.5 percent for the Project (see Table 2). Sensitivity analysis was carried out to test the effects of possible unfavorable scenarios with respect to changes in the key parameters that determine Project costs and benefits. This analysis indicated that the Project would continue to be economically viable (15.8 percent) even under the most adverse scenario involving a 10 percent cost increase, a 10 percent decrease in benefits, and a one-year delay in implementation.

**Table 2: Economic Internal Rate of Return  
(\$ million)**

Year	Cost		Benefit		Net Benefit
	Capital	Maintenance	VOC Savings	Savings in Periodic Maintenance	
1996	3.420	-1.018		2.649	0.247
1997	13.993	-1.018		0.000	-12.975
1998	17.257	-1.018		0.000	-16.240
1999	13.993	-1.018		2.649	-10.326
2000		-0.538	8.289	0.000	8.826
2001		-0.538	8.612	0.000	9.149
2002		-0.538	9.038	2.649	12.225
2003		-0.538	9.111	0.000	9.649
2004		-0.538	9.565	0.000	10.102
2005		-0.538	10.039	2.649	13.225
2006		5.567 a	10.195	0.000	4.627
2007		-0.538	10.946	0.000	11.484
2008		-0.538	11.367	2.649	14.554
2009		-0.538	11.628	0.000	12.166
2010		-0.538	12.037	0.000	12.575
2011		-0.538	12.638	2.649	15.825
2012		-0.538	12.925	0.000	13.463
2013		5.567 a	13.472	0.000	7.904
2014		-0.538	14.472	2.649	17.659
2015		-0.538	14.649	0.000	15.187
2016		-0.538	15.382	0.000	15.919
2017		-0.538	15.917	2.649	19.104
2018		-0.538	16.279	0.000	16.816
2019		-0.538	17.093	0.000	17.630
EIRR =					21.5%

a Periodic maintenance of the Project road.