Environmental Monitoring Report

Semestral Report for January – June 2016

UZB: Samarkand Solar Power Project

Prepared by State Joint Stock Company UzbekEnergo for the Republic of Uzbekistan and the Asian Development Bank.

ABBREVIATIONS

ADB	Asian Development Bank
EA	executing agency
GHG	greenhouse gas
GRC	grievance redress committee
GRM	grievance redress mechanism
IEE	initial environmental examination
PCP	Public Communications Policy
PIC	project implementation consultant
PMU	project management unit
PV	photovoltaic
SPS	Safeguard Policy Statement

TABLE OF CONTENTS

List of Annexes

1.0 INTRODUCTION

1. The Samarkand Solar Power Project (the Project) aims to increase the renewable energy generation and to reduce greenhouse gas emissions (GHG) in Uzbekistan. The Project is expected to have two main outputs: (i) the construction of a 100 MW solar photovoltaic (PV) power plant including the transmission and support facilities; and (ii) institutional capacity development for Uzbekenergo and for solar energy stakeholders.

The main objectives of the solar PV power plant are as follows:

- Long-term use of solar energy for electricity production in Uzbekistan;
- Increase the stability of the power system;
- Improve the reliability of electricity supply in South-Western part of the system; and,
- Increasing the efficiency and reliability of power supply for the national economy and the population of the Samarkand region.

2. The Project is located approx. 5 km north of the Sazagan settlement and requires about 255 hectare (ha) from the Pastdargom District and about 150 ha from Nurobod District. The access road will be about 4 km and the transmission line to evacuate the power generated will be 8 km of 220 kV.

3. On 20 November 2013, the Government of Uzbekistan received a loan of about $110 million from the Asian Development Bank (ADB) to finance the Project. The Project's executing agency (EA) is the Joint Stock Company Uzbekenergo ("Uzbekenego") and the Samarkand Solar Power Project Management Unit (PMU Solar) is established within Uzbekenergo to implement the Project.

4. The consortium of GOPA-International Energy Consultants GmbH and Suntrace GmbH was contracted by Uzbekenergo in 2015 as Project Implementation Consultant to assist PMU Solar in (i) project management, (ii) implement the institutional capacity development plans, and (iii) assist in enhancing the Operation and Maintenance (O&M) skills of Uzbekenergo during the first year of project operation. Uzbekenergo is responsible for the following: (i) prepare the site; (ii) install the transmission line; and, (iii) construct the access road, perimeter fence, wells, and raw water supply facilities.

5. The Project is being implemented in accordance with the Resolution of the President of the Republic of Uzbekistan on 3 March 2013 (No. 4512) regarding measures for further development of alternative energy resources and the Project's Feasibility Study was approved through the Resolution of the President of the Republic of Uzbekistan on 4 June 2014 (PP No. 2183).

6. According to ADB's Safeguard Policy Statement (SPS) 2009, the Project is classified as category B on environment requiring an initial environmental examination (IEE). The IEE was prepared and disclosed to ADB website in October 2013 as required by ADB's SPS 2009 and Public Communications Policy (PCP) 2011.

7. The IEE (October 2013) indicates that the Project falls under category III in compliance with Appendix 2 to the Cabinet Ministers' Decree of the Republic of Uzbekistan No. 491, paragraph 13 (December 2001). Following the national environmental regulatory procedures, the Project will be cleared by the Gosexpertisa under the Samarqand Province Nature Protection, a provincial branch of the State Nature Protection Committee (SNPC).

2.0 PROGRESS OF PROJECT IMPLEMENTATION

2.1 Construction activities from January to June 2016

8. Uzbekenergo has started the construction works for the transmission line, access roads, perimeter fence, wells, and raw water supply facilities in July 2015. These construction works are outside of the EPC Contract as follows:

    - *Construction of the 3.5 km, 220 kV overhead transmission line* - completed;
    - *Construction of the fence along the perimeter of the area* – completed;
    - *Water pond* – were installed.
    - At present, the post-qualification procedure is being conducted.

9. The progress of these construction works outside of EPC Contract is approximately 1%. **Annex 1** shows the activities at the Project site.

2.2 Associated Facilities

10. Major repairs of existing roads and construction of new access roads to the Solar Power Plant did not impact on environment of rural areas. For this reason, no one tree was cut, new roads are paved on areas with no constructions and are not currently used. Also all environmental requirements are adhered and comply with rules and regulations of Environmental Protection Agency of the Republic of Uzbekistan and ADB.

2.3 Project Management

11. **Figure 2.1** presents the organizational structure.

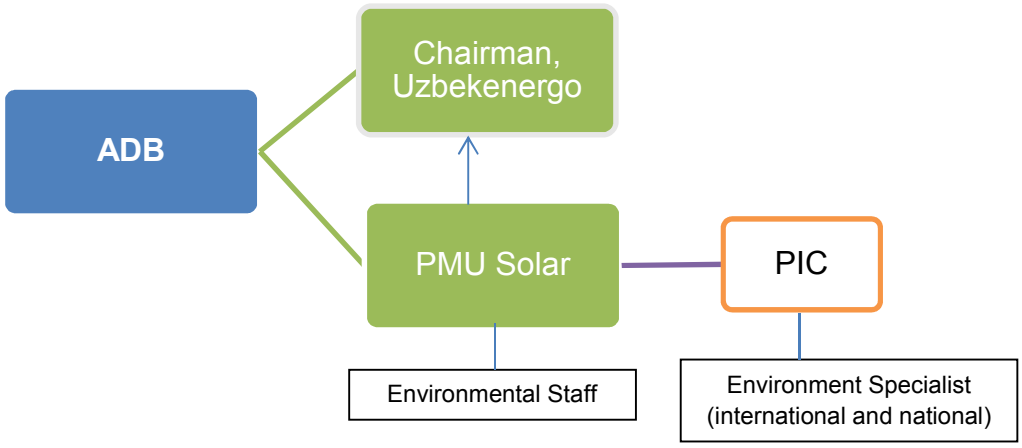
12. *Engineering, Procurement and Construction (EPC) Contractor* - The contract for the EPC Contractor has yet to be awarded by Uzbekenergo. The EPC Contractor is expected to have their Environment Specialist(s) to ensure the implementation of the mitigation measures identified in the environmental management plan (EMP) of the IEE, preparation of site-specific EMP, environmental monitoring, and to provide technical support in the grievance redress mechanism.

13. *Project Implementation Consultant (PIC)* - The contract with the PIC was signed and became effective on 10 July 2015. Subsequently, a kick-off meeting was conducted on 29-31 July 2015 including field works and site visits. A draft Project Implementation Manual that covers several plans for implementation, procurement, quality assurance, safety and financial management was prepared by the PIC and the final version is scheduled to be finalized by April 2016 awaiting inputs from the EPC schedule.

14. The PIC will supervise and monitor the project implementation including the construction and commissioning works, and build the institutional capacity of Uzbekenergo and other solar stakeholders including relevant solar and scientific research institutes. The PIC includes Environment Specialists (international and national) as part of their team to oversee the overall implementation of environmental management plan, environmental monitoring, and compliance to the environmental requirements of ADB.

15. PMU Solar - PMU Solar. The PMU Solar has a designated staff to deal with environmental issues, prepare the environmental monitoring reports required by ADB, and together with the PIC, monitor the environmental compliance of the EPC Contractor. The environmental staff of PMU Solar will ensure the implementation of the EMP.

Figure 2.1 Project Management Organizational Structure



2.4 Relationships with Contractors, Owner, Lender, etc

15. The team has constant communication with the Supervision Consultant, the Contractor is not hired yet.
16. SC is responsible for environmental capacity building, monitoring of implementation of SEMPs and for developing quarterly reports; Monitor safeguards and EMP, prepare the updated IEE which meets both the Government's requirements and ADB's Environmental Assessment Guidelines and ensure training of client counterpart staff through on-the job-training and classroom training programs.
17. ADB oversees project sites regularly and gives clear instructions for the project sites improvements with regard to environmental safeguards.
18. The list of all review missions by PIU, PIC and ADB on safeguards is provided below:
    1) 5-8 Feb. 2013 (ADB mission)
    2) 8-9 Jun. 2013 (PIU's inspection)
    3) 3-4 Aug. 2013 (ADB and PIU's site visit)
    4) 22 Oct. 2014 (ADB and PIU's site visit)
    5) 19 Mar. 2015 (PIU's site visit)
    6) 1-6 Jul. 2015 (ADB/PIU/PIC inspection)
    7) 11-13 Nov. 2015 (ADB mission)
    8) 21 Apr. 2016 (PIU and PIC site visits)

PART II - ENVIRONMENTAL MONITORING

19. According to the EIA (environmental impact assessment) baseline data regarding water, air, soil, flora and fauna are available, but since the construction activities has not yet started, the monitoring is not carried out.

20. Permanent environmental monitoring will start immediately after the commencement of the civil works

PART III – ENVIRONMENTAL MANAGEMENT

3.1 The Environmental Management System, site-specific environmental management plan (SSEMP) and work plans

21. **Annex 2** presents the environmental management plan (EMP) for the construction of the solar power plant based on the IEE (October 2013) posted in the ADB website prior to the approval of ADB's Management to finance the Project. This EMP will be revised and/or updated once the Detailed Design is completed. Consequently, Site-Specific EMP (SSEMP) will be prepared before commencement of civil works. SSEMP will be discussed with the EPC Contractor once the contract has been awarded and then approved by the PIU.

3.2 Site Inspections and Audit

22. Not yet applicable.

3.3 Non-Compliance Notices

23. Not yet applicable.

3.4 Corrective Action Plans

24. Not yet applicable.

3.5 Actions taken to reflect the findings of ADB mission carried out on 7-9 October 2015

25. Not yet applicable.

3.6 GRIEVANCE REDRESS MECHANISM

26. PMU Solar will finalize the grievance redress mechanism (GRM) as soon as the EPC Contractor is mobilized. GRM will ensure a process of receiving and resolving complaint(s) promptly from persons affected by the Project. Based on the requirements of SPS 2009, the

GRM will be a process that is understandable, transparent, gender-responsive, culturally-appropriate, and easily accessible to affected persons without cost and retribution.

27. Broadly, the GRM will consist of a grievance redress committee (GRC) that will continue to function from construction until the operation phase. GRC will consist of representatives from the EPC Contractor (during construction), local government unit, designated environmental staff of PMU Solar, and witness of the complainant (or a third party representative for the complainant). PMU Solar will ensure the representation of women in the GRC.

28. GRC will convene once a month to resolve complaint (if any) within 30 days from the date of receipt and will keep a record indicating the name of complainant and nature of complaint, status of resolving the complaint, decisions or actions undertaken, and the date the decision was effected. Records on grievances will be summarized and included in the environmental monitoring reports to be submitted by PMU Solar twice a year to ADB during construction phase and annually during operation phase.

29. PMU Solar will disclose the grievance redress procedure to Project stakeholders such as the contact person and details on how and where to contact them, how to file a grievance, and the time for the GRC to resolve the concerns. PMU Solar will review GRM implementation regularly to assess the effectiveness of the process and to examine the ability to address grievances.

PART IV - ACTION PLAN FOR THE NEXT REPORTING PERIOD

30. Assuming the award of contract for the EPC Contractor, the following is planned for the next reporting period:

- Set-up GRM and identify members of GRC (August-December 2016);
- Prepare site-specific environmental management plan (September 2016);
- Prepare stakeholders' consultation plan during construction phase (this will include disclosure of the GRM); September-October 2016

Annex 1 – Project site

Fig.1 – The fence along the perimeter of the area

Fig.2 – The Water pond

Fig.3 – The Access road

Fig.4 - 220 kV overhead transmission line

Annex 2 – Environmental Management Plan

ACTIVITIES	IMPACTS	MITIGATING MEASURES	MONITORING /DOCUMENTATION	RESPONSIBLE PARTIES
PRE CONSTRUCTION				
1. Soil exploration	• Trimming of shrubs, drilling holes on the ground • Occupation Hazards, accidents	• Soil sample is very small not mitigation measures needed • Provide PPE, training and supervision	• Team report and log book, field inspection	• Survey Party supervisor
2. Land Acquisition	• Temporary and Permanent Removal of the land from the land owners and its uses	• Proper appraisal of loss income and timely compensation • On the job training for local personnel that could be hired by the project	• Land acquisition and resettlement plan	• PMU, safeguard officer
3. Possible extension of the territory of land acquired for the Power Plant construction	• Change of the river beds, that could lead to significant adverse environmental impact	• Site selection for construction activity must avoid any extension affected on dry bed of rivers on the surround area	• Revising project layouts/Detail design documentation	• PMU, safeguard officer
4. Soil leveling, identifying places for PV panel's bases	• Disturb normal life of natural habitats, especially types living underground (turtles)	• Prior construction or any leveling works a study has to be done and corresponded mitigations should be developed based on the best practices	• Contractor – Environmental Engineer with involvement of local experts from Samarqand Nature Protection committee or relevant research institute	• PMU, Contractor
CONSTRUCTION				
5. Removal of vegetation	• Removal of vegetation through using chemical could lead to land contamination and die of inhabitants.	• Using of chemicals and burn vegetation is prohibited.	• Team report and log book, field inspection, visual observation	• Contractors, Supervision Engineer
6. Soil leveling, excavation and pilling works	• Loss of topsoil • Increase air pollution from Suspended Particulates from soil carried and left on the road by trucks used in construction	• Removed soil will be disposed at the area, indicated by khokimiyat or will be used for landscaping surround area • Compact and cover excavated material stock pile especially during the rainy season • Wet or cover the excavated	• Agreement between Contractor and local Khokimiyat, team report. • Construction log book, minutes of the construction meeting, and the project	• Project Engineer and Contractor
	• Grease and oil from leaks and spillage affecting the water quality • Noise from heavy equipment especially during piling operation • Increase air pollutants such as PM2.5, sulfur dioxide, nitrogen oxides from heavy trucks • Items of archaeological or cultural significance accidentally discovered during earth moving and construction	soil pile and dusty construction materials such as sand, lime etc during the dry season to reduce dust • Wet the work area and other areas with exposed surfaces to reduce dust • Periodic check up and maintenance of equipment especially oil seals, proper training and supervision of persons operating the equipment to report leaks , add grease and oil interceptor to the silt pond • Fence the work area. All equipment should be provided with mufflers and noise reduction equipment • Noisy equipment and activity such as piling should be done only at day time and if it is not possible prior notice should be given to the neighboring areas • All equipment used must comply with the Uzbek emission laws • Provide personnel involved in earth moving and excavation one or two hour seminar on protocol to follow if items of possible cultural significance is discovered. Coordinate with local archeological authorities. In the meantime activities where the item is discovered is cordoned and construction acivities suspended until the experts from archaeological department has given its opinion or procedure on how to proceed with the work	engineer/consultant periodic reports to the EA and the Bank • Set up a noise monitoring station at two areas located at the boundary of the construction site, and one site to a sensitive receptor with one km from the project site • Complains logbook	
7. Delivering and installing equipment	• Increase traffic congestion in the construction area especially heavy equipment are delivered and installed • Noise from heavy equipment e	• Coordination with the local authorities to reroute traffic, put necessary sign on the road, assignment of special personnel to direct the traffic if requested	• Construction log book, minutes of the construction meeting, and the project engineer/consultant periodic reports to the	• Project Engineer and Contractor
			EA and the Bank • Complains logbook	
8. Life activity of workers	• Generating solid wastes and waste water from workers life activity	• Solid wastes will be disposed on the municipal landfill, waste water will collected into the septic tanks	• Construction log book, the project engineer/consultant periodic reports to the EA and the Bank •	• Project Engineer and Contractor
9.	• Accidents, hazards and other work areas related concerns	• PPE , first aid kit, and alarm system should be provided and used in the construction activity. • Workers should be properly briefed on proper work conduct, chain of command and responsibilities, and action to take during an emergency. • Key personnel will be trained on first aid. Periodic drills will be carried out.	• Construction log book and periodic report of the project engineer to EA and the Bank	• Project Engineer and Contracto
OPERATION				
10.	• Wildlife, particularly birds, may be affected by the enhanced reflectivity and light in the project site causing temporary blindness, disorientation, and disrupted predator-prey dynamics	• Low reflectance and low heat-generating panels will be utilized to minimize impact on local wildlife.	• Attention during procurement of services of EPC or suppliers of equipment	• Project head
11.	Domestic effluent that will be discharged from the administrative building may pollute the nearby water body.	Effluent will be treated by a conventional septic tank system prior to discharge.	• Periodic monitoring for leakages if any	• Project Engineer
12.	Potentially hazardous or toxic wastes may be generated during the operations phase. These include used petroleum, industrial fluids such as lubricants and paints, and damaged PV panels that can potentially contaminate the environment.	Damaged PV panels will be collected by the PV supplier as part of their services for reuse as solar modules or as a different product. Industrial fluids and petroleum spills will be cleaned with spill kits which also details the management plan for the proper cleanup, collection, transport and offsite disposal of wastes. These wastes can be disposed to an off-site facility through accredited third party contractors.	• Documentation and recording of damaged, replaced PV panels and agency to which it has been given	• Plant head
13.	The Solar power plant has the potential for tourism, and therefore may attract local residents and outsiders to visit the facility.	Serves as a positive education tool for large consumers for encouraging them to use solar appliances	• Communicatio n material and displays	• Public relations incharge