Bi-annual Environmental Monitoring Report

Project Number: 46348-KGZ
ADB Loan/Grant Number: L3212/G0419-KGZ
Reporting period: January - June 2018

Kyrgyz Republic:
Toktogul Hydropower Plant Rehabilitation Phase 2 Project

Prepared by: the Open Joint Stock Company Electric Power Plants (Bishkek, Kyrgyz Republic) with the assistance of the Project Implementation Consultant (Tractebel Engineering-Coyne Et Bellier (France) in association with Endustriel Elektrik Maden LLC (Kyrgyz Republic)

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ABBREVIATIONS:

ADB	Asian Development Bank
CC	Construction Contractor
EADB	Eurasian Development Bank
EMP	Environmental Management Plan within IEE
EPP/OJSC EPP	Open Joint Stock Company «Electric Power Plant»
ES	Environmental Specialist
GE	General Electric
HPP	Hydropower Plant
IEE	Initial Environmental Examination
IPID	Investment Projects Implementation Department 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 hydropower 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 construction activities have been started yet. This report is the fourth 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 HPP for the stability of the national and regional grid, there are two main objectives that can be identified:

    - 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 required 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 existing 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 as well as the rehabilitation of spillway and bottom water outlet gates.
        - Package 2 of Phase 2 will concern the replacement of the 4 units and their auxiliary systems.

1.3. Documents relevant for Environmental Safeguard

10. The following documents were prepared for the Project and include environmental safeguards:

- Initial Environmental Examination (IEE) for Rehabilitation of Toktogul HPP Phase 2 under the Power Sector Rehabilitation Project. ADB - TA-8434 (KGZ), July 2014;

- Project Administration Manual (PAM) to Power Sector Rehabilitation Project, October 2014;
- Financing Agreement between The Kyrgyz Republic and ADB of December 26, 2014;
- Contract between Tractebel Engineering-Coyne Et Bellier (France) in association with Endustriel Elektrik Maden LLC (Kyrgyz Republic) and EPP dated 17 November 2015.

1.4. Implementation progress

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

11. After signing the Contract Agreement for Package 1 between Keum Jeon Industrial Co., Ltd. and EPP on 29th December 2017, Keum Jeon failed to fulfil the requirement of the Contract Agreement which has led to the annulment of the Contract.

12. In order to launch a new bidding procedure for Package 1, Bidding documents have been updated.

13. The Contract for the Package 2 of Phase 2 has been awarded to the Consortium of the legal entities of GE Hydro France and GE Renewable Switzerland GmbH (GE) and the Contract Agreement has been signed by EPP and the Contractor on 9th February 2018.

14. A 3D scan activity has been performed by GE at site in all the rooms of Toktogul HPP from the 22nd April to the 4th May 2018.

15. The Package 2 Kick-off meeting with the participation of the Contractor, EPP and the Project Implementation Consultant (PIC) was held on 24th and 25th of May 2018.

2. ENVIRONMENTAL MANAGEMENT

2.1. Institutional Arrangement of the Project

16. Proposed Phase 2 project is jointly financed by Asian Development Bank (ADB) and Eurasian Development Bank (EADB). The Executing Agency of the Project is the 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 Toktogul HPP, and intends to contract the rehabilitation of the Toktogul HPP on an Engineering Procurement and Construction scheme. The Project Implementation Consultant will work with the Investment Project Implementation Department (IPID) of EPP. The assignment will cover project due diligence for Phase 3 and project implementation for Phase 2.

17. The IPID, which is the one of EPP's departments and specially assigned for implementing projects funded by international development organizations such as ADB and World Bank (WB).

18. Currently, IPID is implementing two different projects (including ADB project). Within IPID, 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 IPID is as follows:

    - IPID Head

- Deputy IPID Head

1) Project Implementation Unit(PIU) “Toktogul HPP Rehabilitation”
   - Head;
   - Deputy head;
   - Senior Financial Specialist;
   - Senior Engineer ;
   - Interpreter ;
   - Procurement Specialist of PIU “Toktogul HPP Rehabilitation Phase 2 Project” (individual consultant);
   - Financial Specialist/Accountant of PIU “Toktogul HPP Rehabilitation Phase 2 Project ” (individual consultant);
   - Environmental Safeguards Specialistof PIG “Toktogul HPP Rehabilitation Phase 2; Project” (individual consultant);

2) PIU “At-Bashy HPP Reconstruction”;
3) PIU “Kambarata HPP second unit input”.

19. The IPID 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.

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

21. The IPID, 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.

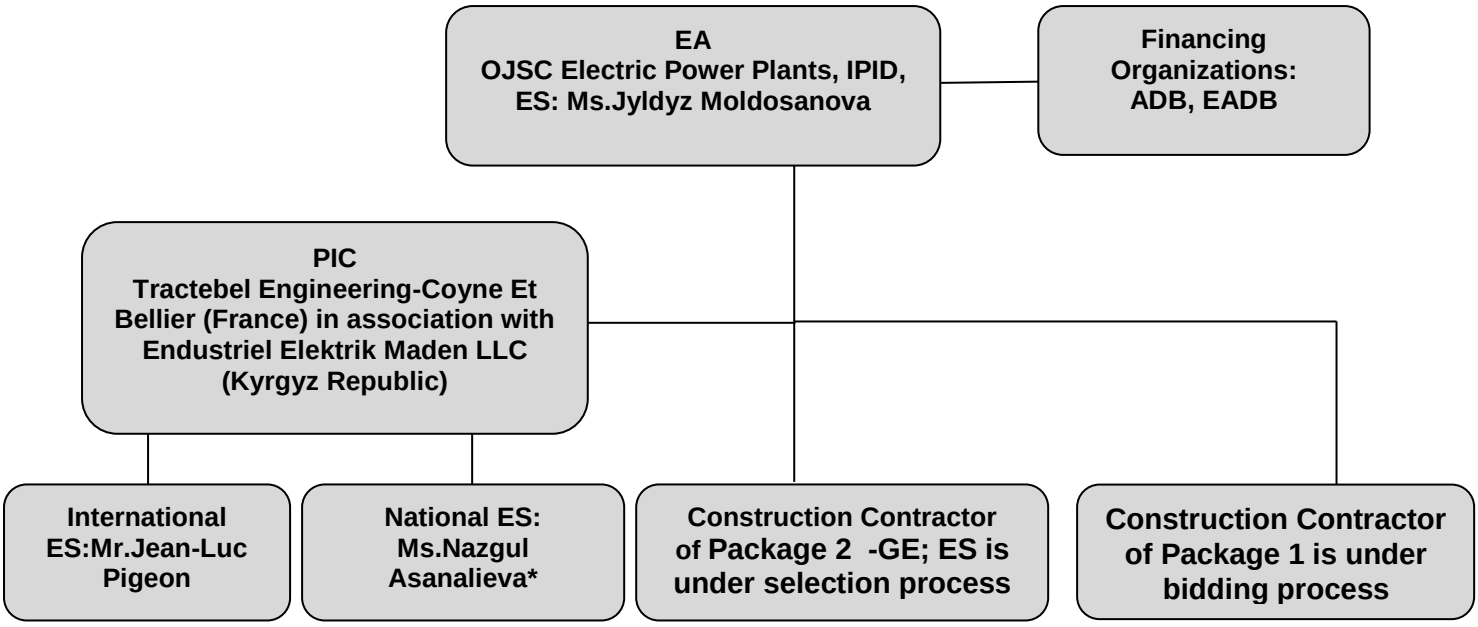
22. Tractebel Engineering-Coyne Et Bellier (France) in association with Endustriel Elektrik Maden LLC (Kyrgyz Republic)has been awarded a contract for supervision services to implement successfully the rehabilitation works of Rehabilitation of Toktogul HPP Project Phase 2 as PIC and to conduct the due 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.

23. The major assignments are:

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

    b) 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. The Construction Contractor for the Package 2 of Phase 2 is the Consortium of the legal entities of GE Hydro France and GE Renewable Switzerland GmbH. Construction Contractor for Package 1 of Phase 2 is under the bidding procedure.

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 as on June 2018*

*Ms Nazgul Asanalieva replaced Ms. Elena Kutmanova.

EPP PIU Environmental specialist has developed the initial list of main documents to be included into Track Documentation system. This list is attached in Annex 1.

3. ENVIRONMENTAL MONITORING

3.1. Environmental Monitoring Program

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

25. 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

26. 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 (see

27. Annex **2**).

28. 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.

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

3.2. Non-compliance Notices

Not applicable (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

ANNEXES

Annex 1. The Initial list of main documents on Environmental Safeguard Power Sector Rehabilitation Phase 2 Project as on June 2018

#	Document title	Prepared by	Date of approval
	Basic Documentations:		
1.	IEE / Initial Environmental Examination KGZ: Toktogul HPP Rehabilitation Phase 2 Project	Project Implementation Consultant/PIC Fichtner	July 2014 https://www.adb.org/sites/default/files/project-document/81731/46348-003-iee-01.pdf
2.	Conclusion of the State environmental expert review on IEE developed for the Project Phase 2.	State Agency of Environmental Protection and Forestry of the Kyrgyz Republic	December 2014
	Reports:		
3.	Bi-annual Environmental Monitoring Report covering July-December 2016 developed for Toktogul HPP Rehabilitation Project Phase 2	OJSC Electric Power Plants with the assistance of PIC Tractebel	January 2017 https://www.adb.org/sites/default/files/project-document/225671/46348-003-emr-01.pdf
4.	Bi-annual Environmental Monitoring Report covering January – June 2017 developed for Toktogul HPP Rehabilitation Project Phase 2	OJSC Electric Power Plants with the assistance of PIC Tractebel	July 2017 https://www.adb.org/sites/default/files/project-documents/46348/46348-003-emr-en.pdf
5.	Bi-annual Environmental Monitoring Report covering July - December 2017 developed for Toktogul HPP Rehabilitation Project Phase 2	OJSC Electric Power Plants with the assistance of PIC Tractebel	July 2017 https://www.adb.org/sites/default/files/project-documents/46348/46348-003-emr-en_0.pdf
6.	Bi-annual Environmental Monitoring Report covering January – June 2018 developed for Toktogul HPP Rehabilitation Project Phase 2	OJSC Electric Power Plants with the assistance of PIC Tractebel	*Is under development*

	Other documentations:		
7.	Sample results (Asbestos Risk Assessment Survey. Rehabilitation of Toktogul HPP Phase 2 Project)	Project Implementation Consultant Tractebel	December 2016
8.	Asbestos Management Plan (Rehabilitation of Toktogul HPP Phase 2 Project)	Project Implementation Consultant Tractebel	December 2016

Annex 2. Approval of the SAEPF on IEE developed for the Project Phase 2.

КЫРГЫЗ РЕСПУБЛИКАСЫНЫН
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ГОСУДАРСТВЕННОЕ АГЕНТСТВО
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ОКПО: 23994204 0253101 2

15. 12 2014 ж. № 04-01-28/428

№

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
(УГЭЭП) Жумабеков К.К.

Члены экспертной комиссии:

Начальник Отдела УГЭЭП Рыспеков А.А.

Главный специалист УГЭЭП Сарыбаев И.М.

Annex 2. Approval of the SAEPF on IEE developed for the Project Phase 2.

STATE AGENCY OF ENVIRONMENT PROTECTION AND FORESTRY UNDER THE GOVERNMENT OF THE KYRGYZ REPUBLIC

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

I 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

APPROVAL
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