

# Semi-annual Environmental Monitoring Report

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Semestral Report  
Project number: 44458–013  
Loan Numbers: 3025, 3026  
July 2020  
Period covered: January – June 2020

## Uzbekistan: Amu Bukhara Irrigation System Rehabilitation Project

Prepared by Saban Cimen, JV Temelsu International Engineering Services Inc. Sheladia Associates Inc. for the Republic of Uzbekistan and the Asian Development Bank.

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(Financed by the ADB Loan 3025-UZB/ 3026-UZB)

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Project Implementation Unit

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## ABBREVIATIONS

ABIS	Amu Bukhara Irrigation System
ADB	Asian Development Bank
BISA	Basin Irrigation System Administration
EEC	Environmental Expert of Consultant
EIA	Environmental Impact Assessment
EHS	Environment, Health and Safety
EMP/ SSEMP	Environmental Management Plan/ Site-Specific Environmental Management Plan
EMMP	Environmental Management and Monitoring Plan
EMR	Environmental Monitoring Report
GoU	Government of Uzbekistan
HGME	Hydrogeological Meliorative Expedition
IA	Implementing Agency
IEE	Initial Environmental Examination
ISA	Irrigation System Administration
MAWR	Ministry of Agriculture and Water Resources
M&ES	Monitoring and Evaluation Specialist
NPC	Nature Protection Committee
PIU	Project Implementation Unit
SE	Site Engineer
SC	Supervision Consultant
SO	Safeguards Office
WCA	Water Consumers' Association

## **1 INTRODUCTION**

### **1.1 Preamble**

1. This report represents the Semi - Annual Environmental Monitoring Review (SAEMR) for AMU BUKHARA IRRIGATION SYSTEM REHABILITATION PROJECT.
2. This report is the 10<sup>th</sup> EMR for the project.

### **1.2 Headline Information**

3. In order to realize a sustainable and reliable water supply in ABIS, the Project is expected to achieve the following outputs:
  - a) Construction of one new pump station, and modernization and rehabilitation of four existing ones;
  - b) Increase in the conveyance efficiency of the main canal of ABIS;
  - c) Increase in the capacity of Basin Irrigation System Administration (BISA), Irrigation System Administrations (ISAs), water consumers' associations (WCAs), and farmers to adapt to climate change; and
  - d) Efficient management of project and ABIS
4. The Ministry of Agriculture and Water Resources (MAWR) has agreed to implement the Environmental Management Plan (EMP) and submit regular reports on its implementation. The Initial Environmental Examination Report (IEE), including the EMP, has been published on the Asian Development Bank (ADB) website. During project implementation, ADB and Japan International Cooperation Agency (JICA) will each be responsible for safeguard compliance in their respective project activities.

## **2 PROJECT DESCRIPTION AND CURRENT ACTIVITIES**

### **2.1 Project Description**

5. The Amu Bukhara Irrigation System (ABIS) Rehabilitation Project is located in the central part of Uzbekistan on the right bank of Amu Darya River bordering to Turkmenistan. Bukhara is 563 km far from the capital Tashkent. The project covers lands of Bukhara and Navoi provinces. The ABIS is very important for the area and gives life as an oasis.
6. The ABIS supplies water to already irrigated lands, cities, settlements, and industries in Bukhara and Navoi provinces through a series of large cascading pump stations and thousands of kilometers of conveyance canals. It also drains the excess water through drainage system outside of the project area.
7. The ABIS, with a command area of 315,000 ha, serves the irrigated lands of the Bukhara Zarafshan and Karakul oases and the Karaul Bazar massif. The population in the ABIS command area is about 1,788,000 people, including 1,550,000 in Bukhara and 239,000 in two districts of Navoi, of which 68% live in rural areas and fully rely on irrigated agriculture. It is particularly important to supply reliable water to these people in the region. ABIS also supplies water for municipal and industrial purposes.
8. The aim of the Project is to improve the irrigated agriculture and water resources management in the ABIS, with the goal of promoting sustainable economic and social welfare of communities dependent upon ABIS. The Project objectives are:
  - a) modernization and rehabilitation of obsolete pump stations;
  - b) increase of conveyance efficiency in ABIS main canal;
  - c) increase climate change adaptation capacity; and
  - d) increase efficiency of project management and irrigation system management.

### **2.2 Project Contracts and Management**

9. A list or table of main organizations involved in the project and relating to Environmental Safeguards is Table 1 given below. It includes lender, borrower, PIU, Main Contractor/s and significant sub-contractors, environmental staff of various organizations with their names and contact details.

**Table 2-1 Environmental Safeguards of ABISRP**

<b>Lender</b>	
Organization:	Asian Development Bank
Staff Name	Syed Asim Ali Sabzwari
Designation	Environment Specialist, CWOD-PSG
E-mail	asabzwari@adb.org
Staff Name:	Feruza Insavaliyeva
Designation	Associate Safeguards Officer, URM
Email:	finsavaliyeva@adb.org
Tel:	+ 998 78 1401920
Organization:	ADB/RETA International Environmental
Staff Name:	Keti Dgebuadze
Designation:	Safeguards Consultant
E-mail:	kdgebuadze.consultant@adb.org
Tel:	+995 322 250619
<b>Borrower/PIU</b>	Ministry of Water Resources of Uzbekistan Republic
Organization:	Project Implementation Unit
Environmental Staff:	Mr. Sardor Pulatov
E-mail:	abisr@mail.ru
Tel:	+998 99 895 82 31
<b>Supervision Consultant</b>	
Organization:	JV Temelsu International Engineering Services Inc. Sheladia Associates Inc
Environment Specialist (International):	Mr. Saban Cimen
Email:	saban.cimen@temelsu.com.tr
Tel:	+998 90 317 36 11
Environment Specialist (local):	Mr. Sherzod Sunatulin
Email:	shonic1987@mail.ru
Tel:	+998 90 966 59 54
<b>Contractors</b>	
<b>Construction of Amu Bukhara 1 NEW Pump Station (ABISRP 01)</b>	
China National Technical Import and Export Corporation (CNTIC)	
Environmental Staff:	Mr. Yang Guo You
Email:	-
Tel:	-
<b>Modernization and Rehabilitation of Amu Bukhara Main Canal Regulating Structure (ABISRP 02)</b>	
Consortium LLC "Kogon Suv Qurilish" and JSC "Amubukhorokanalkurilish"	
Environmental Staff:	-
Email:	-
Tel:	-
<b>Modernization and Rehabilitation of Kuyu Mazar and Kizil Tapa Pump Stations (ABISRP 03)</b>	
<b>Modernization &amp; Rehabilitation of Kuyu Mazar Pump Station (ABISRP 03.01)</b>	
Hebei Construction Group Co., Ltd, Hebei Province, China	
Environmental Staff:	Mr. Miao Guowang
Email:	66326632@qq.com
Tel:	+998972812666
<b>Modernization &amp; Rehabilitation of Kizil Tapa Pump Station (ABISRP 03.02)</b>	
Hebei Construction Group Co., Ltd, Hebei Province, China	
Environmental Staff:	Mr. Zhang Zehui
Email:	505735114@qq.com



Tel: +998997568278

**Rehabilitation of inter-farm and on-farm pilot irrigation network (ABISRP 04)**

Kogon Suv Qurilish LLC

Environmental Staff: Mr. Izomov Amin Ashurovic

Email: -

Tel: -

10. The following organizations and/or staff will be responsible for environmental monitoring:

- Basin Irrigation System Authority of Regions
- Contractor of any Subcomponent
- Civil Engineer of Consultant
- Climate Change Mitigation Specialist
- Environmental Expert of Consultant
- Electrical Engineer of Consultant
- Ministry of Health
- Project Manager of Consultant
- Project Implementation Unit
- Water Consumer Associations

11. The key staff for the environmental management and monitoring activities is Mr. Sardor Pulatov, as PIU's Monitoring and Evaluation Specialist (M&ES). He has all responsibilities and tasks related to environment, land, social (including involuntary resettlement and indigenous people), and poverty and gender aspects in accordance with the environment and social safeguard documents and Summary Poverty Reduction and Social Strategy, all of which are project linked documents. Specifically, PIU Monitoring and Evaluation Specialist:

- takes responsibility for monitoring and evaluating performance targets and indicators with baselines indicated in the Design and Monitoring Framework of the project document for all dimensions with support from the implementation consultant;
- provides necessary guidance to the Poverty, Social and Gender Officer in the PIU of Bukhara to collect relevant information on poverty, gender, and social aspects in relation to the Design and Monitoring Framework of the project document and Summary Poverty Reduction and Social Strategy.

12. Additionally, in relation to the environmental aspects, with the support from the international consultant the PIU Environmental Monitoring and Evaluation Specialist will:

- ensure that Environmental Management Plan (EMP) is updated during detailed design completed,
  - ensure that bidding documents include all requirement to implement IEE and its EMP;
  - ensure that the bidder selected will have adequate resources to implement and update EMP;
  - undertake safeguards monitoring activities and prepare safeguard reports to be submitted to ADB;
  - ensure that all construction works will be taken place in the permanent land possession of ABISA;
  - if additional land required for construction works, ensure that land acquisition and resettlement plan is prepared in accordance to ADB SPS 2009 as well as the Government law and regulation related with land acquisition; and
  - ensure that other project-related tasks are complied with ADB SPS 2009 and Government requirement.
  - to review and approve Site-Specific and Topic Specific Management Plans prepared by Construction Contractor.
13. PIU as responsible IA for the project recruited a Supervision Consultant (SC) – consortium: «Temelsu International Engineering Services Inc» and «Sheladia Associates Inc.». The International environmental expert (Saban Cimen) and national environmental specialist of Supervision Consultant (EEC) – Sherzod Sanatulin assist M&ES of PIU in the supervision of the construction activities under the Project.
14. The part of the work of the Environmental Experts of the Consultant is to develop a capacity building training program for Contractor's Environmental Officers in order to increase the implementation efficiency of environmental monitoring. The timing of this program will be just before the commencement of civil works. Environmental Experts of the Consultant will develop the content of training.

### **2.3 Project Activities During Current Reporting Period**

15. China National Technical Import and Export Corporation (CNTIC) Contractor of the Construction of Amu Bukhara 1 New Pump Station (ABISRP 01) mobilized to the site on 05/10/2019 has started project design, completed topographical and geotechnical surveys, executed tests of model pump and started to construct working camp during the previous reporting period. The construction works have started on the field on 24/May/2020. Construction of working camp could not be completed during the current reporting period (January 2020 - June 2020). An impermeable sewage septic tank has been constructed and received permission from the local environmental authorities of

Bukhara Oblast. Topsoil stripping and earth removal from the slopes proceeds as from the end of May and almost 240 000 m<sup>3</sup> soil has been excavated.

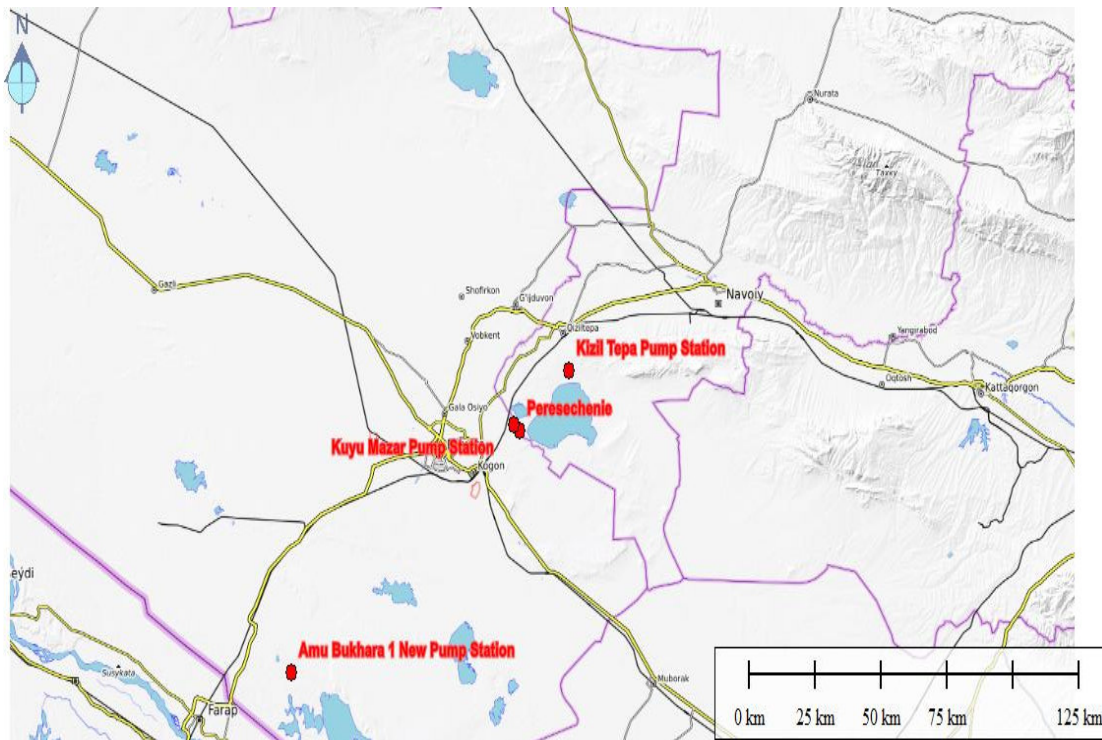
16. Regarding to the Contract of the Modernization and Rehabilitation of Amu Bukhara Main Canal Regulating Structure (ABISRP 02), the completion date of contract was extended until 12/04/2020. The extended completion date as per the Addendum No 3 has expired during this reporting period on 12.04.2020 whereas the works are still far from completion. The progress achieved during the period of Addendum No 3 is 2.75% and the total overall progress of about 4 years is only 41%. An Assessment Report was issued by the Engineer on the outstanding matters and problems of the Project. The extended completion time has expired on 12.04.2020 and no further time extension has been granted to the Contract since then. At present, the Contract remains virtually in suspension. The Employer now seeks for the possibility of a re-organization of the Contractor to enable execution of the remaining work, which is about half of the original Contract amount. Although the Contractor has not officially abandoned the site, there is almost no construction activity ongoing in the Project area.
17. Under the Modernization and Rehabilitation of Kuyu Mazar and Kizil Tapa Pump Stations (ABISRP 03) there are two contracts: Modernization & Rehabilitation of Kuyu Mazar Pump Station (ABISRP 03.01) and Kizil Tapa Pump Station (ABISRP 03.2). Contracts were signed and became effective by September 2017. The contractor of both contracts is the same company named Hebei Construction Group Co.Ltd. The construction works related on these contracts are in progress. In Kuyu Mazar PS all six new pump units are in operation presently and in Kizil Tapa PS except the old pump units six and seven, all other eight new pumps became operational during the reporting period.
18. The main project activities carried out during the reporting period include the following:

**Table 2-2 Construction Activities Carried out During Reporting Period (January 2020 - June 2020)**

Site	Construction Activity	Number of Workers	
		Maximum	Minimum
Construction of Amu Bukhara 1 New Pump Station (ABISRP 01)			
Bukhara-Olot	Construction of working camp continues,	62	14
Modernization and Rehabilitation of Amu Bukhara Main Canal Regulating Structure (ABISRP 02)			
Peresechenie	Discharge "Vodovypusk"	25	5

Site	Construction Activity	Number of Workers	
		Maximum	Minimum
Modernization and Rehabilitation of Kuyu Mazar Pump Station (ABISRP 03.1)			
Bukhara-Kuyu Mazar	Kuyu Mazar Pump Station	42	29
Modernization and Rehabilitation of Kizil Tepa Pump Station (ABISRP 03.2)			
Navoi-Kizil Tepa	Kizil Tepa Pump Station	76	60

19. Photos of construction works are given in Annex II.
20. A map of construction sites during the reporting period are given at the Figure 2-1.
21. The construction works at Kuyu Mazar and Kizil Tepa Pump stations have been started during the (6<sup>th</sup>) reporting period (January 2018 - June 2018) and has not been fully completed yet.



**Figure 2-1 Map of Construction Sites Showing Construction Activities Carried out During Reporting Period (January 2020 -June 2020)**

22. The construction work at Peresechenie area has been started during 9<sup>th</sup> (July 2019-December 2019) reporting period. Construction works at the subproject area has not been completed during this reporting period.

23. No changes happened during the reporting period of the project design from that which was assessed in the Impact Assessment phase of the project and is set out in the Initial Environmental Examination/Environmental Impact Assessment.

## 2.4 Description of Any Changes to Agreed Construction methods

24. No changes to any construction processes have been observed during the construction period.

## 3 ENVIRONMENTAL SAFEGUARD ACTIVITIES

### 3.1 General Description of Environmental Safeguard Activities

25. The activities carried out during the reporting period by the environmental staff who are related to the project activities have been summarized at the following Table 3-1.

**Table 3-1: Environmental Safeguards Activities Carried out During Reporting Period (January 2020 - June 2020)**

<b>Environmental Safeguard Activities</b>
<p><b>The International environmental expert (Saban Cimen) of Supervision Consultant (EEC)</b></p> <ul style="list-style-type: none"> <li>- Review of SEMP of Amu Bukhara 1 New Pump Station (ABISRP 01) 28/January/2020, 21/April/2020)</li> </ul>
<p><b>Construction of Amu Bukhara 1 New Pump Station (ABISRP 01) (Responsible Environmental Manager: Yang Guo You)</b></p> <ul style="list-style-type: none"> <li>- Submitted third version of SEMP (28/January/2020).</li> <li>- Submitted fourth updated version of SEMP (21/April/2020)</li> </ul>
<p><b>Modernization and Rehabilitation of Amu Bukhara Main Canal Regulating Structure (ABISRP 02) (Responsible Environmental Manager: Not designated)</b></p> <ul style="list-style-type: none"> <li>- During the reporting period the contractor has not submitted any environmental monitoring reports, conducted training or activity etc. Therefore, any Environmental Safeguard Activity has not been observed during reporting period.</li> </ul>
<p><b>Modernization and Rehabilitation of Kuyu Mazar Pump Station (ABISRP 03.1) (Responsible Environmental Manager: Miao Guowang)</b></p> <ul style="list-style-type: none"> <li>- Preparation of environmental monitoring reports (January, February, March, April, May, June 2020)</li> <li>- Training of Working Staff on Environmental Issues</li> </ul>

Environmental Safeguard Activities
<b>Modernization and Rehabilitation of Kizil Tepa Pump Station (ABISRP 03.2)</b> <b>(Responsible Environmental Manager: Zhang Zehui)</b> <ul style="list-style-type: none"> <li>- Preparation of environmental monitoring reports (January, February, March, April, May, June 2020)</li> <li>- Training of Working Staff on Environmental Issues.</li> </ul>

### 3.2 Site Inspections

26. Regular site monitoring visits were carried out during the reporting period by PIU and Environmental Specialist of SC to check up realization of environmental protection measures parallel to civil works inspection as indicated below:

**Table 3-2: Environmental Inspections Carried out During Reporting Period (January 2020 - June 2020)**

Date	Conducted by	Purpose	Findings	Corrective Actions
Daily Routine site visits	Supervision Consultant Site Engineers (SC)	General, Environmental and OHS	Usage of PPE has not been used in all	Daily check, and immediate cautions to the Contractors.

27. The contractor of Construction of Amu Bukhara 1 New Pump Station (ABISRP 01) has submitted third version of Site Environmental Management Plan (SEMP) on 28<sup>th</sup> January 2020 to PIU/SC. The comments given to SEMP by PIU/SC has been delivered to the contractor on 4<sup>th</sup> February 2020. Fourth, updated version of the SEMP has been received on 21<sup>st</sup> April 2020 and comments is given to the fourth version of the SEMP in 22<sup>nd</sup> April 2020. SEMP is expected to comply with the contract requirement at the next submission.
28. It has been requested from the contractors to send monthly environmental monitoring activities which could be integrated into the monthly progress report. During the reporting period the environmental monitoring reports (EMR) which have been received from the contractors have been indicated in the Table 3-1.
29. Modernization and Rehabilitation of Amu Bukhara Main Canal Regulating Structure (ABISRP 02) Contractor has not submitted any EMR for months between January 2020 and June 2020. Based on the explanations made Paragraph 16 the extended completion time of the ABISRP 02 Contractor has expired on 12.04.2020 and no further time extension has been granted to the Contract since then. At present, the Contract

- remains virtually in suspension. The Employer now seeks for the possibility of a re-organization of the Contractor to enable execution of the remaining work, which is about half of the original Contract amount. Although the Contractor has not officially abandoned the site, there is almost no construction activity ongoing in the Project area. After re-commencement of the construction activity, the ABISRP 02 Contractor shall certainly be compelled to comply with the requirements as to the environmental issues and complete the outstanding issues.
30. Modernization and Rehabilitation of Kuyu Mazar Pump Station (ABISRP 03.1) contractor has issued the EMR for January, February, March, April, May and June 2020 on time.
31. Modernization and Rehabilitation of Kizil Tepa Pump Station (ABISRP 03.2) contractor has issued the EMR for January, February, March, April, May and June 2020 on time.
32. Mr. Miao Guowang is the Health, Safety and Environmental Manager of Kuyu Mazar Pump Station (ABISRP 03.1) contractor. The local Health, Safety and Environmental expert of the contractor is Mr. Aziz Juraev.
33. Mr. Zhang Zehui is the Health, Safety and Environmental Manager of Kizil Tepa Pump Station (ABISRP 03.2) contractor in cooperation with local Health, Safety and Environmental expert Mr. Aziz Juraev.
34. It has been declared by Construction of Amu Bukhara 1 New Pump Station (ABISRP 01) contractor that, Mr. Yang Guo You will be in field as the Health, Safety and Environmental Manager of the contractor. The contractor has already appointed Mr. Egamov Murod Kuchkorovich as local Health, Safety and Environmental expert.
35. Environmental progress of the Modernization and Rehabilitation of Amu Bukhara Main Canal Regulating Structure (ABISRP 02) Contractor considered to be minor. See performance evaluation form at the Annex I. The construction activities in Agitma Regulator, Dvoynik Regulator, Rostguy, Djilvan Regulator has been completed. In the Kharkhur regulator area there are still minor works need to be completed. Construction works in the Peresechenie regulator area in progress. (See Annex II).
36. Amu Bukhara Main Canal Regulating Structure (ABISRP 02): The workers camp and equipment and vehicles exist in Peresechenie area. Sites are considered to be clean, excess excavated material stored on site. The demounted gates remain in site which need to be gathered and stored by the Canal authority. The concrete has been carried from the existing concrete plants. Therefore, no chemical or hazardous material has

- been observed on site. Excavated materials and pipes have been stored at nearby areas.
37. Environmental progress of the Modernization and Rehabilitation of Kuyu Mazar Pump Station (ABISRP 03.1) contractor is moderate. The environmental record keeping system has been formed but day by day recording has not been applied for health and safety training records. Health and safety conditions, social leisure areas have been created for the workers. Environmental and health and safety labelling has been improved at the sites, nevertheless, needs observation. Hazardous waste management storage area developed and separation of solid wastes in progress. See performance evaluation form at the Annex I.
38. Environmental progress of the Modernization and Rehabilitation of Kizil Tepa Pump Station (ABISRP 03.2) contractor is under progress. The environmental record keeping system has been established, however daily recording has been applied for solid waste records. Health and safety conditions, social leisure areas have been created for the workers. Environmental and health and safety labelling has been improved at the sites, nevertheless, needs observation. Hazardous waste management storage area developed. Separation of solid wastes still is not actively applied. See performance evaluation form at the Annex I.
39. The dredged material excavated at the forebay area of the Kuyu Mazar Pump station has been disposed to a site. A permission from the Novai Ecology and Environmental Protection Headquarter obtained on 22/04/2019 by the Modernization and Rehabilitation of Kuyu Mazar Pump Station (ABISRP 03.1) contractor for disposal of the dredged material. The spoil deposit area should be levelled according to Chapter 11 on Architecture and Landscaping, Article 11.12 of the General Technical Specification of Contract (GTS). Besides that, the conditions of depositing of dredged material has been explained on this permission as “the spoil area should be levelled and planted”. The contractor should settle the planting of the levelled spoil area with the Novai Ecology and Environmental Protection Headquarter.
40. The dredged material excavated at the forebay area of the Kizil Tepa Pump station has been disposed to a site. A permission from the Bukhara Ecology and Environmental Protection Headquarter obtained on 21/02/2019 by the Modernization and Rehabilitation of Kizil Tepa Pump Station (ABISRP 03.2) contractor for disposal of the dredged material. The spoil deposit area should be levelled according to Chapter 11 on Architecture and Landscaping, Article 11.12 of the General Technical Specification of Contract (GTS). Besides that, the conditions of depositing of dredged material has been



explained on the ecological report which is attached to this permission that “After levelling, perennial decorative trees, such as elm, mulberries and spruce shall be planted”. The contractor should settle the planting of the levelled spoil area with the Bukhara Ecology and Environmental Protection Headquarter.

41. Status of non-compliances revealed for previous period are provided in the Table 3-3 below:

**Table 3-3 Statuses of non-compliances revealed for previous reporting period**

#	Non-compliance	Corrective action proposed	Responsible person	Implementation status
1	Levelling and Planting the Spoil Area need to be done in Kuyu Mazar	The Contractor will settle the planting issue with Novai Ecology and Environmental Protection Headquarter and perform the required actions	Kuyu Mazar Contractor	The contractor has not settled yet the planting of the levelled spoil area with the Novai Ecology and Environmental Protection Headquarter.
2	Levelling and Planting the Spoil Area need to be done in Kizil Tepa	The Contractor will settle the planting issue with Bukhara Ecology and Environmental Protection Headquarter and perform the required actions	Kizil Tepa Contractor	The contractor hasn't settled yet the planting of the levelled spoil area with the Bukhara Ecology and Environmental Protection Headquarter.
3	At ABISRP 03.01 Kuyu Mazar Construction Site Solid waste disposal records not kept regularly	Keep the record regularly	Kuyu Mazar Contractor	Solid waste disposal records have been provided for the previous reporting period. The contractor continues to keep records regularly and properly.
4	At ABISRP 03.01 Kuyu Mazar Construction Site Hazardous solid waste collection and separation not active	Put in progress again hazardous solid waste collection and separation	Kuyu Mazar Contractor	The field garbage bins have been cleaned, and concrete basin has been constructed to protect leakage. For collection and separation of hazardous solid wastes a training has been conducted for site workers. The relevant training

				records have been provided to the SC.
5	At ABISRP 03.01 Kuyu Mazar Construction Site Safety measures properly not applied	Conduct additional health and safety training for the staff	Kuyu Mazar Contractor	Safety and health training have been organized for site workers, education records and photos have been filed. Safety education has been made for workers who smoke at fuel storage are, and public criticism has been made at the safety meeting and fine punishments have been applied.
6	At ABISRP 03.02 Kizil Tapa Construction Site some fire extinguishers' expiration date passed	Replace the fire extinguishers which are expired	Kizil Tapa Contractor	The contractor sorted out all the expired fire extinguishers and replaced them.
7	At ABISRP 03.02 Kizil Tapa Construction Site Health and safety training records not kept regularly	Keep the record regularly	Kizil Tapa Contractor	The health and safety training records have been provided. The contractor continues to keep records regularly and properly.
8	At ABISRP 03.02 Kizil Tapa Construction Site Demolished concrete left in site	Dispose the demolished waste to a site shown by the authorities	Kizil Tapa Contractor	The contractor invited the waste company to the construction site of the sedimentation basin for inspection and agreed to dispose the demolished waste within the specified deadline.

### 3.3 Issues Tracking (Based on Non-Conformance Notices)

42. During the previous reporting period (July 1<sup>st</sup>, 2019 - December 30<sup>th</sup>, 2019) the observed Non-Conformance issues have been recorded and are given below in the table related to the construction activities of project components. The following table gives the present situation on these tracked non-conformance notices.

Non-Conformances	Corrective measures	Implementation deadline
Construction of Amu Bukhara 1 New Pump Station (ABISRP 01)		

Non-Conformances	Corrective measures	Implementation deadline
SEMP not completed	Finalize SEMP	31/01/20 (Open)
<b>Modernization and Rehabilitation of Amu Bukhara Main Canal Regulating Structure (ABISRP 02)</b>		
EMR of the Contractor not prepared	Prepare EMP	10/08/18 (Open)
<b>Modernization and Rehabilitation of Kuyu Mazar and Kizil Tapa Pump Stations (ABISRP 03)</b>		
Semi-annual EMR R.08.P. 39 at ABISRP 03.01 Kuyu Mazar Construction Site dredged material storage area left without levelling (GTS Chapter 11 Article 11.12) and planting as defined in the and Environmental Permission.	Level the area and plant.	19/10/20 (Open)
Semi-annual EMR R.08.P. 40 at ABISRP 03.02 Kizil Tapa Construction Site dredged material storage area left without levelling (GTS Chapter 11 Article 11.12) and Environmental Permission.	Level the area and plant.	19/10/20 (Open)
At ABISRP 03.01 Kuyu Mazar Construction Site Solid waste disposal records not kept regularly	Keep the record regularly	04/01/20 (10/01/20)
At ABISRP 03.01 Kuyu Mazar Construction Site Hazardous solid waste collection and separation not active	Put in progress again hazardous solid waste collection and separation	11/01/20 (06/01/20)
At ABISRP 03.01 Kuyu Mazar Construction Site Safety measures properly not applied	Conduct additional health and safety training for the staff	31/01/20 (10/01/20)
At ABISRP 03.02 Kizil Tapa Construction Site some fire extinguishers' expiration date passed	Replace the fire extinguishers which are expired	31/01/20 (10/01/20)
At ABISRP 03.02 Kizil Tapa Construction Site Health and safety training records not kept regularly	Keep the record regularly	04/01/20 (10/01/20)
At ABISRP 03.02 Kizil Tapa Construction Site Demolished concrete left in site	Dispose the demolished waste to a site shown by the authorities	27/02/20 (10/01/20)

43. ABISRP 01 Contractor has prepared and submitted SEMP for the fourth time on 21/04/2020. Required revisions that are given to the ABISRP 01 Contractor by SC about the SEMP are minor. Therefore, SEMP is expected to be approved at the next submission.
44. Despite of repetitive warnings, ABISRP 02 Contractor doesn't pay attention to correct actions related to reporting the activity therefore this non-conformance issue remains open, since 10/08/2020.
45. During the reporting period (January 1<sup>st</sup>, 2020- June 30<sup>th</sup>, 2020) Non-Conformance issues of Modernization and Rehabilitation of Kuyu Mazar Pump Station (ABISRP 03.1) and Modernization and Rehabilitation of Kizil Tapa Pump Station (ABISRP 03.2) have been closed, except the levelling and planting of the dredged material storage area which has still time till deadline agreed with the contractor.

46. During the reporting period (January 1<sup>st</sup>, 2020 – June 30<sup>th</sup>, 2020) no new Non-Conformance issues have been recorded, but there are non-conformance issues which are lasting from the previous reporting periods. The contractors have been informed about their non-conformances in written manner including the deadline agreed with the contractor, when these non-conformances have been detected. These lasting Non-Conformance issues are about the construction activities of Amu Bukhara 1 NEW Pump Station (ABISRP 01) Amu Bukhara Main Canal Regulating Structure (ABISRP 02), Modernization and Rehabilitation of Kuyu Mazar Pump Station (ABISRP 03.1) and Modernization and Rehabilitation of Kizil Tapa Pump Station (ABISRP 03.2) contracts. See the table below.

Non-Conformances	Corrective measures	Implementation deadline
<b>Construction of Amu Bukhara 1 New Pump Station (ABISRP 01)</b>		
SEMP not completed	Finalize SEMP	31/01/20 (Open)
<b>Modernization and Rehabilitation of Amu Bukhara Main Canal Regulating Structure (ABISRP 02)</b>		
EMR of the Contractor not prepared	Prepare EMP	10/08/18 (Open)
<b>Modernization and Rehabilitation of Kuyu Mazar and Kizil Tapa Pump Stations (ABISRP 03)</b>		
Semi-annual EMR R.08.P. 39 at ABISRP 03.01 Kuyu Mazar Construction Site dredged material storage area left without levelling (GTS Chapter 11 Article 11.12) and planting as defined in the and Environmental Permission.	Level the area and plant.	19/10/20 (Open)
Semi-annual EMR R.08.P. 40 at ABISRP 03.02 Kizil Tapa Construction Site dredged material storage area left without levelling (GTS Chapter 11 Article 11.12) and Environmental Permission.	Level the area and plant.	19/10/20 (Open)

47. During this reporting period (January 1<sup>st</sup>, 2020 – June 30<sup>th</sup>, 2020) no new Non-Conformance issues have been recorded. Six issues have been closed from

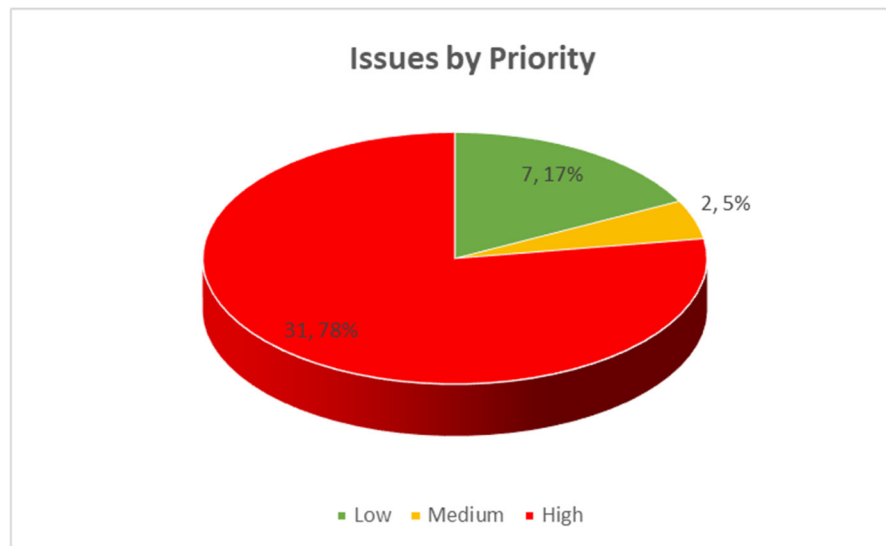
the previous reporting period. Total number of Non-Conformance issues observed for Project is 40, out of which 90% has been closed. (Table 3-4).

**Table 3-4 Summary of Issues Tracking Activity for Current Period**

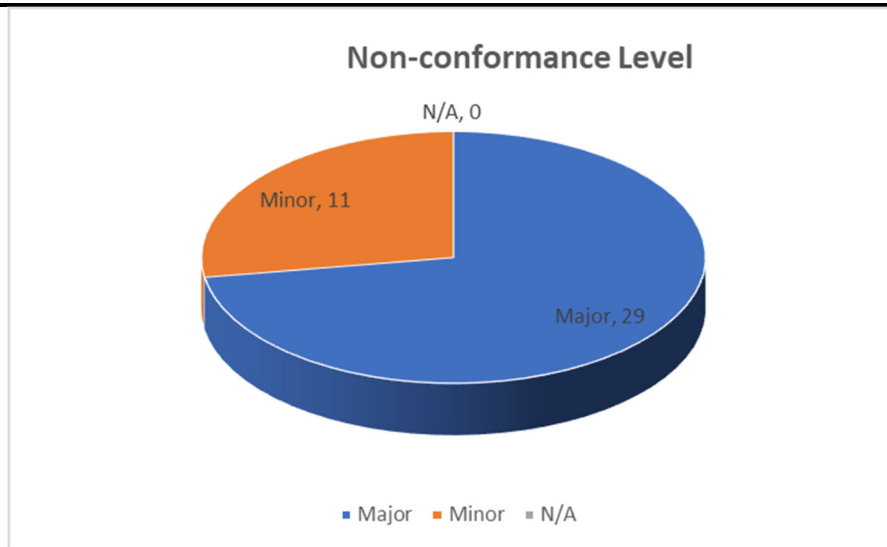
Total Number of Issues for Project	40
Number of Open Issues	4
Number of Closed Issues	36
Percentage Closed	90%
Issues Opened This Reporting Period	0
Issues Closed This Reporting Period	6

48. The distribution of Non-Conformance issues based on priority is shown at the Figure 3-1 and non-conformance level at the Figure 3-2.

**Figure 3-1: Summary of Issues by Priority**

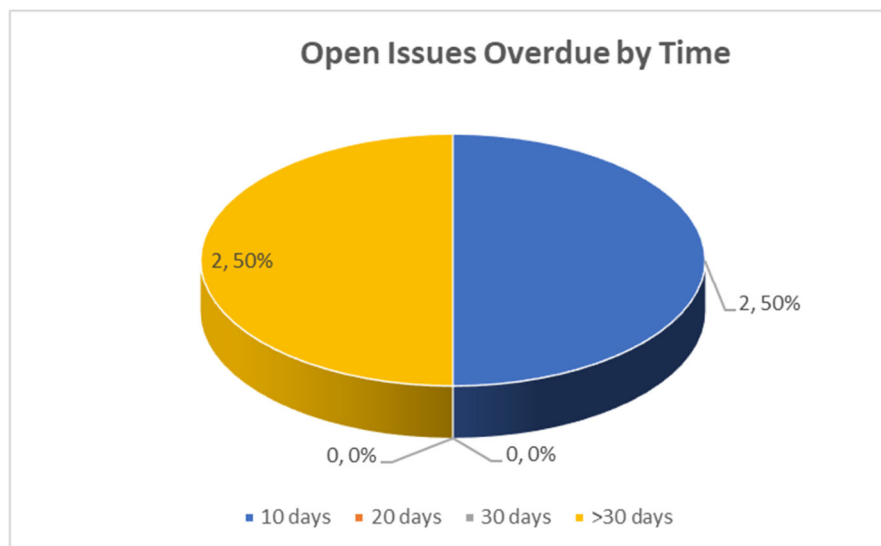


**Figure 3-2: Summary of Issues by Non-Conformance**



49. Duration to close any issue takes approximately 5 months. The distribution of days required to close any issue has been shown in Figure 3-3.

**Figure 3-3: Open Issues Overdue by Time**



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### 3.4 Trends

50. Based on the record time, the trends of issues closed has been given at the following.

<b>Semi-annual Report No</b>	<b>Total Number of Issues opened at Reporting Period</b>	<b>% of issues closed on time</b>	<b>% of issues closed late</b>
6	6	60%	40%
7	6	60%	40%
8	7	15%	15%
9	7	40%	60%
10	0	44%	56%

### 3.5 Unanticipated Environmental Impacts or Risks

51. During the reporting period (January 1<sup>st</sup>, 2020 – June 30<sup>th</sup>, 2020) the outbreak of Coronavirus Disease (COVID-19) was first identified in Wuhan, China, in December 2019 and news about the extensive case has been reported in January 2020 and implementation of entry restrictions on 18, February 2020 as well as additional anti-COVID 19 measures have been considered as unanticipated environmental impact.

## **4 RESULTS OF ENVIRONMENTAL MONITORING**

### **4.1 Overview of Monitoring Conducted during Current Period**

52. When the outbreak of Coronavirus Disease (COVID-19) was first identified in Wuhan, China, in December 2019 and news about the extensive case has been reported in January 2020, PIU/SC agreed to inform the Chinese Contractors for taking measures to avoid spreading out the COVID-19. It has been requested from the Chinese Contractors to perform medical inquiry of the staff who returned from China on last week of January. Uzbek authorities implemented entry restrictions on 18, February 2020 and extended these restrictions until 01/08/2020. The Chinese contractors have started to apply the training, health and safety procedures and disinfected the working camp, vehicles, construction area within the scope of COVID-19 protection measures.
53. According to EMP, Contractors are responsible for conduction of environmental monitoring activities for environmental impacts caused during the construction. These monitoring activities are based on visual observations. There are no more requirements on environmental monitoring included in EMP and as following in SEMP's submitted by the Contractors. Submitted EMR of each contractor includes the monitoring results of environmental and health and safety activities. Contractor of Construction of Amu Bukhara 1 NEW Pump Station (ABISRP 01) has not submitted any EMR since its SEMP hasn't approved yet. The Contractor of Modernization and Rehabilitation of Amu Bukhara Main Canal Regulating Structure (ABISRP 02) does not submit any EMR. The Contractor of modernization and Rehabilitation of Kuyu Mazar and Kizil Tepa Pump Stations (ABISRP 03) submits regularly EMR for Kuyu Mazar and Kizil Tepa Pump Station construction sites.
54. During the reporting period no complaints were received from people living in nearby residential areas for any construction site. In case of receiving such complains, further elaboration in environmental monitoring activities and solving and or settling the problematic issues needed.

#### **4.1.1 Air Emissions and Ambient Air Quality**

55. At all the construction sites appropriate measures were taken to prevent the pollution of atmospheric air, to limit the dust level from working vehicles and enforce strict observance of safety rules at main road crossing, along main roads, the mahalla streets and near sub-project construction sites.
56. While excavation and transportation of excavating materials, additional environmental requirements were followed: Schedule transportation activities by avoiding peak traffic



- periods; Use tarpaulins to cover loose material that is transported to and from the site by truck.
57. Inspection of exhaust emissions of vehicles and machinery used has been controlled in Uzbekistan with a regulation named “Implementation of Mandatory Technical Inspection of Vehicles the Machinery” and numbered 54 which is in force since January 31st, 2003. Each Contractor should hold a valid permission for the vehicles and machineries used in the construction activities. Therefore, the vehicles and machineries used in construction activities do not exceed limits as far as they hold a valid permission from relevant Government authorities.
58. According to the IEE the nature of the project activities, will not generate significant quantities of emissions, therefore visual monitoring of dust has been envisaged at the Environmental Management Plan of the project. Since there is not any change in the main project activities, no need for monitoring of air quality except the method stated in Environmental Management Plan given at IEE:

#### **4.1.2 Wastewater and Ambient Water Quality**

59. The Contractor of Construction of Amu Bukhara 1 NEW Pump Station (ABISRP 01) is constructing the working camp area with septic tanks and toilet facilities. Temporary toilets exist in the field.
60. The toilet facilities for Contract ABISRP 02 exist in the Peresechenie regulator area. But their conditions are poor. Since the number of workers are less in number, the wastewater produced during the daily activities have been directly filtered to the ground. The contamination risk of these effluents to the canals are low.
61. Closed septic tanks exit both for Kuyu Mazar Pump Station (ABISRP 03.1) and Modernization and Rehabilitation of Kizil Tepa Pump Station (ABISRP 03.2) camp sites. The collected sewage has been transferred by septic tank trucks to disposal site. In the working field workers use toilets located at the existing pump stations.
62. During the canal cleaning works it is unavoidable to form temporary turbidity and sediment problems. Existing water quality of the irrigation water turbid and high in sediment amount, therefore this temporary effect could not be differentiated, unless the sediment amount is measured before and during the cleaning activity.

#### **4.1.3 Noise**

63. The contractors have fit the daily regular working hours. It has been reported in EMR of Contractors to use new equipment and vehicle which is appropriate for the Occupational Health and Safety Noise levels. Since no grievance has been received from the public it has been considered that noise level does not have any effect on public.

64. The Uzbek national construction noise norms that are relevant to all stages of the construction phase are provided by law KMK 2.01.08-96 —Protection from noise detailed in Table 4-1.

**Table 4-1. Uzbek construction noise norms (KMK 2.01.08 96 —Protection from noise)**

Premises and territories	Equivalent sound pressure levels, $L_{eq}$ (dB)									Level of Sound, (dBA)
	31,5	63	125	250	500	1000	2000	4000	8000	
1. Hospital and sanatorium wards, operating hospitals	68	51	39	31	24	20	17	14	13	25
2. Living rooms in apartments, living premises in rest/care homes, sleeping rooms in children boarding schools	72	55	44	35	29	25	22	20	18	30
3. Doctor's offices in hospitals, sanatoriums, polyclinics, audience halls of concert-halls, rooms in hotel, living rooms in campus	78	59	48	40	34	30	27	25	23	35
4. Hospital and sanatorium territories adjacent to the buildings	78	59	48	40	34	30	27	25	23	35
5. Territories adjacent to living houses (in 2 m from cladding structures), residential areas of neighborhoods and housing estates, grounds of schools and preschool institutions, school territories	84	67	57	49	44	40	37	35	33	45
6. Class premises, exercise rooms, auditoriums of schools and other educational facilities, conference halls, audience halls of theatres, clubs, cinemas, halls for court sessions and meetings.	82	63	52	45	39	35	32	30	28	40
7. Administration working premises, working premises of design and engineering organizations, scientific and research institutes	86	71	61	54	49	45	42	40	38	50
8. Café, restaurant, canteen halls, lobby of theatres and cinemas	89	75	66	59	54	50	47	45	43	55

Premises and territories	Equivalent sound pressure levels, $L_{eq}$ (dB)									Level of Sound, (dBA)
	31,5	63	125	250	500	1000	2000	4000	8000	
9. Trading halls of shops, sport halls, waiting halls of airports and transport stations, reception centers of housekeeping/ municipal services	93	79	70	63	58	55	52	50	49	60

65. The Sanitarian Rules and Norms on providing allowed noise level into the living building, public building and territory of living area (SanR&N No.0267-09) establish the maximum admissible noise level into the living areas, both inside and outside buildings, given in the Table 4-2.

**Table 4-2. Admissible noise level into the living area, both inside and outside the buildings (SanR&N No.0267-09)**

Name of Location		Level of sound pressure, octave bands with average geometric mean frequencies (dB)								Level of Sound, (dBA)
		63	125	250	500	1000	2000	4000	8000	
Living room of flats, bedrooms of resorts (inside)	Daytime 07:00-23:00	63	52	45	39	35	32	30	28	40
	Night-time 23:00-07:00	55	44	35	29	25	22	20	18	30
Territories adjacent to living houses (outside)	Daytime 07:00-23:00	75	66	59	54	50	47	45	43	55
	Night-time 23:00-07:00	67	57	49	44	40	37	35	33	45

66. The World Bank's "Environmental, Health and Safety General Directives, 2007 (EHS)" is functional instead of PPAH. EHS stipulates that noise at any activity shall not exceed the levels given in the Table 4-3 for given receptors, nor shall they result in a greater increase of ambient noise than 3 dB at the nearest receiving area outside the site.

**Table 4-3. Noise Level Guideline (EHS)**

Receptor	One Hour $L_{Aeq}$ (dBA)	
	Daytime 07:00-22:00	Nighttime 22:00-07:00
Residential; institutional; educational	55	45
Industrial; commercial	70	70

67. Nearest Receptor to the Working Areas are listed below:
- The nearest receptor to the Kuyu Mazar Pump Station (ABISRP 03.1) construction site is settlement area (houses), which has been located approximately 750 m southwest.
  - The nearest receptor to the Kizil Tapa Pump Station (ABISRP 03.2) construction site is settlement area (houses), which has been located approximately 500 m west.
  - The nearest receptor to the Amu Bukhara 1 New Pump Station (ABISRP 01) construction site is the settlement area (houses) which has been located approximately 250 m northwest.
68. At the Annex IV of previous EMR Number-7 an acoustic analysis report has been provided. In the report the Modernization and Rehabilitation of Kuyu Mazar Pump Station (ABISRP 03.1) construction site Modernization and Rehabilitation of Kizil Tapa Pump Station (ABISRP 03.2) construction site have been analyzed at for the maximum vehicle and equipment conditions. At the construction site of Amu Bukhara 1 New Pump Station an acoustic analysis report has been prepared according to present equipment usage and given at Annex III. The national and international legislative requirements for the working conditions have been stated at the both reports. After prediction of sound level at the nearest locations (Paragraph number 67) results which are given have been summarized at Table 4-4. According to this prediction, no regular noise level measurement is needed since there is not any exceedance possibility.

**Table 4-4. Comparison of Equivalent Sound Levels with the National and International Standards**

Site	Equivalent Sound Level in dBA	Standard Type for Specified Receptor in dBA	
		National	International
Kuyu Mazar Pump Station Construction Site	48	55	55
Kizil Tapa Pump Station Construction Site	53	55	55
Amu Bukhara 1 New Pump Station Construction Site	53	55	55

69. SEMP's of both Kuyu Mazar Pump Station (ABISRP 03.1) construction site Modernization and Rehabilitation of Kizil Tapa Pump Station (ABISRP 03.2) and prospective SEMP of Amu Bukhara 1 New Pump Station (ABISRP 01) states that "monthly noise measurement shall be done if required". According to the results given above it is not necessary to make monthly noise measurements.
70. During the assembling and disassembling of pumps at Kuyu Mazar Pump Station (ABISRP 03.1) and Kizil Tapa Pump Station (ABISRP 03.2) construction sites, due to working of existing pumps, noise formed. The working staff exposed to this noise

produced. Therefore, PPE like earplugs shall be used and this will be checked by HSE staff of the Contractors and SC:

## 4.2 Trends

71. Based on the visual inspection and EMR reports the air, noise and water quality conditions has not considerably changed during the project construction span. The existing performance of the Contractors has been evaluated based on the Environmental Management Plan (EMP) of the overall project and attached to Annex I.

## 4.3 Summary of Monitoring Outcomes

72. The established monitoring system is advice to be kept as they are it is early to make any comments on ceasing/altering monitoring since the construction activities already has been started.

## 4.4 Material Resources Utilization

### 4.4.1 Current Period

73. The utilization of electricity, water and other materials for Amu Bukhara 1 New Pump Station (ABISRP 03.1) construction site is given Table 4-5.

**Table 4-5 Material Resources Utilization at Amu Bukhara 1 New Pump Station Construction Site**

Resources	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Total
Water (m <sup>3</sup> )		2.5	2.5	5	5	5	<b>20</b>
Cement (tons)		5	5	10	10	10	<b>40</b>
Iron (tons)							
Fuel (m <sup>3</sup> )		1	1	3	3	7	<b>15</b>
Electricity (kwh)		1000	1000	1500	1500	2000	<b>7000</b>
Sand (m <sup>3</sup> )		10	10	15	15	15	<b>65</b>

74. The utilization of electricity, water and other materials for Amu Bukhara Main Canal Regulating Structure (ABISRP 02) construction sites is given Table 4-6.

**Table 4-6 Material Resources Utilization at Amu Bukhara Main Canal Regulating Structure Construction Sites**

Resources	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Total
Water (m <sup>3</sup> )			2	4	6	1	<b>13</b>
Cement (tons)				400	440		<b>840</b>
Iron (tons)				3	3.4		<b>6.4</b>
Fuel (m <sup>3</sup> )				2	10		<b>12</b>
Electricity (kwh)			100	500	1000	100	<b>1700</b>
Sand (m <sup>3</sup> )				400	512		<b>912</b>

75. The utilization of electricity, water and other materials for Kuyu Mazar Pump Station (ABISRP 03.1) and Kizil Tapa Pump Station (ABISRP 03.2) construction sites is given Table 4-7 and Table 4-8, respectively.

**Table 4-7 Material Resources Utilization at Kuyu Mazar Pump Station Construction Site**

Resources	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Total
Water (m <sup>3</sup> )	51	55	82	49	42	55	<b>334</b>
Cement (tons)	78	46	69	44	62	73	<b>372</b>
Iron (tons)	13	14	12	22	16	12	<b>89</b>
Fuel (m <sup>3</sup> )	87	64	92	27	38	47	<b>355</b>
Electricity (kwh)	560	340	540	340	590	22	<b>2392</b>
Sand (m <sup>3</sup> )	36	23	32	23	19	22	<b>155</b>

**Table 4-8 Material Resources Utilization at Kizil Tapa Pump Station Construction Site**

Resources	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Total
Water (m <sup>3</sup> )	120	100	86	85	82	76	<b>549</b>
Cement (tons)	10	2	10	10	40	1	<b>73</b>
Iron (tons)	2	5	2	1	1	1	<b>12</b>
Fuel (m <sup>3</sup> )	2	5	7	2	1	2	<b>19</b>
Electricity (kwh)	675	634	543	466	361	429	<b>3108</b>
Sand (m <sup>3</sup> )	12	2	42	12	60	1	<b>129</b>

#### 4.4.2 Cumulative Resource Utilization

76. In previous reporting period the resource utilization records have not been kept. The following data given at Table 4-8 covers cumulative material resource utilization at Amu Bukhara 1 New Pump Station (ABISRP 03.1) construction site for the current reporting period.

**Table 4-9 Cumulative Material Resources Utilization at Amu Bukhara 1 New Pump Station Construction Site**

Resources	10 <sup>th</sup> Reporting Period	Total
Water (m <sup>3</sup> )	20	<b>20</b>
Cement (tons)	40	<b>40</b>
Iron (tons)		
Fuel (m <sup>3</sup> )	15	<b>15</b>
Electricity (kwh)	7000	<b>7000</b>
Sand (m <sup>3</sup> )	65	<b>65</b>

77. In previous reporting period the resource utilization records have not been kept. The following data given at Table 4-10 covers cumulative material resource utilization at Amu Bukhara Main Canal Regulating Structure (ABISRP 02) construction sites for the current reporting period.

**Table 4-10 Cumulative Material Resources Utilization at Amu Bukhara Main Canal Regulating Structure Construction Sites**

Resources	10 <sup>th</sup> Reporting Period	Total
Water (m <sup>3</sup> )	13	<b>13</b>
Cement (tons)	840	<b>840</b>
Iron (tons)	6.4	<b>6.4</b>
Fuel (m <sup>3</sup> )	12	<b>12</b>
Electricity (kwh)	1700	<b>1700</b>
Sand (m <sup>3</sup> )	912	<b>912</b>

78. In previous reporting period the resource utilization records have not been kept. The following data given at Table 4-11 and Table 4-12 covers cumulative material resource utilization at Kuyu Mazar Pump Station (ABISRP 03.1) and in Kizil Tapa Pump Station (ABISRP 03.2) construction sites for the current reporting period.

**Table 4-11 Cumulative Material Resources Utilization at Kuyu Mazar Pump Station Construction Site**

Resources	10 <sup>th</sup> Reporting Period	Total
Water (m <sup>3</sup> )	334	<b>334</b>
Cement (tons)	372	<b>372</b>
Iron (tons)	89	<b>89</b>
Fuel (m <sup>3</sup> )	355	<b>355</b>
Electricity (kwh)	2392	<b>2392</b>
Sand (m <sup>3</sup> )	155	<b>155</b>

**Table 4-12 Cumulative Material Resources Utilization at Kizil Tapa Pump Station Construction Site**

Resources	10 <sup>th</sup> Reporting Period	Total
Water (m <sup>3</sup> )	549	<b>549</b>
Cement (tons)	73	<b>73</b>
Iron (tons)	12	<b>12</b>
Fuel (m <sup>3</sup> )	19	<b>19</b>
Electricity (kwh)	3108	<b>3108</b>
Sand (m <sup>3</sup> )	129	<b>129</b>

#### **4.5 Waste Management**

79. Amu Bukhara Main Canal Regulating Structure (ABISRP 02) Contractor has not signed any contract related to the waste disposal. The waste originated from their construction and worker's daily activities disposed to the municipal solid waste disposal areas by their own trucks/tractors.

- 
80. The Contractor of Modernization and Rehabilitation of Kuyu Mazar Pump Station (ABISRP 03.1) has submitted a Waste Management Plan on 11<sup>th</sup> May 2018 and Hazardous Materials Management Plan on 10<sup>th</sup> May 2018 (Semi-annual EMR R.06).
  81. The solid waste disposal area of Contractor of Modernization and Rehabilitation of Kuyu Mazar Pump Station (ABISRP 03.1) has been declared as Kuyu Mazar Solid Waste Disposal area which is approximately 3 km away from the Kuyu Mazar Pumping Station.
  82. The Contractor of Modernization and Rehabilitation of Kuyu Mazar Pump Station (ABISRP 03.1) has extended the period of the protocol signed with Toza-Khudud firm for collection, transfer, and disposal of the domestic solid waste. The protocol is valid until the 31<sup>st</sup> December 2020.
  83. The Contractor of Modernization and Rehabilitation of Kizil Tepa Pump Station (ABISRP 03.2) has submitted a Waste Management Plan on 11<sup>th</sup> May 2018 and Hazardous Materials Management Plan on 10<sup>th</sup> May 2018 (Semi-annual EMR R.06).
  84. The solid waste disposal area of Contractor of Modernization and Rehabilitation of Kizil Tepa Pump Station (ABISRP 03.2) has been declared a local Solid Waste Disposal area which is approximately 6 km away from the Kizil Tepa Pumping Station.
  85. The Contractor of Modernization and Rehabilitation of Kizil Tepa Pump Station (ABISRP 03.2) has extended the period of the protocol signed with Toza-Khudud firm for collection, transfer, and disposal of the domestic solid waste. The protocol is valid until the 31<sup>st</sup> December 2020.
  86. At the prospective SEMP of the Contractor of Amu Bukhara 1 New Pump Station (ABISRP 01) a Waste Management Plan on 11<sup>th</sup> May 2018 and Hazardous Materials Management Plan have been provided. In the same SEMP it has been indicated that contracts will be signed with the licensed companies in order to transport and dispose the solid and hazardous wastes.

#### **4.5.1 Current Period**

87. Amu Bukhara Main Canal Regulating Structure (ABISRP 02) Contractor has no record about the type, quantity of waste produced and disposed. Any domestic solid waste has not been observed at the construction and or camping sites.
88. During the previous reporting period (1<sup>st</sup> July – 30<sup>th</sup> December 2019) the Contractor of Modernization and Rehabilitation of Kuyu Mazar Pump Station (ABISRP 03.1) was not able to provide the solid waste disposal records. However, the transfer and disposal of solid waste has been realized by Toza-Khudud firm. The contractor has been asked to provide the relevant data until 04/01/2020. The Contractor provided the data on 10/01/2020. Based on the provided data during the previous reporting period (1<sup>st</sup> July – 30<sup>th</sup> December 2019) ten times of solid waste disposal has been realized by the Toza-Khudud firm. The contractor of Modernization and Rehabilitation of Kuyu Mazar Pump



Station (ABISRP 03.1) have recorded solid waste disposal data for the current reporting period (1<sup>st</sup> January 2020 – 30<sup>th</sup> June 2020) also. During the current reporting period fourteen times solid waste has been dumped by the same firm. The following table summarizes the solid waste disposal data for the previous reporting period (1<sup>st</sup> July – 30<sup>th</sup> December 2019) and current reporting period (1<sup>st</sup> January 2020 – 30<sup>th</sup> June 2020).

Date of Solid Waste Transfer	Volume of Solid Waste (m <sup>3</sup> )					Storage Area
	Type I Very Hazardous	Type II Hazardous	Type III Medium Hazard	Type IV Slightly Hazardous	Type V Nearly No Hazard	
1, July,2019					3.5	Toza-Khudud
17, July,2019					6	Toza-Khudud
1, August,2019					7	Toza-Khudud
14, August,2019					8	Toza-Khudud
25, August,2019					7	Toza-Khudud
12, September,2019					4	Toza-Khudud
14, October,2019					3.5	Toza-Khudud
7, November,2019					3.5	Toza-Khudud
1, December,2019					3.5	Toza-Khudud
17, December,2019					7	Toza-Khudud
<b>EMR-9 TOTAL</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>53</b>	
11, January,2020					6	Toza-Khudud
24, January,2020					4	Toza-Khudud
7, February,2020					4	Toza-Khudud
20, February,2020					4.5	Toza-Khudud
3, March,2020					6	Toza-Khudud
10, March,2020					3,5	Toza-Khudud
23, March,2020					6	Toza-Khudud
31, March,2020					4,5	Toza-Khudud
9, April,2020					3.5	Toza-Khudud
18, April,2020					4.5	Toza-Khudud
29, April,2020					3.5	Toza-Khudud
8, May,2020					4.5	Toza-Khudud
14, May,2020					3	Toza-Khudud
18, May,2020					4	Toza-Khudud
<b>EMR-10 TOTAL</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>53.5</b>	

89. During the current reporting period (1<sup>st</sup> January 2020 – 30<sup>th</sup> June 2020) the Contractor of Modernization and Rehabilitation of Kizil Tepa Pump Station (ABISRP 03.2) has dumped twenty two times domestic solid waste to the site defined at Paragraph 84. The recorded disposals are given in the following table below. The transfer and disposal of domestic solid waste has been realized by Toza-Khudud firm.

Date of Solid Waste Transfer	Volume of Solid Waste (m <sup>3</sup> )					Storage Area
	Type I Very Hazardous	Type II Hazardous	Type III Medium Hazard	Type IV Slightly Hazardous	Type V Nearly No Hazard	
8, January,2020					7	Toza-Khudud
8, January,2020					14	Toza-Khudud
19, January,2020					6	Toza-Khudud
29, January,2020					6	Toza-Khudud
09, February,2020					6	Toza-Khudud
18, February,2020					6	Toza-Khudud
1, March,2020					7	Toza-Khudud
10, March,2020					7	Toza-Khudud
19, March,2020					6	Toza-Khudud
23, March,2020					7	Toza-Khudud
30, March,2020					11	Toza-Khudud
7, April,2020					6	Toza-Khudud
14, April,2020					6	Toza-Khudud
21, April,2020					3	Toza-Khudud
21, April,2020					21	Toza-Khudud
28, April,2020					3	Toza-Khudud
10, May,2020					6	Toza-Khudud
19, May,2020					3	Toza-Khudud
28, May,2020					7	Toza-Khudud
5, June,2020					3	Toza-Khudud
19, June,2020					3	Toza-Khudud
29, June,2020					4	Toza-Khudud
<b>EMR-10 TOTAL</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>148</b>	

#### 4.5.2 Cumulative Waste Generation

90. During the current reporting period (1<sup>st</sup> January 2020 – 30<sup>th</sup> June 2020) totally 201.50 m<sup>3</sup> of solid waste has been originated within the scope of Amu Bukhara Irrigation System Rehabilitation Project. The cumulative solid waste generation volume reached to 457.90 m<sup>3</sup> during the current reporting period (1<sup>st</sup> January 2020 – 30<sup>th</sup> June 2020). Approximately 9% of cumulative waste volume has been restored for reuse and recycling purposes at the premises of ABMK Kizil Tepa storage areas. The progress in solid waste disposal has been shown in the below table.

EMR Report Number	Volume (m <sup>3</sup> )					
	Kuyu Mazar		Kizil Tepa		Total	
	Disposed	Recycled or Reused	Disposed	Recycled or Reused	Disposed	Recycled or Reused
6	3.00	0	3.90	0	6,90	0
7	42.62	0	12.00	42,00	54,62	42.00
8	11.88	0	18.00	0,00	29,88	0
9	53.00	0	70.00	0	123.00	
10	53.50	0	148.00	0	201.50	
Total	57,50	0	251.90	42.00	415.90	42.00

#### 4.6 Health and Safety

##### 4.6.1 Community Health and Safety

91. During the current reporting period (1<sup>st</sup> January – 30<sup>th</sup> June 2020) there were only one accident on March 2020 at the Kizil Tepa Pump Station (ABISRP 03.2). In the former accident (March 2020), one Chinese worker who worked at height fell down at the working site. The worker was injured at his rebar. He was sent to the hospital and immediately treated. The Uzbek National Authorities carried out investigation at site and reported that the accident was a minor one. There is no responsibility attributed to the Contractor by the investigators. No corrective actions were requested from the Contractor for this accident. It should be noted that the engineer should prepare corrective action plans and take necessary measures to ensure such accidents do not happen in future, in timely manner. At other construction sites there were no incidents occurred within the scope of Community Health and Safety issues, including the traffic accidents.

##### 4.6.2 Worker Health and Safety

92. As stated in paragraph 52 when the outbreak of Coronavirus Disease (COVID-19) was first identified in Wuhan, China, in December 2019 and news about the extensive case

has been reported in January 2020, PIU/SC agreed to inform the Chinese Contractors for taking measures to avoid spreading out the COVID-19. It has been requested from the Chinese Contractors to perform medical inquiry of the staff who returned from China on last week of January. HSE Plan / SSEMP has not been updated with COVID-19 risk assessment yet. Contractor was requested to update both plans in Q3 2020 and reflect accordingly in the next SAEMR due in January 2021. The measures have been successfully applied by the Contractors. Besides that, when Uzbek authorities declared the measures to control COVID-19 the Chinese contractors have started to apply the training, health and safety procedures and disinfection at the working camp, vehicles, construction area within the scope of COVID-19 protection measures.

93. Amu Bukhara Main Canal Regulating Structure (ABISRP 02) Contractor have carried out the construction activities in the Hydraulic structure "Peresecheniye" discharge "Vodovypusk". Working staff use PPE due to, daily check, and immediate cautions to the Contractor of the SC team.
94. Kuyu Mazar Pump Station (ABISRP 03.1) contractor and Kizil Tepa Pump Station (ABISRP 03.2) contractor has trained staff during the current reporting period (1<sup>st</sup> January – 30<sup>th</sup> June 2020) for site access, environmental education, occupational health and safety education including the safety measures to applied to protect from COVID- 19 pandemic.
95. During the site visit it has been observed that the health and safety instruction posters have been attached to a board in the working site. Kuyu Mazar Pump Station (ABISRP 03.1) contract and Kizil Tepa Pump Station (ABISRP 03.2) contract.
96. During site audit during the previous report in 28/December/2019 it had been observed that the implementation of safety rules is poor in Kuyu Mazar Pump Station (ABISRP 03.1) construction site. Since one of the technical staff was smoking at the fuel storage area. It has been advised to HSE manager Mr. Miao Guowang to conduct a safety training until 31/January/2020. Mr. Miao Guowang has conducted an additional safety training on 10/January/2020 on this aspect. Besides that, it has been reported that the smoker has been punished.

#### **4.7 Training**

97. Mr. Miao Guowang as the Health and Safety Specialist of Kuyu Mazar Pump Station (ABISRP 03.1) contract has conducted regular HSE, environmental, site access and COVID-19 protection trainings for the Chinese staff working at the Kuyu Mazar construction site during the current reporting period (1<sup>st</sup> January 2020 – 30<sup>th</sup> June 2020).
98. Mr. Zhang Zehui as the Health and Safety Specialist of Kizil Tepa Pump Station (ABISRP 03.2) contract has conducted regular HSE, environmental, site access and

- COVID-19 protection trainings for the Chinese staff working at the Kizil Tepa construction site during the current reporting period (1<sup>st</sup> January 2020 – 30<sup>th</sup> June 2020).
99. Mr. Aziz Juraev as local HSE administrator of Kuyu Mazar Pump Station (ABISRP 03.1) contract and Kizil Tepa Pump Station (ABISRP 03.2) contract has conducted regular HSE, environmental, site access and COVID-19 protection trainings for the local staff working at both sites during the reporting period (1<sup>st</sup> January 2020 – 30<sup>th</sup> June 2020).

## **5 FUNCTIONING OF THE SEMP**

### **5.1 SEMP Review**

100. The fourth revision of SEMP about the Amu Bukhara 1 New Pump Station (ABISRP 01) have been submitted on 21/April/2020. The comments have been provided to the contractor to revise and submit the final SEMP as soon as possible on 22/April/2020.
101. Amu Bukhara Main Canal Regulating Structure (ABISRP 02) Contractor has submitted the SEMP just to fulfil its administrative obligations. However, the contractor acts as unaware of existence of SEMP which has been submitted third revision on 24<sup>th</sup> January 2017 and has received conditionally no objection on date 20<sup>th</sup> December 2016) and does not submit EMR accordingly. Unfortunately, repetitive cautions have not cared by the Amu Bukhara Main Canal Regulating Structure (ABISRP 02) Contractor.
102. Currently SEMP of Modernization and Rehabilitation of Kuyu Mazar Pump Station (ABISRP 03.1) (14<sup>th</sup> February 2018 is submission date of third revision and 20<sup>th</sup> February 2018 no objection date) and Modernization and Rehabilitation of Kizil Tepa Pump Station (ABISRP 03.2) (14<sup>th</sup> February 2018 is submission date of third revision and 20<sup>th</sup> February 2018 no objection date) considered to fit the environmental requirements of the construction activities. No revisions required on the existing SEMP of Kuyu Mazar Pump Station (ABISRP 03.1) and SEMP of Kizil Tepa Pump Station (ABISRP 03.2) due to construction activities.
103. SEMP has not been updated with COVID-19 risk assessment yet. Contractor was requested to update SEMP in Q3 2020 and reflect accordingly in the next SAEMR due in January 2021

## **6 GOOD PRACTICE AND OPPORTUNITY FOR IMPROVEMENT**

### **6.1 Good Practice**

104. Prior to the declaration of COVID-19 as pandemic disease all over the world by WHO and in Uzbekistan, the project administration PIU/SC has considered the possible COVID-19 infections of the Chinese workers who travelled from China and requested the contractors apply hygiene control and inspection measures for their staff.

### **6.2 Opportunities for Improvement**

105. After the designation of the environmental staff by the Amu Bukhara 1 New Pump Station (ABISRP 01) Contractor a training program is proposed to be conducted by SC. The subject of the training program will cover environmental, occupational health and safety trainings of the contractor's staff, monitoring, recording, and reporting responsibilities of the contractor.

## **7 SUMMARY AND RECOMMENDATIONS**

### **7.1 Summary**

106. During the current reporting period (1<sup>st</sup> January 2020- 30<sup>th</sup> June 2020) the following environmental safeguard activities have been performed:
- Preparation of third version of SEMP of Amu Bukhara 1 New Pump Station (ABISRP 01) by China National Technical Import & Export Corporation (CNTIC) on 28/January/2020 and review of it by Saban Cimen on 29/January/2020. Fourth version of SEMP has been submitted on 21/April/2020 and reviewed on 22/April/2020 by Saban Cimen.
  - Routine daily site visits by Site Engineers of Supervision Consultant including environmental, occupational health and safety issues.

### **7.2 Recommendations**

107. Conduct environmental audit by SC on Site environmental and health and safety conditions of the Contractor ABISRP 02, ABISRP 03.01 and 02 sites till the end of next reporting period (Q3-Q4, 2020).
108. The Contractor of Modernization and Rehabilitation of Kuyu Mazar Pumping Station (ABISRP 03.1) shall leave the disposal site of the dredged material as “levelled and planted” which is defined in the permission obtained from the Novai Ecology and Environmental Protection Headquarter on 21<sup>st</sup> February 2019. The levelling of the disposal site is part of the contract which is defined at Article 11.12 of Chapter 11 on Architecture and Landscaping. Planting of this site is an issue to be resettled with the Novai Ecology and Environmental Protection Headquarter. Since the priority of this issue compared to the completion of work is less therefore the deadline of the implementation is agreed as 19<sup>th</sup> September 2020.
109. The Contractor of Modernization and Rehabilitation of Kizil Tepa Pumping Station (ABISRP 03.2) shall leave the disposal site of the dredged material as “levelled and planted” which is defined in the permission obtained from the Bukhara Ecology and Environmental Protection Headquarter on 22<sup>nd</sup> April 2019. The levelling of the disposal site is part of the contract which is defined at Article 11.12 of Chapter 11 on Architecture and Landscaping. Planting of this site is an issue to be resettled with the Bukhara Ecology and Environmental Protection Headquarter. Since the priority of this issue compared to the completion of work is less therefore the deadline of the implementation is agreed as 19<sup>th</sup> September 2020.



110. It has been requested from China National Technical Import & Export Corporation (CNTIC) to finalize the SEMP of Amu Bukhara 1 New Pump Station (ABISRP 01) until 31/January/2020, which could not be realized. Finalization of SEMP becomes an urgent issue.
111. PPE usage at the all construction sites of Amu Bukhara Main Canal Regulating Structure (ABISRP 02) Contractor is an issue to be monitored regularly by SC and reported in next EMR report. This will be continuous monitoring activity.
112. Contractor to update H&S Plan and SSEMP with COVID-19 risk assessment and relevant mitigation measures – Q3 2020.

**ANNEX I - PERFORMANCE EVALUATION OF ENVIRONMENTAL MONITORING  
OF ABISRP**

INDICATORS	Data Source	Frequency	Responsibility	Achievement from Commencement of Project Till end of Reporting Period (Yes(Y)/No(N)/Not Applicable(N/A))					
	How it will be measured?	How often it will be measured?	Who will measure it?	General	ABISRP 01	ABISRP 02	ABISRP 03		ABISRP 04
							Lot 1	Lot 2	
PRE-CONSTRUCTION PHASE									
Has the Consultant reviewed IEE?	By the activities of PIU Technical Assistance Team	Once in the initial phase of project.	EEC	Y	N/A	N/A	N/A	N/A	N/A
If the IEE has been updated has it been sent to the ADB for approval?	By the activities of PIU Technical Assistance Team	Once in the initial phase of project.	EEC	Y	N/A	N/A	N/A	N/A	N/A

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	How it will be measured?	How often it will be measured?	Who will measure it?	General	ABISRP 01	ABISRP 02	ABISRP 03		ABISRP 04
							Lot 1	Lot 2	
Has the PIU submitted IEE assessment report for approval to the National Authorities?	By the activities of PIU Technical Assistance Team	Once in the initial phase of project.	PIU	Y	N/A	N/A	N/A	N/A	N/A

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	How it will be measured?	How often it will be measured?	Who will measure it?	General	ABISRP 01	ABISRP 02	ABISRP 03		ABISRP 04
							Lot 1	Lot 2	
Has the Consultant included the EMP as a special Condition in the Bid Document?	By the activities of PIU Technical Assistance Team	Once in the initial phase of project.	PEC	Y	N/A	N/A	N/A	N/A	N/A
Has the Contractor designed adequate staff facilities in the pump house redesigns (water-seal toilets, refurbished rest rooms, dining rooms, etc.)	By technical review	Once in the review of design documents	CEC	N/A	N/A	N/A	Y	Y	N/A
Does the Contractor's design include raised walking ways?	By technical review	Once in the review of design documents	CEC	N/A	N/A	N/A	Y	Y	N/A

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	How it will be measured?	How often it will be measured?	Who will measure it?	General	ABISRP 01	ABISRP 02	ABISRP 03		ABISRP 04
							Lot 1	Lot 2	
Does the Contractor's design provide safety guards on the areas exposed to the machinery?	By technical review	Once in the review of design documents	MEC	N/A	N/A	N/A	Y	Y	N/A
Does the Contractor's design have any drainage facility to lower ground water?	By technical review	Once in the review of design documents	CEC	N/A	N/A	Y	Y	Y	Y
Does the design meet the internationally acceptable safety standards of electricity for wet working areas?	By technical review	Once in the review of design documents	EIEC	N/A	N/A	Y	Y	Y	Y
Does the design consider critical periods for biological life and adhere any avoidance plan?	By technical review	Once in the review of design documents	EEC	N/A	N/A	N/A	N/A	N/A	N/A
Does the Contractor have proper survey equipment?	By technical review	Once in the review of design documents	CEC	N/A	N/A	Y	Y	Y	Y
					N/A				
Does the design ensure free access to the facilities and availability of roads to them for O&M?	By technical review	Once in the review of design documents	CEC	N/A	N/A	Y	Y	Y	Y

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	How it will be measured?	How often it will be measured?	Who will measure it?	General	ABISRP 01	ABISRP 02	ABISRP 03		ABISRP 04
							Lot 1	Lot 2	
Does the design take care the placement of building and facilities considering fire breaks?	By technical review	Once in the review of design documents	MEC	N/A	N/A	N/A	Y	Y	N/A
Does the design consider Corrosion protection of buildings by ground water?	By technical review	Once in the review of design documents	CEC	N/A	N/A	Y	Y	Y	Y
Does the design care the fireproof materials where necessary?	By technical review	Once in the review of design documents	CEC	N/A	N/A	N/A	Y	Y	N/A
Has the Contractor checked the desilting efficiency of inlet canal design and desilting basins?	By technical review	Once in the review of design documents	CEC	N/A	N/A	Y	Y	Y	Y
Has the Contractor developed inlet having sand trap and/or other alternative devices?	By technical review	Once in the review of design documents	CEC/MEC	N/A	N/A	Y	Y	Y	Y
Does the design consider oil separators to have oil concentration less than 0.3 mg/l?	By technical review	Once in the review of design documents	CEC/MEC	N/A	N/A	N/A	Y	Y	N/A
Does the Contractor develop a Worker Safety Plan in compliance with Uzbekistan Labor Code?	By technical review	Once in the review of design documents	EEC	N/A	N/A	Y	Y	Y	Y

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	How it will be measured?	How often it will be measured?	Who will measure it?	General	ABISRP 01	ABISRP 02	ABISRP 03		ABISRP 04
							Lot 1	Lot 2	
Does the design consider protection measures for pipes laid in saline areas?	By technical review	Once in the review of design documents	MEC	N/A	N/A	N/A	N/A	N/A	N/A
Does the design consider safety conditions of crossing, bridges that will be used for transportation of vehicles, equipment, and staff?	By technical review	Once in the review of design documents	CEC	N/A	N/A	Y	N	Y	Y
Does the design consider landscaping convenient to the prevailing natural conditions?	By technical review	Once in the review of design documents	EEC	N/A	N/A	Y	N/A	N/A	Y
Does the design consider training of O&M staff on mechanical and electrical equipment?	By technical review	Once in the review of design documents	EEC	N/A	N/A	N/A	Y	Y	Y
Does the design consider supplying transformers free of PCB?	By technical review	Once in the review of design documents	EIEC	N/A	N/A	N/A	Y	Y	N/A
Is the EMP attached to the Contract to form a part of Contract Documents?	By technical review	Once in the review of design documents	PEC	Y	Y	Y	Y	Y	Y



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	How it will be measured?	How often it will be measured?	Who will measure it?	General	ABISRP 01	ABISRP 02	ABISRP 03		ABISRP 04
							Lot 1	Lot 2	
Does the design consider the irrigational and drinking water requirements?	By technical review	Once in the review of design documents	MEC	N/A	N/A	Y	Y	Y	Y
Has PIU evaluated the bidder by checking EMP requirements?	By technical review	Once in the review of design documents	PEC	N/A	Y	Y	Y	Y	Y
Has the Contractor prepared an acceptable EMP based on the Approved IEE?	By technical review	Once in the review of design documents	CEC	Y	N	Y	Y	Y	Y
Has the Contractor developed Contingency Plan for accidents including spill of fuel?	By technical review	Once in the review of design documents	EEC	N/A	N	Y	Y	Y	Y
Has the Contractor submitted the Site Environmental Management Plan?	By technical review	Once in the review of design documents	EEC	N/A	Y	Y	Y	Y	Y
Does the Contractor publish a public notice regarding the nature and location of the project?	Questionnaires	Once in the initial phase of construction project.	C	N/A	N/A	N	N/A	N/A	N

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	How it will be measured?	How often it will be measured?	Who will measure it?	General	ABISRP 01	ABISRP 02	ABISRP 03		ABISRP 04
							Lot 1	Lot 2	
Has the Consultant conducted training program for WCA?	By the activities of PIU Technical Assistance Team	Once according to the time schedule of the training program	EEC	Y	N/A	N/A	N/A	N/A	N/A
Has the Consultant conducted training program for BISA?	By the activities of PIU Technical Assistance Team	Once according to the time schedule of the training program	EEC/MEC	N	N/A	N/A	N/A	N/A	N/A
Has the EMP been explained to the Contractor before the commencement of works?	By the activities of PIU Technical Assistance Team	Once before the commencement of construction project.	PMC/EEC/PIU	N/A	Y	Y	Y	Y	Y
Has the Contractor defined Environmental Management Officer?	Biding Documents	Once in bid evaluation phase	C	N/A	Y	Y	Y	Y	Y
Has the Contractor defined Safety Officer?	Biding Documents	Once in bid evaluation phase	C	N/A	Y	N	Y	Y	N
<b>CONSTRUCTION PHASE</b>									

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	How it will be measured?	How often it will be measured?	Who will measure it?	General	ABISRP 01	ABISRP 02	ABISRP 03		ABISRP 04
							Lot 1	Lot 2	
Does the Contractor handle the protected plant species, trees taking care of environmental concerns and/or permissions?	Questionnaires	monthly	C	N/A	N/A	Y	Y	Y	Y
Does the Contractor excavate and preserve the topsoil?	Questionnaires	monthly	C	N/A	Y	N	N/A	N/A	N
Does the Contractor maximize the use of excavated material for construction works?	Questionnaires	monthly	C	N/A	N/A	Y	Y	Y	Y
Has the Contractor defined the licensed or got permissions borrow area for usage of construction material?	Questionnaires	monthly	C	N/A	N/A	Y	Y	Y	Y
Has the Contractor caused any landslide or erosion?	Questionnaires	monthly	C	N/A	N/A	N	N	N	N
Has the Contractor stockpiles of excavated material for backfilling?	Questionnaires	monthly	C	N/A	N/A	Y	N	N	Y
Has the Contractor realized the work activities during non-cropping periods?	Questionnaires	monthly	C	N/A	N/A	Y	N/A	N/A	Y

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	How it will be measured?	How often it will be measured?	Who will measure it?	General	ABISRP 01	ABISRP 02	ABISRP 03		ABISRP 04
							Lot 1	Lot 2	
Has the Contractor take measures for providing water continuously during construction work?	Questionnaires	monthly	C	N/A	N/A	Y	N/A	N/A	Y
Has the Contractor defined spoil disposal site with the local authorities?	Questionnaires	monthly	C	N/A	N/A	Y	Y	Y	Y
Does the Contractor disposed/recycled the waste material from the construction area?	Questionnaires	monthly	C	N/A	N/A	Y	Y	Y	Y
Has PCB containing electrical equipment disposed according to the requirements of Gozecoexpertisa?	Questionnaires	monthly	C	N/A	N/A	N/A	Y	Y	N/A
Has the Contractor defined material storage area?	Questionnaires	monthly	C	N/A	N/A	N	Y	Y	N
Has the Contractor defined fuel storage area 20 m away from water course?	Questionnaires	monthly	C	N/A	N/A	Y	Y	Y	N
Is the noise level in working area below the defined limit 80 dB(A)?	Questionnaires	monthly	C	N/A	Y	Y	Y	Y	Y

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	How it will be measured?	How often it will be measured?	Who will measure it?	General	ABISRP 01	ABISRP 02	ABISRP 03		ABISRP 04
							Lot 1	Lot 2	
Has the Contractor taken noise prevention measures for staff using noisy equipment, vehicles?	Questionnaires	monthly	C	N/A	Y	N	Y	Y	N
Is the nearest residential area affected by the noise level?	Questionnaires	monthly	C	N/A	Y	N	N	N	N
Has the working activities limited by daylight hours?	Questionnaires	monthly	C	N/A	N	Y	N	N	Y
Does the Contractor have a water tanker for spraying water to roads?	Questionnaires	monthly	C	N/A	N	N	N	N	Y
Does the Contractor suppress the dust by watering?	Questionnaires	monthly	C	N/A	Y	Y	Y	Y	Y
Has the Contractor trained the staff on personnel health and sanitation procedures at the working camp, how to interact with the host communities, subprojects environmental protection measures?	Questionnaires	monthly	C	N/A	N/A	Y	Y	Y	Y
Has the Contractor trained the staff on contingency plan?	Questionnaires	monthly	C	N/A	N/A	Y	Y	Y	Y

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	How it will be measured?	How often it will be measured?	Who will measure it?	General	ABISRP 01	ABISRP 02	ABISRP 03		ABISRP 04
							Lot 1	Lot 2	
Has the Contractor trained the personnel for fuel handling procedure?	Questionnaires	monthly	C	N/A	N/A	Y	N	Y	Y
Does the Contractor train any person for the first aid?	Questionnaires	monthly	C	N/A	N/A	N	Y	Y	N
Does the Contractor apply any simple training measure for the visitors?	Questionnaires	monthly	C	N/A	N/A	N	N	N	N
Does the Contractor keep the records for all kind of training?	Questionnaires	monthly	C	N/A	N/A	Y	Y	N	Y
Number of accidents occurred during report period?	Questionnaires	monthly	C	N/A	N/A	0	0	2	0
Does the Contractor supply clean drinking water to the staff?	Questionnaires	monthly	C	N/A	Y	Y	Y	Y	Y
Does the Contractor provide the staff hygienic living and working conditions?	Questionnaires	monthly	C	N/A	N/A	N	Y	Y	N
Does the Contractor have toilets, baths, sleeping quarter, dining hall for the staff?	Questionnaires	monthly	C	N/A	N/A	Y	Y	Y	Y

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	How it will be measured?	How often it will be measured?	Who will measure it?	General	ABISRP 01	ABISRP 02	ABISRP 03		ABISRP 04
							Lot 1	Lot 2	
Does the Contractor have any social facilities like sporting area, canteen, shuttle vehicles to the local centers, etc.?	Questionnaires	monthly	C	N/A	N/A	N	Y	Y	N
Does the Contractor check the health of the staff regularly?	Questionnaires	monthly	C	N/A	Y	N	Y	Y	N
Does the Contractor keep the health record of the staff?	Questionnaires	monthly	C	N/A	N/A	N	Y	Y	N
Does the Contractor have adequate fire protection measures?	Questionnaires	monthly	C	N/A	N/A	N	Y	N	N
Has the Contractor made available the first aid kit to the staff?	Questionnaires	monthly	C	N/A	N/A	N	Y	Y	N
Has the Contractor provided safe floor and handrails, stairs, lifts where necessary?	Questionnaires	monthly	C	N/A	N/A	Y	Y	Y	Y
Has the Contractor provided the enough ventilation and lightening in the specific areas?	Questionnaires	monthly	C	N/A	N/A	N	Y	Y	Y
Has the Contractor provided the safety equipment, material to the staff?	Questionnaires	monthly	C	N/A	N/A	N	Y	Y	Y

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	How it will be measured?	How often it will be measured?	Who will measure it?	General	ABISRP 01	ABISRP 02	ABISRP 03		ABISRP 04
							Lot 1	Lot 2	
Does security staff exist in the working area?	Questionnaires	monthly	C	N/A	N/A	Y	Y	Y	Y
Does the working area have fencing in order to protect intrusion?	Questionnaires	monthly	C	N/A	N/A	N	Y	Y	N
Has the Contractor defined solid waste storage area?	Questionnaires	monthly	C	N/A	N/A	Y	Y	Y	Y
Has the Contractor defined the area for used material storage?	Questionnaires	monthly	C	N/A	N/A	N	Y	Y	N
Does the Contractor apply solid waste separation for recyclable solid waste?	Questionnaires	monthly	C	N/A	N/A	N	Y	Y	N
Does the Contractor keep any record for the waste recycled?	Questionnaires	monthly	C	N/A	N/A	N	Y	Y	N
Does the Contractor keep any record for the solid waste disposed?	Questionnaires	monthly	C	N/A	N/A	N	Y	Y	N
Does the Contractor keep any record for the hazardous waste disposed?	Questionnaires	monthly	C	N/A	N/A	N	Y	Y	N
Does the Contractor use the local public roads even the avoidance from these road(s) possible?	Questionnaires	monthly	C	N/A	N/A	Y	Y	N/A	Y
Has the Contractor collected and disposed the solid waste regularly?	Questionnaires	monthly	C	N/A	N/A	Y	Y	Y	Y



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	How it will be measured?	How often it will be measured?	Who will measure it?	General	ABISRP 01	ABISRP 02	ABISRP 03		ABISRP 04
							Lot 1	Lot 2	
Does the Contractor discharge the sewerage after treatment?	Questionnaires	monthly	C	N/A	N/A	N	N/A	N/A	N
Does the Contractor avoid the peak hours of local traffic in case of use of local public roads?	Questionnaires	monthly	C	N/A	N/A	Y	N/A	N/A	Y
Does the material carried on public roads covered?	Questionnaires	monthly	C	N/A	N/A	Y	Y	Y	Y
Does the Contractor use the vehicles having the controlled exhaust emissions?	Questionnaires	monthly	C	N/A	N/A	N	Y	Y	N
Does the Roads selected by the Contractor effect the protected areas?	Questionnaires	monthly	C	N/A	N/A	N	N	N	N
Does the public informed with adequate signs about the working area and vehicles?	Questionnaires	monthly	C	N/A	N/A	N	N	N	N
Do the Vehicles of the Contractor fit in to the speed limits?	Questionnaires	monthly	C	N/A	N/A	Y	Y	Y	Y
Does the Contractor repair all infrastructure/roads when damage given by them?	Questionnaires	monthly	C	N/A	N/A	Y	Y	Y	Y

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	How it will be measured?	How often it will be measured?	Who will measure it?	General	ABISRP 01	ABISRP 02	ABISRP 03		ABISRP 04
							Lot 1	Lot 2	
Has the Contractor removed the soil if they contaminated?	Questionnaires	monthly	C	N/A	N/A	Y	Y	Y	Y
Has the Contractor left the working area as defined in Landscape section of the Bidding Documents?	Questionnaires	monthly	C	N/A	N/A	Y	N/A	N/A	Y
Has the Operating Personnel signed and accepted all work sites, labor camps, storage areas and temporary dumping areas?	Questionnaires	monthly	C	N/A	N/A	N	N	N	N
Number of grievances about the Contractor?	Interview with the relevant authorities	monthly	BISA	N/A	N/A	0	0	0	0
Number of grievances solved by the Contractor?	Interview with the relevant authorities	monthly	BISA	N/A	N/A	0	0	0	0
Has the Contractor provided the training on the safe use of electricity and pumps for operational staff?	Questionnaires	Once when the project activities completed	EIEC	N/A	N/A	N/A	Y	Y	N/A
Has the Contractor evaluated the trained O&M staff?	Questionnaires	Once when the project activities completed	MEC/EIEC	N/A	N/A	N/A	N/A	N/A	N/A

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	How it will be measured?	How often it will be measured?	Who will measure it?	General	ABISRP 01	ABISRP 02	ABISRP 03		ABISRP 04
							Lot 1	Lot 2	
Has the Consultant trained the WCA, BISA staff for irrigation canal and drainage canal management?	Questionnaires	Once when the project activities completed	EEC	Y	N/A	N/A	N/A	N/A	N/A
Has the Consultant evaluated the trained WCA, BISA staff?	Questionnaires	Once when the project activities completed	EEC	Y	N/A	N/A	N/A	N/A	N/A
Has the Oil Separator regularly checked and properly maintained?	Questionnaires	Once when the project activities completed	EEC	N/A	N/A	N/A	N/A	N/A	N/A
Has the relevant organizations observed the irrigation water quality?	Questionnaires	Once when the project activities completed	EEC	N	N/A	N/A	N/A	N/A	N/A
Has the relevant organizations observed the ground water level in the irrigation area?	Questionnaires	Once when the project activities completed	EEC	N	N/A	N/A	N/A	N/A	N/A
Have the farmers applied crop rotation?	Questionnaires	Once when the project activities completed	BISA	N	N/A	N/A	N/A	N/A	N/A
Have the farmers applied environmentally friendly agricultural production techniques?	Questionnaires	Once when the project activities completed	BISA	N	N/A	N/A	N/A	N/A	N/A

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	How it will be measured?	How often it will be measured?	Who will measure it?	General	ABISRP 01	ABISRP 02	ABISRP 03		ABISRP 04
							Lot 1	Lot 2	
Has the fertility and productivity been enhanced?	Questionnaires	Once when the project activities completed	BISA	N	N/A	N/A	N/A	N/A	N/A
Has the O&M staff applies the national Worker Safety Plan?	Questionnaires	Once when the project activities completed	C	N/A	N/A	N	Y	Y	N
Has the Contractor made facilities available in the operational building with the clean drinking water?	Questionnaires	Once when the project activities completed	C	N/A	N/A	Y	Y	Y	Y
Has the Contractor made facilities available in the operational building with sewerage disposal/handling?	Questionnaires	Once when the project activities completed	C	N/A	N/A	N	Y	Y	N
Has the international agreements about the water abstraction been fitted?	Questionnaires	Once when the project activities completed	EEC	N/A	N/A	N/A	N/A	N/A	N/A
<b>GENERAL ENVIRONMENTAL IMPACTS OF THE PROJECT ON THE ENVIRONMENT</b>									
Flow amount of water in channels?	Measurement	Monthly	BISA/WCA	N	N/A	N/A	N/A	N/A	N/A
Irrigated Area (ha)	Measurement	Monthly	BISA/WCA	N	N/A	N/A	N/A	N/A	N/A
Amount of water used for irrigation purposes.	Measurement	Monthly	BISA/WCA	N	N/A	N/A	N/A	N/A	N/A

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	How it will be measured?	How often it will be measured?	Who will measure it?	General	ABISRP 01	ABISRP 02	ABISRP 03		ABISRP 04
							Lot 1	Lot 2	
Water quality of irrigation water (pH, salinity, hardness, BOD, COD, Nitrate, Nitrite, Ammonium, Phosphate, Pesticides, Oil products, phenol) in the project area.	Measurement	Bi-annual	PIU, HGMEs, Uzhydromet	N	N/A	N/A	N/A	N/A	N/A
Soil quality/pollution (SOM) (humus), soil carbon, mobile and gross NPK, nitrates, nitrites, ammonium, phosphate, pesticides)	Measurement	Bi-annual	PIU, BISA, HGMEs, and WCAs	N	N/A	N/A	N/A	N/A	N/A
Water levels of wells in the irrigated areas? (specify wells)	Measurement	Monthly	BISA/WCA	N	N/A	N/A	N/A	N/A	N/A
Amount of water used for irrigation purposes.	Health Statistics of Local Authorities	Yearly	PIU from local MoH	N	N/A	N/A	N/A	N/A	N/A
Electricity Consumed before the project by pumping?	Electricity Meter Records	Monthly Consumed, yearly total	BISA	N	N/A	N/A	N/A	N/A	N/A
Electricity Consumed after the project by pumping?	Electricity Meter Records	Monthly Consumed, yearly total	BISA	N	N/A	N/A	N/A	N/A	N/A

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	How it will be measured?	How often it will be measured?	Who will measure it?	General	ABISRP 01	ABISRP 02	ABISRP 03		ABISRP 04
							Lot 1	Lot 2	
Water quantity pumped before rehabilitation/reconstruction?	Flow Measurement	Monthly, average flow	BISA	N	N/A	N/A	N/A	N/A	N/A
Water quantity pumped after rehabilitation/reconstruction?	Flow Measurement	Monthly, average flow	BISA	N	N/A	N/A	N/A	N/A	N/A
Reduction in % of GHG by implementation of project?	Calculations	Once based on yearly energy consumption amounts	Calculated by PIU CCMS	N/A	N/A	N/A	N/A	N/A	N/A

BISA : Basin Irrigation System Authority of Regions

C: Contractor of any Subcomponent

CEC: Civil Engineer of Consultant

CCMS: Climate Change Mitigation Specialist

EEC: Environmental Expert of Consultant

EIEC: Electrical Engineer of Consultant

EMR: Environmental Monitoring Report

MEC: Mechanical Engineer of Consultant

MoH : Ministry of Health

MROc: Monthly Report of the Contractor about the Implementation of EMP

PEC: Procurement Expert of Consultant

PMC: Project Manager of Consultant

PIU: Project Implementation Unit

WCA: Water Consumer Associations

## **ANNEX II- PHOTOS**

**Construction of Amu Bukhara 1 NEW Pump Station**  
**(ABISRP 01)**

Construction of Working Camps



Excavation Works





## COVID -19 Training



Training of COVID-19  
April 2020

**Modernization & Rehabilitation of Amu Bukhara Main Canal Regulation Structures**  
**(ABISRP 02)**

Construction Works at Peresechenie Regulator



Peregov Vodov on Peresechenie  
28 February 2020



Canals on Peresechenie  
22 February 2020



Construction of Cofferdams on Peresechenie  
17 March 2020



Camping Site on Peresechenie  
06 March 2020

## **Modernization and Rehabilitation of Kuyu Mazar Pump Station (ABISRP 03.1)**

Kuyu Mazar Working Site



Hazardous /Recyclable Solid Waste Storage  
Containers  
10 January 2020



Occupational Health and Safety Training  
10 January 2020

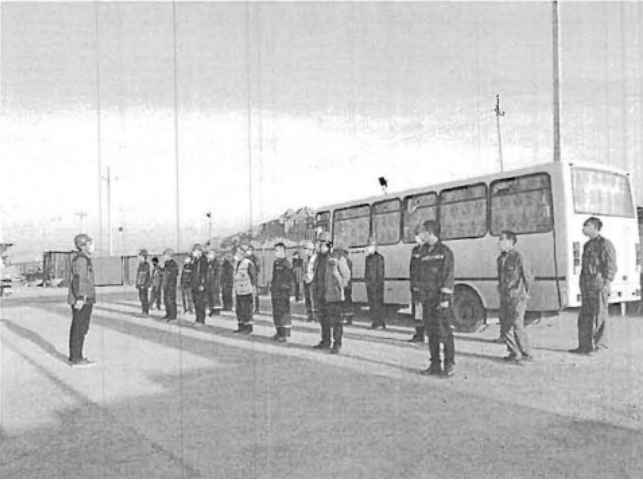
Kuyu Mazar Working Site



Training of Smoking Staff  
10 January 2020



Dust Suppression Applied Areas  
June 2020



Training of COVID-19  
April 2020



## **Modernization and Rehabilitation of Kizil Tepa Pump Station (ABISRP 03.2)**

### Kizil Tepa Working Site



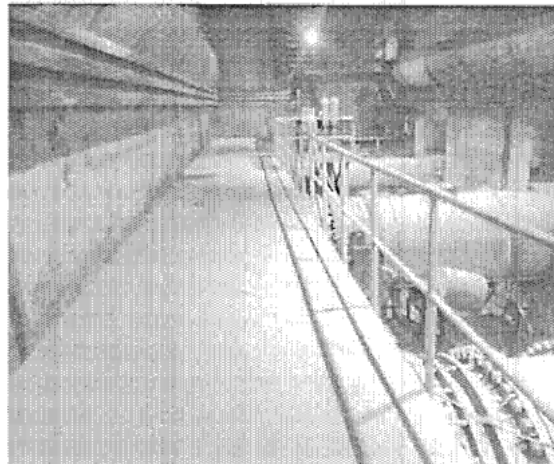
Construction Activities inside PS  
June 2020



Construction Activities inside PS  
June 2020



Sewage Truck at Working Camp  
January 2020



Lightened Working Area at PS  
April 2020



Training of COVID-19  
April 2020



Disinfection due to COVID-19  
April 2020

**ANNEX III**  
**ACOUSTIC REPORT**  
**FOR**  
**AMU BUKHARA 1 NEW PUMP STATION**  
**(ABISRP 01) CONSTRUCTION SITE**

## 1 GENERAL KNOWLEDGE

### 1.1 Location of Sites

Amu Bukhara 1 New Pump Station (ABISRP 01) Construction site has been located approximately 1.3 km away from northwest of Dengizkul Lake.

## 2. REGULATIONS APPLIED FOR NOISE CONTROL

### 2.1 National Noise Legislation of Republic of Uzbekistan

To ensure acceptable levels of sound pressure and sound levels in rooms, workplaces, industrial sites, in residential and public buildings, living areas of cities and other settlements the project must comply with a couple of Uzbek legislations.

The Uzbek national construction noise norms that are relevant to all stages of the construction phase are provided by law KMK 2.01.08-96 —Protection from noise and detailed in Table 1 below.

**Table 1- Uzbek construction noise norms (KMK 2.01.08 96 —Protection from noise)**

Premises and territories	Equivalent sound pressure levels, $L_{eq}$ (dB)									Level of Sound, (dBA)
	31,5	63	125	250	500	1000	2000	4000	8000	
1. Hospital and sanatorium wards, operating hospitals	68	51	39	31	24	20	17	14	13	25
2. Living rooms in apartments, living premises in rest/care homes, sleeping rooms in children boarding schools	72	55	44	35	29	25	22	20	18	30
3. Doctor's offices in hospitals, sanatoriums, polyclinics, audience halls of concert-halls, rooms in hotel, living rooms in campus	78	59	48	40	34	30	27	25	23	35
4. Hospital and sanatorium territories adjacent to the buildings	78	59	48	40	34	30	27	25	23	35
5. Territories adjacent to living houses (in 2 m from cladding structures), residential areas of neighborhoods and housing estates, grounds of schools and preschool institutions, school territories	84	67	57	49	44	40	37	35	33	45



Premises and territories	Equivalent sound pressure levels, $L_{eq}$ (dB)									Level of Sound, (dBA)
	31,5	63	125	250	500	1000	2000	4000	8000	
6. Class premises, exercise rooms, auditoriums of schools and other educational facilities, conference halls, audience halls of theatres, clubs, cinemas, halls for court sessions and meetings.	82	63	52	45	39	35	32	30	28	40
7. Administration working premises, working premises of design and engineering organizations, scientific and research institutes	86	71	61	54	49	45	42	40	38	50
8. Café, restaurant, canteen halls, lobby of theatres and cinemas	89	75	66	59	54	50	47	45	43	55
9. Trading halls of shops, sport halls, waiting halls of airports and transport stations, reception centers of housekeeping/ municipal services	93	79	70	63	58	55	52	50	49	60

The —Sanitarian Rules and Norms on providing allowed noise level into the living building, public building and territory of living areall (SanR&N No.0267-09) establish the maximum admissible noise level into the living areas, both inside and outside buildings, given at Table 2. In this Norm daytime is defined as time span between 07:00 and 23:00, whereas nighttime is defined as time span between 23:00 and 07:00.

**Table 2 Admissible noise level into the living area, both inside and outside the buildings (SanR&N No.0267-09)**

Name of Location		Level of sound pressure, octave bands with average geometric mean frequencies (dB)								Level of Sound, (dBA)
		63	125	250	500	1000	2000	4000	8000	
Living room of flats, bedrooms of resorts (inside)	Daytime 07:00-23:00	63	52	45	39	35	32	30	28	40
	Nighttime 23:00-07:00	55	44	35	29	25	22	20	18	30
Territories adjacent to living houses (outside)	Daytime 07:00-23:00	75	66	59	54	50	47	45	43	55
	Nighttime 23:00-07:00	67	57	49	44	40	37	35	33	45

## 2.2. International Standards

Amu Bukhara Irrigation System Rehabilitation Project shall comply with Environmental Assessment Guidelines of Asian Development Bank. It has been stated in the Environmental Assessment Guidelines that “determining appropriate environmental standards for ADB projects, ADB will follow the standards and approaches laid out in the World Bank’s Pollution Prevention and Abatement Handbook (PPAH)”. Presently, PPHA is used as reference document. The World Banks “Environmental, Health and Safety General Directives, 2007 (EHS)” is functional instead of PPAH. EHS stipulates that noise at any activity shall not exceed the levels given in the table below for given receptors, nor shall they result in a greater increase of ambient noise than 3 dB at the nearest receiving area outside the site.

**Table 3. Noise Level Guideline (EHS)**

Receptor	One Hour $L_{Aeq}$ , (dBA)	
	Daytime 07:00-22:00	Nighttime 22:00-07:00
Residential; institutional; educational	55	45
Industrial; commercial	70	70

## 2.3 Nearest Receptor to the Working Areas

The nearest receptor to the Amu Bukhara 1 New Pump Station (ABISRP 01) Construction site is the settlement area (houses) which has been located approximately 250 m northwest.

## 2.4 Climatological Properties at Construction Site

The desert and steppe landforms that comprise the region influence the sharply continental, arid character of the climate. This continental climate is characterized by cold winters and hot, dry summers. During the summers there are strong winds that carry sand and dust.

Average air temperature in January is 8°C in the north, and 2°C in the south. Summer is long, hot and dry; average air temperature in July of 28°C. The annual average air temperature is 16.0°C. The average monthly minimum temperature of the coldest month is -3.0°C, and the average monthly maximum temperature of the hottest month is 37.2°C.

There is high solar radiation up to 150 kcal and more is characteristic of this region. The average number of sunny days per year is 300.

There are 217 frost-free days per year. The annual precipitation is 125 mm to 175 mm.

Winds from the north and north northwest (23.6% and 19.8% respectively) predominate in the city of Bukhara. Usually there are winds with the speed of 2-3 m/s and 4-5 m/s, their probability of occurrence is 37.6% and 33.1%. The probability that light breezes (0-1 m/s) occur is 11.5% of the time. The low probability of light breezes occurring is beneficial for stronger winds promote the dispersion of air pollutants. The relative humidity data according to the closest available data measured was in Samarkand meteorological station. Based on the observations made between 1961-1990 the relative average humidity value is 58,58%.

## 2.5 Working Period

The daily working hours of the project is defined as daytime 07:00-23:00.

## 3. NOISE EMISSIONS DURING THE CONSTRUCTION WORKS

### 3.1 Sound Level of Equipment Used

**Table 4. Permissible Sound Power Level of Equipment**

Type of equipment	Net installed power P (in kW) Electric power $P_{el}$ <sup>(1)</sup> in kW Mass of appliance m in kg Cutting width L in cm	Permissible sound power	
		Stage I as from 3 January 2002	Stage II as from 3 January 2006
Compaction machines (vibrating rollers, vibratory plates, vibratory rammers)	$P \leq 8$	108	105 <sup>(2)</sup>
	$8 < P \leq 70$	109	106 <sup>(2)</sup>
	$P > 70$	$89 + 11 \log P$	$86 + 11 \log P^{(2)}$
Tracked dozers, tracked loaders, tracked excavator-loaders	$P \leq 55$	106	103 <sup>(2)</sup>
	$P > 55$	$87 + 11 \log P$	$84 + 11 \log P^{(2)}$
Wheeled dozers, wheeled loaders, wheeled excavator-loaders, dumpers, graders, loader-type landfill compactors, combustion-engine driven counter balanced lift trucks, mobile cranes, compaction machines (non-vibrating rollers), paver-finishers, hydraulic power packs	$P \leq 55$	104	101 <sup>(2)(3)</sup>
	$P > 55$	$85 + 11 \log P$	$82 + 11 \log P^{(2)(3)}$
Excavators, builders' hoists for the transport of goods, construction winches, motor hoes	$P \leq 15$	96	93
	$P > 15$	$83 + 11 \log P$	$80 + 11 \log P$
	$m \leq 15$	107	105
Hand-held concrete-breakers and picks	$15 < m < 30$	$94 + 11 \log m$	$92 + 11 \log m^{(2)}$
	$m \geq 30$	$96 + 11 \log m$	$94 + 11 \log m$
		$98 + \log P$	$96 + \log P$
Tower cranes			
Welding and power generators	$P_{el} \leq 2$	$97 + \log P_{el}$	$95 + \log P_{el}$
	$2 < P_{el} \leq 10$	$98 + \log P_{el}$	$96 + \log P_{el}$
	$P_{el} > 10$	$97 + \log P_{el}$	$95 + \log P_{el}$
Compressors	$P \leq 15$	99	97
	$P > 15$	$97 + 2 \log P$	$95 + 2 \log P$
Lawnmowers, lawn trimmers/lawn-edge trimmers	$L \leq 50$	96	94 <sup>(2)</sup>
	$50 < L \leq 70$	100	98
	$70 < L \leq 120$	100	98 <sup>(2)</sup>
	$L > 120$	105	103 <sup>(2)</sup>
<sup>(1)</sup> $P_{el}$ for welding generators: conventional welding current multiplied by the conventional load voltage for the lowest $P_{el}$ for power generators: prime power according to ISO 8528-1:1993, clause 13.3.2			
<sup>(2)</sup> The figures for stage II are merely indicative for the following types of equipment: - walk-behind vibrating rollers; - vibratory plates (> 3kW); - vibratory rammers; - dozers (steel tracked); - loaders (steel tracked > 55 kW); - combustion-engine driven counterbalanced lift trucks; - compacting screed paver-finishers; - hand-held internal combustion-engine concrete-breakers and picks (15<m<30) - lawnmowers, lawn trimmers/lawn-edge trimmers., Definitive figures will depend on amendment of the Directive following the report required in Article 20(1). In the absence			
<sup>(3)</sup> For single-engine mobile cranes, the figures for stage I shall continue to apply until 3 January 2008. After that date, The permissible sound power level shall be rounded up or down to the nearest integer number (less than 0,5, use lower			

The sound levels of equipment have been calculated according to table given at the Directive 2005/88/EC of The European Parliament and of the Council of 14 December 2005 Amending Directive 2000/14/EC on The Approximation of the Laws of The Member States Relating to the Noise Emission in the Environment by Equipment for Use Outdoors. This table is provided Table 4.

The sound level of the equipment that will be used in the construction have been calculated as shown below.

**Trucked Excavator:** The power of the engine that will be used in both of the project areas has been considered as 350 HP. This engine power makes approximately  $P=261$  kW. Based on the information provided Table 4 since  $P = 261 \text{ kW} > 55 \text{ kW}$  the permissible sound level of the trucked excavators used in site calculated by using the formula below.

$$L_w = 84 + 11 \log P;$$

$$L_w = 84 + 11 \log 261 \approx 111 \text{ dB}$$

**Truck:** The power of the engine that will be used in both of the project areas has been considered as 250 HP. This engine power makes approximately  $P=186$  kW. Based on the information provided Table 4 since  $P = 186 \text{ kW} > 55 \text{ kW}$  the permissible sound level of the trucks used in site calculated by using the formula below.

$$L_w = 82 + 11 \log P;$$

$$L_w = 82 + 11 \log 186 \approx 107 \text{ dB}$$

**Wheeled Loader:** The power of the engine that will be used in both of the project areas has been considered as 200 HP. This engine power makes approximately  $P=149$  kW. Based on the information provided Table 4 since  $P = 149 \text{ kW} > 55 \text{ kW}$  the permissible sound level of the wheeled loaders used in site calculated by using the formula below.

$$L_w = 82 + 11 \log P;$$

$$L_w = 82 + 11 \log 149 \approx 106 \text{ dB}$$

### 3.2 Sources of Noise

The type and number of the construction site the vehicles and equipment that create sound have been listed at the following together with their sound characteristics. All equipment listed here will be used at open areas.

The difference in the sound power level of any equipment by the number of the same equipment used has been calculated by the following formula.

$$\Delta L = 10 \log n$$

$\Delta L$  : Difference in sound level, (dB)

n : number of the same equipment/vehicle

**Table 5. The Number of Vehicles and Equipment and their Sound Levels at Amu Bukhara 1 New Pump Station Construction Site**

Vehicle/ Equipment Type	Number	Sound Power Level, dB	Sound Power Level Difference for the Designated Number of Vehicle/ Equipment, $\Delta L$ , (dB)	Total Power Level, dB
Trucked Excavator	1	111	0	111
Truck	2	107	3	110
Wheeled Loader	1	106	0	106

### 3.3 Calculation of Equivalent Sound Level

Based on the information provided the information above the Table 5 the sound level difference the sound level of the equipment is given four (4) octave at Table 6.

**Table 6. Sound Pressure Level at all Directions Originated from at Amu Bukhara 1 New Pumping Station Construction Site**

Vehicle/ Equipment Type	Sound Power Level (dB)				
	Total	500 Hz	1000 Hz	2000 Hz	4000 Hz
Trucked Excavator	111	105	105	105	105
Truck	110	104	104	104	104
Wheeled Loader	106	100	100	100	100

Sound level at a specified “r” distance calculated by the formula and given at Table 7.

Sound Level :  $L_{pi} = L_W + 10 \log \left( \frac{Q}{4\pi r^2} \right)$ . where

r, sound level at a distance	$L_{pi}$	dBA
Sound level	$L_W$	dBA
Distance from source	r	m
Directivity factor	Q	-

Q : Directivity factor is equal to "1" since the project area which is a free field and have no ceilings.

**Table 7. Sound Pressure Level at all Directions Originated from at Amu Bukhara 1 New Pumping Station Construction Site**

Vehicle/ Equipment Type	Distance (m)	Sound Pressure Level (dB)			
		500 Hz	1000 Hz	2000 Hz	4000 Hz
Trucked Excavator	50	60	60	60	60
	100	54	54	54	54
	250	46	46	46	46
	500	40	40	40	40
	1000	34	34	34	34
	2000	28	28	28	28
Truck	50	59	59	59	59
	100	53	53	53	53
	250	45	45	45	45
	500	39	39	39	39
	1000	33	33	33	33
	2000	27	27	27	27
Wheeled Loader	50	55	55	55	55
	100	49	49	49	49
	250	41	41	41	41
	500	35	35	35	35
	1000	29	29	29	29
	2000	23	23	23	23

Sound Pressure Levels, which are in dB, calculated has been corrected by using the correction factors provided at Table 8 and corrected sound pressure levels have been listed at Table 9.

**Table 8. Correction Factors for db(A) for the Frequencies between 500 Hz and 4000 H**

Frequency	Correction Factor
500 Hz	-3,2
1000 Hz	0,0
2000 Hz	1,2
4000 Hz	1,0

**Table 9. Corrected Sound Power Level at at Amu Bukhara 1 New Pumping Station Construction Site**

Vehicle/Equipment Type	Distance (m)	Corrected Sound Level (dBA)			
		500 Hz	1000 Hz	2000 Hz	4000 Hz
Trucked Excavator	50	56.8	60	61.2	61
	100	50.8	54	55.2	55
	250	42.8	46	47.2	47
	500	36.8	40	41.2	41
	1000	30.8	34	35.2	35
	2000	24.8	28	29.2	29
Truck	50	55.8	59	60.2	60
	100	49.8	53	54.2	54
	250	41.8	45	46.2	46
	500	35.8	39	40.2	40
	1000	29.8	33	34.2	34
	2000	23.8	27	28.2	28
Wheeled Loader	50	51.8	55	56.2	56
	100	45.8	49	50.2	50
	250	37.8	41	42.2	42
	500	31.8	35	36.2	36
	1000	25.8	29	30.2	30
	2000	19.8	23	24.2	24

Atmospheric absorption values have been calculated using the following formula.

$$\alpha_{atm} = 7,4 \cdot 10^{-8} \left( f^2 \cdot r / \phi \right)$$

Atmospheric absorption	$\alpha_{atm}$	dBA
Frequency of sound pressure	f	Hz
Distance	r	m
Relative Humidity	$\Phi$	%

The atmospheric absorption values for 4 (four) octaves have been calculated and given at Table 10.

**Table 10. Atmospheric Absorption Value for Different Frequencies**

Distance (m)	Atmospheric Absorption (dBA)			
	500 Hz	1000 Hz	2000 Hz	4000 Hz
50	0,02	0,06	0,25	1,01
100	0,03	0,13	0,51	2,02
250	0,08	0,32	1,26	5,05
500	0,16	0,63	2,53	10,11
1000	0,32	1,26	5,05	20,21
2000	0,63	2,53	10,11	40,42

The atmospheric absorption values have been subtracted from the Corrected Sound Power Levels given at

and corrected results are given Table 11.

The total sound levels given at the Table 11 have been calculated by the following formula.

$$L_T = 10 \log_{10} \sum 10^{L_i/10}$$

Where:

Total Sound Level  $L_T$  dBA  
 Sound Level at a given Frequency  $L_i$  dBA

**Table 11. Total Sound Level at Amu Bukhara 1 New Pumping Station Construction Site**

Vehicle/Equipment Type	Distance (m)	Sound Level (dBA)				
		500 Hz	1000 Hz	2000 Hz	4000 Hz	Total
Trucked Excavator	50	56.78	59.94	60.95	59.99	66
	100	50.77	53.87	54.69	52.98	59
	250	42.72	45.68	45.94	41.95	50
	500	36.64	39.37	38.67	30.89	43
	1000	30.48	32.74	30.15	14.79	36
	2000	24.17	25.47	19.09	-11.42	28
Truck	50	55.78	58.94	59.95	58.99	65
	100	49.77	52.87	53.69	51.98	58
	250	41.72	44.68	44.94	40.95	49
	500	35.64	38.37	37.67	29.89	42
	1000	29.48	31.74	29.15	13.79	35
	2000	23.17	24.47	18.09	-12.42	27
Wheeled Loader	50	51.78	54.94	55.95	54.99	61
	100	45.77	48.87	49.69	47.98	54
	250	37.72	40.68	40.94	36.95	45
	500	31.64	34.37	33.67	25.89	38
	1000	25.48	27.74	25.15	9.79	31
	2000	19.17	20.47	14.09	-16.42	23

After that all equivalent sound levels which combines all the equipment and vehicle sounds have been calculated by using formula for a given distance.

$$L_{eq} = 10 \log_{10} \sum 10^{L_T/10}$$

Where:

Sound Level at a given distance  $L_{eq}$  dBA



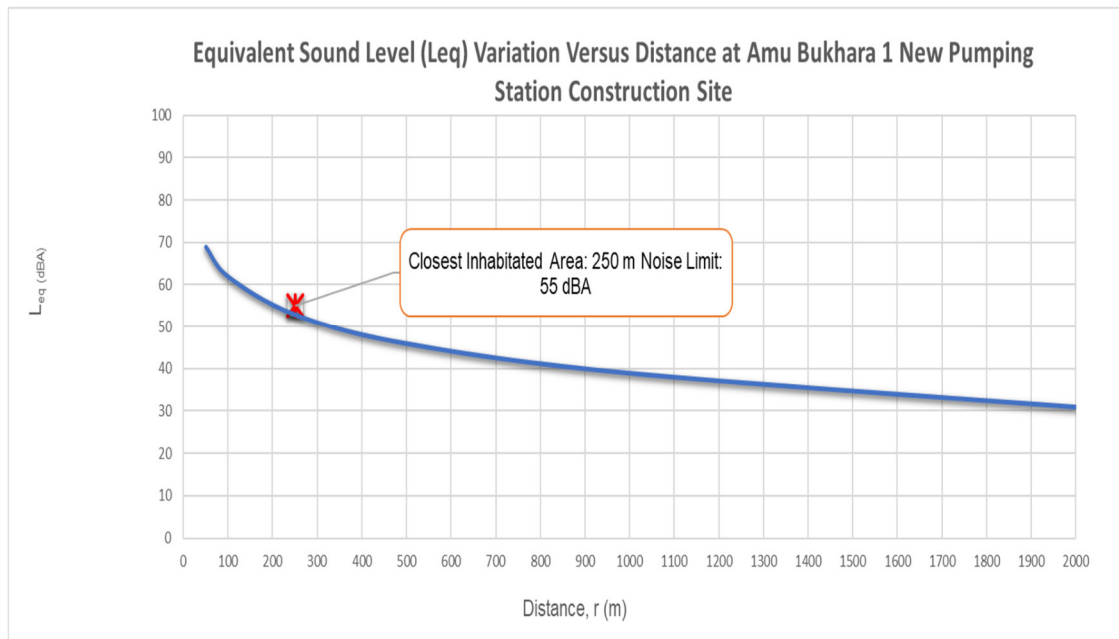
Total Sound Level  $L_T$  dBA

The results of calculation for equivalent Sound Level data is given at Table 12 and graphically shown at Figure 1

**Table 12. Equivalent Sound Levels at Amu Bukhara 1 New Pumping Station Construction Site**

Distance (m)	$L_{eq}$ (dBA)
50	69
100	62
250	53
500	46
1000	39
2000	31

**Figure 1. Equivalent Sound Level ( $L_{eq}$ ) Variation Versus Distance at Amu Bukhara 1 New Pumping Station Construction Site**



### 3.4 Comparison of Results with Existing Legislation

As indicated the nearest location to the Amu Bukhara 1 New Pump Station (ABISRP 03.1) construction site is settlement area (houses) which has been located approximately 250 m northwest.

The equivalent sound level at this location has been calculated as 53 dBA which is already below according to the national and international standards. (See Table 13)

**Table 13. Comparison of Equivalent Sound Levels with the National and International Standards.**

Site	Equivalent Sound Level in dBA	Standard Type for Specified Receptor in dBA	
		National	International
Amu Bukhara 1 New Pump Station Construction Site	53	55	55