

Environmental Monitoring Report

Project No.: 47017-003
January-June 2018
November 2018

Tajikistan: Wholesale Metering and Transmission Reinforcement Project

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ABBREVIATIONS

ADB	Asian Development Bank
AMI	Advanced Metering Infrastructure
AT1	Autotransformer No 1
AT2	Autotransformer No 2
CEMMP	Contractor's Environmental, Health and Safety Management and Monitoring Plan
CT	Current Transformer
EHS	Environment, Health & Safety
EMP	Environmental Management Plan
EMS	Environmental Management System
ES	Environmental specialist
HSE	Health, Safety and Environment
FAT	Factory Acceptance Test
IEE	Initial Environmental Examination
IFC	International Finance Corporation
IT	Information Technology
kV	Kilovolt
LAN	Local-Area Networking
MVA	Megavolt Ampere; unit used to measure apparent power
OHL	Overhead Transmission Line
PAM	Project Administration Manual
PIC	Project Implementation Consultant
PMU	Project Management Unit
PPE	Personal Protective Equipment
RoW	Right-of-way
RETA	Regional Technical Assistance project 8663
SS	Substation
SSEMP	Site-specific Environmental management plan
TL	Transmission line



1. EXECUTIVE SUMMARY

1. This report will collect all the environmental subjects occurred in the project during the first half of 2018. During the period reported, the activities belonging to Lot 2 Reinforcement of the Transmission grid in the Penjakent area, through the construction of a 220 KV OHL between Ainy and Rudaki Substations, the enhancement and renovation in Rudaki SS, and the construction of a new bay in Ainy SS, were completed and inaugurated in March.
2. Regarding to the Amendment 2 Lote2's work, which is the renovation of 110 KV Switchyard started in April, as every activity is developed inside the plot of the Substation and on a working installation the Environmental impact is being negligible, in any case the prior experience in the same substation as the initial Lot 2 has taken place has served to contractor to a closer pursuing of environmental guide lines.
3. Lot 1 hasn't started the assembling and installation activities yet, so there's nothing to report in this regard.

2. INTRODUCTION

1.1 General information about the Project

4. The Republic of Tajikistan has received financing (grant) from the Asian Development Bank (ADB) towards the cost of Wholesale Metering and Transmission Reinforcement Project. Parts of this financing is being used for payments under the contract for Rehabilitation of Substation Rudaki, Extension of Substation Ayni and Construction of new 220 kV OHL between SS Ayni 220 kV and SS Rudaki; replacement of electricity meters, several current transformers and several voltage transformers, introduction of an advanced metering infrastructure, and introduction of a settlement system. BT, ADB and the Consultant has agreed on a preliminary alignment of the 50 m wide right-of-way (RoW) of the TL based technical considerations and the need to avoid traversing human settlements and private landholdings.
5. It is expected that the proposed project will improve electricity supply to households and industries in the country by reducing losses through metering entire high and medium voltage transmission grid and expand transmission capacity in Panjakent region presently suffering from load shedding.
6. This Compliance report has been prepared by the social and environmental safeguards monitoring department of the PMU Barqi Tojik.
7. The Projects components include:
 - a) Installation of 1,682 wholesale meters and settlement system including 846 current transformers and 744 voltage transformers (Lot A);



b) Construction of approximately 95 km of new single circuit single conductor 220 kV transmission line interconnecting Rudaki and Ayni Substation with rated capacity of 320 MVA (Lot B).

8. The location of the Project component Lot B is presented below in Figure 1 in the scale of the Country.



Figure 1. Location of the Project (Lot B)

9. The present Bi-Annual Environmental Monitoring Report is the third report concerning the 'Wholesale Metering and Transmission Reinforcement Project' and it covers the period from January to June 2018.

10. The report aims to provide information on the progress of implementing the Environmental Management Plan (EMP) and SSEMP and to evaluate the implementation of EMP/SSEMP for necessary improvement if needed. The purpose of Environmental Monitoring Report is to satisfy the environmental safeguard requirements of the Government of Tajikistan, Barqi Tojik (through PMU) and ADB.

11. Barqi Tojik is the vertically integrated state owned electric power utility in Tajikistan. Barqi Tojik is in the process of organizational restructuring to form three separate business units. The three business units will comprise generation, transmission and distribution. The transmission business unit will operate 500/220/110 kV systems and the distribution unit will be responsible for operating systems at 35 kV and below.



3. Documents relevant for Environmental Safeguards

12. Five documents were prepared for the Project with the inclusion of environmental safeguards:
- Initial Environmental Examination (IEE) for Wholesale Metering and Transmission Reinforcement Project, September 2014;
 - According to the Terms of Reference of the Project Implementation Consultant (AF-Mercados EMI), one of the tasks of the Consultant is to update the existing Initial Environmental Examination based on the conceptual designs. Accordingly, if recategorization of the Project would have been needed, additional documents should have been prepared (e.g. Environmental Impact Assessment). The Initial Environmental Examination (IEE) for Wholesale Metering and Transmission Reinforcement Project was updated in December 2016.
 - Project Administration Manual (PAM) to Wholesale Metering and Transmission Reinforcement Project, November 2014;
 - Grant Agreement between Republic of Tajikistan and ADB dated 27 of January 2015. Schedule 4, clauses 16,21 and 22;
 - Appendix H of the Special Conditions of the Contract Agreement between PIC Mercados and Barki Tojik;
13. The IEE describing the required actions for the EMP performance monitoring and supervision has been approved by ADB and the latest up-dated version is published on the ADB Website (<https://www.adb.org/projects/documents/taj-wholesale-metering-and-transmission-reinforcement-dec-2016-ieee>)
14. In May 2017, the national Committee of Environmental Protection (CEP, State ecological expertise (SEE)) issued the environmental approval (No. 421-15 dated 18th of May 2017) to the Project based on this IEE/EMP report.

4. Construction activities and Project progress during the last 6 months

15. Related to the lot 1 (Whole Sale Metering System), in January of 2018 the joint venture Huawei/TBEA passed the second software FAT of Lot 1, in March was held in China the Meter and CT&VTs FAT the CT&Vs was passed however the meter one wasn't it was agreed to hold a second try in July, the third software FAT was held in the second half of June, the result obtained by the contractor in this latest test weren't issued during the period. None of the activities developed in Lot 1 didn't have any impact on the environment.
16. For the Lot 2 the activities developed in the period are the following:
- Commissioning and energization of AT2 in Rudaki SS, completion works Scheduled from January 1 to January 31, 2018. Issuing of second Completion Certificate.
 - Amendment 2's scope of work, design stage, 110 KV Switchyard Rudaki's Substation renovation.
 - Supply of Equipment for Amendment 2.
 - Civil and Electromechanical works for 3 bays out of 6.



17. Anticipated schedule for the next phases of OHL works is the following:

- Overall Operational Acceptance Certificate, October 2018.

18. The work progress on construction in transmission line is shown in Table 1 below.

Table 1 Work progress in Transmission line construction

	No. of towers/km of OHL*	Progress
Survey	244	100,00 %
Lanes and accesses	244	100,00 %
Foundations	244	100,00 %
Tower erection	244	100,00 %
Stringing	91,17 km	100,00 %
Fiber optic joints	30	100,00 %
WORKS TOTAL	-	100,00 %

* Total number of towers is 244, total length of the line is 91,17 km

19. The contract Between Barqi Tojik and the Contractor (TBEA) on Transmission Reinforcement sub-Project (Lot 2) was signed in December 2015. TBEA has sub-contracted “Broadtec” company for the construction works.

20. Construction activities for the reporting period are described in the Table 2 below.

Table 2. Construction activities on Lot 2 (100% completed) + Amendment 2 (50%) implemented from January to June 2018.

N	Month, 2018	Construction activities	Percentage of Completion
1	January	Commissioning of AT2 in Rudaki. Lot2	100%
2	February	Completion of Works. Lot 2	100%
3	March	Inauguration by the President. Lot 2	100%
4	April	Amendment 2's works kick off	100%
5	May	Amendment 2 Equipment Supply and Civil Works (excavations, ditches and cable ducts and foundations)	50%
6	June	Amendment 2 Electromechanical Assembling	50%

5. Changes in project organization and environmental management team

21. The Executing Agency for the Project is the Open Stock Holding Company Barqi Tojik. The Executing Agency has set up a Project Management Unit (PMU) to manage daily coordination, implementation, monitoring and administration activities of the Project.



22. The PMU includes the Environmental Sector of the Projects Monitoring Department whose responsibilities include, among other things, the management of all environmental aspects of the project. The Head of the Environmental Sector of the Projects Monitoring Department is Mr. Karimov Sirojiddin. The Chief EHS Specialist at the PMU is Mr. Aziz Holov.
23. The Project Implementation Consultant (AF Mercados) is providing technical assistance to the PMU in the management and reporting of the project. The PIC is responsible for reviewing and endorsing the Contractor's Environmental Management Plan (SSEMP) and in particular for supervising and reporting on the Contractor's performance in the implementation of the SSEMP.
24. The PIC is also responsible to establish Environmental Management System as a part of the Project's Management System. This system has been established and all Environmental, Health and Safety documents and reports are filed in the system.
25. PIC's Environmental Specialists are:
- Mr. Pasi Vahanne, International Environmental Safeguards Specialist
 - Ms. Muazama Burkhanova, National Environmental Safeguards Specialist

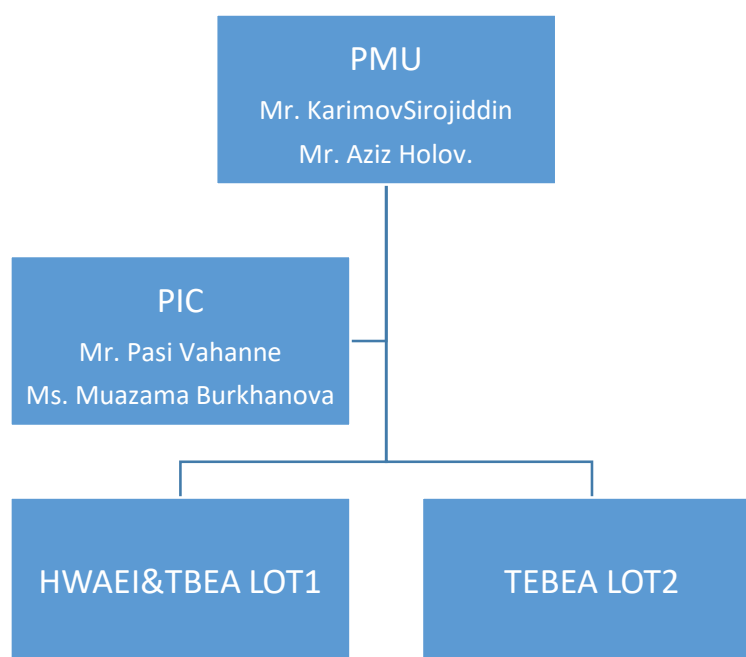


Figure 2. EHS management of the project

26. For Lot A the Contractors' (Huawei/TBEA) Environmental Unit is responsible for the implementation of the Contractor's Environmental Monitoring Plan. The Contractors have named the following persons responsible for EHS issues:
- Mr. Hang Bo, HSE Manager (TBEA)
 - Mr. Zokirov Sherov, HSE Manager Huawei)
 - Mr. Jin Dean, EHS Site Manager (TBEA)



- Mr. Huseynov Ilhom, EHS Site Manager (Huawei)
- Mr. Guan Yonggang, EHS Site Manager (TBEA)
- Mr. Nazarhudoev, HSE Site Manager (Huawei)
- Mr. Zhurakulov Doshod, HSE Site Manager (Huawei)

27. Organizational structure of the Huawei/TBEA EHS personnel is presented in Figure 3 below.



Figure 3. EHS management of Contractor on Lot A

28. For Lot B the Contractor (TBEA) is implementing construction works. Contractor's Environmental Unit is responsible for the implementation of the CEMMP, monitoring of the construction activities and reporting. The Contractor has named the following persons responsible for EHS issues:

- Mr. Zhang Zhenqing, EHS Manager
- Mr. Guang Yonggang, EHS Ayni Site Manager
- Mr. Jin Dean, EHS OHL Site Manager
- Mr. Che Jinlu, EHS Rudaki Site Manager

29. Organizational structure of the TBEA's EHS personnel is presented in Figure 4 below.

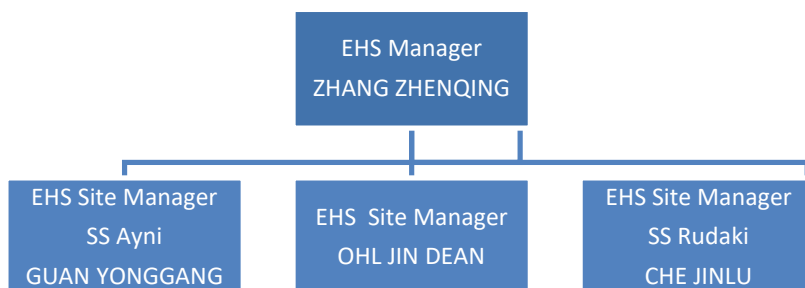


Figure 4. EHS management of Contractor on Lot B



4.1. Relationships with Contractors and PMU

30. The PIC has continuously advised Contractors on HS&E issues, e.g. on the preparation of Contractor's Environmental Monitoring Plan and Contractor's Monthly Environmental Monitoring Reports.
31. The PIC organized training for the Contractor's and PMU on Environmental and Social Safeguards in December 2016.
32. The National Environmental Specialist of the PIC has discussed regularly with the PMU's Environmental Experts and RETA/ADB National Environment Specialist on environmental safeguards and EH&S issues.
33. The Lot B Contractor has presented the following agreements to PIC:
 - An agreement between the Hospital at Ayni and TBEA
 - An agreement between the Environmental Department of Ayni local authorities and TBEA concerning waste management

6. ENVIRONMENTAL MONITORING

34. Environmental Monitoring typically consists of two kinds of activities; visual inspections and audits at the construction sites, and measurements to gain numerical data. Environmental Monitoring of both Lot A and Lot B of the Wholesale Metering and Transmission Reinforcement Project is based on the IEE and EMP attached to it, as well as on Contractor's Environmental Monitoring Plan.

5.1. Air quality

35. In accordance with EMP/SSEMP no instrumental measurement of air quality is foreseen, only visual observations. No dust emission was observed during the installation of AT1. Vehicles of Contractor were regularly maintained. No other emissions observed/recorded.

5.2. Water quality

36. In accordance with EMP/SSEMP no instrumental measurement of water quality is foreseen, only visual observations. There were enabled portable latrines at the site work available to the workers.

5.3. Noise

37. All works were conducted inside the SS and included mostly assembly and installation. That is why level of noise was not measured.

5.4. Flora and Fauna

38. All works were conducted inside the SS. No illegal pouching, cutting of trees were recorded. Confirmed by environmental departments of Panjakent and Ayni districts.



5.5. Occupational Health and Safety issues

39. All the works developed over this period took place inside of the Substation Rudaki's plot, PIC observed that every worker involved in the works used the proper collective and individual protective equipment like helmets, boots, gloves and work clothes as well as fences and signs.
40. The Contractor's plans and advice is that workers would not work at heights over two metres without fall protection, which is consistent with the IFC EHS requirements. No accidents and cases of diseases are recorded for the reporting period. Workers had regular health and safety instructions and trainings. Records are available at the field office of Contractor.

7. ENVIRONMENTAL MANAGEMENT

6.1. The environmental management system (EMS), site-specific environmental management plan (SSEMP), and work plans

41. The PIC has assisted PMU to enable an Environmental Management System as a part of the Project's Management System. This system has been established and all Environmental, Health and Safety documents and reports are filed in the system.
42. All SSEMPs were approved before the commencement of civil works.
43. Related to Waste Management, the organic waste was collected and transferred to a controlled dump, High Voltage devices were transfer to a BT's ware house to reuse components, and the oil was poured in tanks to be transported for further recycling.
44. The status of Contractor's Environmental Monitoring Plans and Site Specific Environmental Monitoring Plans is presented in Table 3 below.

Table 3. Status of Environmental Management Plans

Management Plan	Status of approval	Date of Submission
Contractor's Environmental Management Plan, including H&S Plan (1 st version in Russian and English)	Approved (17.01.2017). It was approved by PMUES with condition to revise it in accordance with ADB template.	20.06.2016
Contractor's Site Specific Environmental Management Plan (revised version) this SSEMP covers Lot A & B	Approved revised version (23.06.2017) in English	June 2017



6.2. Site inspections and audits

45. Site inspections performed during January 2018 – June 2018 are the following:
46. There was an inspection in January the 15th with the following findings:
 - Minor issues were encountered, the dump that was previously located on the Northeast area of the substation is in a clearing process as committed.
47. A Rudaki SS wrap up inspection took place on March 15th, no environmental non-conformities were detected, since corrective measures were taken after the January's survey described in table 7 and before the celebration of the opening of the project in Rudaki.
48. In May 20th PIC made an inspection to supervise the Amendment 2's works, no impact on the environment was detected.
49. In June 25th PIC made an inspection to supervise the Amendment 2's works, no impact on the environment was detected.

Table 4: Audits and Supervision over the period

Organization	Purpose	Performed by	Date
PIC	Commissioning Works	PIC's Team	January 2018
PMU	Commissioning Works	PMU's Environmental Department	24-27 January 2018
PIC	Completion Works	PIC's Team	March 2018
PMU	Completion Works	PMU's Environmental Department	13 March 2018
PMU	Amendment's 2 Kick off	PMU's Environmental Department	19 April 2018
PMU	Civil Works Amendment's 2	PMU's Environmental Department	7-8 May
PIC	Amendment 2's Work	PIC's Team	May 2018
PMU	Amendment 2's Work	PMU's Environmental Department	25 June 2018
PIC	Amendment 2's Work	PIC's Team	June 2018

8. Planned site visits for the July-December 2018

50. PIC's National Environmental Specialist has scheduled site-visits (Lot B) as presented in Table 5.

Table 5. Scheduled PIC's Team in 2018 (Q3 and Q4)

Activities	Date
Amendment 2's Wrap up inspection	September



7.1 Non-compliance notices

51. The mistakes found in this reporting period are mostly corrected, list of outstanding items was sent to contractor for their correction as a necessary condition to the Operational Certificate issuing.
52. Table 6 below summarizes monitoring observations done during the field visits of PIC Environmental Specialists.

Table 6. Non-compliance observations in reporting period **(no pending actions)**

Parameter	Corrective Actions Applied/Needed	Status
Rudaki Substation		
The book of complaints, titled "Opinions of the district residents" exists and contains the letters of gratitude for the project from the employed workers of the construction site;	The complaints book was put at a conspicuous place, (preferably at the entrance to Substation) for enrolling the records by the local population;	Completed
Agreements with utility services and the hospital of Panjakent city have been prepared. Table of "Checklist of safety conditions" contains the results of the Contractor's EHS monitoring.	Monitoring reports, permission documents, EMP/SSEMP, monthly plans, and other (agreements with the local hospital and utility services of Panjakent city, receipts for garbage collection, etc.) are in a full set in a separate place at the contractor's field office.	Completed
The collection and storage of the construction and solid waste, and spare parts at the territory, full of household activities of the Contractor, was in a chaotic and mess condition. It does not meet the requirements of environmental protection;	Construction materials and spare parts were collected in one place in the warehouse, covered with a protective film against humidity and rain on the bottom and top of the materials. The Contractor identified the location and installed containers for the collection of solid waste, and garbage and waste fall were put away. It was made a separate area for garbage containers and streamline the collection of solid waste.	Completed
There is the non-compliance with hygienic rules at working and living premises, in the kitchen, the unsanitary condition of toilets. Sewage from the kitchen without purification is poured onto the slope.	The camp was taken apart and put away, even though the Contractor cleaned the area there are still some trash and garbage leftovers. The contractor should be in charge of cleaning thoroughly the area until the area is as it used to be before the works.	Completed
The first-aid kit was not in a full set;	The contractor bought additional first-aid kits, store them in a clean dry place;	Completed
There was not full set of fire-fighting equipment	Ensure the availability of fire protection equipment in a full set at the substation;	Addressed



Parameter	Corrective Actions Applied/Needed	Status
The test reports of transformer oil filled in a new autotransformer have to be provided.	The contractor provided to PIC test reports of transformer oil about compliance with the accepted standards.	Completed
Old removed devices temporary depot. There is an area placed next to the 10 kV switchgear containers (eastern part) where the old replaced parts and devices are temporary stored.	Barqi Tojik and the Contractor cleared the area and transported the old equipment and debris to an appropriate warehouse.	Completed
Contractor's depot where some construction's material are piled up is placed just next to the plot of the SS in the area where 220 kV lines enter the SS (western part).	The contractor cleaned and put away all the construction material and reconstructed the fence leaving the area as it used to be before the works.	Completed
OHL AYNI-RUDAKI		
Towers 7,73,100,142,171,197,223	Everything was cleaned.	Completed
Towers 142, 164, 183, 201, 221, 223,	The Contractor fixed the backfilling	Completed

7.2. Corrective action plans

53. Actions described in the previous chart.

54. After the completion and inauguration of the works PMU and PIC haven't observed any environmental disconformities given the nature and the volume of the Variation Order 2 Implementation 110 KV switchyard renovation in Rudaki SS which is ongoing and it's been developed inside the limits of the Substation fences, none corrective actions have been planned so far.

7.3. Complaints

55. No complaints were recorded during reporting period. There was request to PMU from environmental department of Panjakent district to improve sanitary conditions of kitchen in construction camp and clean all areas of construction sites after completion of construction works.



9. CONCLUSIONS

56. The activities of the project belonging to the Lot 2 of the project were completed during this period and its assets inaugurated in March 2018, the solemn inauguration took place in the Substation of Rudaki.
57. In parallel with the construction wrap up works the clearing of the debris, and putting away and cleaning of all the garbage and leftovers produced by the works were cleaned and transfer to the dump in the line as well as the Substation.
58. The start of the foreseen works in the Amendment 2 for Lot2, which is the renovation of the 110 KV switchyard of Rudaki SS, started during the period. So far, the works are being monitored on an on-going basis and no environmental disconformities have been found so far. Every work is being developed on the plot of the substation.
59. The works of the Amendment 2 are being closely monitored by PIC's and PMU's supervisors. The date of completion is 30th September 2018.



ANNEXES:

Annex 1: PICTURES RUDAKI MAY 2018

Annex 2: PICTURES RUDAKI JUNE 2018



Annex 1. PICTURES RUDAKI MAY 2018



Photo 1. Frame for a cable duct



Photo 2. Ditch Excavation for a cable duct



Photo 3. Mixing concrete's aggregates and casting on a Switch breaker excavation



Photo 4. Moistening concrete duct to properly cure it



Photo 5. Spreading cleaning concrete in an excavation



Photo 6. Temporary workshop for frameworks



Photo 7. Concrete cable duct curing process



Photo 8. Concrete cable duct drain



Photo 9. Billboards and Signposting



Photo 10&11. Frameworks manufacturing and assembling



Photo 12. Frameworks and Templates assembling preparing to cast the concrete in a Disconnector



Photo 13. Frameworks and Templates assembling preparing to cast the concrete in a Switch breaker



Photo 14. Overall view of 110 KV switchyard with thee bays already renovated



Annex 2. PICTURES RUDAKI JUNE 2018



Photo 15. Electromechanical assembling



Photo 16. Current transformers assembling



Photo 17. Control Cables laying out