# Environmental Monitoring Report

Project Number: 46049-002
January 2021

# PRC: Xinjiang Akesu Integrated Urban Development and Environmental Improvement Project (July-December 2020)

Prepared by Xinjiang Project Management Office with the Assistance of Easen International Co., Ltd. for the Xinjiang Uygur Autonomous Region government and the Asian Development Bank.



Asian Development Bank

# Environmental Monitoring Report

Loan Number: 3262-002

No.9 Semi-Annual Report (covering period: July- December 2020)

# PRC Loan-3262: Xinjiang Akesu Integrated Urban Development and Environmental Improvement Project

Prepared by Xinjiang Project Management Office with the Assistance of Easen International Co., Ltd. for the Xinjiang Uygur Autonomous Region government and the Asian Development Bank.



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# CONTENT

# I. ABBREVIATION

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|---|---|
| ADB | Asian Development Bank |
| APMO | Akesu Project Management Office |
| AMG | Akesu Municipal Government |
| EIA | Environmental Impact Assessment |
| EMC | Environmental Monitoring Center |
| EMP | Environmental Monitoring Plan |
| IA | Implementing Agency |
| IEE | Initial Environmental Examination |
| PIU | Project Implementation Unit |
| PLG | Project Leading Group |
| PMO | Project Management Office |
| POA | Project Operating Agency |
| PRC | People's Republic of China |
| SF | Supervision Firm |
| XUARG | Xinjiang Uygur Autonomous Region government |
| XPMO | Xinjiang Uygur Autonomous Region ADB Loan Project Management Office |

# II. INTRODUCTION

## A. Report Purpose and Rationale

1. As defined in the summary Initial Environmental Examination (IEE) for Xinjiang Akesu Integrated Urban Development and Environmental Improvement Project (the Project) in the People's Republic of China (PRC), environmental monitoring reports (EMRs) are required in order to evaluate and assess overall project activities to ensure the effective implementation of the environmental management plan (EMP).

2. The purpose of EMRs is to document the environmental activities and consequences of the Project for the period of project implementation. This is the ninth semi-annual EMR to cover the period from July-December 2020. This semi-annual EMR is intended to not only cover the construction phase, but also demonstrate compliance with the EMP for the design, bidding, construction preparation stages and physical construction phase. In line with targets aimed at reducing any negative environmental impacts of the Project, and in accordance with relevant specifications and standards of the PRC, and policies of the Asian Development Bank (ADB), this report emphasizes the following areas: (i) progress made in implementing the EMP, (ii) implementation of mitigation measures, (iii) environmental monitoring and compliance, (iv) institutional strengthening and training,(v) public consultation, and (vi) problems that have occurred and corrective actions taken.

## B. Original Project Objective and Components

3. The proposed project aims to improve the urban environment and promote inclusive economic development of Akesu City, Xinjiang Uygur Autonomous Region (XUAR), the People's Republic of China (PRC). It is a multisectoral and integrated urban upgrading project that will address urgent environmental and infrastructure needs, including the (i) rehabilitation of the Akesu Duolang Wetlands; (ii) upgrading of urban infrastructure and services, including roads, public parks, water supply, sewerage, and district heating; and (iii) strengthening the institutional capacity for sustainable urban development, planning, and management of Akesu Municipal Government (AMG).

4. **Improved Urban Infrastructure Services.** This component is comprised of 6 subprojects: i) 75.0 km of urban roads constructed and upgraded, including construction of 2 new roads with a total length of 1.1 km, upgrading of 19 roads with a total length of 31.0 km, upgrading of lanes in four peri-urban communities with a total length of 43.0 km, construction of 1 underpass with a total length of 127 m, construction of two new bridges, and construction/upgrading of associated traffic signals, street lights, utility pipelines and landscaping; ii) 5 public parks upgraded, with a total area of 122,826 $m^2$ of green space and the construction of a 64-ha nursery; iii) 38.0 km of urban water supply pipes constructed; iv) 78.0 km of urban sewers and 2,024 inspection manholes constructed; v) 43.7 km of central heating pipelines and 28 heat exchanger stations constructed; and vi) street cleaning and waste collection and transportation equipment and vehicles procured and one 600 t/d waste transfer station constructed.

5. **Improved Urban Infrastructure Services.** This component is located within the ecological conservation and restoration zone of the Akesu-Duolang River National Wetland Park, and includes (i) rehabilitation of 95.7 ha of degraded wetland; (ii) establishing 4.5 ha of wetland forest shelter belts; (iii) constructing wetland protection infrastructure, including management station and patrol roads; (iv) improving wildlife protection through a wetland and biodiversity research laboratory, monitoring sites and monitoring equipment, and the establishment of a wildlife rescue and disease control center; and (v) establishing wetland public education

facilities.

6. **Project Management and Capacity Building.** The project also provides for institutional development and capacity building to ensure effective implementation of the project and sustainable O&M of the project facilities. The capacity building will include project management consulting services and training during loan implementation.

## C. Project Changes

7. Changes have been made to the project scope during the project implementation. In April 2017, PMO proposed the changes under component I during the ADB Mission and the initial screening was conducted. In September 2017, another ADB Mission assisted the PMO to conduct the preliminary screen of new proposed subprojects. Please see **Table II-1** for the construction contents of the proposed subprojects.

8. According to the ADB Mission in September 2017, the construction-related impacts will be localized, short term, and can be effectively mitigated through the strict implementation of mitigation measures specified in the environmental management plan (EMP), and the project can be remained as Environmental Category B by ADB and an addendum to consolidate initial environmental examination (CIEE) should be prepared for processing. The domestic Environmental Assessment Table prepared for the new proposed Subprojects. Based on the Environmental Assessment Table, an Addendum to the CIEE was prepared by the consultant and was submitted to ADB in January 2018. According to ADB's comments, the Addendum was revised and was submitted to ADB in March 2018.

9. According to the Addendum to CIEE, the findings and conclusions are summarized as bellows:

- Once implemented, the reconstructed roads, backstreet alleys and public transport facilities of the new components can significantly improve the overall functions of the city, enhance the city's image and play an important role in promoting regional economic development and improving living environment of local residents. Through ecological greening, such as Kalskaya flood control ditch and forestation, landscape improvement along two sides of the diversion ditch, such means can reinforce the flood control ditch and diversion channel, reduce from an overall perspective the risks of flood disasters and water and soil erosion, and form a healthy, enchanting and intelligent green belt, resulting in significant ecological benefits.

- Both positive and adverse environmental impacts of the new subprojects were identified and assessed. While largely beneficial to the natural and social environments in the subproject area, the subprojects are anticipated to cause some mild levels of adverse environmental and social impacts, including permanent occupation of a 1,169,000 $m^2$ land area and noise and disturbance caused by construction activities. Nonetheless, these adverse impacts are mostly insignificant since the intensity of impact is limited and the size of impacted areas is small in scale.

- At the construction stage, some environmental stressors, such as site runoff, sewage arising from the workforce, noise and dust, are not expected to cause significant adverse impacts to the nearby environment, provided that proper mitigation measures are implemented. During the operational phase, most of the potential environmental adverse impacts can be minimized to acceptable levels through proper implementation of the proposed mitigation measures and execution of the environmental management and monitoring plan.

- It is concluded that the Addendum to the CIEE is sufficient for meeting the requirements on environmental assessment of the new subprojects and a follow-up EIA is not warranted.

Table II-1 Proposed Construction Contents

| Component | Land Occupation | Name | Proposed Construction Content | Note |
|---|---|---|---|---|
| Road Construction | Temporary | Jiankang Road | 1. total length of road reconstruction is 21.92km, in total 11 roads<br>① road surface treatment of vehicle lanes at Jiankang Road, Tuanjie Road, Wuka Road, and Dongxi Avenue, total length 12.49km;<br>② road face-lifting at Zhongyuan Road, Awen Road and Jiefang Road South, including reconstruction of road foundation and surface, total length 4.93km;<br>③ construction of pedestrian walkways at Desheng Road, Dongsi Road, Xinhe Road and Qingyuan Road, total length 4.5km;<br>④ road auxiliaries, including water supply and sewage pipelines, street lighting, laying of power and telecommunication cables, transportation, embedded pass-through pipe culverts, rainwater wells, etc.<br>2. construction of Fuba road bridge over Duolang canal, total area for the proposed new bridge is 1560 $m^2$. | Reconstruction, road surface and auxiliaries |
| | | Tuanjie Road | | |
| | | Zhongyuan Road | | |
| | | Awen Road | | |
| | | Jiefang Road South | | |
| | | Wuka Road | | |
| | | Dongxi Avenue | | |
| | Permanent | Desheng Road | | New construction, pedestrian walkways |
| | | Dongsi Road | | |
| | | Xinhe Road | | |
| | | Qingyuan Road | | |
| Improvement of Backstreet Alleys | Permanent | Public toilets | 1. construction of new roads in backstreet alleys of Hongqipo community with a total length of 64,450m, and 8 public toilets; reconstruction of water supply pipe network with the total length of 25,000m, pipe diameter of DN110 ~ 500, using polyethylene PE water pipes for pipe diameter less than DN500, ductile iron pipes for pipe diameter equal or greater than DN500. Reconstruction of drainage pipe networks with the total length of 25,000m, and the pipe material is HDPE double wall corrugated drain pipes, pipe diameter DN315 ~ 500; 2,150 street lights. | New construction |
| | | Water supply and drainage | | |
| | Temporary | Backstreet alleys | | New construction |
| | | Lighting | | |

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|---|---|---|---|---|
| | | | 2. Construction of 33 new public toilets in the backstreet alleys of Yingbage community, along with 3,200 street lights. | |
| Gardening and Greening | Permanent | Kalskaya flood control ditch and forestation<br>Flood control forestation along two sides of the diversion ditch | 1. Green area of Kalskaya flood control ditch and forest is 1,144,000$m^2$.<br>2. Green area of landscape improvement along both sides of diversion ditch is 231,213.30$m^2$; conduct pavement along diversion ditch with a total length of 3.4km. | New construction |
| Water Supply and Sewerage Pipeline | Temporary | Water supply and sewerage pipelines along Dongxi Avenue | 1. Total length of water supply pipeline along Dongxi Avenue is 2160m, including pass-through pipes; pipe diameter is DN700, ductile iron pipes; original pipes will be demolished.<br>2. Total length of sewage pipeline along Dongxi Avenue is 2160m, including pass-through pipes, using Reinforced concrete pipe material; original pipes will be demolished. | Reconstruction |
| Heating Supply | Temporary | Heat insulation in old city area<br>Heating supply<br>Water supply and drainage | 1. Insulation and energy saving renovation at exterior walls and roofs in 23 old compounds, with the total area of exterior walls of 551818.56m. Modified polyurethane insulation boards are used at exterior walls of residential buildings at the thickness of 100mm. Rock wool boards are used at exterior walls of auxiliary buildings at 100mm. The roof area for renovation is 15003$m^2$, which uses XPS insulation boards at the thickness of 120.<br>2. Construction of heating pipelines from heat exchange stations to individual buildings that use heating, as secondary pipelines, pipe diameters between DN100 ~ DN250, using | Reconstruction |

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| | | | Q235B spiral double automatic welding steel pipes for pipe diameters equal to or greater than DN200, seamless steel pipes used for pipe diameters less than or equal to DN150 with #20 steel material.<br>3. Construction of water supply pipes, using PE pipes with diameters between DN65~150, and original pipelines will be dismantled.<br>4. Construction of drainage pipe networks, using HDPE double-wall bellows with diameters between DN265~315, and original pipelines will be dismantled. | |
| Public Transportation | Temporary | Reconstruction of bus terminals | 1. Construction of one bus terminal, occupying the land area of 6666.7$m^2$, parking 40 buses.<br>2. Reconstruction of 5 exiting bus terminals, and main work is to convert internal buildings from light steel structure to mix of brick and concrete.<br>3. Open 6 bus routes, and procure 120 buses.<br>4. Dismantle and reconstruct 280 bus stops throughout the city. New bus kiosks will be e-stop of new type with steel structure. | Reconstruction |
| | | Bus stops | | |
| | Permanent | Construction of new bus terminals | | new construction |

## D. Project Implementation Progress

10. By the end of December 2020, 48 contracts were awarded. The implementation progress of the awarded contracts is summarized in Table II-1. During the reporting period, there is no construction activity.

**Table II-1: Summary of Progress of Contracts Under Construction**

| Civil Works (21) | | | | | | |
|---|---|---|---|---|---|---|
| **No.** | **Contract No.** | **Contract Name** | **Starting Date** | **Planned Completion Date** | **Actual Progress** | **Phisical Progress (% completed)** |
| 1 | URN-CW01 | Civil works of Minzhu Rd.etc. | 09/2015 | 09/2016 | Completed and opened to traffic | 100 |
| 2 | URN-CW02 | Civil works of Nanchang Rd., etc. | 09/2015 | 05/2017 | Completed and opened to traffic | 100 |
| 3 | URN-CW03 | Civil works of Nandajie Rd., etc. | 07/2016 | 11/2016 | Completed and put into operation | 100 |
| 4 | URN-CW04 | Civil works of Fuqi Rd., etc. | 07/2016 | 05/2017 | Completed and put into operation | 100 |
| 5 | URN-CW05 | Civil works of Jiefangzhong Rd. and Wenhua Rd. | 07/2016 | 05/2017 | Completed | 100 |
| 6 | URN-CW06 | Civil works of Tanan Rd. | 2017.08 | 05/2019 | Completed except greening | 100 |
| 7 | URN-CW07 | Civil works of alleys in 4 communities（26.5km） | 2017.08 | 05/2018 | Completed | 100 |
| 8 | URN-CW08 | Civil works of Jiaotong Rd. | 2017.03 | 05/2018 | Completed and put into operation | 100 |
| 9 | URN-CW09 | Civil works of Zhongyuan Rd. | 2017.03 | 05/2019 | The road was completed. | 100 |
| 10 | URN-CW10 | Civil works of Dashizi pedestrian overcrossing | 10/2015 | 04/2016 | Completed and put into operation | 100 |
| 11 | URN-CW011 | Civil works of Renmin Rd. and Awen Street | 07/2016 | 09/2017 | Completed and opened to traffic | 100 |
| 12 | URN-CW012 | Civil and installation engineering of Wuka Road | 04/2020 | 11/2020 | Underground pipe and curbstone were installed. | 100 |
| 13 | URN-CW013 | Civil works and installation engineering of Dongxidajie and associated water supply and drainage pipeline, Awen Road, Jiankang Road, Tuanjie Road and associated drainage pipeline, Desheng Road, Dongsi Road, Xinhe Road and Qingyuan Road | 04/2020 | 11/2020 | Underground pipe and curbstone were installed. | 100 |

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|---|---|---|---|---|---|---|
| 14 | URN-CW15 | Civil and installation engineering of Yingbage community back-street alleys water drainage pipeline; public toilet | 06/2020 | 11/2020 | Under Construction | 80 |
| 15 | URN-CW16 | Civil and installation engineering of Hongqipo area back-street alleyways and associated water supply and drainage pipeline | 06/2020 | 11/2020 | Completed | 100 |
| 16 | CHN-CW03 | Civil works and installation engineering of 12 old communities' external facade reconsruction | 06/2020 | 11/2020 | Under Construction | 95 |
| 17 | CHN-CW04 | Civil works and installation engineering of 11 old communities' external facade reconstruction | 06/2020 | 11/2020 | Under Construction | 95 |
| 18 | CHN-CW05 | Civil works and installation engineering of old communities' external pipeline reconstruction, equipment procurement of old communities' external pipeline reconstructio | 06/2020 | 11/2020 | Completed | 100 |
| 19 | PSP-CW01 | Civil works and installation engineering of seedling base and ancillary works | 07/2016 | 12/2019 | The site preparation and 2 wells were completed. The contract was postponed until November 2020. | 10 |
| 20 | PSP-CW02 | Civil works of parks and nursery in East District, etc. | 2017.07 | 12/2019 | Completed | 100 |
| 21 | PSP-CW03 | Civil works and installation engineering of protective forest on the both sides of Kaersiya flood control canal, plants procurement of protective forest on the both sides of Kaersiya flood control canal | 10/2020 | 03/2021 | Under Construction | 70 |
| **Consulting Services (2)** | | | | | | |
| 1 | CSS-CS01 | Project management and capacity building | 2016.08 | 2020.10 | Ongoing | 70 |
| 2 | CSS-RM01 | External resettlement expert | 2017.09 | 2020.10 | Ongoing | 70 |

## III. INSTITUTIONAL SETUP AND RESPONSIBILITIES FOR EMP IMPLEMENTATION AND SUPERVISION

### A. Institutional responsibilities for environmental management

11. **Executing Agency.** XUARG will assume the role of project executing agency (EA). XUARG was previously the designated EA for the ADB-financed Xinjiang Municipal Infrastructure & Environment Improvement Project, Xinjiang Urban Transport & Environment Improvement Project, and is also currently overseeing the implementation of the Xinjiang Altay Urban Infrastructure and Environment Improvement Project and Xinjiang Integrated Urban Development Project. A Xinjiang Project Leading Group (XPLG) and Xinjiang project management office (XPMO) were formally established by XUARG in 2006 and have now been assigned the role of overseeing the preparation and implementation of the Project. A Vice Governor of XUARG leads the XPLG. The XPLG members include high level officials from the Xinjiang Finance Bureau, Development and Reform Commission, Housing and Urban-Rural Development Bureau.

12. **XUAR PMO.** XPMO is an administrative office under the day to day leadership of the XUAR Housing and Urban-Rural Development Department (XHURD) that has successfully implemented several past ADB projects. XPMO therefore has the capacity and experience to provide guidance and support to APMO, and will play an important oversight role throughout the project implementation.

13. **Implementing Agency.** All project components are located within the jurisdiction of Akesu city and the Akesu Municipal Government (AMG) will undertake the role of implementing agency (IA). The AMG has set up the APLG and city-level Project Management Office (the APMO, see below). The APLG has the accountability to ADB and XUARG for compliance with environmental and social safeguards.

14. **Akesu Project Management Office (APMO).** APMO will undertake detailed project coordination and will engage and supervise the technical engineering design institutes. The APMO has 16 full-time and part-time staff drawing its membership from the DRC, Finance Bureau, Housing and Urban-Rural Development Bureau, Law Enforcement Bureau, Forest Bureau, Land Resources Bureau, Water Resources Bureau, Environmental Protection Bureau, Audit Bureau and Disciplinary Supervision Bureau. With respect to environmental management, the APMO will ensure the full compliance with the safeguards requirements. The APMO will contract construction supervision companies (CSCs), environmental supervision companies (ESCs), the Akesu Environmental Monitoring Station (AEMS) and loan implementation consultant (LIC). The AEMS will conduct environmental impact monitoring during construction and operation and assess project compliance with the PRC's environmental standards and regulations. With support from the LIC, the APMO will prepare and submit annual environment monitoring reports to ADB and XPMO annually for review, approval and disclosure. APMO will also establish the city-level Grievance Redress Mechanisms (GRM) with a dedicated Grievance Redress Officer (GRO).

15. **Environmental Management Unit (EMG).** The environmental management unit (EMG) within the APMO, with 1 staff member, will coordinate and supervise the implementation of the EMP. More specifically, the EMG will take charge of (i) coordinating the implementation of the EMP and developing implementation details; (ii) supervising the implementation of mitigation measures during construction; (iii) coordinating construction supervision companies (CSCs) and environmental supervision companies (ESCs); (iv) incorporating environmental management, monitoring, and mitigation measures into the construction and operation management plans; (v) reporting on the EMP performance to the APMO; and (vi) responding to any adverse impact beyond those foreseen in the EIS report and the IEE. APMO will also be supported by the loan

implementation consultant (LIC). In the design stage, the EMG / APMO will update the EMP, and pass it to design institutes to incorporate mitigation measures in the detailed designs. The EMP will then be passed on to construction contractors through the bidding process. To ensure that the contractors comply with the EMP's provisions, the APMO, with the help and technical support of the LIC, will prepare and provide the following specification clauses for incorporation into the bidding procedures: (i) a list of environmental management requirements to be budgeted by the bidders in their proposals; (ii) environmental clauses for contractual terms and conditions; and (iii) major items in domestic EIS report, the project IEE and the EMP.

16. **Loan implementation consultant (Consultant):** Easen International Co., Ltd (EASEN), the Loan Implementation Consultants (LIC) has been contracted by the APMO on August 22, 2016 to provide assistance during the pre-construction, construction and initial operational periods. The LIC will advise the APMO / EMG and contractors on all aspects of environmental management and monitoring for the Project. The LIC will (i) assist the APMO to design the PPMS in terms of environmental management, and assess project readiness based on the indicators defined in Table A1.3; (ii) assist APMO to update the EMP and environmental monitoring program; (iii) review the site-specific EMPs prepared by contractors; (iv) review internal and external environmental monitoring reports; (v) prepare the annual environmental monitoring report to ADB and XPMO on behalf of APMO; (vi) provide training to APMO, EMG, contractors and OEs on environmental management implementation and monitoring and assist in the preparation of training materials; (viii) identify any environment- related implementation issues and necessary corrective actions and reflect these in a corrective action plan; and (x) undertake site visits as required. In addition, prior to mid-term review mission, the LIC will provide support to APMO in organizing public meetings in the project city/towns to present and discuss EMP implementation progress, solicit community opinions and concerns, and agree on required corrective actions. Prior to project completion report, the LIC will organize surveys in the project city/town to assess community satisfaction with project implementation, project outputs, and EMP implementation performance, and document the results in the project completion report (PCR).

17. **External environmental monitors (EEM):** The independent agency, Xinjiang Hope-link Detection Technology Institute (XHDTI) was contracted by APMO in September 2016. As of December 2018, XHDTI conducted 3 monitoring campaigns for all the components (covering surface water, air and noise). As of the end of 2018, the contract expired. The Aksu PMO conducted a re-bidding procurement for the follow-up environmental monitoring service, and signed the monitoring contract for the following project period with the Xinjiang Xinhuan Inspection and Monitoring Institute (XXIMI) in March 2019. The new institute has conducted the monitoring campaigns since March 2019.

18. **Construction supervision companies (CSCs):** To date, the construction supervision companies (CSCs) have been contracted by the IAs to undertake internal environmental monitoring and inspection of civil works contracts. Monitoring and inspection results are documented in bi-monthly reports to the IAs. All CSCs have construction site environment, health and safety expertise; inspection and monitoring activities are conducted on a daily basis; monitoring results are documented daily in the CSCs logbooks, and in monthly reports submitted to the sub-IAs.

## B. Incorporation of Environmental Requirements into Project Contractual Arrangements

19. The Project EMP's primary purpose is to ensure that environmental requirements, identified during and following the Planning/Design Phase, are implemented and effectively managed during a project's life

cycle. In addition to the incorporation of environmental requirements into the project specifications in the bidding document, environmental requirements are part of the contractual requirements for the Project.

## IV. COMPLIANCE WITH ENVIRONMENT RELATED PROJECT COVENANTS

20. To date, all covenants in the Loan Agreement and Project Agreement have been executed as stipulated, while some are still to be enacted. A list of covenants and compliance status related to the environmental aspect is shown in Table IV-1.

**Table IV-1: Compliance with Environment Related Project Covenants**

| Schedule | Para No. | Description | Schedule/ Due Date | Status/Remarks (as of June 2020) |
|---|---|---|---|---|
| 4; Loan Agreement | 7(a) | **Conditions for Award of Contract**<br>The Borrower shall cause XUARG not to award any Works contract which involves environmental or involuntary resettlement impacts until:<br><br>XUARG has granted the final approval of the IEE; | Throughout implementation period | Complied with. |
| 4; Loan Agreement | 7(c) | XUARG has incorporated the relevant provisions from the EMP and the updated RP, if any, into the relevant Works contract. | Throughout implementation period | Being complied with. EMP and RP in Chinese has been provided to XPMO and APMO for the contract. |
| Schedule, Project Agreement | 2 | XUARG shall ensure that all the Project implementation procedures agreed upon with ADB be followed including environmental and social safeguard requirements. | Throughout implementation period | Being complied with. |
| Schedule, Project Agreement | 3 | **Environmental**<br>XUARG shall, and shall cause AMG to, ensure that the preparation, design, construction, implementation and operation of the Project and all Project facilities comply with (a) all applicable laws and regulations of the Borrower's relating to environment, health and safety; (b) the Environmental Safeguards as described in the Safeguard Policy Statement; and (c) all measures and requirements set forth in the Initial Environmental Examination (IEE) and the Environmental Management Plan (EMP) for the Project, and with any corrective or preventative actions (i) set forth in | Throughout implementation period | Being complied with. |

| Schedule | Para No. | Description | Schedule/ Due Date | Status/Remarks (as of June 2020) |
|---|---|---|---|---|
| | | a Safeguards Monitoring Report for the Project prepared pursuant to the SPS or (ii) which are subsequently agreed between ADB and XUARG. | | |
| Schedule, Project Agreement | 4(i) | XUARG shall cause AMG to ensure that its project management office ("APMO") implements the following measures prior to commencing construction to ensure the Project's environment management readiness:<br><br>appoint a qualified environment officer within the APMO, | Throughout implementation period | Complied with.<br>A qualified environment officer (Mr. Zhe Yudong) was appointed within the APMO in November 2016. Staff from the Environmental Protection Bureau (EPB) has been supporting APMO. |
| Schedule, Project Agreement | 4(ii) | recruit environment specialists as part of the loan administration consultant services, | Throughout implementation period | Complied with.<br>The loan administration consultants were engaged one year after the awarding of the first contract; environmental specialists are included in the loan administration consultant team. |
| Schedule, Project Agreement | 4(iii) | have a contractual agreement with the municipal environment monitoring station (EMS) to conduct the environmental impact monitoring described in the EMP; and | Throughout implementation period | Complied with.<br>The independent agency, Xinjiang Hope-link Detection Technology Institute (XHDTI) was contracted by APMO in September 2016 to conduct the environmental impact monitoring according to the EMP by end of 2018. Another independent agency, Xinjiang Xinhuan Inspection and Monitoring Institute (XXIMI) was contracted in March 2019 for the monitoring of the following project construction period. |
| Schedule, Project Agreement | 4(iv) | ensure that the EMS provides monitoring results to the APMO and AMG at least once per year during the construction period. | Throughout implementation period | To be complied with.<br>The environmental monitoring agency was required to provide the monitoring results every half a year. Since September 2016 to December 2018, four results have been provided by the first monitoring agency, XHDTI. And four results has been provided since the first half of 2019 by the new agency, XXIMI. |

| Schedule | Para No. | Description | Schedule/ Due Date | Status/Remarks (as of June 2020) |
|---|---|---|---|---|
| Schedule, Project Agreement | 5 | Before and during any Project construction, XUARG shall cause AMG to ensure that the APMO organizes and conducts training on implementation and supervision of the project EMP for appropriate officers of the relevant agencies and all Project contractors. | Throughout implementation period | Being complied with. The environmental consultants have provided two on-site training for the project EMP requirement in August and September 2016 and April 2017 to the contractors and the supervision firms. |
| Schedule, Project Agreement | 6 | XUARG shall cause AMG to ensure that the necessary noise mitigation measures along the project road are implemented according to the requirements specified in the EMP and applicable national environmental protection regulations. | Throughout implementation period | Being complied with. Mitigation measures in the EMP including no construction activities during the night and properly machinery maintenance were implemented. |
| Schedule, Project Agreement | 7(i) | XUARG shall cause AMG to ensure that: construction activities in the Akesu Duolang wetlands are appropriately restricted during the waterbird sensitive periods; and | Throughout implementation period | Being complied with. During the migratory period, construction was restricted to the hours between 10am and 4pm. |
| Schedule, Project Agreement | 7(ii) | the Akesu Forestry Bureau conducts a bird survey within the wetland perimeter to record the number of migratory water bird species in the wetland area prior to, during, and after construction. | Throughout implementation period | Being complied with. The first survey was done as part of the PPTA. The second one was completed in Q2 2017. |
| Schedule, Project Agreement | 11(a) | **Safeguards-Related, Gender and Social Development Provisions in Bidding Documents and Works Contracts** XUARG shall cause AMG to ensure that all bidding documents and contracts for Works contain provisions that require contractors to:<br><br>comply with the measures relevant to the contractors set forth in the IEE, the EMP, EMDP, RP and SGAP (to the extent they concern impacts on the respective affected people under the Environmental Safeguards, Indigenous Peoples Safeguards and the Involuntary Resettlement Safeguards during construction), and any corrective or preventative actions set forth in (i) a Safeguards Monitoring | Throughout implementation period | Being complied with. The progress on SGAP implementation was reported in the semi-annual social and resettlement monitoring report.<br><br>Affected households were compensated and relocated prior to handover of sites to the contractors. |

| Schedule | Para No. | Description | Schedule/ Due Date | Status/Remarks (as of June 2020) |
|---|---|---|---|---|
| | | Report or (ii) subsequently agreed between ADB and XUARG; | | |
| | 11(b) | monitor relevant environmental impacts caused by the construction and installation activities and report to the project management office; | Throughout implementation period | Complied with. EASEN and EMS were engaged. |
| | 11(c) | make available a budget for all such environmental and social measures; and | Throughout implementation period | Complied with. |
| | 11(d) | provide XUARG and AMG with a written notice of any unanticipated environmental, or resettlement and social risks or impacts that arise during construction, implementation or operation of the project that were not considered in the IEE, EMP, EMDP, RP and SGAP. | Throughout implementation period | Will be complied with. Included in the progress report. |
| Schedule, Project Agreement | 12(a)(i) | **Safeguards Monitoring and Reporting**<br><br>XUARG shall cause AMG to submit Safeguards Monitoring Reports to ADB:<br><br>in respect of implementation of and compliance with Environmental Safeguards and the EMP, annually during construction and the implementation of the Project and the EMP until the issuance of ADB's Project completion report unless a longer period is agreed in the EMP; | Throughout implementation period | The first Semi-annual Environmental Monitoring Report (EMR) was submitted in February 2017, the second EMR was submitted in July 2017 and the third was submitted in January 2018. The fourth EMR was submitted in September 2018. The fifth EMR was submitted in January 2019. The sixth EMR was submitted in August 2019. The seventh EMR was submitted in January 2020. The eighth EMR was submitted to ADB in August 2020. The ninth EMR will be submitted to ADB in January 2021. |
| | 12(a) | and disclose relevant information from such reports to respective affected people under Environmental Safeguards, Involuntary Resettlement and Indigenous Peoples Safeguards promptly upon submission; | Throughout implementation period | Being complied with. |
| | 12(b) | if any unanticipated environmental and/or social risks and impacts arise during construction, implementation or operation of the Project that were not considered in the IEE, the EMP, the EMDP and the RP, promptly inform ADB of | Throughout implementation period | Being complied with. No such impact occurred by the reporting period. |

| Schedule | Para No. | Description | Schedule/ Due Date | Status/Remarks (as of June 2020) |
|---|---|---|---|---|
| | | the occurrence of such risks or impacts, with detailed description of the event and proposed corrective action plan; and | | |
| | 12(c) | report any actual or potential breach of compliance with the measures and requirements set forth in the EMP, the EMDP or the RP promptly after becoming aware of the breach. | Throughout implementation period | Being complied with. |
| Schedule, Project Agreement | 13 | **Safeguards - Human and Financial Resources to Implement Safeguards and Social Requirements**<br>XUARG shall cause AMG to make available all necessary budgetary and human resources to fully implement the EMP, the RP, the EMDP, and the SGAP for the Project, and any other measures required under the SPS. | Throughout implementation period | Complied with.<br>APMO contracted Mr. Wang Junbo from the environmental monitoring station of Akesu Environmental Protection Bureau as environmental supervisor, and appointed Mr. Zhe Yudong from Akesu Municipal DRC as safety staff on 22 November 2016. |
| Schedule, Project Agreement | 15 | **Safeguards Grievance Redress Mechanism**<br>XUARG shall cause AMG to ensure that separate safeguards grievance redress mechanisms acceptable to ADB are established in accordance with the provisions of the IEE, EMP, EMDP and RP at the APMO, within the timeframes specified in the relevant IEE, EMP, EMDP and RP, to consider safeguards complaints. | Throughout implementation period | Complied with.<br>GRM is in place to address environment, safety and health, and resettlement concerns. |
| Schedule, Project Agreement | 16 | **Applicability of ADB's Safeguard Policies**<br>XUARG shall cause AMG to ensure that the provisions of the IEE, EMP, EMDP and RP as well as any requirements under SPS also apply to the portion of the Project to be financed by AMG funded by own resources and/or commercial banks. | Throughout implementation period | RP implementation completed in June 2016 and AMG funds were used.<br>EMS was hired by APMO on August 2016. |
| Schedule, Project Agreement | 19 | **Public Awareness**<br>XUARG shall cause AMG to undertake public awareness campaigns on the Project and its benefits, including but not limited to information related to the EMP, the RP, the EMDP, and the SGAP, to be conducted through information disclosure, education | Throughout implementation period | To be complied with.<br><br>Environment: The public awareness plan is updated in the first EMR. |

| Schedule | Para No. | Description | Schedule/ Due Date | Status/Remarks (as of June 2020) |
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| | | and consultation, in both the local languages and Mandarin. | | |
| Schedule, Project Agreement | 31 | XUARG shall cause AMG and the Akesu Forestry Bureau to ensure that (i) no alien and/or invasive species are introduced for the wetland, public parks, and landscaping works; (ii) water saving irrigation is promoted; and (iii) actual water use for irrigation of public parks, the nursery and road landscaping works are monitored and reported in the Project's annual environmental monitoring reports to ADB and in the Project completion report. | Throughout implementation period | (i) Being complied with. No alien and/or invasive species were introduced. |

## V. ENVIRONMENTAL MITIGATIONS AND COMPENSATION MEASURES IMPLEMENTED IN THE REPORTING PERIOD

21. Potential environmental impacts of the subprojects and mitigation measure during this reporting period and the environmental quality targets, sampling and analytical methods are summarized in Table V-1. The implementation status of the mitigation measures is summarized in the last columns of the table for comparison with designed mitigation measures stated in the EMP.

**Table V-1 Summary of Potential Environmental Impacts and the Mitigation Measures**

| Item/Media | Environmental Issues/ Impacts | Mitigation Measures and / or Safeguards | Implementation status and compliance with EMP | Remarks |
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| 1.1 Detailed Design | Sediment test (wetland rehabilitation component) | – Engage a qualified laboratory to collect sediment samples and conduct analysis at proposed sediment dredging sites of the Akesu-Duolang wetlands. | Completely done | |
| | Wetland design | – Prepare preliminary design and construction drawings for the Akesu-Duolang wetlands that (i) are substantiated with data series of water quality and sediment transport; (ii) take into account expected high suspended solids inflow; and (iii) enhance the wetland's existing regulating, supporting and cultural ecosystem services.<br>– The preliminary design and construction drawings shall be submitted to ADB for review and appraisal prior to Works contract award. | Completely done | |
| | Deconstruction of 28 small boilers (district heating subcomponent) | – Hire licensed institute to conduct asbestos risk assessment for all 28 small boilers affected by the project before<br>– completion of the district heating component.<br>– In case of identified presence of asbestos, develop an asbestos | The boilers deconstruction has been cancelled from the project. | |

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| | | management plan for all affected boiler houses in adherence with international guidelines for the demolishing and disposal of asbestos and ACM (World Bank EHS Good Practice Note on Asbestos: Occupational and Community Health Issues; WHO Policy and Guidelines; and ISO/FDIS 16000-7: Indoor air—Part 7: Sampling strategy for determination of airborne asbestos fiber concentrations.);<br>– Conduct deconstruction of decontaminated boiler houses in compliance with standards for occupational health and safety and disposal of demolition wastes, including the Law on the Prevention and Control of Environmental Pollution by Solid Waste of PRC (2004); Occupational Disease Control Act (2002); and Work Safety Act (2002). | | |
| 1.2 Construction Preparation Stage | Establishment of implementation support positions | – Contracting a Loan Implementation Consultant (LIC) | Completely done | The LIC, Easen was engaged since August 2016. |
| | | – Contracting the Akesu Environmental Monitoring Station for external environmental monitoring | Completely done | The independent agency, Xinjiang Hope-link Detection Technology Institute was contracted in September 2016 and the contract expired by the end of 2018. The Aksu PMO conducted a re-bidding procurement and signed the monitoring contract for the following project period with the Xinjiang Xinhuan Inspection and Monitoring Institute (XXIMI) in March 2019 and the new institute has conducted the monitoring campaigns since the first half of 2019. |
| | | – Contracting CSCs and ESCs | Completely done | The contracted CSCs are also responsible for environmental |

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| | | | | supervision. |
| | | – Establishment of EMG within APMO with appropriately skilled staff;<br>– Assign Grievance Redress Officer (GRO) for GRM coordination | Completely done | APMO contracted Mr. Wang Junbo from the environmental monitoring station of Akesu Environmental Protection Bureau as environmental supervisor, and appointed Mr. Zhe Yudong from Akesu Municipal DRC as safety staff on 22 November 2016. |
| | Updating EMP | – Update mitigation measures defined in this EMP based on the detailed design, including disclosure on ADB website;<br>– In case of major change of project location (or additional physical component) that may cause substantial<br>– environmental impacts or involve additional affected people, APMO should engage an EIS institute to conduct additional environmental assessment and also public consultation. The revised EIS report(s) should be submitted to relevant EPB and ADB for approval and disclosure. To determine whether the change is minor or major, APMO should consult with ADB. | Completed done. | APMO proposed some changes during the ADB Mission in November 2016 and the Addendum to CIEE with the EMP has been prepared by January 2018. The Addendum has got ADB's approved after the revision according to ADB's comments. |
| | Contract documents | – Prepare environment section in the terms of reference for bidders;<br>– Prepare environmental contract clauses for contractors, namely the special conditions (e.g., reference to EMP and monitoring table) | Improved Urban Infrastructure services<br>Completely done.<br><br>Akesu-Duolang Wetland Rehabilitation<br>Completely done. | |
| | Provide comprehensive and responsive complaints process | – Development and implementation of Grievance Redress Mechanism (GRM);<br>– Assign Grievance Redress Officer (GRO) within APMO<br>– Identify GRM entry points and brief them on their role | Completely done. | Local residents and the workers were notified about GRM through a daily newspaper (every day on Akesu Daily) and a local TV station (Akesu Prefecture TV |

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| | | | | Station) as well as billboards on some construction sites. Prepare the data base. GRM signboards for public as well as workers were maintained all through the construction period. |
| | Construction site planning | – Preparation of site-specific EMPs, including an emergency preparedness and response plan for construction emergencies;<br>– Nomination of an Environment, Health and Safety Officer (EHSO) in contractors' team;<br>– Development of site environment, health and safety plan for approval by the EMG | Improved Urban Infrastructure services Completed done.<br><br>Akesu-Duolang Wetland Rehabilitation Completed done. | Site-specific EMPs have been prepared for each contract.<br><br>APMO contracted Mr. Wang Junbo from the environmental monitoring station of Akesu Environmental Protection Bureau as environmental supervisor, and appointed Mr. Zhe Yudong from Akesu Municipal DRC as safety staff on 22 November 2016. |
| | Traffic management planning | – Prepare Traffic Management Plans for the roads, and water supply, sewerage and central heating pipes subprojects. The Plans should cover:<br>– Schedule linear constructions (roads and pipes) section by section.<br>– Selecting haulage routes to reduce disturbance to regular traffic (where possible).<br>– Diverting or limiting construction traffic at peak traffic hours.<br>– Siting and management of interim tracks to avoid traffic problems.<br>– Blocking and reinstating interim tracks to original condition on completion of construction.<br>– Maintain adequate traffic control measures throughout the duration of the Contract and such measures shall be subject to prior approval of IA.<br>– Carefully and clearly mark pedestrian-safe access routes.<br>– If school children are in the vicinity, include traffic safety personnel to direct | Improved Urban Infrastructure services Completed done..<br>Akesu-Duolang Wetland Rehabilitation Completed done. | Traffic management plans must be improved to secure better safety around the construction sites. |

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| | | traffic during school hours.<br>– Maintain a supply for traffic signs (including paint, easel, sign material, etc.), road marking, and guard rails to maintain pedestrian safety during construction. | | |
| 1.2 Construction Preparation Stage | Borrow and spoil disposal sites identified and approved by AEPB | – Borrows and spoils for all subprojects are balanced. In case<br>– design changes require borrows or spoils, the spoil sites and borrow pit locations should be defined in the construction tender documents, subject to approval by the AEPB.<br>– If new borrow or spoil disposal sites are required, selection should use the following criteria:<br>– Siting to minimize transportation and the need for temporary storage.<br>– Siting to avoid potential flood areas or floodways.<br>– Sites to be small, and have no encroachment on cultivated land or forestland.<br>– Design of spoil disposal sites to only use borrow pits designated by local authorities.<br>– Avoid sites with known contamination and/or erosion problems.<br>– Install adequate fencing.<br>– Avoid damage to adjacent lands while providing for haulage roads.<br>– Store, protect and re-use top soils for re-instating the pit. Shape and compact slope before applying former topsoil layers.<br>– Develop a Management Plan for borrow pit operations, including all planned operations, quantities, hauling<br>– arrangements and security precautions.<br>– This Management Plan, to be prepared by the Contractor and approved by the AEPB and Water Resources Bureau (WRB), shall also describe the intended reshaping and re-installation of the pit. | Improved Urban Infrastructure services<br>Partly done but need to be improved.<br>Akesu-Duolang Wetland Rehabilitation<br>Partly done but need to be improved. | Soil qualities must be checked and monitored to satisfy the disposal methods. |
| 1.2 Construction Preparation Stage | Environmental Training | – Environmental specialists and / or officials of AEPB to be invited to | Completely done. | The environmental consultant provided on-site |

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| | | provide training on implementation and supervision of environmental mitigation measures to contractors. | | trainings in August and September 2016 and April 2017 to the contractors and the construction supervision companies. |
| 2. Construction Stage | | | | |
| 2.1 Water Resources | Illicit groundwater extraction | – No groundwater shall be extracted without extraction permits/approvals. | Improved Urban Infrastructure services<br>Completed done.<br><br>Akesu-Duolang Wetland Rehabilitation<br>Completed done. | |
| | Construction wastewater from washing aggregates, pouring and curing concrete, machinery repairs; handling of hazardous and harmful materials, accidental spills | – To avoid pollution of surface and groundwater resources in the project areas, including accidental spills, the contractors shall ensure that:<br>– Sedimentation tanks are built, and after settling out of solids the upper clear liquid is recycled for spraying the construction site (dust control), and the waste residue in the tank is cleared and transported to designated landfills.<br>– Oil traps are provided for service areas and parking areas, and oil-water separators are installed before the sedimentation tank for oil-containing wastewater.<br>– All construction machinery is repaired and washed at special repairing shops. No onsite machine repair and washing shall be allowed.<br>– Storage facilities for fuels, oil, and other hazardous materials are within secured areas on impermeable surfaces, and provided with bunds and cleanup kits.<br>– Vehicles and equipment is properly staged in designated areas to prevent contamination of soil and surface water.<br>– The contractors' fuel suppliers are properly licensed, follow<br>– proper protocol for transferring fuel, and | Improved Urban Infrastructure services<br>Completed done.<br><br>Akesu-Duolang Wetland Rehabilitation<br>Completed done. | |

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| | | are in compliance with Transportation, Loading and Unloading of Dangerous or Harmful Goods (JT 3145-88).<br>– Fuel storage and refilling areas are located at least 300 m from drainage structures and important water bodies;<br>– Material stockpiles are protected against wind and runoff waters which might transport them to surface waters.<br>– A construction materials handling and disposal protocol including spill responses is defined in the site-specific EMP.<br>– Any spills are cleaned up according to PRC norms and codes within 24 hours of the occurrence, with contaminated soils and<br>water treated according to PRC norms and codes. Records must be handed over without delay to the APMO and AEPB. | | |
| 2.2 Air Quality | Generation of dust by construction activities; air emission from vehicles and equipment; generation of asphalt flue gas | The Contractor shall include all necessary measures to reduce air pollution and dust development that would impact the public health, by:<br>– Regular water spraying at hauling and access roads to borrow pits. The water spraying times shall be determined based on weather conditions. The basic principle is once during 0900- 1030, once during 1300-1430 and once during 1900-2030;<br>– Equipping asphalt, hot mix and batching plants with fabric filters and/or wet scrubbers to reduce the level of dust emissions.<br>– Ensure compliance with the asphalt flue gas standard of GB16297-1996. Additionally, asphalt mixing stations will be sited at least 500 meters away from residential areas;<br>– Mounting protective canvasses on all trucks which transport material that could generate dust;<br>– Assigning haulage routes and schedules to avoid transport occurring in the central areas, traffic intensive areas or | <u>Improved Urban Infrastructure services</u><br>Completed done.<br><br><u>Akesu-Duolang Wetland Rehabilitation</u><br>Completed done. | The quality of the dredged sediments was tested before being transported to the wasteland in Kumalike River Gobi Desert for greening use. |

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| | | – residential areas. For the areas with high-demand on environmental quality, transport should be arranged at night.<br>– Construction vehicles and machinery shall be kept in good working order, regularly serviced and engines turned off when not in use;<br>– Vehicle emissions must be in compliance with PRC-GB18352- 2005, GB17691- 2005, GB 11340-2005, GB3847;<br>– High-horsepower equipment will be installed with tail gas purifier to ensure emissions be in compliance with PRC GB16297- 1996;<br>– Vehicles with an open load-carrying case, which transport potentially dust-producing materials, shall have proper fitting sides and tail boards. Dust-prone materials shall not be loaded<br>– to a level higher than the side and tail boards, and shall always be covered with a strong tarpaulin;<br>– In periods of high wind, dust-generating operations shall not be permitted within 200 m of residential areas. Special precautions need to be applied in the vicinity of sensitive areas such as schools, kindergartens and hospitals;<br>– Material stockpiles and concrete mixing equipment will be equipped with dust shrouds. For the earthwork management for<br>– backfill, measures should include surface press and periodical spraying and covering. The extra earth or dreg should be cleared from the project site in time to avoid the long term pile. The height of stockpiles should be less than 0.7 m;<br>– Unauthorized burning of construction waste material shall be<br>– subject to penalties for the Contractor, and withholding of payment.<br>– Monitor the quality of the soils from the road and the wetland before being | | |

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| | | disposed. | | |
| 2.3 Noise | Noise from Vehicles and construction machinery | – During daytime construction, the contractor will ensure that: (a) noise levels from equipment and machinery conform to the PRC standard of GB 12523-2011, and properly maintain machinery to minimize noise; (b) equipment with high noise and high vibration are not used in village or township areas and only low noise machinery or the equipment with sound insulation is employed; (c) sites for concrete-mixing plants and similar activities will be located at least 500-m away from sensitive areas; and (d) temporary anti-noise barriers will be installed to shield residences;<br>– Restriction of the operation of machinery generating high levels of noise, such as piling, and movement of heavy vehicles between 22:00 to 08:00 and 13:30 to 16:00 during summer and 20:00 to 8:00 and 14:00 to 15:30 during spring and autumn in accordance with PRC regulations;<br>– Construction at night within 280 m of sensitive receivers shall be strictly prohibited;<br>– In unexpected cases where construction noise needs to continue into the night, the construction unit must reach an agreement with APs and provide compensation;<br>– Provide the construction workers with suitable hearing protection (ear muffs);<br>– Noise enclosures will be used when construction takes place in the vicinity of sensitive spots and during sensitive hours;<br>– Noise at sensitive areas will be monitored at regular intervals (refer to the monitoring plan). If noise standards are exceeded<br>– by more than 3dB, equipment and construction conditions shall be checked, and mitigation measures shall be implemented to rectify the situation. | Improved Urban Infrastructure services<br>Completed done.<br><br>Akesu-Duolang Wetland Rehabilitation<br>Completed done. | |

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| 2.4 Solid wastes | Construction waste | – Construction wastes that cannot be reused will be regularly transported off-site for disposal, and not allowed to accumulate on site over long periods. | Improved Urban Infrastructure services Completed done.<br><br>Akesu-Duolang Wetland Rehabilitation Completed done. | EASEN has examined the appropriateness of the current procedure by the reporting period. |
| | Hazardous waste | In the framework of site-specific EMP development, the Contractors will ensure the following:<br>– Development of a management plan for transport, handling and storing hazardous material; and<br>– Preparation of a contingency plan in the event of an accident involving hazardous material. Such emergency plan needs to<br>– be consulted and coordinated with the local health facilities. | Improved Urban Infrastructure services Completed done.<br><br>Akesu-Duolang Wetland Rehabilitation Completed done. | EASEN has examined the appropriateness of the current procedure by the reporting period. |
| 2.5 Soil erosion and stability | Erosion from construction sites | The following safeguards will be implemented for all construction- related earthworks:<br>– Construct interception ditches and drains to prevent runoff entering construction sites, and divert runoff from sites to existing drainage.<br>– Limit construction and material handling during periods of rains and high winds.<br>– Stabilize all cut slopes, embankments, and other erosion prone working areas while works are going on.<br>– Preserve existing vegetation where no construction activity is planned.<br>– Stockpiles shall be short-termed, placed in sheltered and<br>– guarded areas near the actual construction sites or within the fenced camp sites, covered with clean tarpaulins, and spray water shall be applied during dry and windy weather conditions.<br>– All earthwork disturbance areas shall be stabilized within 30 days after earthworks have ceased at the sites. | Improved Urban Infrastructure services Completed done.<br><br>Akesu-Duolang Wetland Rehabilitation Completed done. | |

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| | Excess spoil from earthworks (if necessary) | – Use only approved spoil disposal sites<br>– (see Item 1.3 above);<br>– Construct intercepting ditches and drains to prevent outside runoff entering disposal sites, and divert runoff from sites.<br>– Rehabilitate terrain contours and re-vegetate spoil disposal sites at completion of use. | <u>Improved Urban Infrastructure services</u><br>Done for components that are done, but still go on for the upcoming components<br><br><u>Akesu-Duolang Wetland Rehabilitation</u><br>Completed done. | |
| 2.6 Wetland ecosystem | Water quality | – Dredging and other construction activities will be scheduled to winter to reduce water quality impacts<br>– Weirs and settlement ponds will be used to prevent muddy water and any wastewater from flowing to downstream waters<br>– When constructing embankments, sand bags will be used to prevent soils into the water body<br>– Silt fences will be used to contain sediments from flowing away to wider areas<br>– Construction garbage will be collected and disposed in local landfill<br>– Maintenance of machinery and equipment will be sited away from the wetland areas and sand filters and separators will be used to collect oils for safe disposal | Done for the 1st and 2nd monitorings and will be done regularly as required in the monitoring plan. | EMS conducts a water quality monitoring program in Duolang Wetland, numerous monitoring sites were set up and monitoring (3 times in a year) of water quality in the Park has been underway since September 2016.<br>During the reporting period of July to December 2020, the new environmental monitoring agency, Xinjiang Xinhuan Inspection and Monitoring Institute (XXIMI) has conducted the monitoring for the project. |
| | Aquatic plants | – Valued aquatic plants will be carefully relocated and replanted immediately after construction<br>– Regular plants will be relocated to designated locations in the reconstructed wetlands | Will be done as required in the EMP | |
| | Birds | – Prohibit construction activities or use of noise-intensive machinery during the migration season (end of March to end of April; mid-September to end of October)<br>– Prohibit construction activities at night | Will be done as required in the EMP | Akesu Water Resource Bureau under the support of implementation consultant (wetland and environment consultants) should conduct |

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| | | – Use of low-air-emission and low-noise construction machinery<br>– Avoid water pollution from construction spoils and oil leakage<br>– Locate construction camp at least 500-m away from the wetlands<br>– Erect warning signs to prohibit horn blowing and garbage throwing from diverted traffic<br>– Awareness building and training of construction workers<br>– Establish a wetland monitoring and management system, develop a manual and instructions to carry out the wetland monitoring for data collection and analysis<br>– Develop training and education programs for local residents, schools, government agencies for wetland protection and conservation<br>– Design and implement a comprehensive biodiversity and habitat survey/monitoring program (2015-2020). The program<br>– shall focus on comparing seasonal species richness and abundance of migratory water birds in the project area; providing hands-on training on wildlife monitoring for the pre- and post-project period | | regular monitoring of bird including: a) Regular monitoring of key water bird groups (migrants and breeders) as well as passerines and other groups that are known to utilize the reed-beds, woodlands and marshes at Duolang wetland during migration and breeding periods; b). Non-breeding water birds are expected to utilize different depth water zones throughout the park.<br>In addition, consultations to wildlife conservation NGOs and Akesu City Environmental Protection Bureau to get advices for the designing, if any, was conducted by APMO with supports by EASEN.<br>A training for bird monitoring was provided in August 2017. |
| 2.6 Wetland ecosystem | Sediment dredging | – Conduct dredging works after draining and solidifying sediments to avoid sediment leachate and minimize odors.<br>– Where wet dredge spoil is produced, undertake on-site dewatering with the sludge covered with a layer of soil to reduce odors. Confirm quality of sludge | Done for the 1st monitoring and will be done regularly as required in the monitoring plan. | The quality of the dredged sediments was tested before being transported to the wasteland in Kumalike River Gobi desert for greening use. |

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| | | against GB4284-84 and GB15618-95 to ensure safe disposal;<br>– Depending upon testing results, dewatered dredge sludge will be taken to approved spoil disposal sites/uses or to sanitary landfill.<br>– Transport dried sediment in closed trucks to prevent scattering along the way. | | |
| 2.6 Social and Cultural | Resettlement of affected persons | – All affected persons will be resettled in a timely and adequate manner, in accordance with the Resettlement Plan. | Improved Urban Infrastructure services<br>Completely done.<br><br>Akesu-Duolang Wetland Rehabilitation<br>Completed done. | |
| | Compensation of lost assets | – All affected persons will be compensated in a timely and adequate manner, in accordance with the Resettlement Plan. | Improved Urban Infrastructure services<br>Completely done.<br><br>Akesu-Duolang Wetland Rehabilitation<br>Completed done. | |
| | Construction | Mandatory mitigation actions to be included in the site-specific EMP include:<br>– All contracted labor shall undergo a medical examination which should form the basis of an (obligatory) health/accident insurance and welfare provisions to be included in the work contracts. The contractors shall maintain records of health and welfare conditions for each person contractually engaged;<br>– Each contractor shall seek his own electric supply system, preferably separated from the public grid;<br>– Each contractor shall provide adequate and functional systems for sanitary conditions, toilet facilities, waste | Improved Urban Infrastructure services<br>Done for components that are done, but still go on for the upcoming components<br><br>Akesu-Duolang Wetland Rehabilitation<br>Completed done. | |

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| | | management, labor dormitories and cooking facilities. Work<br>– camp wastewater shall be discharged into municipal sewer system where possible. Work camps should also adhere to basic principles of aesthetics and landscaping. They equally shall include sport and recreational facilities for managers, foremen and laborers;<br>– The camp sites and particularly the fuelling area shall be equipped with special wastewater collectors combined with separator basins. The camp sites need to have their own sealed containers for sludge disposal from septic tanks;<br>– The camp sites should be secured against unauthorized access. Special precaution measures are required for securing and storing hazardous materials;<br>– Each contractor shall construct, maintain and completely<br>– remove after work completion his own sewage management system. He will also be fully responsible for safe transport, storage and security to dispose all hazardous materials used in work processes;<br>– To encounter possible social conflicts, each contractor shall seek good relationship with the local communities and engage in local social welfare and education programs. He shall offer, to the maximum possible, employment opportunities to local residents, particularly for unskilled labor;<br>– Each contractor shall reinstate the land provided for diversions to a condition similar to that prior to the commencement of construction. Photographic records may be used by the PMC to determine if the reinstatement of diversions has been satisfactorily carried out.<br>– Construction site operations must | | |

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| | | comply with PRC's State<br>– Administration of Worker Safety Laws and Regulations.<br>– An education program for HIV/AIDS and STDs will be implemented concurrently with the project implementation. | | |
| 2.6 Social and Cultural | Traffic management – all projects | – Schedule linear constructions (road and water management) section by section.<br>– Selecting haulage routes to reduce disturbance to regular traffic (where possible).<br>– Traffic delays with traffic lights or flagmen shall be kept at reasonable periods (max. 10 min).<br>– Diversions shall be well-illuminated, furnished with drainage structures, and fenced with marked barriers.<br>– Where applicable, for example at sites where school children approach the work sites, flagmen need to be present during critical hours.<br>– Any hindrance and obstacles for maintaining free access of the public general to local utilities, social gatherings and to public transport facilities should be avoided. | Improved Urban Infrastructure services<br>Done for components that are done, but still go on for the upcoming components<br><br>Akesu-Duolang Wetland Rehabilitation<br>Completed done. | |
| | Interruption of public utilities and services | Locate and confirm the details of all public services (water pipes, gas pipes, heating pipes, electric cables, phone lines) that may potentially be affected by the works;<br>– All utilities subject to removal need to be fully replaced before disconnecting the existing service.<br>– An "advance notice" of service interruption shall be published before the construction through radio and TV.<br>– Construction billboards, which include construction contents, schedule, responsible person and complaint phone number, shall be erected at each construction site.<br>Any damage or hindrance/disadvantage to local businesses caused by the premature removal or insufficient replacement of public utilities is subject to full | Improved Urban Infrastructure services<br>Done for components that are done, but still go on for the upcoming components<br><br>Akesu-Duolang Wetland Rehabilitation<br>Completed done. | |

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| | | compensation, all at the full liability of the contractor who caused the problem.<br>– The contractor shall also maintain unhindered access and use of social, cultural and religious sites (e.g. mosques,<br>cemeteries, cultural gathering places, sports facilities).<br>– Should damage to private properties occur, the contractor will be held fully liable to compensate and rectify the inflicted damage. | | |
| 2.6 Social and Cultural | Community health and safety | – Advance notice of construction will be published before the construction through radio and TV.<br>– Construction billboards, which include construction contents, schedule, responsible person and complaint phone number, will be erected at each construction site.<br>– Contractors will erect barriers to prevent public access to construction sites.<br>– Traffic control staff at construction sites | Improved Urban Infrastructure services<br>Done for components that are done, but still go on for the upcoming components<br><br>Akesu-Duolang Wetland Rehabilitation<br>Completed done. | |
| | Construction site safety | – At all times during construction, the contractor will provide safe and convenient passages for vehicles, pedestrians, and livestock to and from side roads;<br>– The Contractor's responsibilities include the protection of every person and nearby property from construction accidents. The Contractor shall be responsible for complying with all national and local safety requirements and any other measures necessary to avoid accidents, including the following:<br>– Provide personal protective equipment and clothing (goggles, gloves, respirators, dust masks, hard hats, steel-toed boots) for construction workers and enforce their use;<br>– During heavy rains or emergencies of any kind, suspend all work; | Improved Urban Infrastructure services<br>Partly done but need to be improved.<br><br>Akesu-Duolang Wetland Rehabilitation<br>Completed done. | |

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| | | – Brace electrical and mechanical equipment to withstand seismic events during the construction.<br>– Present details regarding maximum permissible vehicular speed on each section of road;<br>– Establish safe sight distance in both construction areas and construction camp sites;<br>– Place signs around the construction areas to facilitate traffic movement, provide directions to various components of the works, and provide safety advice and warnings. | | |
| | Cultural, physical and natural heritage protection | – In case an important site is unearthed, work should be<br>– stopped immediately and the matter promptly referred to the local Cultural Relics Preservation Bureau for evaluation and decision on appropriate actions. | Improved Urban Infrastructure services<br>Done for components that are done, but still go on for the upcoming components<br><br>Akesu-Duolang Wetland Rehabilitation Completed done. | |
| 2.7 Unexpected environmental impacts | | – If unexpected environmental impacts occur during project construction phase, the Contractors will update their site- specific EMP, EMG will update the Project EMP, and environmental protection measures will be designed and resources will be utilized to cope with these impacts | Improved Urban Infrastructure services<br>Done for components that are done, but still go on for the upcoming components<br><br>Akesu-Duolang Wetland Rehabilitation Completed done. | No unexpected environmental accidents occur by now. |
| 3. Operation Stage (Project Roads) | | | | |
| 3.1 Noise | Noise from increasing traffic volumes on Project | – Improve traffic and parking management to avoid noise | Not yet due. | |

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| | roads | produced by stop-and-start driving and traffic jams;<br>– Enforce driving speed limitations;<br>– Control large and heavily loaded vehicles during night time;<br>– Signs to reduce use of horn;<br>– Road maintenance and timely repair of damaged road pavements;<br>– Proper maintenance of trees planted along the proposed roadsides after construction;<br>– Sensitive receptors shall be constructed at least 100 m away from the roads;<br>– Conduct ambient noise monitoring, determine whether mitigation measures will be required for sites where noise levels are expected to exceed by more than 3 dB(A);<br>– When the project roads are completed, a comprehensive ambient (along the project roads) and indoors (street- front buildings) noise monitoring will be undertaken to assess the noise levels;<br>– For those roads where violations still persist with the implementation of the above mitigation measures, the<br>– AMG has committed to undertaking additional measures to bring the noise levels in the residences to meet the applicable standards. Possible measures will include installation of sound-proof windows for the violating buildings. The AMG has assured to provide subsidies for this measure;<br>– The ambient and indoor monitoring program will be<br>– conducted annually thereafter and appropriate mitigation measures will be formulated and undertaken. | | |
| 3.2 Air quality | Exhaust emissions from | – Speed limiting signs and enforcement; | Not yet due. | |

| | | | | |
|---|---|---|---|---|
| | predicted traffic volumes on roads | – Conduct periodic examination of emission of vehicle exhaust pollutants for each vehicle, including public buses, in accordance with PRC regulation (such as GB18352.3-2005);<br>– Refuse registration to vehicles with excessive emissions; | | |
| 3.3 Dangerous goods | Hazardous goods haulage | – Ensure that all trucks carrying hazardous materials are marked according to PRC norms;<br>– Enforce traffic controls, and set speed limits for trucks carrying hazardous material;<br>– Prepare a rapid spill response and clean up protocol so that in the event of a spill the appropriate people and equipment are quickly notified and action can be taken. | Not yet due. | |
| 3.4 Community safety | Traffic management and public safety education | – The capacity building program contains a human-centered<br>– urban transport and public safety education program. The recommendations from the capacity building program will be implemented. | Done for the completed road, but still go on for the road to be completed. | |
| 3.5 Living Streets | Replication of Living Streets pilot program | – If the Living Streets pilot program is successful, the OE will replicate to other suitable urban districts. | Not yet due. | |
| **4. Operation Stage (Water Supply and Sewerage Pipelines)** | | | | |
| 4.1 Water supply and sewerage pipelines | Potential damages to pipelines | – No tree planting within 5 m on both side of the pipelines' central lines, to prevent root penetration and damage;<br>– Grass and small shrubs will be encouraged to grow over the backfill to assist in soil stabilization;<br>– Undertake periodical checks and maintenance of the pipeline during the operation period. | Done for the completed road, but still go on for the road to be completed | |
| | Pipe maintenance, performance of associated facilities | – Regularly inspect and maintain water supply pipes sewers;<br>– Review performance of linked WTPs and WWTPs (treatment performance, compliance with water quality and effluent standards), mitigate performance problems using process control measures. | Done for the completed road, but still go on for the road to be completed | |
| 5. Operation Stage (Central Heating Pipes and Heat Exchange Stations) | | | | |

| | | | | |
|---|---|---|---|---|
| 5.1 Central heating pipelines | Potential damages to pipelines | – No tree planting within 5 m on both side of the pipelines' central lines, to prevent root penetration and damage;<br>– Grass and small shrubs will be encouraged to grow over the backfill to assist in soil stabilization;<br>– Undertake periodical checks and maintenance of the pipeline during the operation period. | Done for the completed road, but still go on for the road to be completed | |
| 5.2 Heat exchange stations | Noise | – Machines will be maintained on a regular basis;<br>– Machines will be inspected on a regular basis, and malfunctioning and worn parts will be repaired / replaced timely. | Not yet due. | |
| | Backwash effluent | – Build and maintain equalization and sedimentation tanks in each HES for pH adjustment and sedimentation (SS≤400mg/L) before discharging backwash effluent into the municipal sewer;<br>– Regularly clean the sedimentation tank, dispose of<br>– accumulated sludge and sediments in the municipal landfill; | Not yet due. | |
| 6. Operation Stage (Solid Waste Management) | | | | |
| 6.1 Solid waste | Cleaning of garbage | – Garbage bins and containers will be cleaned on a regular basis; collection will be more frequent during summer;<br>– Broken bins and containers will be replaced / repaired timely. | Done for the completed road, but still go on for the road to be completed | |
| 6.2 Waste transport | Transport of domestic garbage | – Select haulage routes to minimize impacts to residential areas.<br>– Ensure garbage haulage trucks are properly covered, maintained and operated. | Done for the completed road, but still go on for the road to be completed | |
| 6.3 Waste transfer station | Future urban expansion | – Urban planning should restrict urban expansion from a radius of at least 30 m from the transfer station, in accordance from the Technical Specifications for Residential Solid Waste Transfer Stations (GJJ47-2006). | Done for the completed road, but still go on for the road to be completed | |
| | Operation of station | – Environmental protection equipment and measures (e.g., odor removal, screens) should be maintained on a | Done for the completed road, but | |

| | | | | |
|---|---|---|---|---|
| | | regular basis; malfunctioning and broken ones should be replaced / repaired timely;<br>– Buffer tree belts surrounding the borders of the station should be maintained regularly and properly. | still go on for the road to be completed | |
| **7. Operation Stage (Public and Street Parks)** | | | | |
| 7.1 Vegetation | Maintenance of vegetation | The vegetation will be well maintained by regular irrigation and by replanting when necessary;<br>Plants will be irrigated regularly on an as-needed basis.<br>Vegetation will be fertilized regularly, with the use of dredged sediment from the Duolang wetlands or other types of organic fertilizers;<br>Pest control will be undertaken regularly to ensure proper plant growth;<br>Low-toxicity pesticides should be used. | Not yet due. | |
| **8. Operation Stage (Wetland Rehabilitation)** | | | | |
| 8.1 Dredging | Dredging of sedimentation zone | – The sedimentation zone will be dredged as required to maintain its sediment removal function<br>– Dredging should be scheduled to avoid sensitive periods (mating, hatching, arrival and departure of migratory birds, etc.) | Not yet due. | |
| 8.2 Dredged sediment | Transport, storage and use of dredged sediment | – Transport of dredged sediment should use sealed and covered vehicles to avoid leakage and littering along the transport routes;<br>– Transport routes should be periodically reviewed and adjusted if necessary to avoid sensitive receptors and areas;<br>– Storage site should be protected from secondary pollution of air, surface and groundwater;<br>– Dredged sediment should be used for urban landscaping and for other beneficial purposes (e.g., farming, construction materials, etc.). | Partly done. | The quality of the dredged sediments was tested before being transported to the wasteland in Kumalike River Gobi Desert for greening use. |
| 8.2 Water source | Water source protection from degradation | – Industrial and urban point source and agricultural non-point source pollution regulations and standards should be | Not yet due. | |

| | | | | |
|---|---|---|---|---|
| | | strictly enforced to protect the water source of the wetlands.<br>– If pollution loads exceed the carrying capacity of the wetlands, reduction targets should be set and enforced. | | |
| 8.2 Wetland health | Protection of wetland from outside impacts | – Establish pollution control measures at perimeters to ensure that neighboring land uses do not pollute the wetlands;<br>– Access control will be implemented to ensure that illegal dumping or poaching of wildlife is prevented. | Not yet due. | |
| | Biodiversity | – Develop training and education programs for local residents, schools, government agencies for wetland protection and conservation;<br>– Design and implementing a comprehensive biodiversity and habitat survey/monitoring program (2015-2020). The program shall focus on comparing seasonal species richness and abundance of migratory water birds in the project area; providing hands-on training on wildlife monitoring for the pre- and post-project period. | Not yet due. | |

## VI. SUMMARY OF ENVIRONMENTAL MONITORING

### A. Monitoring plan and responsibilities

22. The environmental monitoring plan of the project is presented in Table VI-1. The plan has set the monitoring scope, monitoring media, monitoring parameters, and monitoring timing and frequency. The monitoring method follows the methodologies specified in the national standard methods for pollutant monitoring. Other associated standards are national environmental quality standards and pollutant discharge and emission standards.

**Table VI-1: Environmental Monitoring Program**

| Item | Parameters | Location | Time and Frequency | Implementing Agency | Supervising Agency |
|---|---|---|---|---|---|
| **A. Construction, Urban Infrastructure and Services Component** | | | | | |
| 1.1 Water Quality – Wastewater | Sewage and construction wastewater | Construction camps (wetlands, nursery) and construction sites | Visual inspection for proper operation of settling ponds, septic tanks and sewerage connections; daily (OEE, CSC), monthly (EMG) | OEE, ESC, EMG | APMO |
| 1.2 Water Quality – urban areas | pH, NH3-N, TN, TP, BOD, COD, SS, oils | For each subcomponent, minimum 2 locations on the river upstream and downstream of the | 3 samples each time; at beginning of construction and quarterly thereafter | AEMS | EMG, AEPB |
| 1.3 Water Quality – Wetlands | pH, NH3-N, TN, TP, BOD, COD, SS, oils | Akesu-Duolang wetlands | 6-8 locations in the wetlands, quarterly | AEMS | EMG, AEPB |
| 2. Air quality - All | TSP, $PM_{10}$, CO, NOx | 2 monitoring locations for each construction site | 3 samples at each location each time; quarterly during construction season | AEMS | EMG, AEPB |
| 3.1 Noise – urban areas | Leq (dB(A)) | 1 location at the border with settlements within 200 m of each construction site | Twice (day-time and night-time) each time; monthly during peak construction, quarterly otherwise | AEMS | EMG, AEPB |

| Item | Parameters | Location | Time and Frequency | Implementing Agency | Supervising Agency |
|---|---|---|---|---|---|
| 3.2 Noise - Wetlands | Leq (dB(A)) | 8 locations, including 4 borders, 1 center, 3 locations around dredging activities. | Twice (day-time and night-time) each time; monthly during entire construction period | AEMS | EMG |
| 4. Solid Waste - All | Garbage from construction camps and construction sites | All camps and construction sites, along roads. | Visual inspection; daily (OEE, CSC), monthly (EMG) | OEE, ESC, EMG | APMO |
| 5. Vegetation - All | Removal of vegetation and exposed surface | All sites | Visual inspection; daily (OEE, CSC), monthly (EMG) | OEE, ESC, EMG | AMG |
| 6. Soil erosion - All | Soil Erosion control measures (Topsoil stockpile, detention ponds construction, intercepting ditches, rehabilitate construction sites) | All borrow pits, spoil disposal sites and construction sites | Visual inspection; weekly (OEE, CSC), monthly (EMG) | OEE, ESC, EMG | AMG |
| 7.1 Biodiversity - Wetlands | Disturbance of wildlife by construction workers | Akesu-Duolang Wetlands | Regular inspections, weekly (OEE), monthly (AFB) | OEE, ESC, EMG, Akesu Forestry Bureau (AFB) | APMO |
| | Bird population | Akesu-Duolang Wetlands | Quarterly surveys during construction; annual site surveys during | LEI, AFB, LIC | APMO |
| 8. Occupational Health and Safety - All | Health status, hygiene status, availability of clean water, emergency response plans | Construction sites and work camps | Quarterly during construction | Akesu Health Bureau, OEE, EMG | APMO |
| **B. Project Completion Environmental Audit** | | | | | |
| 1. Urban areas, waste transfer station | Air Quality: NOx, CO, TSP, $PM_{10}$ | 2 locations for each road, 1 location for each HES, the waste transfer station | Once upon completion, 3 samples per day for 3 consecutive days at each location | LEI | AEPB |

| Item | Parameters | Location | Time and Frequency | Implementing Agency | Supervising Agency |
|---|---|---|---|---|---|
| | Odor: H2S, NH3 | 4 borders of waste transfer station | Once upon completion, 3 samples per day for 3 consecutive days | LEI | AEPB |
| 2. Noise | Noise: Leq (dB(A)) | Roads: all sensitive receptors defined in the EMP; 4 borders of waste transfer station | 2 samples for 1 day at each location | LEI | AEPB |
| 3. Soil and Vegetation | Re-vegetation, landscaping | All sites | Visual inspection for compliance with design | LEI | AEPB |
| 4. Wetlands | Surface water: 23 basic parameters as per class III of PRC *Surface Water Quality Standards (GB 3838-2002)* | 6-8 locations in wetlands | Once upon completion, 3 samples per day for 3 consecutive days at each location | LEI | AEPB |
| | Air: TSP | 4 location at 4 borders | Once upon completion, 3 samples per day for 3 consecutive days at each location | LEI | AEPB |
| | Noise: Leq (dB(A)) | 4 locations at borders | 2 samples for 1 day at each location | LEI | AEPB |
| **C. Operation (Ambient Monitoring)** | | | | | |
| 1. Air Quality | Odor, TSP, $PM_{10}$, NOx, NO2, CO, as per PRC *Ambient Air Quality Standards (GB 3095-2012)*. | All sensitive receptors along project roads (see Table 30, IEE); 1 location within wetlands; 4 borders of waste transfer station; at boundary of 28 HESs | 3 samples per day for 3 consecutive days; twice per year | AEMS | AEPB |

| Item | Parameters | Location | Time and Frequency | Implementing Agency | Supervising Agency |
|---|---|---|---|---|---|
| 2. Surface Water Quality | 23 basic parameters as per class III of PRC *Surface Water Quality Standards (GB 3838-2002)* | Duolang wetlands, Duolang Canal | 3 samples each time; twice per year | AEMS | AEPB |
| 4. Noise | Leq (dB(A)) as per PRC *Ambient Acoustic Quality Standards (GB 3096-2008)*. | All sensitive receptors along project roads (see Table 30, IEE); 6-8 locations within wetlands; 4 borders of waste transfer station; at boundary of 28 HESs. | 2 samples each time, 2 samples during daytime, 2 at night each time; twice per year | AEMS | AEPB |
| 5. Wetland Sediment | Parameters as per *Soil Quality Standards (GB 15618-1995)* | Sedimentation zone of Duolang wetlands | 5 samples at the center of wetlands, before dredging | Duolang Wetland Management Station | AEPB |
| 6. Wetland ecosystem monitoring | Types and numbers of birds, aquatic plants, benthos *(as defined in biodiversity monitoring plan (to be developed during project implementation)* | Entire Duolang wetlands | *As defined in biodiversity monitoring plan (to be developed during project implementation)* | Duolang Wetland Management Station | AEPB |

AEPB = Akesu environmental protection bureau, AEMC = Akesu environmental monitoring center, APMO = Akesu project management office, BOD = biochemical oxygen demand, COD = chemical oxygen demand, dB(A) = A-weighted decibel, EMG = environmental management group, ESC = environment supervision company, LEI = licensed environmental institute, Leq = equivalent continuous noise level, m = meter, $NH_3$-N = ammonia nitrogen, OEE = onsite environmental engineer, pH = measure of acidity and alkalinity, $PM_{10}$ = particulate matter smaller than 10 micrometers, SS = suspended solids, TN = total nitrogen, TP = total phosphor, TSP = total suspended particulates

## B. Monitoring Results and Assessment

### 1. Monitoring Results for Wetland Component

#### a. Water Quality

23. Xinjiang Xinhuan Inspection and Monitoring Institute (XXIMI) carried out the monitoring of water quality at the construction sites on October 16, 2020. Monitoring of surface water quality was conducted at the 12 points of the wetland. The monitoring results are shown in Table VI-2.

**Table VI-2: Summary of Surface Water Monitoring Data (Point 1-5)**

| Monitoring Result mg/l (pH exclusive) | Sampling Location | | | | | | | | | | | | | | | Grade III of GB3838-2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | S1 | | | S2 | | | S3 | | | S4 | | | S5 | | | |
| | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 | |
| **pH** | 7.85 | 7.86 | 7.84 | 7.85 | 7.87 | 7.88 | 7.84 | 7.83 | 7.85 | 7.80 | 7.79 | 7.81 | 7.87 | 7.89 | 7.90 | **6-9** |
| **Water temperature (℃)** | 21.2 | 21.4 | 21.2 | 21.2 | 21.4 | 21.4 | 21.2 | 21.2 | 21.4 | 21.4 | 21.4 | 21.6 | 21.4 | 21.4 | 21.4 | **-** |
| **DO** | 7.4 | 7.3 | 7.7 | 7.3 | 7.1 | 7.6 | 7.2 | 7.2 | 7.6 | 7.1 | 7.3 | 7.4 | 7.6 | 7.3 | 7.4 | **≥5** |
| **Permanganate Index** | 0.6 | 0.6 | 0.6 | 0.6 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | **6** |
| **COD** | 8 | 8 | 8 | 6 | 6 | 6 | 5 | 5 | 5 | 5 | 5 | 5 | 7 | 7 | 7 | **20** |
| **BOD5** | 0.8 | 1.0 | 1.1 | 1.1 | 1.0 | 1.2 | 0.8 | 0.8 | 0.8 | 1.0 | 1.1 | 1.0 | 0.7 | 1.0 | 1.2 | **4** |
| **$NH_3$-N** | 0.154 | 0.136 | 0.150 | 0.139 | 0.120 | 0.125 | 0.173 | 0.181 | 0.189 | 0.206 | 0.198 | 0.184 | 0.187 | 0.175 | 0.167 | **1.0** |
| **TP** | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.04 | 0.03 | 0.03 | **0.2** |
| **TN** | 0.84 | 0.78 | 0.81 | 0.87 | 0.79 | 0.84 | 0.79 | 0.76 | 0.83 | 0.69 | 0.77 | 0.72 | 0.94 | 0.88 | 0.85 | **1.0** |
| **Cu** | ＜0.05 | ＜0.05 | ＜0.05 | ＜0.05 | ＜0.05 | ＜0.05 | ＜0.05 | ＜0.05 | ＜0.05 | ＜0.05 | ＜0.05 | ＜0.05 | ＜0.05 | ＜0.05 | ＜0.05 | **1.0** |
| **Zn** | ＜0.05 | ＜0.05 | ＜0.05 | ＜0.05 | ＜0.05 | ＜0.05 | ＜0.05 | ＜0.05 | ＜0.05 | ＜0.05 | ＜0.05 | ＜0.05 | ＜0.05 | ＜0.05 | ＜0.05 | **1.0** |
| **Fluoride** | 0.70 | 0.73 | 0.70 | 0.76 | 0.79 | 0.80 | 0.74 | 0.73 | 0.76 | 0.72 | 0.74 | 0.76 | 0.77 | 0.77 | 0.80 | **1.0** |

| Monitoring Result mg/l (pH exclusive) | Sampling Location | | | | | | | | | | | | | | | Grade III of GB3838-2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | S1 | | | S2 | | | S3 | | | S4 | | | S5 | | | |
| | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 | |
| **Se** | < 0.0004 | < 0.0004 | < 0.0004 | < 0.0004 | < 0.0004 | < 0.0004 | < 0.0004 | < 0.0004 | < 0.0004 | < 0.0004 | < 0.0004 | < 0.0004 | < 0.0004 | < 0.0004 | < 0.0004 | **0.01** |
| **As** | < 0.0003 | < 0.0003 | < 0.0003 | < 0.0003 | < 0.0003 | < 0.0003 | < 0.0003 | < 0.0003 | 0.0003 | 0.0006 | 0.0005 | 0.0005 | 0.0004 | 0.0004 | 0.0005 | **0.05** |
| **Hg** | < 0.00004 | < 0.00004 | < 0.00004 | < 0.00004 | < 0.00004 | < 0.00004 | < 0.00004 | < 0.00004 | < 0.00004 | < 0.00004 | < 0.00004 | < 0.00004 | < 0.00004 | < 0.00004 | < 0.00004 | **0.00001** |
| **Cd** | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | **0.005** |
| **Cr $^{6+}$** | < 0.004 | < 0.004 | < 0.004 | < 0.004 | < 0.004 | < 0.004 | < 0.004 | < 0.004 | < 0.004 | < 0.004 | < 0.004 | < 0.004 | < 0.004 | < 0.004 | < 0.004 | **0.05** |
| **Pb** | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | **0.05** |
| **Cyanide** | < 0.004 | < 0.004 | < 0.004 | < 0.004 | < 0.004 | < 0.004 | < 0.004 | < 0.004 | < 0.004 | < 0.004 | < 0.004 | < 0.004 | < 0.004 | < 0.004 | < 0.004 | **0.2** |
| **Volatile phenol** | < 0.0003 | < 0.0003 | < 0.0003 | < 0.0003 | < 0.0003 | < 0.0003 | < 0.0003 | < 0.0003 | < 0.0003 | < 0.0003 | < 0.0003 | < 0.0003 | < 0.0003 | < 0.0003 | < 0.0003 | **0.005** |
| **Oil** | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | **0.05** |

| Monitoring Result mg/l (pH exclusive) | Sampling Location | | | | | | | | | | | | | | | Grade III of GB3838-2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | S1 | | | S2 | | | S3 | | | S4 | | | S5 | | | |
| | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 | |
| **LAS** | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | **0.2** |
| **Sulfide** | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | **0.05** |
| **Fecal Coliform** | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | **10000** |

S1= Upstream of Duolang River; S2= Impounding tank inlet of Duolang River; S3= Sedimentation tank 1-1 of the wetland; S4= Sedimentation tank 1-3 of the wetland; S5= Treatment tank 1-1 of the wetland.

**Table VI-3: Summary of Surface Water Monitoring Data (Point 6-10)**

| Monitoring Result mg/l (pH exclusive) | Sampling Location | | | | | | | | | | | | | | | Grade III of GB3838-2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | S6 | | | S7 | | | S8 | | | S9 | | | S10 | | | |
| | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 | |
| **pH** | 7.61 | 7.68 | 7.66 | 7.80 | 7.81 | 7.80 | 7.78 | 7.79 | 7.81 | 7.85 | 7.87 | 7.87 | 7.58 | 7.61 | 7.64 | **6-9** |

| Monitoring Result mg/l (pH exclusive) | Sampling Location | | | | | | | | | | | | | | | Grade III of GB3838-2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | S6 | | | S7 | | | S8 | | | S9 | | | S10 | | | |
| | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 | |
| **Water temperature (℃)** | 21.4 | 21.4 | 21.4 | 21.2 | 21.4 | 21.4 | 21.4 | 21.4 | 21.4 | 21.4 | 21.4 | 21.4 | 21.2 | 21.4 | 21.4 | - |
| **DO** | 7.1 | 7.0 | 7.2 | 7.6 | 7.4 | 7.4 | 7.1 | 7.0 | 7.8 | 7.8 | 7.5 | 7.4 | 7.4 | 7.4 | 7.3 | **≥5** |
| **Permanganate Index** | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.9 | 0.8 | 0.8 | 0.8 | 0.7 | 0.8 | 0.8 | 0.9 | 0.8 | 0.9 | **6** |
| **COD** | 7 | 7 | 7 | 6 | 7 | 7 | 6 | 6 | 6 | 7 | 7 | 7 | 6 | 7 | 6 | **20** |
| **BOD5** | 1.0 | 0.9 | 1.0 | 1.0 | 1.1 | 1.0 | 1.1 | 0.9 | 1.0 | 0.9 | 0.9 | 0.9 | 1.1 | 1.0 | 1.1 | **4** |
| **$NH_3$-N** | 0.203 | 0.214 | 0.184 | 0.189 | 0.178 | 0.159 | 0.220 | 0.209 | 0.200 | 0.195 | 0.175 | 0.156 | 0.156 | 0.162 | 0.125 | **1.0** |
| **TP** | 0.04 | 0.04 | 0.04 | 0.05 | 0.05 | 0.05 | 0.04 | 0.05 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | **0.2** |
| **TN** | 0.81 | 0.84 | 0.79 | 0.75 | 0.86 | 0.81 | 0.74 | 0.68 | 0.70 | 0.85 | 0.80 | 0.79 | 0.67 | 0.72 | 0.74 | **1.0** |
| **Cu** | ＜0.05 | ＜0.05 | ＜0.05 | ＜0.05 | ＜0.05 | ＜0.05 | ＜0.05 | ＜0.05 | ＜0.05 | ＜0.05 | ＜0.05 | ＜0.05 | ＜0.05 | ＜0.05 | ＜0.05 | **1.0** |
| **Zn** | ＜0.05 | ＜0.05 | ＜0.05 | ＜0.05 | ＜0.05 | ＜0.05 | ＜0.05 | ＜0.05 | ＜0.05 | ＜0.05 | ＜0.05 | ＜0.05 | ＜0.05 | ＜0.05 | ＜0.05 | **1.0** |
| **Fluoride** | 0.77 | 0.79 | 0.81 | 0.81 | 0.83 | 0.79 | 0.74 | 0.76 | 0.80 | 0.77 | 0.82 | 0.80 | 0.72 | 0.75 | 0.78 | **1.0** |
| **Se** | ＜0.00004 | ＜0.00004 | 0.00004 | ＜0.00004 | 0.00004 | ＜0.00004 | ＜0.00004 | ＜0.00004 | ＜0.00004 | ＜0.00004 | ＜0.00004 | ＜0.00004 | ＜0.00004 | ＜0.00004 | ＜0.00004 | **0.01** |

| Monitoring Result mg/l (pH exclusive) | Sampling Location | | | | | | | | | | | | | | | Grade III of GB3838-2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | S6 | | | S7 | | | S8 | | | S9 | | | S10 | | | |
| | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 | |
| **As** | 0.0004 | 0.0003 | 0.0004 | <0.0003 | 0.0003 | <0.0003 | 0.0004 | 0.0004 | 0.0004 | 0.0003 | 0.0003 | 0.0003 | 0.0008 | 0.0008 | 0.0008 | **0.05** |
| **Hg** | <0.00004 | <0.00004 | <0.00004 | <0.00004 | <0.00004 | <0.00004 | <0.00004 | <0.00004 | <0.00004 | <0.00004 | <0.00004 | <0.00004 | <0.00004 | <0.00004 | <0.00004 | **0.0001** |
| **Cd** | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | **0.005** |
| **Cr $^{6+}$** | <0.004 | <0.004 | <0.004 | <0.004 | <0.004 | <0.004 | <0.004 | <0.004 | <0.004 | <0.004 | <0.004 | <0.004 | <0.004 | <0.004 | <0.004 | **0.05** |
| **Pb** | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | **0.05** |
| **Cyanide** | <0.004 | <0.004 | <0.004 | <0.004 | <0.004 | <0.004 | <0.004 | <0.004 | <0.004 | <0.004 | <0.004 | <0.004 | <0.004 | <0.004 | <0.004 | **0.2** |
| **Volatile phenol** | <0.0003 | <0.0003 | <0.0003 | <0.0003 | <0.0003 | <0.0003 | <0.0003 | <0.0003 | <0.0003 | <0.0003 | <0.0003 | <0.0003 | <0.0003 | <0.0003 | <0.0003 | **0.005** |
| **Oil** | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | **0.05** |
| **LAS** | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | **0.2** |

| Monitoring Result mg/l (pH exclusive) | Sampling Location | | | | | | | | | | | | | | | Grade III of GB3838-2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | S6 | | | S7 | | | S8 | | | S9 | | | S10 | | | |
| | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 | |
| **Sulfide** | ＜0.005 | ＜0.005 | ＜0.005 | ＜0.005 | ＜0.005 | ＜0.005 | ＜0.005 | ＜0.005 | ＜0.005 | ＜0.005 | ＜0.005 | ＜0.005 | ＜0.005 | ＜0.005 | ＜0.005 | **0.05** |
| **Fecal Coliform** | ＜20 | ＜20 | ＜20 | ＜20 | ＜20 | ＜20 | ＜20 | ＜20 | ＜20 | ＜20 | ＜20 | ＜20 | ＜20 | ＜20 | ＜20 | **10000** |

S6= Wetland biodiversity Conservation area; S7= Sedimentation tank 2-1 of the wetland; S8= Sedimentation tank 2-3 of the wetland; S9= Sedimentation tank2-2 of the wetland; S10= Wetland biodiversity Conservation area.

**Table VI-4: Summary of Surface Water Monitoring Data (Point 11-12)**

| Monitoring Result mg/l (pH exclusive) | S11 | | | S12 | | | Integrated Surface Water Quality Standard (GB3838-2002) Grade III |
|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 1 | 2 | 3 | |
| **pH** | 7.65 | 7.68 | 7.71 | 7.67 | 7.70 | 7.71 | **6-9** |
| **Permanganate Index** | 0.9 | 0.9 | 0.9 | 1.1 | 1.1 | 1.1 | **6** |
| **BOD5** | 1.1 | 1.0 | 1.0 | 1.0 | 1.0 | 0.9 | **4** |
| **$NH_3$-N** | 0.114 | 0.109 | 0.120 | 0.145 | 0.156 | 0.159 | **1.0** |
| **TP** | 0.02 | 0.01 | 0.02 | 0.04 | 0.04 | 0.04 | **0.2** |
| **TN** | 0.83 | 0.80 | 0.74 | 0.80 | 0.72 | 0.77 | **1.0** |
| **Oil** | ＜0.01 | ＜0.01 | ＜0.01 | ＜0.01 | ＜0.01 | ＜0.01 | **0.05** |
| **SS** | ＜4 | ＜4 | ＜4 | ＜4 | ＜4 | ＜4 | **-** |

S12= Upstream of the junction of Duolang River and Wuka Road; S12= Downstream of the junction of Duolang River and Wuka

Road.

24. According to the results above, all of the water quality indicators in the upstream of Duolang river, the impounding tank, the sedimentation tanks and the biodiversity conservation meet the requirements of Grade III of *Integrated Surface Water Quality Standards* GB3838-2002.

### b. Air Quality

25. 24. Xinjiang Xinhuan Inspection and Monitoring Institute (XXIMI) carried out the monitoring of air quality at the construction sites on October 16-21, 2020. Monitoring frequency was 24h/day for TSP, $PM_{10}$, NOx, $SO_2$ and CO, for five days. Air quality monitoring results are shown in Table VI-5.

Table VI-5: Monitoring Data of Ambient Air Quality (Daily Average)

| Monitoring date | Points | Monitored indicator | | | | |
|---|---|---|---|---|---|---|
| | | $SO_2$ ( μ g/m3) | NOx ( μ g/m3) | $PM_{10}$ ( μ g/m3) | TSP ( μ g/m3) | CO (mg/m3) |
| Oct. 16-17, 2020 | In the east of the wetland | 8 | 21 | 72 | 91 | 0.6 |
| Oct. 17-18, 2020 | | 11 | 25 | 73 | 93 | 0.7 |
| Oct.18-19, 2020 | | 13 | 29 | 74 | 108 | 0.7 |
| Oct.19-20, 2020 | | 12 | 26 | 77 | 94 | 0.6 |
| Oct. 20-21, 2020 | | 9 | 22 | 78 | 97 | 0.6 |
| Oct. 16-17, 2020 | In the south of the wetland | 9 | 22 | 72 | 90 | 0.7 |
| Oct. 17-18, 2020 | | 11 | 25 | 73 | 94 | 0.6 |
| Oct.18-19, 2020 | | 11 | 26 | 74 | 110 | 0.6 |
| Oct.19-20, 2020 | | 13 | 28 | 78 | 94 | 0.7 |
| Oct. 20-21, 2020 | | 8 | 20 | 79 | 98 | 0.5 |
| Oct. 16-17, 2020 | In the west of the wetland | 8 | 18 | 72 | 92 | 0.7 |
| Oct. 17-18, 2020 | | 10 | 21 | 73 | 94 | 0.6 |
| Oct.18-19, 2020 | | 14 | 32 | 72 | 110 | 0.6 |
| Oct.19-20, 2020 | | 10 | 20 | 78 | 95 | 0.7 |
| Oct. 20-21, 2020 | | 8 | 21 | 80 | 96 | 0.5 |
| Oct. 16-17, 2020 | In the north of the wetland | 7 | 17 | 74 | 93 | 0.7 |
| Oct. 17-18, 2020 | | 12 | 22 | 73 | 92 | 0.6 |
| Oct.18-19, 2020 | | 12 | 24 | 74 | 110 | 0.7 |
| Oct.19-20, 2020 | | 10 | 20 | 78 | 96 | 0.6 |
| Oct. 20-21, 2020 | | 9 | 18 | 79 | 95 | 0.6 |
| Oct. 16-17, 2020 | In the middle of the wetland | 9 | 19 | 73 | 93 | 0.6 |
| Oct. 17-18, 2020 | | 12 | 23 | 72 | 93 | 0.5 |
| Oct.18-19, 2020 | | 14 | 27 | 74 | 112 | 0.6 |
| Oct.19-20, 2020 | | 13 | 28 | 79 | 97 | 0.6 |
| Oct. 20-21, 2020 | | 8 | 17 | 81 | 96 | 0.6 |
| Grade II of *Ambient Air Quality Standard* (GB3095-2012) | | **150** | **100** | **150** | **300** | **4** |

26. According to the data in Table VI-5, the air quality at all the monitoring points met the requirements of

Grade II of the *Ambient Air Quality Standard* (GB3095-2012).

**c. Noise**

27. The data of the noise monitoring during construction period are shown in Table VI-6. Monitoring frequency: each during daytime for this subproject.

Table VI-6 Monitoring Data of Noise at Construction Boundary and Sensitive Points

Unit: dB(A)

| Points | Occt.24-25, 2020 | | Oct.25-26, 2020 | |
|---|---|---|---|---|
| | Day time | Night time | Day time | Night time |
| East of the wetland | 56.1 | 45.1 | 56.1 | 45.0 |
| South of the wetland | 53.2 | 44.5 | 53.5 | 44.2 |
| West of the wetland | 54.0 | 43.2 | 54.1 | 43.2 |
| North of the wetland | 53.7 | 43.1 | 53.3 | 42.8 |
| *Emission standard of environment noise for boundary of construction site* (GB12523-2011) | **70** | **55** | **70** | **55** |

28. According to the data in Table VI-6, the daytime and nighttime noise level at all monitoring points met the requirements of the *Noise Emission standard of environment noise for boundary of construction site* (GB12523-2011). There was no complaint received by the contractors or the IA (the contact number was published on the notice board around the construction site) or by the Mayor hotline. The impacts by the construction noise on the surrounding residents are acceptable.

## 2. Monitoring Results for Urban Infrastructure Component

**a. Air Quality**

29. 24. Xinjiang Xinhuan Inspection and Monitoring Institute (XXIMI) carried out the monitoring of air quality at the construction sites on October 16- November 3, 2020. Monitoring frequency was 24h/day for TSP, $PM_{10}$, NOx, $SO_2$ and CO, for five days. Air quality monitoring results are shown in Table VI-7.

Table VI-7: Monitoring Data of Ambient Air Quality (Daily Average)

| Monitoring date | Points | Monitored indicator | | | | |
|---|---|---|---|---|---|---|
| | | $SO_2$ ( μ g/m3) | NOx ( μ g/m3) | $PM_{10}$ ( μ g/m3) | TSP ( μ g/m3) | CO (mg/m3) |
| Oct.16-17, 2020 | | 12 | 24 | 108 | 158 | 0.8 |
| Oct.17-18, 2020 | | 14 | 29 | 113 | 173 | 0.9 |

| Monitoring date | Points | Monitored indicator | | | | |
|---|---|---|---|---|---|---|
| | | $SO_2$ ( μ g/m3) | NOx ( μ g/m3) | $PM_{10}$ ( μ g/m3) | TSP ( μ g/m3) | CO (mg/m3) |
| Oct.18-19, 2020 | Luqiao Community at Zhongyuan Road | 11 | 23 | 97 | 141 | 0.9 |
| Oct.16-17, 2020 | Lyuzhou Huayuan Community at Zhongyuan Road | 10 | 21 | 121 | 182 | 0.7 |
| Oct.17-18, 2020 | | 14 | 28 | 104 | 152 | 0.9 |
| Oct.18-19, 2020 | | 11 | 23 | 91 | 137 | 1.0 |
| Oct.16-17, 2020 | Jinding Huafu Community at Tuanjie Road | 12 | 25 | 72 | 131 | 0.9 |
| Oct.17-18, 2020 | | 13 | 27 | 82 | 139 | 1.0 |
| Oct.18-19, 2020 | | 10 | 19 | 68 | 107 | 0.7 |
| Oct.16-17, 2020 | Zijing Huayuan Community at Tuanjie Road | 10 | 21 | 65 | 92 | 0.8 |
| Oct.17-18, 2020 | | 15 | 32 | 77 | 126 | 1.1 |
| Oct.18-19, 2020 | | 10 | 23 | 71 | 118 | 0.9 |
| Oct.19-20, 2020 | Guoji Mingyuan Community at Jiankang Road | 7 | 16 | 112 | 169 | 0.6 |
| Oct.20-21, 2020 | | 11 | 19 | 126 | 173 | 0.8 |
| Oct.21-22, 2020 | | 6 | 14 | 137 | 191 | 0.8 |
| Oct.19-20, 2020 | Xinda Gongyu Community at Jiankang Road | 6 | 15 | 101 | 161 | 0.7 |
| Oct.20-21, 2020 | | 10 | 17 | 136 | 182 | 0.9 |
| Oct.21-22, 2020 | | 7 | 15 | 125 | 179 | 0.8 |
| Oct.19-20, 2020 | Liyuan Community at Jiankang Road | 7 | 14 | 113 | 161 | 0.7 |
| Oct.20-21, 2020 | | 12 | 21 | 121 | 175 | 0.7 |
| Oct.21-22, 2020 | | 8 | 15 | 105 | 158 | 0.6 |
| Oct.19-20, 2020 | Yinhe Huayuan Community at Wuka Road | 10 | 26 | 173 | 342 | 1.2 |
| Oct.20-21, 2020 | | 10 | 28 | 191 | 388 | 1.2 |
| Oct.21-22, 2020 | | 8 | 24 | 168 | 314 | 1.1 |
| Oct.22-23, 2020 | Jiahemei Community at Wuka Road | 9 | 28 | 216 | 410 | 1.4 |
| Oct.23-24, 2020 | | 9 | 26 | 181 | 393 | 1.1 |
| Oct.24-25, 2020 | | 11 | 23 | 153 | 372 | 1.2 |
| Oct.22-23, 2020 | Dongfeng Jiayuan Community at Wuka Road | 10 | 24 | 141 | 298 | 1.2 |
| Oct.23-24, 2020 | | 10 | 26 | 116 | 241 | 1.3 |
| Oct.24-25, 2020 | | 13 | 29 | 128 | 262 | 1.2 |
| Oct.22-23, 2020 | Siji Huayuan Community at Wuka Road | 7 | 21 | 163 | 362 | 1.2 |
| Oct.23-24, 2020 | | 8 | 24 | 168 | 373 | 1.0 |
| Oct.24-25, 2020 | | 10 | 27 | 151 | 351 | 1.2 |
| Oct.22-23, 2020 | Yijing Huayuan Community at Wuka Road | 8 | 26 | 212 | 405 | 1.3 |
| Oct.23-24, 2020 | | 8 | 26 | 227 | 421 | 1.0 |
| Oct.24-25, 2020 | | 10 | 20 | 198 | 398 | 1.3 |
| Oct.25-26, 2020 | Taikang Gongyu Community at Wuka Road | 8 | 26 | 133 | 272 | 1.1 |
| Oct.26-27, 2020 | | 6 | 25 | 112 | 231 | 0.7 |
| Oct.27-28, 2020 | | 10 | 31 | 128 | 242 | 0.9 |
| Oct.25-26, 2020 | Fangzheng Huayuan Community at Wuka Road | 9 | 26 | 162 | 337 | 1.2 |
| Oct.26-27, 2020 | | 8 | 27 | 183 | 393 | 1.4 |
| Oct.27-28, 2020 | | 12 | 33 | 164 | 342 | 1.1 |
| Oct.25-26, 2020 | Shuiyun Huanyuan Community at Wuka Road | 8 | 24 | 121 | 211 | 0.9 |
| Oct.26-27, 2020 | | 8 | 21 | 134 | 247 | 1.0 |
| Oct.27-28, 2020 | | 11 | 28 | 127 | 225 | 0.9 |
| Oct.25-26, 2020 | Yangguang Xincheng Community at Jiefangnan Road | 7 | 21 | 172 | 361 | 1.1 |
| Oct.26-27, 2020 | | 10 | 26 | 199 | 398 | 1.3 |
| Oct.27-28, 2020 | | 12 | 30 | 192 | 377 | 1.3 |
| Oct.28-29, 2020 | Jiaheyuan Community at Jiefangnan Road | 13 | 28 | 134 | 276 | 1.2 |
| Oct.29-30, 2020 | | 16 | 35 | 163 | 323 | 1.4 |
| Oct.30-31, 2020 | | 16 | 37 | 145 | 282 | 1.3 |
| Oct.28-29, 2020 | | 12 | 26 | 82 | 142 | 1.1 |
| Oct.29-30, 2020 | | 13 | 28 | 93 | 168 | 1.3 |

| Monitoring date | Points | Monitored indicator | | | | |
|---|---|---|---|---|---|---|
| | | $SO_2$ ( μ g/m3) | NOx ( μ g/m3) | $PM_{10}$ ( μ g/m3) | TSP ( μ g/m3) | CO (mg/m3) |
| Oct.30-31, 2020 | Leyuan Community at Dongxi Street | 14 | 31 | 77 | 133 | 1.4 |
| Oct.28-29, 2020 | Xingshuxiyuan Community | 13 | 30 | 102 | 173 | 1.4 |
| Oct.29-30, 2020 | | 13 | 28 | 124 | 193 | 1.5 |
| Oct.30-31, 2020 | | 15 | 35 | 116 | 158 | 1.3 |
| Oct.28-29, 2020 | Hongqiao Huayuan Community at Dongxi Street | 15 | 35 | 108 | 167 | 1.4 |
| Oct.29-30, 2020 | | 17 | 39 | 112 | 152 | 1.5 |
| Oct.30-31, 2020 | | 17 | 41 | 121 | 183 | 1.5 |
| Oct.31-Nov.1, 2020 | Dikuang Huayuan Community at Dongxi Street | 14 | 32 | 143 | 246 | 1.6 |
| Nov.1-2, 2020 | | 16 | 38 | 117 | 178 | 1.6 |
| Nov.2-3, 2020 | | 16 | 38 | 136 | 212 | 1.5 |
| Ambient Air Quality Standard (GB3095-2012) | | **150** | **100** | **150** | **300** | **4** |

30. According to the data in Table VI-7, the PM10 and TSP at some points failed to meet the requirements of Grade II of the *Ambient Air Quality Standard* (GB3095-2012). The contractors should strengthen the management to reduce air pollution and dust development, including regular water spraying, mounting protective canvasses on all trucks, proper fitting sides and tail boards for vehicles with an open load-carrying case and so on.

**b. Noise**

31. The data of the noise monitoring during construction period are shown in Table VI-8. Monitoring frequency: each during daytime for this subproject.

Table VI-8 Monitoring Data of Noise at Construction Boundary and Sensitive Points

Unit: dB(A)

| Points | Oct.16-17, 2020 | | Oct.17-18, 2020 | |
|---|---|---|---|---|
| | Day time | Night time | Day time | Night time |
| Akesu No.7 Middle School | 54.1 | 44.6 | 54.3 | 44.2 |
| Jiahemei Community | 55.2 | 45.8 | 55.0 | 45.3 |
| Duolang Zhiyun Community | 54.7 | 43.6 | 55.2 | 43.7 |
| Kangxinyuan Community | 52.6 | 42.5 | 52.9 | 42.4 |
| Dongfengjiayuan Community | 53.5 | 42.9 | 53.2 | 42.2 |
| Sijihuayuan Community | 52.6 | 42.1 | 52.7 | 42.0 |
| Qianheyuan Community | 51.9 | 41.7 | 51.6 | 41.3 |

| | | | | |
|---|---|---|---|---|
| Akesu No.9 Primary School | 54.2 | 43.2 | 54.7 | 43.0 |
| Huakang Hospital | 56.7 | 46.7 | 56.5 | 46.4 |
| Zheshang Lidu Commuity | 55.8 | 45.1 | 55.9 | 45.3 |
| Jinzhouwanxiangcheng Community | 56.3 | 46.5 | 56.5 | 46.1 |
| Teachers' Apartment of Akesu Experimental Middle School | 52.4 | 42.7 | 52.7 | 42.3 |
| **Points** | **Oct.18-19, 2020** | | **Oct.19-20, 2020** | |
| | **Day time** | **Night time** | **Day time** | **Night time** |
| The North Gate of Yangguang xincheng Community | 53.9 | 43.3 | 53.5 | 43.6 |
| Dushiyijing Community | 54.8 | 43.8 | 54.6 | 43.4 |
| Ruyidushihuayuan Community | 53.5 | 42.7 | 53.5 | 42.5 |
| Xinjinyuan Community | 51.9 | 41.0 | 51.9 | 41.2 |
| Kangtai Community | 53.2 | 42.9 | 53.2 | 42.6 |
| Zaolinwudui Community | 53.3 | 43.1 | 53.6 | 43.3 |
| Shuiyunhuayuan Community | 51.1 | 40.9 | 51.4 | 40.6 |
| Fangzheng Huayuan Community | 51.9 | 41.0 | 52.5 | 41.2 |
| The East Gate of Yangguang Xincheng Community | 52.2 | 41.5 | 52.8 | 41.1 |
| Aeksu No. 13 Middle School | 51.1 | 40.7 | 51.6 | 40.4 |
| Jiahe Community | 52.4 | 41.7 | 52.1 | 41.9 |
| Luqiao Community | 53.1 | 42.8 | 53.5 | 42.5 |
| **Points** | **Oct.20-21, 2020** | | **Oct.21-22, 2020** | |
| | **Day time** | **Night time** | **Day time** | **Night time** |
| Lyuzhou Huayuan Community | 50.8 | 40.2 | 50.9 | 40.7 |
| Hongqiao Community | 51.6 | 41.3 | 51.1 | 41.1 |
| Aeksu No. 3 Middle School | 52.8 | 42.2 | 52.4 | 42.4 |
| No.1 Division Normal High School | 50.1 | 40.0 | 50.6 | 40.5 |
| Xingshuxiyuan Community | 50.6 | 40.6 | 50.9 | 40.3 |

| | | | | |
|---|---|---|---|---|
| Residential Area of No.1 division | 50.7 | 40.2 | 50.8 | 40.6 |
| The North Gate of No.1 People's Hospital | 53.2 | 43.5 | 53.6 | 43.2 |
| Kangzhen Jiagu Community | 52.5 | 42.4 | 52.7 | 42.7 |
| Guotai Huayuan Community | 53.9 | 43.1 | 53.5 | 43.3 |
| The West Gate of No.1 People's Hospital | 54.7 | 44.1 | 54.4 | 44.0 |
| The West Gate of No.1 Division Hospital | 54.5 | 43.8 | 54.8 | 43.5 |
| Guojimingyuan Community | 53.8 | 43.1 | 53.5 | 43.4 |
| **Points** | **Oct.22-23, 2020** | | **Oct.23-24, 2020** | |
| | **Day time** | **Night time** | **Day time** | **Night time** |
| Xinda Community | 55.1 | 44.7 | 55.3 | 44.8 |
| Akesu No.1 Primary School | 52.6 | 41.9 | 52.7 | 41.4 |
| Shiyou Community | 50.8 | 40.5 | 50.6 | 40.8 |
| Maria Gynecology Hospital | 51.7 | 41.1 | 51.9 | 41.3 |
| Liyuan Community | 52.2 | 41.9 | 52.6 | 41.8 |
| Nnayuanjingshui Huayuan Community | 51.1 | 40.1 | 51.5 | 40.2 |
| Shuimulanting Community | 51.6 | 40.6 | 51.8 | 40.3 |
| Jinding Huafu Community | 53.7 | 43.5 | 53.4 | 43.4 |
| Xiyuan Community | 52.2 | 43.1 | 52.6 | 43.6 |
| Tianhemeiyu Community | 51.6 | 40.7 | 51.7 | 40.2 |
| YInhai Company Tuanjie Community | 52.8 | 41.7 | 52.9 | 41.2 |
| Akesu No.2 Primary School | 51.3 | 40.8 | 51.6 | 40.9 |
| **Points** | **Oct.24-25, 2020** | | **Oct.25-26, 2020** | |
| | **Day time** | **Night time** | **Day time** | **Night time** |
| Residential Area of No.1 division | 50.9 | 40.2 | 50.8 | 40.3 |
| Dongyuan Community | 51.1 | 40.7 | 51.5 | 40.5 |
| The South Gate of Zijinghuayuan Community | 53.8 | 43.1 | 53.7 | 43.3 |
| Regional Union Staff Fundraising Building | 55.4 | 45.5 | 55.9 | 45.9 |

| | | | | |
|---|---|---|---|---|
| *Emission standard of environment no ise for boundary of construction site* (GB12523-2011) | **70** | **55** | **70** | **55** |

32. According to the data in Table VI-8, the daytime and nighttime noise level at all monitoring points met the requirements of the *Noise Emission standard of environment noise for boundary of construction site* GB12523-2011. There was no complaint received by the contractors or the IA (the contact number was published on the notice board around the construction site) or by the Mayor hotline. The impacts by the construction noise on the surrounding residents are acceptable.

## VII. PUBLIC CONSULTATION

33. The project's environmental information has been disclosed as follows: (i) the project IEE is disclosed at www.adb.org; (ii) the Chinese EIS was disclosed on the website of the XUAR Environment Protection Department. And the annual environment monitoring reports will be disclosed at www.adb.org and on the website of the AMG.

**Table VII-1: Consultation and Participation Plan**

| Organizer | Approach | Frequency | Subjects | Participants |
|---|---|---|---|---|
| **Project preparation** | | | | |
| Domestic EIA Institute | Questionnaires and interviews | During field work for domestic EIS | Project priority, effects, attitudes to the Project / components, and suggestions | Residents within subproject areas and construction areas |
| PPTA Consultant, ADB | Site visits, and public consultations | Formal consultations, 3 review missions, informal | Comments and recommendations of affected people and stakeholders | Representatives of affected people and stakeholder agencies |
| APMO, PPTA Consultant | Establish Grievance Redress Mechanism | Ongoing | Pathway for complaints from and resolution of environmental problems in construction and | Affected persons, AP representatives and other |
| **Construction** | | | | |
| EMG, APMO, LIC | Site visits, informal interviews | Regularly (during site inspections by EMG and LIC) | Construction impacts, site safety, comments and suggestions | Construction workers within construction area; and residents within construction area |
| LIC, EMG, APMO | Public meetings in each project city | Once prior to midterm review | EMP implementation progress, adjusting mitigation measures if necessary, construction impacts, comments and suggestions | Representatives of residents, APs, and related local agencies |
| **Operation** | | | | |
| LIC, EMG, APMO | Questionnaire survey | Prior to project completion | Community satisfaction with project implementation, project outputs, and EMP implementation performance. | Representatives of residents, APs, and related local agencies |

34. Public consultation plan is part of project implementation and management plan. During the preparation/design period, EIA and design institute have carried out public consultation by Interview, questionnaire, public meeting. During the project implementation, PMO are responsible for consulting project-related public groups. Contractors that started construction have had communications and negotiations with the adjacent communities, and notices have been posted at each construction site to inform the public of important construction information including period, contact person/information to ensure the public concerns and complaints on the project construction activities can be addressed. APMO has established a database of all complaints received, if any, and their resolution via all GRM entry points, including the municipal complaints hotline (#12369), contractors, or other routes. Local residents and workers were notified about

GRM through a daily newspaper (every day on Akesu Daily) and a local TV station (Akesu Prefecture TV Station) as well as billboards on some construction sites. As of the reporting period, no compliant was received.

35. A grievance redress mechanism (GRM) has been established to prevent and address community concerns, reduce risks, and assist the project to maximize environmental and social benefits. The GRM was coordinated by APMO, with various GRM access points, and with sub-procedures for the redress of both environment and social safeguards issues. Procedures for the grievance redress process are as follows:

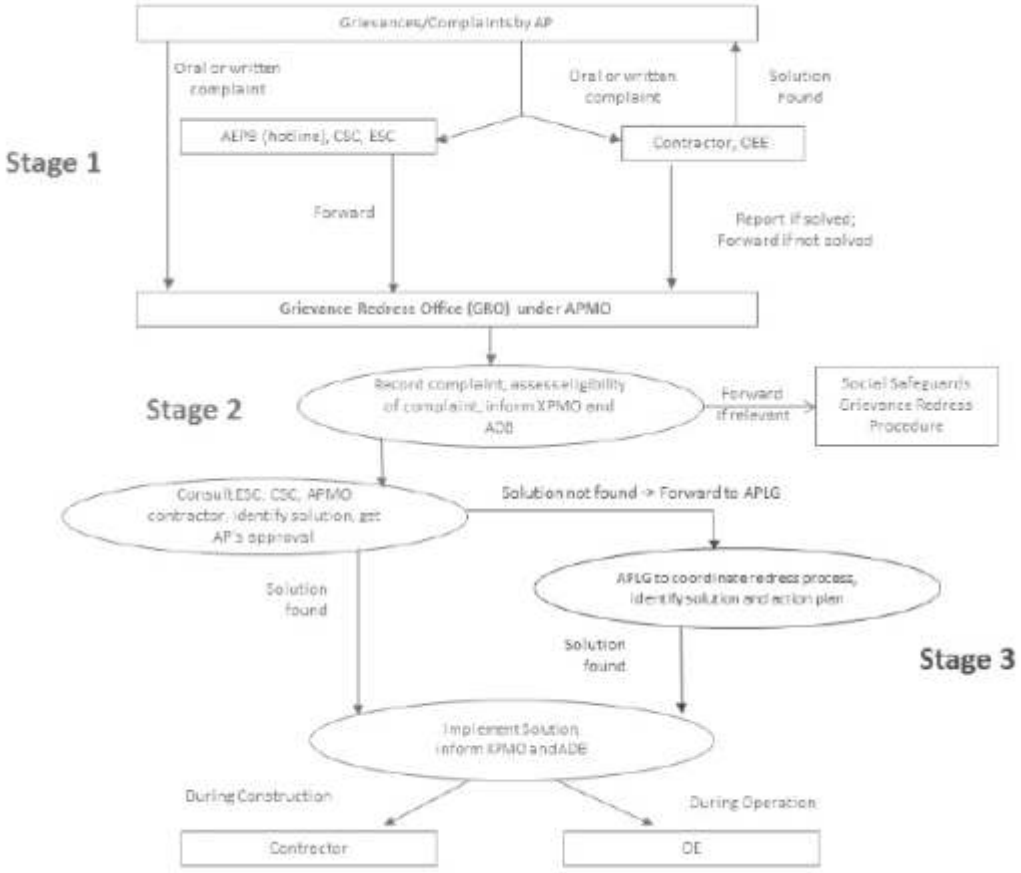


**Figure VII-1: Grievance Redress Mechanism (GRM)**

36. In the reporting period from July to December, 2020, there was no compliant received. During the next reporting period, the newly-constructed contracts will be required to erect notice boards around the project sites, informing the citizens of main construction information and the way of complaint. The contractor shall have necessary communications with the surrounding communities to collect any complaint, suggestions and recommendations for the projects from the residents or the workers around.

37. Changes have been made to the project scope during the project implementation. In April 2017, PMO proposed the changes under component I during the ADB Mission and the initial screening was conducted. In September 2017, another ADB Mission assisted the PMO to conduct the preliminary screen of new proposed

subprojects. For the proposed new subprojects, an addendum to consolidate initial environmental examination (CIEE) has been prepared based on the domestic Environmental Assessment Table which was completed by December 2017. The addendum was submitted to ADB in January 2018. During the domestic environmental assessment period, two rounds of public consultation were carried out.

38. During October 26-November 4, 2017, the PMO released a notice for the information publicity. The main contents of the notice included: the project introduction, name and contact information of the IA; environmental impact assessment unit and the contact information; environmental impact assessment procedures; public participation procedures and work arrangements; the main methods for public comments. During November 30-December 9, 2017, another notice was released to the public. The main contents of the notice included: project introduction; the possible impacts of the project on the environment; measures to prevent or mitigate the adverse environmental impacts; the main points of the conclusions of the environmental impact report; the ways and deadlines for the public to consult the environmental impact report. In addition, after the notice, a public participation questionnaire was issued for public comment. A total 82 survey forms have been collected out of 82 forms handed out. The survey forms included questionnaires on the ways of understanding the proposed project; support or not to the proposed subprojects; support or not to the location selection of the proposed subprojects, key concerns on the environment due to the construction of the proposed subprojects; potential impact to environment during the operational period; the satisfaction level of the mitigation measures in the EIA, and the role of the proposed subprojects to the local economy; suggestions on construction of the proposed subprojects. According to the conclusion of the survey, most people involved in the survey supported the project alignment, orientation and construction.

## VIII. INSTITUTIONAL STRENGTHENING AND TRAINING

39. The Consultant provided on-site trainings to 8 environmental staff from the APMO and contractors on September 12, 2016 at construction site, covering the contents such as ADB environment and social policies and workflows, EMP, environmental monitoring requirements, project risks, project and loan agreement covenants compliance, public consultation requirements, and environment mitigation measures.

## IX. VIII. HEALTH AND SAFETY MANAGEMENT

### A. Risk Category

40. Since the outbreak of the COVID-19 at the end of 2019, there was only one cumulative case in Aksu City. On January 25, 2020, the emergency response level for the major public health emergencies in Xinjiang (including Xinjiang Production and Construction Corps) was adjusted to primary response, and was adjusted to the secondary response on February 25, 2020. As the epidemic subsided, the emergency response level was adjusted to the third-level response on March 7, 2020 and was adjusted again on March 21, 2020 to the fourth-level. Aksu City was then classified as the low-risk area. The real-time epidemic situation in Aksu City can be checked on the website (https://voice.baidu.com/act/newpneumonia/newpneumonia/?from=osari_pc_3&city=%E6%96%B0%E7%96%86-%E9%98%BF%E5%85%8B%E8%8B%8F%E5%9C%B0%E5%8C%BA).

### B. National Policy

41. Since the outbreak of the epidemic, the Aksu area has been implementing the epidemic prevention measures in the region in accordance with the epidemic prevention guidelines and epidemic prevention policies issued by the Joint Prevention and Control Mechanism of the State Council. As the low-risk area, Akesu government should follow the National Health Commission's COVID-19 protection guideline for the low-risk area (http://www.gov.cn/xinwen/2020-06/18/content_5520230.htm).

### C. Description of COVID-19 Infection COVID-19

42. As of 31 July, 2020, the COVID-19 infection status in Akesu Prefecture is shown in the table below.

**Table VIII-1 COVID-19 Infection in Akesu as of December 2020**

| Total case | Total Recovered | Total Deaths | Active cases | Serious, Critical |
|---|---|---|---|---|
| 1 | 1 | 0 | 0 | 0 |

### D. Impacts on the Project

43. The construction was suspended since the outbreak in accordance with the requirements of the national epidemic prevention policy. Until March 21, 2020, the emergency response level in Xinjiang was adjusted to the fourth-level, and Xinjiang became a low-risk area. Therefore, the project began to restart step by step. By the reporting period, no person was infected under the project. The impacts of the epidemic on the project was summarized as follows.

44. First, the epidemic has prevented construction personnel and laborers from being in place on time. Strict personnel movement control measures implemented by various localities have led to a significant reduction in the number of workers moving across regions and provinces in the short term. Construction personnel may be in short supply for a certain period of time, which will hinder the progress of the project. In addition, reworkers were required in most places from other places to be quarantined for 14 days, and the quarantine period has also forced the delay of some projects.

45. Second, the epidemic has led to an increase in construction costs. After the national epidemic ended, a large number of projects were restarted. The price of construction materials and equipment has risen, and the cost of transportation and logistics has also risen. The shortage of human resources and equipment will also cause the cost of employment to increase rapidly. In addition, the various disinfection, protective measures, and labor costs for the prevention and control of the epidemic also led to an increase in construction costs.

46. Third, the epidemic has caused instability in the supply chain. The upstream companies also faced the problems of delayed resumption of work and shortage of personnel. Some upstream companies even closed down due to the interruption of the capital chain and overburden, which may lead to short supply, or supply chain interruption. It directly affected the construction progress of this project and increased the cost.

## E. Prevention and Control, and Mitigation Measures

47. Based on the national policy, PMO has signed the supplementary agreement with the contractors for the COVID-19 prevention and control measures. According to the supplementary agreement, the contractors has established the relevant epidemic prevention work group, and a special person was appointed for the epidemic prevention. The contractors also prepared the H&S plan, which prescribed the epidemic prevention and control measures.

48. **Resumption of the works and precaution measures.**

- Project staff and workers returning to Akesu City need to abide by Xinjiang's epidemic prevention and control policies. The current policy is that people from high-risk areas outside Xinjiang need to be quarantined elsewhere in Xinjiang for 28 days, and then enter Akesu with a nucleic acid monitoring report within a week. People in non-high-risk areas outside Xinjiang must be quarantined elsewhere in Xinjiang for 14 days, and then enter Akesu City with a nucleic acid monitoring report within a week.

- Register health information for workers from all over the country. Classify and manage workers in different risk areas, and pay special attention to workers from high-risk areas.

49. **Work Site prevention and camps management**.

- Work places shall have a gap of one hour between shifts and will stagger the lunch break of staff, to ensure social distancing.

- Workers must wear medical masks, cut-resistant gloves and eye protection (reusable safety goggles/face shields) at the construction site. Before entering the construction site, disinfection, temperature measurement and registration must be performed. Persons with abnormal temperature should be observed and reported in time.

- Multi person activities will be limited where feasible (two persons lifting activities).

- Enhance the cleaning regimes for toilet facilities particularly door handles, locks and the toilet flush. Provide suitable and sufficient rubbish bins for hand towels with regular removal and disposal.

- Establish body temperature check points at the entrance of the camps, and check the body temperature of personnel entering and exiting. Visitors from outside are prohibited from entering the camps at will.

- After the toilets are used, disinfect and ventilate them. Improve facilities such as hand sanitizer dryers. It is recommended to use squatting toilets. Clean all high-touch surfaces every day, such as counters, desktops, door handles, toilet fixtures, toilets, mobile phones, keyboards, tablets, and bedside tables.

50. **Cleaning and Waste Disposal.** Set up closed sorted garbage storage points. All workplaces must be cleaned after completion of work and materials. All kinds of packaging and waste are collected and cleaned at any time. Set up a special collection device for discarded masks. Ensure the normal operation of hand-washing facilities in public places such as construction sites and toilets, and be equipped with quick-drying hand disinfectants, hand sanitizers, hand towels and other supplies. Strengthen the cleaning of garbage cans and other garbage containers, and conduct regular disinfection treatment.

51. **Medical security and services.** Set up an emergency area at the construction site with obvious signs. Measure the body temperature of all employees before going to work in the morning and getting off work in the afternoon. When a suspected or confirmed case appears, he/she should be sent to the emergency area for temporary isolation. And the contractor should immediately report to the local epidemic prevention headquarters for timely isolation and treatment and provided the data files of relevant contacts for unified medical isolation and observation.

**F. training**

52. The epidemic prevention work groups of the contractors will ensure all workers get trainings on above requirements before start of any construction activity. Mitigation measures posters should also be displayed at work site and labour camps. Provide emergency contact number(s) at work site and labor camp for reporting COVID-19 symptoms.

## X. KEY ENVIRONMENTAL ISSUES

54. Other environmental issues identified, actions taken, and additional follow-up actions required, are summarized in Table IX-1 below.

**Table IX-1: Environmental Issues and Corrective Actions**

| Key issues identified | Corrective actions taken | Follow-up actions required |
|---|---|---|
| Air quality for the Urban Infrastructure component did not meet the requirement of national standard | The contractors were required to strengthen the management to reduce air pollution and dust development, including regular water spraying, mounting protective canvasses on all trucks, proper fitting sides and tail boards for vehicles with an open load-carrying case and so on. | Internal and external monitoring should be done. |

## XI. CONCLUSION

### A. Overall Progress of Implementation of Environmental Management Measures

55. For the overall environmental management of the project, the APMO has designated a full-time environmental management officer (EMO) Mr. Wang Junbo from the environmental monitoring station of Akesu Environmental Protection Bureau to oversee the implementation of environmental mitigation measures during the construction period.

56. For the wetland component, although there was no construction activity, environmental monitoring has done. According to the monitoring results, the air quality, the noise and most of the water quality indicators met the relevant requirement. During the reporting period, no complaint was received. For the Urban Infrastructure component, the PM10 and TSP at some points exceeded the standard. The contractors were required to take necessary measures to control the pollution.

57. The newly prepared H&S plan requires close monitoring during the subsequent construction period.

### B. Problems Identified and Actions Recommended

58. For the Urban Infrastructure component, the PM10 and TSP at some points exceeded the standard. The contractors were required to take necessary measures to control the pollution.

## XII. APPENDICES SITE PHOTOES

Protection forest Planting

Road Under Construction

Heat insulation in old city area