

**REPUBLIC OF TAJIKISTAN: MUNICIPAL INFRASTRUCTURE  
DEVELOPMENT PROJECT**

## **ENVIRONMENTAL MANAGEMENT PLAN (EMP)<sup>1</sup>**

### **A. Overview**

1. **Introduction.** The Government of the Republic of Tajikistan and the World Bank are cooperating to alleviate poverty and to achieve a sustainable economic growth in the Tajik Republic. To accomplish these tasks, World Bank is providing the grant for development strategies, obtaining expert analysis and implementing specific projects and programs. Within this framework, Municipal Infrastructure Development Project (MIDP) is being prepared.

### **B. Proposed Project**

2. The objective of the project is to assist the Government of Tajikistan, State Unitary Enterprise Khojagii Manziliu Kommunalni (SUE KMK) and a selected number of municipalities in (a) responding more effectively to local demands for infrastructure service improvement by identifying and implementing required priority investments, and (b) improving the technical and financial management of municipal utility operations. Project resources will be made available to a selected number of municipalities, namely Vahdat, Gharm, Danghara, Vosse, Kulyab, Kurghan Teppa, Istaravshan and Kanibadam towns. To achieve tangible improvements in the delivery of municipal infrastructure services the project will focus mainly on the rehabilitation of water supply, sewerage, waste water treatment and solid-waste collection infrastructure and equipment, although, depending on local demand, rehabilitation of storm water drainage systems and urban roads may also be considered.
3. MIDP will be implemented over the period of about 5 years. The proposed project budget is US\$15 million and will be provided by the International Development Agency (IDA). The project will aim on the institutional strengthening of SUE KMK and local utility enterprises.
4. **Project components.** The project consists of 3 components:
  - I. **Investment Component.** The purpose of this component is to address problems in the areas of water supply, sewerage and waste water treatment, solid waste collection and disposal and, to finance to that effect, rehabilitation, repair and replacement of infrastructure, installation of equipment needed for improvement of delivery of these services. Eight pilot towns were selected in April 2004 by the Government participants in MIDP.
  - II. **Technical Support Component** will include the following subcomponents:

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<sup>1</sup> This EMP has been prepared in early stages of project preparation, and reflects the knowledge on proposed activities at that time. In the course of project implementation, the EMP will be constantly revised and updated to address the needs and realities of the Project.

- a) Technical assistance for additional engineering and economic studies;
- b) Technical assistance for preparation of final designs and bidding documents;
- c) Technical assistance for institutional strengthening of KMK and local utility enterprises.

**III. Project Management Support Component** will finance consulting services and operating costs of the Project Management Unit and will include operating costs, purchase of office equipment, furniture, vehicles needed for MIDP management, monitoring, including the compliance with safeguards, and evaluation, audits etc.

#### **C. Environmental review.**

5. **Environmental and Safeguards Screening.** The project has been placed in environmental screening category “B” under the provisions of World Bank Operational Policy “Environmental Assessment”. The limited adverse impacts which will inevitably occur during construction works can be prevented by appropriate measures in the process of design and implementation of specific activities. Moreover, the project supports measures for environmental improvement at the local level through rehabilitation of the existing infrastructure for waste water collection and treatment. The applicability of World Bank Operational Policy 7.50, “Projects on International Waterways” was reviewed with the Legal Department of the World Bank, and a waiver from notifying the riparian states was granted, since the project will not be harvested for irrigation or other use and the proposed investments would reduce water abstraction from rivers and canals, by reducing leakages in the system. No increase in water consumption (neither from surface nor underground sources) is anticipated and the project will not deal with connection of new customers to the water supply systems. Also the new investments in selected locations would help reduce pollution by resuming treatment of wastewater which is currently not done.
6. **Environmental Management Plan.** The Environmental Management Plan (EMP) for MIDP summarizes the recommended design measures, construction supervision methods and monitoring actions to minimize and/or avoid the limited potential short- and long-term impacts of activities under Component 1. EMP identifies potential environmental and social impacts related to construction and improvement of water supply and sewerage systems, drinking water improvement and wastewater treatment facilities, solid waste handling and disposal. These potential impacts and their associated mitigation and monitoring actions are described below and summarized in Table A, “Mitigation, and Monitoring Actions.”

#### **D. Potential impacts**

7. **Background.** The Republic of Tajikistan is located in the southern part of Central Asia. It shares borders with Afghanistan, China, Uzbekistan and Kyrgyzstan. The national territory is 143,100 sq. km of which more than 93% are mountainous area. Almost half of the territory of the country is located on height of 3000 meters and more.

The main environmental problems in Tajikistan concern the degradation of pasture lands caused by overgrazing and a breakdown in the previous system of stock rotation. Degradation of land cover contributes to desertification, results in soil erosion and reduction in soil fertility, and causes changes in the hydrological regime. Erosion has a detrimental effect on water quality and contributes to sedimentation in reservoirs and to reduced performance and increased maintenance costs of irrigation infrastructure. Effects

of increased runoff due to erosion and deterioration of land cover contribute to increased flooding and risks of landslides and mudflows.

Soil contamination and water pollution are the other principal environmental concerns. Where ground water is used for irrigation there is some risk of soil salinization and subsequent loss of fertility. Mining and mineral processing activities pose contamination risks for soils as well as surface and ground waters. Both soil and water pollution bear risks of an impact on human health.

Degradation of soils, desertification due to land degradation, and contamination by mining or mineral processing wastes and agrochemicals pose potential risks to the integrity of natural habitats and to their biological diversity.

The Project supported activities will predominantly take place in urbanized areas with no natural habitats.

The municipal infrastructure – water supply and sewerage systems, the waste collection and disposal systems are obsolete and badly need rehabilitation. The operational losses in the centrally supplied drinking water networks are significant due to poor state of pipes, and due to the high specific energy consumption to deliver 1m<sup>3</sup> of water to consumers. The water supplied to the houses is rich in suspended solids due to lack of proper pre-treatment at well fields and not safe to drink due to poor disinfection.

Municipal solid waste, as a rule, is delivered unsorted to open uncontrolled dumps, thus polluting the surface- and ground- water bodies by a leachate. The loose solid waste is dispersed by wind over the large areas.

At the same time, the utility companies in charge of providing the municipal services are ill-equipped and under-funded to address these problems. The equipment they own – tractors, trucks, specialized waste hauling trucks in many places are not operational partly due to their considerable age and partly due to lack of spare parts.

#### **E. National legal requirements.**

All projects will have to comply with requirements of national environmental legislation. Tajik Law on Environmental Expertise (Law #20) was adopted in April 22, 2003. Section 7 of this law lists the types of projects and activities which are subject environmental expertise procedure. In each particular case the project proponent shall check with local authorities whether the proposed project shall undergo this procedure, since the law is not conclusive. Normally, change of pumps or repair works should be exempted from this procedure, however, the item 13 of this Section states that “any activity, which in accordance with regulatory acts, may have a negative impact on environment” are subject to environmental expertise procedure.

#### **F. Potential Impacts resulting from Investment Component**

8. The project is expected to have mainly positive long term environmental effects, since it will contribute to eventual reduced surface and groundwater water pollution, better solid waste management practices, and reduced air pollution.
9. Project will finance rehabilitation and repair of infrastructure for basic municipal services, operated by the KMK local subsidiary enterprises (water supply, solid waste collection, etc.) in the eight participating towns, as mentioned in Section B above. The project will mainly finance rehabilitation of water supply pipelines, substitution of inefficient and

obsolete pumps at the wellfields, renovation of water disinfection units, cleaning of the wells, fencing of solid waste dumps, as well as acquisition of the critical equipment – trucks for solid waste haulage, trucks for transporting the raw sewage, tractors, excavators, cranes, welding machines, etc.

Potential direct, indirect, cumulative and residual adverse environmental impacts of the project activities will be predominantly related to construction activities and be limited in scope. Most of project supported activities will take place in urban areas, and construction works mainly will be rehabilitation of existing structures rather than “green field” operations. This also limits negative impact on natural ecosystems.

However, if not properly addressed, the potential impacts may include the following:

- Pollution of the air, soil, surface and underground water at construction sites and adjacent areas;
- Disposal of construction waste in unauthorized dump sites;
- Damage to the buildings and installations located in proximity to construction area;
- Stimulation of erosion;
- Damage to health of contractors’ staff if applicable work safety and occupational health standards are not observed.

## **G Mitigation measures**

10. **Overview.** The mitigation measures outlined in this section will be undertaken as part of the project implementation process to mitigate potential impacts from construction activities. The primary adverse impacts from the project are largely associated with small-scale civil works for infrastructure improvements. These impacts are very localized, limited in their scope, short in duration and can be addressed through both design and monitoring measures. Table A summarizes the activities, mitigation issues and measures to be taken, and the monitoring and supervisory responsibilities.

10. **Key measures:** The key mitigation measures included in the project are as follows:
- a. Preparation of subproject specific Environmental Management Plans, or inclusion of Environmental Protection Chapter into detailed designs, which would identify potential environmental issues and ways for their mitigation;
  - b. Requirement to contractors at contract tendering stage to include into proposals the measures to mitigate adverse environmental and social impacts.

The above would include, but not limited to:

- i. selection of optimal routes for new pipelines (if that happens to be the case) and construction sites for other installations to avoid negative environmental and social impact;
- ii. identification of designated landfills/dumpsites where construction waste has to be delivered;
- iii. timely identification and provision of appropriate funding for land reclamation measures;
- iv. strict enforcement of usage of environmentally and human health-wise safe construction materials;
- v. noise reduction measures;
- vi. strict adherence to occupational health requirements;

- vii. provision of alternative access routes for affected population to avoid restriction of access to livelihood activities, if needed;
  - viii. optimal phasing of construction activity to ensure shortest duration possible of disruption to livelihood activities.
- **Contractor Requirements to Minimize Environmental Impacts.** Individual environmental management plans, or provisions as included into the Environmental Chapter of the detailed designs, will provide guidelines and actions to mitigate potential environmental impacts, through instructions to design engineers and construction contractors to undertake certain actions on a site specific basis. Specific provisions should be included in construction contracts to mandate the use of health and safety measures to minimize accidents during the construction and post-construction process. Particular emphasis will be put on use non-hazardous materials in new construction. For instance, although it is legal in Tajikistan, every attempt will be made to limit use of asbestos containing materials in construction, permitting it only in exceptional cases. Appropriate provisions will be included into bidding documents for construction works.
  - **Archeological “Chance Find” Procedures.** Although the chances to unearth valuable archeological artifacts are slim, provisions will be included in contract documents to address archeological “chance finds” should they be encountered during the course of construction activities. These provisions will follow procedures accepted by the national and/or local authorities responsible for archeological and historical sites and materials.
11. **Project implementation monitoring.** Project implementation process will be closely monitored by PMU and respective environmental and occupational health (hygienic) authorities through regular reviews of the investment specific environmental management plans and regular site visits. The World Bank staff will pay visits to randomly selected sites during the semi-annual implementation review missions.

## **H Social aspects.**

The project is expected to have a positive long term social development impact as it will contribute to improved access and quality of potable water, better sewerage management, and better solid waste management practices. There will be no land acquisition under this project. Potential negative impacts are expected to be localized and temporary and relate to construction activities during the rehabilitation of secondary and tertiary water supply pipes, rehabilitation of sewerage pipes and the improvement of access roads to waste disposal sites.

The Project will neither entail land acquisition, nor temporary or permanent relocation, or adverse impacts on livelihoods. Adverse impacts on livelihoods will be avoided by providing alternative access routes if necessary, and phasing construction to minimize disruption.

## **I Consultation and disclosure of information**

12. The project preparation process included a variety of consultations with a wide range of stakeholders, including nongovernmental organizations (NGOs), at the regional, national and local level. This process will continue during the project implementation period which will allow for inputs from stakeholders especially at the activity specific level. The EMP has been translated into Russian language and made available to the public through the Info-Shop at

the World Bank, and through the Ministries of Ecology and Emergency Situations. It is also available at the World Bank office in Tajikistan.

#### **J. Institutional strengthening**

13. **Institutional Strengthening.** Component 2 of the project provides support for institutional strengthening and capacity building measures. Successful implementation of the project requires the strengthening of the local institutional capacity to supervise the construction and maintenance of the installations and rehabilitation activities. The Component's primary objective is to strengthen local capacity to successfully utilize outputs of the Project.

#### **K. Estimated costs**

14. The costs for implementation of management and monitoring activities included in the EMP have been integrated into the estimated budgets for the individual activities and management costs for the Project. This approach reflects the environmental management orientation of the project and the fact that most mitigation actions are associated with project supported management plans, design approaches and specifications in construction contracts.

#### **L. Reporting and supervision**

15. **Reporting.** The Bank together with PMU will agree upon reporting requirements for Financial Monitoring Reports (FMR). Project progress will be reported through annual, semi-annual and quarterly Project progress reports, which will also address compliance with the safeguard requirements.

**Supervision.** The Project Management Unit staff will supervise the project supported activities on a routine basis. This will be complemented by Bank supervision of the project. The process will include the participation of Bank environmental and social staff in implementation review missions, as appropriate, to review progress in the implementation of the EMP. The performance of MIDP PMU in these project activities will be a standard element of supervision reports and the Implementation Completion Report (ICR).

**Table**

<b>Project activities</b>	<b>Potential Impacts</b>	<b>Mitigation Measure</b>	<b>Phase</b>	<b>Responsible for Execution of Mitigation Measures</b>	<b>Monitoring Requirements</b>	<b>Responsible for Monitoring</b>
<b>Laying of new pipelines</b>	Damage to ecosystems, endangered plant species	Selection of pipeline route to avoid habitats of endangered plant species	Design	Design Consultant	Implementation of regular inspections of construction sites, operation zones; check of the plan of waste removal.	PMU Urban ecological services and departments. Gosarhstroicon
	Pollution of soil and water at construction site with oil materials	Daily checks of machinery for leaking of oil, ban to wash machinery at construction site	Construction	Contractor	Regular inspection of Construction Code norms observance	departments (State Architectural Control Management Department
	Noise pollution in towns	Works performed strictly during the working hours	Construction	Local utility services, Contractor	Constant supervision and periodical check of construction sites	PMU, local utility services
	Reduced amenity values of the area	Proper landscaping and replanting of construction area after completion of piping works	Construction	Design Consultant and Contractor	Check of contract documents. Construction supervision	PMU, local utility services
	Archeological “chance find”	Stopping works and calling in respective local authorities and experts	Construction	Contractor, local utility services	Regular contract supervision	PMU, local utility services
	Worsened livelihoods to kiosk owners and small traders	Foresee and provide alternative access routes to kiosks; select proper timing for civil works;	Design and construction	Design consultant, contractor	Check of detailed designs, bidding documents, contract supervision	PMU, local utility services
<b>Repair of pipelines</b>	Digging of soil, damage to endangered plant species	Checking for endangered plant species on construction site, if found - replanting	Design, Construction	Design consultant and Contractor	Supervision of construction Constant supervision of execution of appropriate	PMU Urban ecological services and departments. Gosarhstroicon

	Pollution of soil and water at construction site with oil materials	Daily checks of machinery for leaking of oil, ban to wash machinery at construction site	Construction	Contractor	measures Supervision of observance of security measures	trol departments (State Architectural Control Management Department
	Littering of construction site with removed pipe portions and discarded insulation material	Instructions to contractor to which landfill the waste has to be delivered. If insulation contains asbestos, workers must wear protective measures – wear respirator	Construction	local utility services , Contractor	Project expertise and supervision of construction	PMU, Local hygiene service
	Noise pollution in towns	Works performed strictly during the daytime	Construction	local utility services , Contractor	Constant supervision and periodical check of construction sites	local utility services
	Worsened livelihoods to kiosk owners and small traders	Foresee and provide alternative access routes to kiosks, select proper timing for civil works	Design and construction	Design consultant, contractor	Check of detailed designs, bidding documents, contract supervision	PMU, local utility services
	Reduced amenity values of the area	Proper landscaping and replanting of construction area after completion of repair works	Construction	Design Consultant, Contractor	Check of contract documents. Construction supervision	PMU, local utility services
	Archeological” chance find”	Stopping works and calling in respective local authorities and experts	Construction	Contractor, local utility services	Regular contract supervision	local utility services, PMU
	Generation of construction waste	Prompt collection and disposal of construction waste in a designated	Construction	local utility services, Contractor	Supervision of construction	PMU Urban ecological services and



		landfill  Disposal of removed pumps by delivering them to scrap metal collection sites, or to special storage	Construction	Contractor	Constant supervision of execution of appropriate measures  Supervision of observance of security measures Project expertise and supervision of construction	departments. Gosarhstroicon ntrol departments (State Architectural Control Management Department
<b>Repair of roads</b>	Pollution of area adjacent to roads with scrap asphalt	Collection of scrap asphalt and delivery to designated landfills/dumpsites	Construction	Contractor	Supervision of construction	PMU Urban ecological services and departments. Gosarhstroicon ntrol departments (State Architectural Control Management Department
	Pollution of soil and water with oil products and asphalt during construction	Daily checks of machinery for leaking of oil, ban to wash machinery at construction site	Construction	Contractor	Constant supervision of execution of appropriate measures	PMU Urban ecological services and departments. Gosarhstroicon ntrol departments (State Architectural Control Management Department
	Stimulation of erosion of land	Proper landscaping of slopes and replanting of vegetation	Design, Construction	Design Consultant, Contractor	Supervision of observance of security measures	local utility services
	Damage to the buildings and installations located in proximity to construction area	Identifying of vulnerable buildings and installations prior construction, development of appropriate technique	Design	Design Consultant	Project expertise and supervision of construction	PMU, local utility services
		Adherence to special work regime in proximity of vulnerable buildings	Construction	Contractor		

	Worsened livelihoods to kiosk owners and small traders	Foresee and provide alternative access routes to kiosks, select proper timing for civil works	Design and construction	Design consultant, contractor	Check of detailed designs, bidding documents, contract supervision	PMU, local utility services
<b>Repair/renovation s in objects of social infrastructure</b>	Littering of construction site and adjacent areas with construction waste	Prompt collection of constructing waste and delivery to designated landfills/dumpsite	Construction	Contractor	Supervision of construction Constant supervision of execution of appropriate measures	PMU Urban ecological services and departments.
	Contamination of construction site with waste containing heavy metals	Collection of luminescent lamps and other similar waste and delivery to designated landfills/dumpsites for subsequent reprocessing	Construction	Contractor	Supervision of observance of security measures	Gosarhstroicon trol departments (State Architectural Control Management Department
	Damage to human health due to exposure to asbestos containing materials	When asbestos containing materials encountered, the workers should wear protective gear; asbestos containing waste promptly delivered to designated landfills/dumpsites	Construction	Contractor	Project expertise and supervision of construction	PMU, Local hygiene services

Minutes of the round table meeting for  
Discussion of the Environment Management Plan for  
the Municipal Infrastructure Development Project<sup>2</sup>

The round table meeting for discussion of MIDP EMP took place in the office of PMU on 11 October 2005.

Mr. Kolesnikov, the PMU Chief Engineer presided the meeting, giving the detailed information on the Municipal Infrastructure Development Project funded by IDA, as well as its Environment Management Plan. He distributed to each participant copies of EMP of the Municipal Infrastructure Development Project.

The following representatives attended the round table meeting:

- Mr. Timur Yunusov, NGO Youth of 21 Century;
- Mr. Umed Ulugov, NGO Youth of 21 Century;
- Mr. Timur Idrisov, NGO Radi Zemli;
- Mr. Rustam Shahmaev, Entrepreneurship Initiatives Support Fund;
- Mr. Alikhon Latifi, Director of the Tajik branch of the Regional Economical Centre of CAS Countries;
- Mr. Abdughaffor Egamberdiev, Manager of the Market Structures Support Fund;
- Mr. Saidhomidov S., Head of SUE KMK Press Centre;

and:

Mr. Anatoly Kolesnikov, PMU Chief Engineer, Mr. Maruf Salomvo, Deputy Director/Procurement Specialist.

Mr. Kolesnikov, recounted of the MIDP and EMP as well as cooperation of the World Bank with the Republic of Tajikistan on the poverty reduction strategy and achievement of the sustainable development.

To fulfill this task the World Bank gave grant to Tajikistan for the total amount of USD 15 million for rehabilitation of the selected towns' infrastructure within the framework of the Project in

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<sup>2</sup> Round table meeting was arranged additionally. The first meeting was held without participation to the NGO representatives.

five year's period. The counterpart contribution will be USD 1.5 mln. He also mentioned that WB financially assisted preparation of the Project.

Mr. Kolesnikov also noted that the Project comprises components as follows:

Component A: Municipal Infrastructure Rehabilitation: (Estimated cost US\$13.5 million). This component will finance the rehabilitation and repair of infrastructure including water supply, sewerage, waste water treatment stations, etc.

Component B: Technical Support and Institutional Strengthening:  
(Estimated cost US\$ 1.5 million):

Component C: Implementation Support: The component will support project implementation (incremental costs of PMU, consulting services etc).

It was noted that EMP includes all activities related to the Project design, construction supervision methods, and prevention of the negative impact of the rehabilitation process to the towns' environment. Responsible for execution of Mitigation Measures have been identified.

Afterwards, the representatives of NGOs asked questions on various issues with regard to the Project implementation. They also expressed opinions on improvement of the ecological situation of the pilot towns.

In particular, Mr. Latifi pointed out that:  
it would be expedient to include in the project implementation solid waste collection and its processing;  
to conduct the ecological expert opinion;  
to pay due attention to quality of the water to be distributed to population of the towns;  
to consider carefully the issue of possible deterioration of the ecological environment while supplying additional quantity of water in the time of non-availability of the sewerage system;  
to seek possibility of the communities contribution.

Mr. Ulugov proposed:  
to give priority to water supply;  
water distribution network and main water intakes.

Mr. Idrisov added the following:  
To pay specific attention to water intakes security and water control;  
to start rehabilitation of the sewerage system as soon as possible.

Mr. Egamberdiev spoke on the local population attitude and their expectations of the forthcoming project implementation.

To all the questions were given detailed answers by the PMU and KMK specialists.

In conclusion the following Resolution was adopted:

#### Resolution

The participants of the round table meeting, after the all-round discussion of the Environment Management Plan, deem it important and necessary fulfillment of the Clauses provided in the Environment Management Plan;

The Table is an integral part of EMP, providing the exact requirements for supervision of the environmental issues, especially during construction works and exploitation of the rehabilitated objects.

Due attention should be paid to the Plan execution by local authorities, as well as construction companies undertaking rehabilitation and reconstruction works.

SUE KMK Press Centre will publish a summary of the Project in a leading republican newspaper.

