Environmental Monitoring Report

Bi-annual report
Covering the period of July - December 2016

KGZ: Toktogul Rehabilitation Phase 2 Project

Project Number: 46348 - KGZ
ADB Loan/Grant Number: L3212/G0419-KGZ
Prepared: January 2017

Prepared by the Open Joint Stock Company Electric Power Plants, with the assistance of the Project Implementation Consultant [Tractebel Engineering-Coyne Et Bellier (France) in association with Endustriel Elektrik Maden LLC (Kyrgyz Republic)] for the Kyrgyz Republic and the Asian Development Bank.

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Abbreviations:

ADB	Asian Development Bank
CC	Construction Contractor
EDB	Eurasian Development Bank
EMP	Environmental Management Plan within IEE
EPP/OJSC EPP	Open Joint Stock Company Electric Power Plant Company
ES	Environmental Specialist
HPP	Hydro Power Plant
IEE	Initial Environmental Examination
IPIU	Investment Projects Implementation Unit within EPP
PAM	Project Administration Manual
PIC	Project Implementation Consultant
PIU	Project Implementation Unit within EPP for 'Power Sector Rehabilitation Project'
SAEPF	State Agency on Environmental Protection and Forestry
SSEMP	Site Specific Environmental Management Plan

1. INTRODUCTION

1.1. General description of the Toktogul HPP and context

1. The Toktogul Dam is a concrete gravity dam, with a height of 215 m, and is equipped with a large hydropower plant of 1200 MW capacity. The Toktogul Hydro Power Plant (HPP) provides 40% of the average Kyrgyz Republic electricity output. The dam's construction began in 1960 and the hydropower plant was put into services in 1975 (*Picture 1*).

2. The Toktogul HPP plays a major role on Kyrgyz Republic electrical grid and on the Central Asian power system, providing energy and frequency regulator services. It is equipped with 4 vertical Francis units of 300 MW each, and has never been significantly rehabilitated since its commissioning.

3. The Kyrgyz Republic has received a funding from the Asian Development Bank and the Eurasian Development Bank for the Phase 2 of Toktogul HPP Rehabilitation Project. The executing agency of this project is the Open Joint-Stock Company Electric Power Plants (EPP).

4. Rehabilitation studies and rehabilitation works are divided into 3 phases. During the reporting period, no any construction activities have been started yet. This report is the first Bi-annual EMR for Rehabilitation of Toktogul HPP Phase 2 Project.

Picture 1. Toktogul hydropower plant dam

1.2. Objective of the rehabilitation works

5. The general objective of the rehabilitation works is to improve the technical and operational performances of Toktogul HPP. Considering the strategic importance of Toktogul hydropower plant for the stability of the national and regional grid, there are two main objectives that can be identified are:

   To recover a proper reliability and availability of the plant,
   To increase the capacity of the power plant.

1.2.1. Original scope of work for Phase 2

6. As originally planned, the Phase 2 was consisting in completely rehabilitating/replacing the Units n°2 and n°4 with their auxiliary systems and was divided into the two following lots:

   Package 1 of Phase 2 concerns the Rehabilitation of Gates & Hydraulic Steel Structures (International competitive bidding, single stage, one envelope):

   Package 2 of Phase 2 concerns the rehabilitation of the two units 2 and 4 (International competitive bidding, two stages with pre-qualification, and two envelopes) and their auxiliary systems.

1.2.2. Modified scope of work for Phase 2

7. Decision was taken to group in a single phase the rehabilitation of 4 units and to replace the exciting units by completely new units with the exception of the main embedded parts.

8. Additionally, in order to speed up the bidding process, it was decided to cancel the pre-qualification stage and to replace it by a road show that took place in September 2015.

9. The content of the different phases becomes as follow:

   In addition to the original forecast, the scope of the Phase 1 will also cover the replacement of the main transformer for the 4 units.

   The Phase 2 will consist in completely replacing the 4 units with their auxiliary systems and will be divided into the 2 following lots:

   - Package 1 of Phase 2 will concern the Rehabilitation of Gates & Hydraulic Steel Structures related to the 4 units. The question to include or not in Phase 2 – Lot 1 the rehabilitation of spillway and bottom water outlet gate will need to be discussed during the coming weeks.
   - Package 2 of Phase 2 will concern the replacement of the 4 units and their auxiliary systems.

1.3. Implementation progress

1.3.1. Progress of the rehabilitation phases (pre-construction)

10. Tender documents for the Package 2 for Phase 2 have been published on 2nd of September 2016; pre-bid meeting has been organized at the beginning of October 2016. Tender documents opening will be done on 10th of January 2017.

11. Tender documents for the Package 1 for Phase 2 have been reviewed and revised then submitted to ADB for non-objection at the end of December 2017. Publishing of the bidding document is expected at the end of January 2017.

1.3.2. Asbestos Survey

12. During this pre-bid meeting the possible asbestos contamination of some HPP components and the necessity to process and eliminate it, was identified as an additional challenge by all the bidders. The following was highlighted to the bidders that in accordance with the bidding document:

> Asbestos survey has not been done and the identification of components containing asbestos is part of the Contractor's scope.
>
> The Contractor shall consider that the probability of having asbestos in the cable trays, stator insulation and painting is relatively high considering the construction date of the power house and shall refer to the General project requirement paragraph 9: “Special attention shall be given to the possible occurrence of lead containing paintings and asbestos containing concrete and other material. Potential presence of asbestos shall be checked and adapted working methods shall be proposed accordingly”. As foreseen in the specifications, the Contractor will be responsible for environment and safety measures related to asbestos contamination, as other safety problems.
>
> The supply of the Contractor includes dismantling and bringing the old components up to the scrapping area identified by the Employer. Decontamination is not the part of Contractor's scope of works.

13. During the 30th of November and 1st of December 2016, SGS (Building Inspector: Mr. Ignacio Escandón) was invited to conduct an Asbestos Risk Assessment in Toktogul Hydroelectric Power Plant.

14. A broad spectrum of bulk samples were collected from all types of materials that could conceivably contain asbestos in the building. All these samples were screened for asbestos. The data were gathered to aid in the risk assessment studies in this report.

15. All samples are analysed in a certified and licensed asbestos laboratory of SGS MIS Environmental Limited company (Consett, United Kingdom), by trained, experienced and certified personnel (see Picture 2 and Picture 3 below).

Picture 2. *Asbestos Inspector during survey at Toktogul HPP*

Picture 3. *Flange seal after sample taken at dewatering pump room of Toktogul HPP (sampling point)*

16. Results are presented in the Sample results report (ref: 942/232375-ASB) and will be sent to appointed ADB Environmental Consultant for Kyrgyzstan in January 2017. The results show the presence of asbestos in some locations of Toktogul HPP (as rotor pole, paint wall, floor material etc.).

17. As requested in the Employer's Requirement for Phase 2 package 1 and package 2, separate Asbestos Management Plan should be prepared by the Construction Contractor in order to implement the proper working method, relevant monitoring and disposal (Addendum No 4 to the bidding documents dated 25th November 2016).

2. ENVIRONMENTAL MANAGEMENT

2.1. Institutional Arrangement of the Project

18. Proposed Phase 2 project is jointly financed by Asian Development Bank (Asian Development Fund resources) and Eurasian Development Bank. The Executing Agency of the Project is OJSC Electric Power Plants, a state-owned enterprise. The objective of the executing agency, EPP is to improve the technical and operational performance of the Tokogul HPP, and intends to contract the rehabilitation of the Toktogul HPP on an Engineering Procurement and Construction scheme. The consultant will work with the Project Implementation Unit (PIU) of EPP. The assignment will cover project due diligence for Phase 3 and project implementation for Phase 2.

19. The Investment Projects Implementation Unit (IPIU), which is one of EPP's departments, is specially assigned for implementing projects funded by international development organizations. Within IPIU, EPP has established a dedicated project implementation unit (PIU) for implementing concerned components of the "Power Sector Rehabilitation Project".

The structure of IPIU is as follows:

- PIU Manager,
- Project Engineer,
- Procurement specialist,

- Project accountant,
- Environmental Safeguard Specialist,
- Engineers of Technical and Maintenance departments.

20. Since middle of September 2016, Ms. Jyldyz Moldosanova is employed within EPP as Environmental Specialist (ES) being responsible from EPP side for the implementation of the EMP developed to the rehabilitation Project. Her employment shall cover all three phases of the Toktogul Rehabilitation Project.

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

    Ensure that the requirements identified in IEE are included in the bidding documents and contracts.

    Ensure that the implementation and monitoring of the environmental safeguard and published results in project quarterly progress reports and a semi-annual environmental monitoring 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 environmental examination when required.

21. 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, ADB, and EDB.

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

23. 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, EBD and the Government.

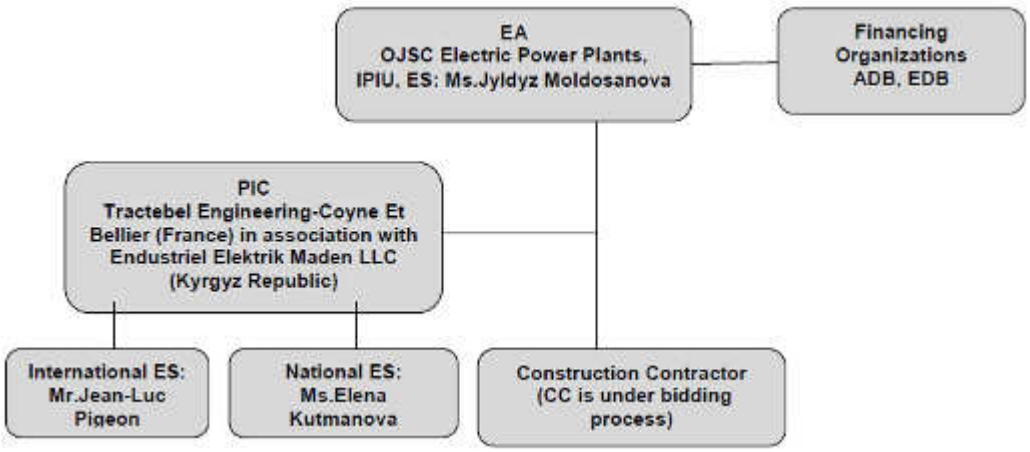
24. Tractebel Engineering-Coyne Et Bellier (France) in association with Endustriel Elektrik Maden LLC (Kyrgyz Republic)has been awarded a contract for supervision services to implement successfully the rehabilitation works of Rehabilitation of Toktogul HPP Project Phase 2 as PIC and to conduct the due diligence for Project Phase 3.In this sense, the national and international team of consultants will assist EPP as project supervision consultant on the rehabilitation of Toktogul HPP.

25. The major assignments are:

    a) Phase 3: Conduct Due diligence for Phase 3 project.

26. Phase 2: Successful implementation of the two turnkey contacts through provision of technical assistance to the PIU of EPP for the procurement of contract on and implementation of works. In particular the firm will be responsible for supporting PIU in Project administration, design and engineering, services, contracting, management control, procurement and expediting of equipment, materials control, inspection of equipment prior to delivery, shipments, transportation, control of schedule and quality, pre commissioning and completion, performance guarantee testing during construction and commissioning of the project and through the defects liability period. Construction Contractors are under the bidding procedure.

27. Environmental management of the Rehabilitation of Toktogul HPP Phase 2 Project is shown in Scheme 1 below.



Scheme 1. *Environmental management of the Rehabilitation of Toktogul HPP Phase 2 Project*

3. ENVIRONMENTAL MONITORING

3.1. Environmental Monitoring Program

28. Environmental monitoring actions are outlined in the IEE/EMP elaborated to this Project along with mitigation measures for both construction and operation phases.

29. The IEE containing the needed actions for monitoring and supervision of the EMP implementation has been approved by ADB and was published on the ADB Website:

https://www.adb.org/sites/default/files/project-document/81731/46348-003-iee-01.pdf

30. On December 15, 2014, the National State Agency on Environmental Protection and Forestry (SAEPF) issued the environmental approval (No. 04-01-28/428) to the Project, Phase-2, based on this IEE/EMP report (**Annex 1**).

31. The Construction Contractor will further update the monitoring program, when the Site specific environmental management plans are developed prior the start of the construction activities.

32. No any 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

3.4. Site inspections and audits

n.a. for the reporting period

Annex 1. Conclusion of the State environmental expert review on IEE developed for the Project Phase 2.

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Утверждаю
заместитель директора
Государственного агентства
охраны окружающей среды
и лесного хозяйства
при Правительстве КР
_____ А.А. Рустамов
«15» декабря 2014 г.

ЗАКЛЮЧЕНИЕ ГОСУДАРСТВЕННОЙ ЭКОЛОГИЧЕСКОЙ ЭКСПЕРТИЗЫ

к Отчету «Предварительная Экологическая Оценка (ПЭО) Реабилитация Токтогульской ГЭС, Фаза 2» Проекта реабилитации Энергетического Сектора. АБР-ТА-8434 (KGZ)

На рассмотрение в Государственное агентство охраны окружающей среды и лесного хозяйства при Правительстве Кыргызской Республики (далее – ГАООСЛХ) на государственную экологическую экспертизу представлен Отчет «Предварительная Экологическая Оценка (ПЭО) Реабилитация Токтогульской ГЭС, Фаза 2» Проекта реабилитации Энергетического Сектора. АБР-ТА-8434 (KGZ), разработанное компанией «Фихтнер» в 2014 году по заданию АБР и ОАО «Электрические станции».

Предварительная Экологическая Оценка (ПЭО) Реабилитация Токтогульской ГЭС, Фаза 2 Проекта реабилитации Энергетического Сектора АБР-ТА-8434 (KGZ) состоит из следующих основных разделов:

1.Краткий обзор.
2.Политические, Правовые и Административные Рамки.
3.Описание Проекта.
4.Описание Окружающей Среды.
5.Ожидаемые Экологические Последствия и Смягчающие Меры.
6.Анализ Альтернатив.
7.Раскрытие Информации и Консультации.
8.Механизм Рассмотрения Жалоб.
9.План Управления Окружающей Средой.

06108

10.Заключение и Рекомендации.

11.Приложения.

График реализации: Начало строительства будет начато во второй половине 2016 года и продлится до 2020/2021гг.

Описание Проекта и Возможные Воздействия

В ходе работ на Токтогульской ГЭС предусмотрены следующие мероприятия:

- замена/реабилитация двух турбин;
- замена/реабилитация и модернизация двух генераторов;
- замена двух основных трансформаторов, связанных с двумя турбинами/генераторами;
- замена систем управления агрегатами для двух блоков;
- замена систем защиты блока, в том числе соответствующего трансформатора, шлейфа и ограждения для двух блоков;
- замена блока электрических и механических вспомогательных систем (распределительное устройство МВ и НН, система охлаждения, дренажные и водо-насосные системы и т.д.) для двух блоков (по блокам);
- реабилитация гидравлических стальных конструкций и гидромеханического оборудования на выпуске и ниже по течению;
- реабилитация гидравлических стальных сооружений и гидромеханического оборудования (напорных водоводов, донных выпускных отверстий, кранов и т.д.).

Проект реабилитации Токтогульской ГЭС является уникальным проектом и жизненно важным звеном по регулированию частоты напряжения системы трансмиссии на 500 кВ, соединяющий страны Центральной Азии. Мощности ГЭС были хорошо построены, но многие компоненты в данное время нуждается замене для поддержания генерирующей целостности. Следовательно, не существует никакой другой реальной альтернативы, кроме той, которая заключается в последовательной замене изношенного оборудования, и соответствующей поддержке строительных конструкций и установленного оборудования.

Согласно Оценке, следующие возможные воздействия на окружающую среду могут быть связаны с перечисленными реабилитационными мероприятиями:

- возможным отключением электроэнергии в ходе строительства;
- утилизацией старого масла (около 180 тонн, не содержащих ПХД, согласно проведенного анализа);
- вопросами соблюдения техники безопасности и здравоохранения во время строительства;
- увеличением движения грузовиков в период строительства через населенные пункты; транспортировкой тяжелого оборудования, строительных материалов и отходов;
- утилизацией железа / стали (почти 4 тысячи тонн), и других отходов;

- строительными отходами, образовавшихся в результате строительных работ, и некоторых бытовых отходов, образовавшихся в результате жизнедеятельности рабочих.

В рамках ПЭО предусмотрено выявление воздействий предлагаемого проекта на окружающую среду, и определение соответствующих превентивных действий и мер по их смягчению для предотвращения, минимизации или исключения ожидаемых неблагоприятных воздействий. Потенциальное экологическое воздействие от реализации проекта будет носить локальный и временный характер. Для смягчения воздействия на окружающую среду разработан План Управления Окружающей Средой (ПУОС), где предусмотрены сбор, хранение и реализация металлома, а также повторное использование масло из оборудования, подлежащего замене и др.

В период подготовки Отчета проведены общественные консультации и встречи с общественностью г.Каракуль Джалал-Абадской области, где рассмотрены, в основном, вопросы по проблемам отходов и как с ним справиться. В итоге все поддержали необходимости реабилитационных мер, предусмотренные Проектом АБР по реабилитацию Токтогульской ГЭС.

Рассмотрев представленные материалы, Государственное агентство охраны окружающей среды и лесного хозяйства при Правительстве Кыргызской Республики выносит положительное заключения государственной экологической экспертизы к Отчету «Предварительная Экологическая Оценка (ПЭО) Реабилитация Токтогульской ГЭС, Фаза 2» Проекта реабилитации Энергетического Сектора. АБР-ТА-8434 (KGZ).

При этом необходимо:

- в период реализации проекта ОАО «Электрические станции» обеспечить своевременное представление отчетов в установленной форме по вопросам охраны окружающей среды и оплаты нормативных платежей за загрязнения окружающей среды в Джалал-Абадское территориальное управления ГАООСЛХ.

- перед началом работ необходимо уведомить Джалал-Абадское ТУ ГАООСЛХ.

В случае невыполнения заключения государственной экологической экспертизы и проведения работ не по проектным решениям, заключение автоматически теряет силу.

Председатель экспертной комиссии,
начальник управления государственной
экологической экспертизы и природопользования
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Conclusion of the State environmental expert review on IEE developed for the Project Phase 2.

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December 15, 2014, No.04-01-28/428

Approve Deputy Director
of the State Agency on
Environment Protection
and Forestry under the
KR Government
/seal affixed/ signed/ A.A. Rustamov
December 15, 2014

CONCLUSION
OF THE STATE ENVIRONMENTAL EXPERT REVIEW

to the Report "Initial Environmental Examination (IEE), Rehabilitation of Toktogul HPP, Phase 2" of the Energetic Sector Rehabilitation Project ADB-TA-8434 (KGZ)

The Report "Initial Environmental Examination (IEE), Rehabilitation of Toktogul HPP, Phase 2" of the Energetic Sector Rehabilitation Project АБР-ТА-8434 (KGZ) developed by Fichtner in

2014 on request of ADB and "Electric Power Plants" OJSC was submitted to the State Agency on Environment Protection and Forestry under the Government of the Kyrgyz Republic to carry out state environmental expert review.

The Initial Environmental Examination (IEE) of the Rehabilitation of Toktogul HPP, Phase 2" of the Power Sector Rehabilitation Project ADB-TA-8434 (KGZ) consists of the following major sections:

1. Summary
2. Political, Legal and Administrative Frameworks
3. Description of the Project
4. Description of Environment
5. Expected environmental impacts and mitigation measures
6. Analysis of alternatives
7. Disclosure of information and consultation
8. Grievance Redress Mechanism
9. Environment Management Plan
10. Conclusion and Recommendations
11. Annexes

Implementation schedule: The construction shall start in second half of 2016 and last until 2020/2021.

Description of the Project and possible impacts:

The following activities will be carried out in the course of works at Toktogul HPP:

- replacement/rehabilitation of two turbines:
- replacement/rehabilitation and upgrading of two generators;
- replacement of two main transformers associated with two turbines / generators;
- replacement of unit control systems for two units;
- replacement of unit protection systems, including relevant transformer, loop and fencing for two units;
- replacement of a unit of electrical and mechanical auxiliary systems (MV and LV switchgears, cooling system, drainage and water-pumping systems, etc.) for two units (for units);
- rehabilitation of hydraulic steel structures and hydromechanical equipment at the outlet and downstream;
- rehabilitation of hydraulic steel structures and hydromechanical equipment (pressure conduits, bottom outlets, taps, etc.).

Toktogul HPP Rehabilitation Project is a unique project and a vital link for regulation of voltage frequency of 500 kV transmission systems, which connects the Central Asian countries. Capacity of HPP was well built, but many components should be currently replaced to maintain generating integrity. Consequently, there is no other realistic alternative but one that suggests consistent replacement of worn-out equipment and relevant maintenance of engineering structures and installed equipment.

According to Examination, the following possible impacts on the environment may be associated with rehabilitation activities listed above:

- possible power outage during construction;
- disposal of old oil (about 180 tons that do not contain PCBs according to conducted analysis);
- issues of occupational health and safety compliance during construction;
- increase in truck movements through settlements during construction period; transportation of heavy equipment, building materials and debris;
- disposal of iron / steel (almost 4000 tons) and other wastes;
- construction debris generated because of construction work, and some domestic waste generated because of daily living activities of workers.

As a part of IEE it is provided for to identify proposed Project impacts on the environment and to plan appropriate preventive actions and mitigation measures to prevent, minimize or eliminate expected adverse effects. Potential environmental impact of the Project will be of local and temporary nature. To mitigate the impact on the environment, there is developed Environmental Management Plan (EMP), which provides for collection, storage and sale of scrap metal and re-use the oil from equipment to be replaced etc..

Public consultations and public meetings were conducted in Karakul Town of Jalal-Abad oblast when the Report was being prepared. Participants of those consultations and meetings mainly considered waste related matters and methods of coping with them. Eventually everybody came to conclusion that rehabilitation measures provided by the ADB Project on rehabilitation of Toktogul HPP were necessary.

Having considered submitted materials, the State Agency on Environment Protection and Forestry under the Government of the Kyrgyz Republic issues positive opinion on the State Environmental Expert Review to the Report “Initial Environmental Examination (IEE), Rehabilitation of Toktogul HPP, Phase 2” of the Energetic Sector Rehabilitation Project ADB-TA-8434 (KGZ).

At the same time it is required that:

- “Electric Power Plants” OJSC must ensure that reports on environment protection are timely submitted and statutory payments for environmental pollution are timely paid to the Jalal-Abad Territorial Department of SAEPF during implementation of the Project.
- Jalal-Abad Territorial Department of SAEPF must be notified before beginning of work.

If the conclusion of the State Environmental Expert Review is not complied with and if works are not executed according to design decisions, the conclusion shall automatically become void.

Chairman of Experts Commission, Head of Department of the State Environmental Expert Review and Environmental Management (DSEEREM)	/signed/	K.K. Jumabekov

Members of Experts Commission:

Head of the Division of DSEEREM	/signed/	A.A. Ryspekov
Chief Specialist of DSEEREM	/signed/	I.M. Sarybaev