

Environmental Monitoring Report

Bi-annual report

July-December 2013

KGZ: Power Sector Rehabilitation Project, Phase 1

Project Number: 44198 - KGZ

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Prepared by:

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with assistance of the Project Implementation Consultant (PIC) / FICHTNER, Germany

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1. Introduction

The backbone of Kyrgyz power generation is the Naryn River with its several hydropower plants (HPP) Kambarata 2, Toktogul, Kurpsai, Tash-Kumur, Shamaldy-Say and Uch Kurgan.

Electricity demand in Kyrgyz Republic is highly seasonal with two thirds of domestic consumption taking place in autumn and winter. Although electricity generation capacity has nearly doubled since the Soviet era, load shedding is frequent especially in the winter when hydropower output is limited due to low river discharge, while cuts arise from problems due to technical failures in the outdated generating equipment.

Hydroelectric generation from the Naryn Cascade is central to the present and future economic development of the Kyrgyz Republic, also with view on an electric power generation and transmission system regionally managed between the Central Asian Countries in future.

However, the future security of this electricity capability is to doubt somehow because of the age of most of the named facilities. They are over 50 years old, obsolete and many spare parts are no longer available.

1.1 Project Description for Phase 1

- In order to sustain power generation at HPP Toktogul (see Map 1-1) in future, the Asian Development Bank (ADB) will finance the rehabilitation of this hydropower station. For that purpose, an Initial Environmental Examination (IEE) with Environmental Management Plan (EMP) was prepared in 2012. This IEE/EMP included following measures:
 - Rehabilitation of the periphery of the generators requiring the temporary shutdown of the generator actually worked on;
 - Replacement of four oil operated generator circuit breakers by state-of-the-art SF₆ circuit breakers;
 - Replacement of four oil-filled 500 kV cables of a length of approx. 1,150 m each. These cables contain all together about 250,000 l of old oil that has to be disposed of;
 - Renewing of the fire-fighting system of the main transformers. The old system is based on a sprinkler system using water for cooling and will be replaced by a system using N₂ (gaseous nitrogen) that is blown into the transformers in case of fire to quench it;
 - Installation of four static excitation and control systems for the main generators and the auxiliary generators, including integrated supervision/control equipment and AVR;
 - Integration of four generator temperature monitoring systems;
 - Installation of a measuring program for all four main generators;
 - Placement of two new cast-resin station transformers 6/0.4 kV, 1000 kVA;
 - Installation of four special fire-fighting system for each of the 500 kV transformers;

- Refurbishment of all four hydraulic turbine governor systems;
- Replacement of the 6 kV switchgear (23 new cubicles) with auxiliaries (optional);
- Replacement of the 0.38 kV switchgear (15 new cubicles) with auxiliaries (optional);
- Installation of one complete set of rotor windings for generator #2 (optional).

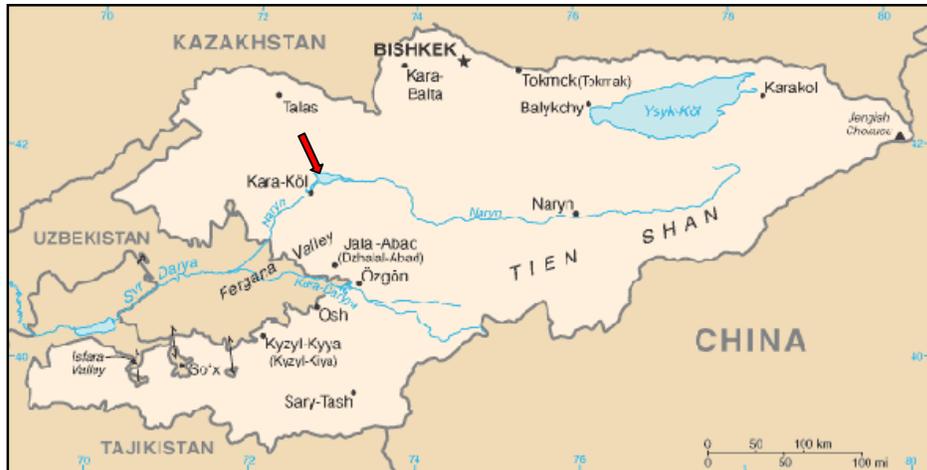
In the course of preparing the bidding documents, the scope of work has been reduced to the following:

- Replacement of 500 kV Power Cable Systems;
- Replacement of Excitation Systems for all units;
- Supply of Main Generator Stator Winding Spare Parts;
- Measuring Program to all Main Generators;
- Replacement of Generator Circuit Breakers for all units;
- Replacement of Turbine Governor Systems for all units;
- Installation of Temperature / Unit Condition Monitoring Systems for all units;
- Installation of Joint Power and Voltage Control System;
- Transformer Explosion and Fire Prevention Systems for Main Step-Up Transformers.

These changes have no influence on the expected Project impacts and on the associated measures for minimization of the impacts as described in the IEE/EMP report. The tendered measures were included in the first set of measures mentioned above.

Following main environmental impacts will or might occur:

- Possible power shortage during construction;
- Disposal of old oil and oil impregnated paper possibly containing PCB;
- Health and Safety (H&S) issues during construction;
- Increased truck movements during the construction period also through inhabited areas;
- Disposal of steel, copper, ceramics and other wastes.



Map 1-1: Location of HPP Toktogul

1.2 Documents relevant for Environmental Safeguard

- Initial Environmental Examination (IEE) for Rehabilitation of Toktogul HPP. ADB - TA-7704 (KGZ) Power Sector Rehabilitation Project, May 2012;
- Project Administration Manual (PAM) to Power Sector Rehabilitation Project, May 2012;
- Financing Agreement between Kyrgyz Republic and ADB of September 2012.

1.3 Implementation Progress

In August 2013, the tender documents to the Project's construction were published. The offers to the tender were received in November 2013. The evaluation process is ongoing since December 2013.

2. Environmental Management

2.1 Institutional Arrangement of the Project

The Investment Projects Implementation Unit (IPIU), which is one of EPP's departments, is specially assigned for implementing projects funded by international development organizations such as World Bank (WB), Asian Development Bank (ADB), etc. Currently, IPIU is implementing two different projects (including ADB project). Within IPIU, EPP has established a dedicated project implementation unit (PIU) for implementing concerned components of the "Power Sector Rehabilitation Project" in February 2013. The structure of PIU is as follows.

- PIU Manager,
- Project Engineer,
- Procurement specialist,
- Project accountant,
- Safeguard Specialist,
- Engineers of Technical and Maintenance departments.

The head of IPIU is assigned to execute duties of the PIU Manager and two of IPIU's key specialists execute duties of the Project Engineer/ Procurement Specialist and Project accountant. Three engineers from the technical departments of EPP are assigned to perform duties of the Project's technical engineers. Because of absence of the safeguard specialist within EPP, one of the Project's technical engineers is also assigned to perform duties of the project's Safeguard specialist. Laying specific environmental and social responsibilities on a technical engineer of EPP with no qualification and experience is weakening the capability and effectiveness of PIU in the related area. But, this is due to the lack of such specialists in EPP. Lack of knowledge of the English language by the safeguard specialist of EPP/PIU makes a direct communication with the Project Implementation Consultant's safeguards specialist impossible. The above mentioned reasons lead to inefficient monitoring of environmental issues by EPP in the construction period and delays in preparing and submission of various environmental reports to ADB (that is already taking place).

According to PAM, the safeguard specialist of EPP/PIU is responsible for the following:

- Ensure that the requirements identified in the initial environment examination are included in the bidding documents and contracts.
- Ensure the implementation and monitoring of the safeguard and published results in project quarterly progress reports and a semi-annual environmental report.
- Supervise the Project Implementation Consultant (PIC) on mitigation measures and monitoring plan as specified in the EMP and ensure that the PIC submits semi-annual environmental monitoring reports.

- Supervise PIC on preparation of an updated initial environment examination.

The PIU will administer all consulting and procurement contracts on behalf of EPP. It will be responsible for bid evaluation, contract award, construction supervision, and report to the Government and ADB.

The PIU manager will report directly to the General Director of EPP. The PIU will be the main point of contact for working communication between EPP and ADB. The PIU will coordinate the consultants and contractors.

The PIU, assisted by the PIC, will submit necessary project plans, tender evaluation reports, progress reports, applications for withdrawal of funds, and any other required reports to ADB and the Government.

Within EPP, a department named ‘Service of Reliability and Safety’ exists. It is the responsible department for dealing with all safety and health issues relevant for workers at the HPPs. Environmental aspects are not covered by this department. The headquarters of this Service are based at Bishkek with six people working in it. There are branches of this service established in the Oblasts. In Djalal-Abad Province three of them exist. The one at Kara-Köl is responsible for Toktogul HPP.

Fichtner has now prepared the tender documents on behalf of ADB. For construction, EPP as responsible PIU for the Project recruited Fichtner as PIC for Phase 1 of the Toktogul Rehabilitation Project (Project Management and Supervision of Toktogul HPP Component). In this sense, the national and international team of consultants will assist EPP as project supervision consultant on the rehabilitation of Toktogul HPP.

According to the IEE of the Project, EPP/PIU shall assign an environmental expert for the duration of the whole construction period of 3 years. This person shall support and assist the ‘Service of Reliability and Safety’ with respect of implementation of the EMP.

Taking into account the scope of the professional duties of the expert responsible for the environmental issues in EPP, this person shall not only support and assist the ‘Service of Reliability and Safety’ with respect of implementation of the EMP, but should also be a strong professional in the whole range of environmental issues including hazardous waste management, which can appear during construction and operation works.

The PIU intends to assign a responsible person as environmental expert within the year 2014.

2.2 Environmental Safeguards Program

The aim to implement the environmental safeguard program is to ensure that the preparation, design, construction, implementation, operation and decommissioning of the Project and all Project facilities comply with (a)

all applicable laws and regulations of the Beneficiary relating to environment, health and safety; (b) with the environmental safeguards requirement as set out in the SPS (ADB Safeguard Policy Statement, 2009); and (c) with all measures and requirements set forth in the IEE/EMP, and any corrective or preventative actions set forth in a Safeguards Monitoring Report.

The different obligations of the Beneficiary in this regard are given in the Financing Agreement between Kyrgyz Republic and ADB of September 2012 in Schedule 5, paragraphs 17 to 26.

Detailed measures to bring the Project's implementation in line with ADB and national requirements are given in the EMP that has been developed during the elaboration of the IEE. EPP as responsible PIU for the Project has recruited a PIC. This Consultant assignment includes the update of the environmental management and monitoring plan (EMP) detailing environmental mitigation measures, to address each identified impact and recommend appropriate environmental mitigation measures. In addition, a hazardous waste management specialist may be included in the PIC to review the technical specifications and operating procedures related to the waste management component and carry out the overall supervision. EPP will assign an environmental expert for the duration of the whole construction period of 3 years. This person shall support and assist the 'Service of Reliability and Safety' with respect of implementation of the EMP. He/she shall perform regular site visits that also include the road between Toktogul HPP and Osh Thermal Power Plant site to ensure that all mitigation measures are implemented adequately.

The IEE describing the needed actions for monitoring and supervision of the implementation of the EMP has been approved by ADB and was published on the ADB Website. In April 2012, the national State Agency on Environmental Protection and Forestry (SAEPF) issued the environmental approval (No. 01-21/1083) to the Project based on this IEE/EMP report.

2.3 Grievance Redress Mechanism

A Grievance Redress Mechanism (GRM) was developed within the scope for preparing the IEE and EMP. This GRM shall be maintained during the whole duration of the Project's implementation. It describes the mechanism how to redress the affected peoples' (AP) grievances in a timely and effective manner. Details of the GRM can be found in the IEE to the Project.

In principle, the structures to implement the GRM exist - except for e.g. the construction contractor that has not been contracted yet. Because the tender process is not finished and the construction has not been commenced, the execution of the GRM has not been necessary so far. In the year 2014 the PIU will start with the implementation of the GRM.

2.4 Awareness Raising and Environmental Training

It was planned to conduct a brief environmental training for the employees of EPP and PIU related to general environmental literacy and environment-specific issues of construction and operation phases in EPP sites. However, in the framework of ADB's "Improving the Implementation of Environmental Safeguards in Central and West Asia" Project, a training on environmental safety requirements under the projects financed by ADB was conducted on 4th-5th December 2013, coinciding with the intended period of holding a similar training by Fichtner's environmental team. The aim of the training was to provide knowledge of ADB environmental safeguard requirements during project implementation to strengthen the environmental management and monitoring capability of Project Executing and Implementing Organizations, as well as construction contractors and supervision consultants working on ADB-financed projects. The training was performed by international consultants and covered the basic issues which should be dealt with in ADB projects in the environmental sphere. However deeper knowledge in environmental sphere is needed for implementing agencies to understand better and to be aware of all aspects of the safeguard issues. The list of participants from EPP and the training program are given in the Annex 1. Therefore, the training within the Toktogul Project was canceled as a duplicating activity. In a later stage of the Project, when the construction will commence, similar training shall be repeated covering actual aspects of environmental management during rehabilitation works of HPP Toktogul.

3. Environmental Monitoring

3.1 Environmental Monitoring Program

Environmental monitoring actions are outlined in the IEE/EMP elaborated to this Project. Monitoring measures for both construction and operation phases are given.

This monitoring program will be updated by the Construction Contractor when site specific environmental management plans are developed prior to the start of the construction activities.

No on-site monitoring has been applied since the construction activities have not commenced yet.

3.2 Non-compliance Notices

n.a. for the reporting period

3.3 Corrective Action Plans

n.a. for the reporting period

4. Findings and Recommendations

The Project's implementation schedule is ongoing as scheduled. EPP as PIU shall employ a qualified environmental specialist instead of the current safeguard specialist from the technical departments of EPP as soon as possible to have the opportunity to get familiar with the Project before construction starts.

We propose to finance employment of the safeguard specialist from the project funds as EPP is not able to pay appropriate remuneration to such a specialist (the existing wage rate of a safeguard specialist is much higher than even the highest wage rate of mid-level executives in EPP).

Annex 1

ADB CWRD Environmental Safeguards Training Course
Bishkek, Kyrgyzstan
Agenda
(4-5 December, 2013)

Day 1		
Time	Session	Trainers
10:30-10:45	Registration of Participants	Keti Dgebuadze – Environmental Specialist/Team Leader -International
10:45 – 9:11:00	Welcome, Housekeeping Introduction Module 1.1	
11:00 – 11:30	ADB's relationship with Partners Module 1.2	
11:30 – 12:15	Environmental Specialist/Roles and Responsibilities Module 1.3	Gulzada Soltobaeva – Environmental Specialist (National)
12:15 – 12:30	<i>Tea Break</i>	
12:30 – 13:15	Loans, Tenders and Contracts Module 1.4	Keti Dgebuadze
13:15 – 13:45	Bid Evaluation Module 1.5	
13:45 -14:45	<i>Lunch</i>	
14:45-16:00	Introduction to Risk Assessment – Module 1.6	Irakli Kaviladze
16:00 – 16:45	<i>Tea Break</i>	
16:45 – 18:00	Construction Impacts & Mitigations Module 1.7 – Group exercise	Gulzada Soltobaeva
Day 2		
Time	Session	Trainers
10:30 – 12:15	Bonville Case study Module 2.1	Irakli Kaviladze
12:15 – 12:45	<i>Tea Break</i>	
12:45 – 13:45	Final Exercise, Questions and Lahore Case Study/SEMP Group Training Exercise – Practical Module	Irakli Kaviladze Keti Dgebuadze Gulzada Soltobaeva
13:45 -14:45	<i>Lunch</i>	
14:45 – 15:15	Environmental Monitoring Module 2.2	Irakli Kaviladze
15:15 – 15:45	Reporting Module 2.3 Inspection and Audit Module 2.4	Keti Dgebuadze
15:45 – 16:00	Exercise – Filling the questionnaires	I.Kaviladze, K.Dgebuadze, G. Soltobaeva
16:00 – 16:45	<i>Tea/Coffee Break</i>	
16:45 – 18:00	Question & Answer Session	

List of EPP participants:

1. Head of Investment Projects Implementation Unit of EPP/PIU Manager – Samat Aldeev;
2. Deputy Director of Maintenance and Repair Department of EPP/ Safeguard Specialist of PIU – Azamat Abdykadyrov.