

## IMPROVEMENT OF ROAD MAINTENANCE SYSTEM CONSULTANT (CSP-4)

### TERMS OF REFERENCE FOR CONSULTANTS

#### A. Introduction

1. Roads are a key element of the Kazakhstan transport system playing an important role in providing access to rural areas and facilitating transit traffic and in-country transport movement. While the Republican road network has good coverage there are some missing links and the rural road network does not provide many communities with reliable year round road access<sup>1</sup>. Much of the road network is in poor condition with around 60% of the Republican roads require major rehabilitation and proper maintenance. Moreover, the feeder road network serving rural population is not fully developed and is characterized by poor conditions and a low service level especially during winter time.

2. Kazakhstan has three road networks, each under the responsibility of different levels of government and their respective road organizations: (i) the Republican roads are under the responsibility of the Ministry of Transport and Communications (MOTC) and are managed by the Committee of Roads; (ii) local or rural roads are under *Oblasts* or provincial governments; and (iii) urban roads are under municipality or city authorities.

3. The length of the Republican and rural roads by category and pavement type are summarized in the following table.

**Road Network Characteristics**

Type of Roads	Road Classification					Road Pavement	
	I	II	III	IV	V or No Category	Asphalt concrete	Non-asphalt
Republican Roads	680	3,500	16,600	2,100	220	6,900	16,200
Rural Roads	72	751	18,714	39,289	6,539	6,322	59,043

Source: Committee of Roads

4. Outsourcing of road works has been the practice for some times. To improve work quality of road construction and maintenance the Committee of Roads has introduced extended warranty contracts with contractors being responsible for guaranteeing their work for periods of 2, 3, and 5 years for periodic maintenance, rehabilitation, and reconstruction respectively.

5. Routine maintenance and repair contracts continue to be single sourced from Kazakhavtodor, a government-owned enterprise specializing in routine maintenance. An experiment to outsource routine maintenance to private sector failed due to inability of the private sector performing its obligation especially during winter. Kazakhavtodor was incorporated in late 1998 and was made responsible for road maintenance in December 2000. Kazakhavtodor is primarily responsible for routine maintenance, winter maintenance, taking care/expanding the area of road side plantings, road inspections and traffic counting and are also involved in road inspection committees. They are allowed to compete for mid term maintenance and capital works contracts but have found that they are no longer able to compete with the private sectors in many oblasts. Total equipment fleet totals approximately 1700. Much of the equipment is reported to be beyond its service life which is relatively short as

<sup>1</sup> ADB TA 4145-KAZ: *Formulation of Local Road Development Plan* and ADB TA 4462-KAZ: *Formulation of State Roads Development Plan to 2012*.

the quality of equipment is low as it is purchased through tenders.

6. The Investment Program is to include a component designed to improve routine maintenance system in Kazakhstan. An advisory service will be recruited to recommend a suitable routine road maintenance system for Kazakhstan. It ultimately aims at developing road maintenance works performance standards, outsourcing system, and improving the efficiency of Kazakhavtodor.

## **B. Scope of Works**

7. The consultant is to review the existing studies and documents:

- (i) Review studies on the road maintenance subject completed recently, relevant government policies and rules on road sector, and relevant technical papers;
- (ii) Identify the key findings regarding maintenance requirements for different categories of roads, Oblasts, weather conditions and pavement material (asphalt, concrete, etc.);
- (iii) Examine the existing working arrangements between the Committee of Roads, Oblast road administrations, and contractors;
- (iv) Review budget allocations at the Central and Oblasts levels during the last three years and the budget planned under the RDP; and
- (v) Acquire information and account of labor, equipment and resources at the disposal of Kazhvtador for road maintenance operations, identifying the equipment supplied by MOTC and costs involved for maintenance and upkeep.
- (vi) Road fund and private sector involvement in road operations.

8. The consultant is to conduct the following analysis:

- (i) Study the best practices in outsourcing of road maintenance in the world under similar climatic conditions as in Kazakhstan including means, methods and unit costs of routine maintenance; Based on the best practice case studies, lessons learnt, including market based systems used in different countries and suggest pros and cons of various systems vis-à-vis the routine road maintenance practices/ requirements of Kazakhstan;
- (ii) Analyze the reasons for unsuccessful efforts previously launched to involve private sector in the routine maintenance operations for the Republican roads as well Oblast and Rayon roads;
- (iii) Examine all maintenance operations (existing and planned) ongoing, on the main roads (category I and II) and the percentage roads where no routine maintenance has been performed within the recent years;
- (iv) Estimate the road maintenance requirements of each Oblast Republic roads and identify the road maintenance funding gap between the budget and the requirements;
- (v) Assess the construction industry in Kazakhstan and its potential to perform road maintenance works; and
- (vi) Review the legislation and documentation for the establishment and structure of Kazakhavtodor and assess the capability and capacity of the Kazakhavtodor organization at all levels, including: skilled labor, technicians and skilled/unskilled human resources required vis-à-vis available in key Oblasts.

- (vii) Possible introduction of road fund and involvement of private sector in the Investment Program roads.

9. The consultant is expected to produce the following outputs:

- (i) Measurable performance indicators for different types of pavements (concrete, asphalt) and road categories and standard unit cost for routine maintenance;
- (ii) Profile of resource deficiencies to overcome the existing huge backlog in the network and future requirements for the road maintenance;
- (iii) A workable relationship for outsourcing of road maintenance between MOTC and the contractors to perform the routine maintenance operations on various roads and Oblasts;
- (iv) A procedure by which the employer can engage contractors work on monthly, quarterly or as needed basis. This may entail defining the size of work, road length that may be attractive to the private operators;
- (v) Road maintenance works performance standards; tolerances (e.g., international roughness index, rutting, depressions, drainage, and pothole size); and minimum acceptable criteria to MOTC for a performance based road maintenance plan for different categories, types, classification and weather conditions of road network in the country;
- (vi) Standard performance based contract defining terms and conditions, defining contractors' responsibilities over and above the Government's minimum defined routine maintenance criteria to maintain given road sections at all times and be accountable for its performance throughout the contract period. It may be termed as " Defect-less maintenance of roads";
- (vii) Profile and potential capacity and resources of the private sector in Kazakhstan and in the region that could be tapped for involvement utilized in routine road maintenance;
- (viii) Possible road maintenance systems and procedures for Kazakhstan with pros and cons, market conditions with recommendations for application through either domestic or international organization, sole sourced or through competitive procedures for the road network in Kazakhstan. The output will clearly spell out the conditions for success or failure of each proposed system ( such as either due to lack of equipment, skilled labor or funding constraints);
- (ix) Develop proposals for the establishment of a skills development and training program; and
- (x) A strategy and plan for Kazakhavtodor and its role in future road maintenance or suggest if another such organization could be given the responsibility wholly or partly.
- (xi) Strategy for road maintenance funding and private sector involvement in the operation of the Investment Program road if feasible.

### **C. Input**

10. The services will be carried out over a period of 6 months by international firms in association with national consultants, to be selected by the EA in accordance with ADB's *Guidelines on the Use of Consultants* (2007, as amended from time to time). A total of 18 person-months of international consultant inputs and 18 person-months of national consultants will be required.

11. The team leader will be a senior civil engineer with sufficient experience in road construction and maintenance in developing countries. The other experts should also be graduate engineers with relevant qualifications and experience. All experts, international and national, must be proficient in both written and spoken English. It is desirable for international consultants to have basic knowledge of Russian.

#### Proposed Staffing

Position	No.	Person- Month	Position	No.	Person- Month
Team leader/Highway Engineer	1	6	Team leader/Highway Engineer	1	6
Road Maintenance Specialist	1	6	Road Maintenance Specialist	1	6
Road Financing Specialist	1	6	Road Financing Specialist	1	6
<b>International Consultants</b>	<b>3</b>	<b>18</b>	<b>National Consultants</b>	<b>3</b>	<b>18</b>

Source: MOTC and ADB estimates.

12. While the Consultant will be based in Astana to carry out the tasks, the Consultant will be required to visit other Oblasts to inspect maintenance operations or lack thereof, organizational structure, management procedures, facilities and equipment available. It is equally important that the consultant see a representative length of the road network and observe maintenance operations in progress.

#### **D. Deliverables**

13. The consultant is to submit Inception, Interim, Draft Final, and Final Reports comprising above described outputs for submission to ADB and MOTC in the agreed format and list of contents. Three copies of the Final Report to be submitted-in two languages: English, and Russian.