



Environmental Monitoring Report

Project Number: 46049-002
January 2020

PRC: Xinjiang Akesu Integrated Urban Development and Environmental Improvement Project (July-December 2019)

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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Asian Development Bank



Environmental Monitoring Report

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No.7 Semi-Annual Report (covering period: July- December 2019)

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

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I. ABBREVIATION

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 seventh semi-annual EMR to cover the period from July-December 2019. 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 m² 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 follows:

- 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 m² 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 ① road surface treatment of vehicle lanes at Jiankang Road, Tuanjie Road, Wuka Road, and Dongxi Avenue, total length 12.49km; ② road face-lifting at Zhongyuan Road, Awen Road and Jiefang Road South, including reconstruction of road foundation and surface, total length 4.93km; ③ construction of pedestrian walkways at Desheng Road, Dongsì Road, Xinhe Road and Qingyuan Road, total length 4.5km; 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. 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		
	Permanent	Desheng Road		New construction, pedestrian walkways
		Dongsì 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		

			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	1. Green area of Kalskaya flood control ditch and forest is 1,144,000m ² . 2. Green area of landscape improvement along both sides of diversion ditch is 231,213.30m ² ; conduct pavement along diversion ditch with a total length of 3.4km.	New construction
		Flood control forestation along two sides of the diversion ditch		
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. 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	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 15003m ² , which uses XPS insulation boards at the thickness of 120. 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
		Heating supply		
		Water supply and drainage		

			<p>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.</p> <p>3. Construction of water supply pipes, using PE pipes with diameters between DN65~150, and original pipelines will be dismantled.</p> <p>4. Construction of drainage pipe networks, using HDPE double-wall bellows with diameters between DN265~315, and original pipelines will be dismantled.</p>	
Public Transportation	Temporary	Reconstruction of bus terminals	<p>1. Construction of one bus terminal, occupying the land area of 6666.7m², parking 40 buses.</p> <p>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.</p> <p>3. Open 6 bus routes, and procure 120 buses.</p> <p>4. Dismantle and reconstruct 280 bus stops throughout the city. New bus kiosks will be e-stop of new type with steel structure.</p>	Reconstruction
		Bus stops		new construction
	Permanent	Construction of new bus terminals		

D. Project Implementation Progress

10. The Project will be implemented over 5 years, from 2015 to 2020. The construction period will last for 60 months. By the end of December 2019, of the total 55 contract packages, 33 contracts were awarded. The implementation progress of the awarded 33 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 (15)						
No.	Contract No.	Contract Name	Starting Date	Planned Completion Date	Actual Progress	Physical 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	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 2019.	10

13	PSP-CW02	Civil works of parks and nursery in East District, etc.	2017.07	12/2019	Greening of Dongcheng Park was completed;T The contract was postponed until November 2019.	35
14	WRH-CW01	Civil works of wetland dredging and connection of canal system	09/2015	08/2018	Completed.	100
15	WRH-CW02	Civil works of wetland dredging and connection of canal system(2)	2017.07	08/2018	Completed.	100
Goods (16)						
1	SWM - GD01	Supplying sanitation vehicles	08/2015	08/2016	Completed	100
2	SWM - GD02	Supplying garbage trucks	08/2015	08/2016	Completed	100
3	SWM - GD03	Supplying advertisement cleaner	08/2015	08/2016	Completed	100
4	SWM - GD04	Supplying excavator and loader	08/2015	08/2016	Completed	100
5	SWM - GD05	Supplying garbage tricycles	08/2015	08/2016	Completed	100
6	SWM - GD06	Supplying garbage bins	08/2015	08/2016	Completed	100
7	SWM - GD10	3 garbage compressing trucks of 13m2 ,3 dust suppression cars, 12 multifunctional cleaning cars, 1 pollutant suction car of 10m3, 3 road sweepers, 2 sprinklers of 30m3, 2 pipeline cars, 2 greening spray (water mist) trucks, 1 greening spray truck	2019.09	2020.09	In supplying	60
8	WSN - GD02	Supplying water supply and sewage pipelines for Nandajie Rd., etc.	07/2016	08/2016	Completed	100
9	URN - GD01	Supplying lighting equipment for Minzhu Rd.etc.	08/2016	05/2017	Completed	100
10	URN - GD02	Purchase of equipment for traffic safety at Minzhu Rd.etc.	2017.09	03/2019	Completed	100
11	URN - GD03	Purchase of road and lighting maintenance equipment	2017.06	12/2018	In supplying	90
12	UPT - GD01	Purchase of 200 bus vehicles (including charging pile + canopy supply and installation)	2019.09	2020.09	Completed	100

13	UPT-GD03	Procurement of 300 sets of bus GPS and bus IC card system, 300 sets of bus real-time monitoring and alarm system, 1 set of intelligent bus dispatching system (including system platform, software, decoration), and inbus fire-control facilities	2019.09	2020.09	Completed	100
14	UPT-GD04	Procurement of Bus stop facilities	2019.09	2020.09	In supplying	10
15	URN-GD06	Road maintenance and lights maintenance facilities procurement	2019.09	2020.09	Completed	100
16	URN-GD07	Intelligent traffic management equipment	2019.09	2020.09	Completed	100
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	40

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 1 monitoring campaign for the first half of 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 December 2019)
4; Loan Agreement	7(a)	Conditions for Award of Contract The Borrower shall cause XUARG not to award any Works contract which involves environmental or involuntary resettlement impacts until: 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 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	Throughout implementation period	Being complied with.

Schedule	Para No.	Description	Schedule/ Due Date	Status/Remarks (as of December 2019)
		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 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: appoint a qualified environment officer within the APMO,	Throughout implementation period	Complied with. 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. 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. 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. 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

Schedule	Para No.	Description	Schedule/ Due Date	Status/Remarks (as of December 2019)
				provided by the first monitoring agency, XHDTI. And one result for the first half of 2019 has been provided by the new agency, XXIMI.
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: 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	Throughout implementation period	Being complied with. The progress on SGAP implementation was reported in the semi-annual social and resettlement monitoring report . Affected households were

Schedule	Para No.	Description	Schedule/ Due Date	Status/Remarks (as of December 2019)
		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 Report or (ii) subsequently agreed between ADB and XUARG;		compensated and relocated prior to handover of sites to the contractors.
	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)	<p>Safeguards Monitoring and Reporting</p> <p>XUARG shall cause AMG to submit Safeguards Monitoring Reports to ADB:</p> <p>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;</p>	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 will be submitted in January 2020.
	12(a)	and disclose relevant information from such reports to respective affected people under Environmental Safeguards, Involuntary Resettlement and Indigenous Peoples Safeguards	Throughout implementation period	Being complied with.

Schedule	Para No.	Description	Schedule/ Due Date	Status/Remarks (as of December 2019)
		promptly upon submission;		
	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 the occurrence of such risks or impacts, with detailed description of the event and proposed corrective action plan; and	Throughout implementation period	Being complied with. No such impact occurred by the reporting period.
	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 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. 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 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. GRM is in place to address environment, safety and health, and resettlement concerns.
Schedule, Project Agreement	16	Applicability of ADB's Safeguard Policies 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	Throughout implementation period	RP implementation completed in June 2016 and AMG funds were used. EMS was hired by APMO on August 2016.

Schedule	Para No.	Description	Schedule/ Due Date	Status/Remarks (as of December 2019)
		Project to be financed by AMG funded by own resources and/or commercial banks.		
Schedule, Project Agreement	19	Public Awareness 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 and consultation, in both the local languages and Mandarin.	Throughout implementation period	To be complied with. Environment: The public awareness plan is updated in the first EMR.
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 are 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
1.1 Detailed Design	Sediment test (wetland rehabilitation component)	<ul style="list-style-type: none"> – 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	<ul style="list-style-type: none"> – 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. – 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)	<ul style="list-style-type: none"> – Hire licensed institute to conduct asbestos risk assessment for all 28 small boilers affected by the project before – completion of the district heating component. – In case of identified presence of asbestos, develop an asbestos 	Totally upcoming in the future	

		<p>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.);</p> <ul style="list-style-type: none"> – 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. The new institute has conducted one monitoring campaign for the first half of 2019.
		– Contracting CSCs and ESCs	Completely done	The contracted CSCs are also responsible for

		<ul style="list-style-type: none"> - Establishment of EMG within APMO with appropriately skilled staff; - Assign Grievance Redress Officer (GRO) for GRM coordination 	Completely done	<p>environmental supervision.</p> <p>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.</p>
	Updating EMP	<ul style="list-style-type: none"> - Update mitigation measures defined in this EMP based on the detailed design, including disclosure on ADB website; - In case of major change of project location (or additional physical component) that may cause substantial 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. 	Will be continuously done with supports by EASEN. The 1 st updating, as necessary, has been done based on the FSR and the domestic EIA and is expected to be available in January 2018.	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	<ul style="list-style-type: none"> - Prepare environment section in the terms of reference for bidders; - Prepare environmental contract clauses for contractors, namely the special conditions (e.g., reference to EMP and monitoring table) 	<p><u>Improved Urban Infrastructure services</u> Done for components that are done, but still go on for the upcoming components</p> <p><u>Akesu-Duolang Wetland Rehabilitation</u> Completely done.</p>	
	Provide comprehensive and responsive	<ul style="list-style-type: none"> - Development and implementation of Grievance Redress Mechanism 	Partly done but need to be improved.	Local residents and the workers were notified about

	complaints process	<p>(GRM);</p> <ul style="list-style-type: none"> - Assign Grievance Redress Officer (GRO) within APMO - Identify GRM entry points and brief them on their role 		<p>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. Prepare the data base. GRM signboards for public as well as workers were maintained all through the construction period.</p>
	Construction site planning	<ul style="list-style-type: none"> - Preparation of site-specific EMPs, including an emergency preparedness and response plan for construction emergencies; - Nomination of an Environment, Health and Safety Officer (EHSO) in contractors' team; - Development of site environment, health and safety plan for approval by the EMG 	<p><u>Improved Urban Infrastructure services</u> Done for components that are done, but still go on for the upcoming components</p> <p><u>Akesu-Duolang Wetland Rehabilitation</u> Completed done.</p>	
	Traffic management planning	<ul style="list-style-type: none"> - Prepare Traffic Management Plans for the roads, and water supply, sewerage and central heating pipes subprojects. The Plans should cover: - Schedule linear constructions (roads and pipes) section by section. - Selecting haulage routes to reduce disturbance to regular traffic (where possible). - Diverting or limiting construction traffic at peak traffic hours. - Siting and management of interim tracks to avoid traffic problems. - Blocking and reinstating interim tracks to original condition on completion of construction. - Maintain adequate traffic control measures throughout the duration of the Contract and such measures shall be 	<p><u>Improved Urban Infrastructure services</u> Partly done but need to be improved.</p> <p><u>Akesu-Duolang Wetland Rehabilitation</u> Partly done but need to be improved.</p>	<p>Traffic management plans must be improved to secure better safety around the construction sites.</p>

		<p>subject to prior approval of IA.</p> <ul style="list-style-type: none"> - Carefully and clearly mark pedestrian-safe access routes. - If school children are in the vicinity, include traffic safety personnel to direct traffic during school hours. - 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	<ul style="list-style-type: none"> - Borrows and spoils for all subprojects are balanced. In case 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. - If new borrow or spoil disposal sites are required, selection should use the following criteria: <ul style="list-style-type: none"> - Siting to minimize transportation and the need for temporary storage. - Siting to avoid potential flood areas or floodways. - Sites to be small, and have no encroachment on cultivated land or forestland. - Design of spoil disposal sites to only use borrow pits designated by local authorities. - Avoid sites with known contamination and/or erosion problems. - Install adequate fencing. - Avoid damage to adjacent lands while providing for haulage roads. - Store, protect and re-use top soils for re- instating the pit. Shape and compact slope before applying former topsoil layers. - Develop a Management Plan for borrow pit operations, including all planned operations, quantities, hauling arrangements and security precautions. - This Management Plan, to be prepared by the Contractor and approved by the 	<p><u>Improved Urban Infrastructure services</u> Partly done but need to be improved.</p> <p><u>Akesu-Duolang Wetland Rehabilitation</u> Partly done but need to be improved.</p>	Soil qualities must be checked and monitored to satisfy the disposal methods.

		AEPB and Water Resources Bureau (WRB), shall also describe the intended reshaping and re-installation of the pit.		
1.2 Construction Preparation Stage	Environmental Training	<ul style="list-style-type: none"> Environmental specialists and / or officials of AEPB to be invited to provide training on implementation and supervision of environmental mitigation measures to contractors. 	Done for components that are done, but still go on for the upcoming components	The environmental consultant provided on-site 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	<ul style="list-style-type: none"> No groundwater shall be extracted without extraction permits/approvals. 	<u>Improved Urban Infrastructure services</u> Done for components that are done, but still go on for the upcoming components <u>Akesu-Duolang Wetland Rehabilitation</u> Completed done.	
	Construction wastewater from washing aggregates, pouring and curing concrete, machinery repairs; handling of hazardous and harmful materials, accidental spills	<ul style="list-style-type: none"> To avoid pollution of surface and groundwater resources in the project areas, including accidental spills, the contractors shall ensure that: 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. Oil traps are provided for service areas and parking areas, and oil-water separators are installed before the sedimentation tank for oil-containing wastewater. All construction machinery is repaired and washed at special repairing shops. No onsite machine repair and washing shall be allowed. 	<u>Improved Urban Infrastructure services</u> Done for components that are done, but still go on for the upcoming components <u>Akesu-Duolang Wetland Rehabilitation</u> Completed done.	

		<ul style="list-style-type: none"> - Storage facilities for fuels, oil, and other hazardous materials are within secured areas on impermeable surfaces, and provided with bunds and cleanup kits. - Vehicles and equipment is properly staged in designated areas to prevent contamination of soil and surface water. - The contractors' fuel suppliers are properly licensed, follow - proper protocol for transferring fuel, and are in compliance with Transportation, Loading and Unloading of Dangerous or Harmful Goods (JT 3145-88). - Fuel storage and refilling areas are located at least 300 m from drainage structures and important water bodies; - Material stockpiles are protected against wind and runoff waters which might transport them to surface waters. - A construction materials handling and disposal protocol including spill responses is defined in the site-specific EMP. - Any spills are cleaned up according to PRC norms and codes within 24 hours of the occurrence, with contaminated soils and <p>water treated according to PRC norms and codes. Records must be handed over without delay to the APMO and AEPB.</p>		
2.2 Air Quality	Generation of dust by construction activities; air emission from vehicles and equipment; generation of asphalt flue gas	<p>The Contractor shall include all necessary measures to reduce air pollution and dust development that would impact the public health, by:</p> <ul style="list-style-type: none"> - 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; - Equipping asphalt, hot mix and batching plants with fabric filters and/or wet scrubbers to reduce the level 	<p><u>Improved Urban Infrastructure services</u> Done for components that are done, but still go on for the upcoming components</p> <p><u>Akesu-Duolang Wetland Rehabilitation</u> Completed done.</p>	The quality of the dredged sediments was tested before being transported to the wasteland in Kumalike River Gobi Desert for greening use.

		<p>of dust emissions.</p> <ul style="list-style-type: none"> - 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; - Mounting protective canvasses on all trucks which transport material that could generate dust; - Assigning haulage routes and schedules to avoid transport occurring in the central areas, traffic intensive areas or residential areas. For the areas with high-demand on environmental quality, transport should be arranged at night. - Construction vehicles and machinery shall be kept in good working order, regularly serviced and engines turned off when not in use; - Vehicle emissions must be in compliance with PRC-GB18352- 2005, GB17691- 2005, GB 11340-2005, GB3847; - High-horsepower equipment will be installed with tail gas purifier to ensure emissions be in compliance with PRC GB16297- 1996; - 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 - to a level higher than the side and tail boards, and shall always be covered with a strong tarpaulin; - 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; - Material stockpiles and concrete mixing equipment will be equipped with dust shrouds. For the earthwork management for 		
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		<ul style="list-style-type: none"> - 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; - Unauthorized burning of construction waste material shall be - subject to penalties for the Contractor, and withholding of payment. - Monitor the quality of the soils from the road and the wetland before being disposed. 		
2.3 Noise	Noise from Vehicles and construction machinery	<ul style="list-style-type: none"> - 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; - 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; - Construction at night within 280 m of sensitive receivers shall be strictly prohibited; - In unexpected cases where construction noise needs to continue into the night, the construction unit must reach an agreement with APs and provide compensation; 	<p><u>Improved Urban Infrastructure services</u> Done for components that are done, but still go on for the upcoming components</p> <p><u>Akesu-Duolang Wetland Rehabilitation</u> Completed done.</p>	

		<ul style="list-style-type: none"> - Provide the construction workers with suitable hearing protection (ear muffs); - Noise enclosures will be used when construction takes place in the vicinity of sensitive spots and during sensitive hours; - Noise at sensitive areas will be monitored at regular intervals (refer to the monitoring plan). If noise standards are exceeded - by more than 3dB, equipment and construction conditions shall be checked, and mitigation measures shall be implemented to rectify the situation. 		
2.4 Solid wastes	Construction waste	<ul style="list-style-type: none"> - Construction wastes that cannot be reused will be regularly transported off-site for disposal, and not allowed to accumulate on site over long periods. 	<u>Improved Urban Infrastructure services</u> Done for components that are done, but still go on for the upcoming components <u>Akesu-Duolang Wetland Rehabilitation</u> 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: <ul style="list-style-type: none"> - Development of a management plan for transport, handling and storing hazardous material; and - Preparation of a contingency plan in the event of an accident involving hazardous material. Such emergency plan needs to - be consulted and coordinated with the local health facilities. 	<u>Improved Urban Infrastructure services</u> Done for components that are done, but still go on for the upcoming components <u>Akesu-Duolang Wetland Rehabilitation</u> 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:	<u>Improved Urban Infrastructure services</u>	

		<ul style="list-style-type: none"> - Construct interception ditches and drains to prevent runoff entering construction sites, and divert runoff from sites to existing drainage. - Limit construction and material handling during periods of rains and high winds. - Stabilize all cut slopes, embankments, and other erosion prone working areas while works are going on. - Preserve existing vegetation where no construction activity is planned. - Stockpiles shall be short-termed, placed in sheltered and - 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. - All earthwork disturbance areas shall be stabilized within 30 days after earthworks have ceased at the sites. 	<p>Done for components that are done, but still go on for the upcoming components</p> <p><u>Akesu-Duolang Wetland Rehabilitation</u> Completed done.</p>	
	Excess spoil from earthworks (if necessary)	<ul style="list-style-type: none"> - Use only approved spoil disposal sites (see Item 1.3 above); - Construct intercepting ditches and drains to prevent outside runoff entering disposal sites, and divert runoff from sites. - Rehabilitate terrain contours and re-vegetate spoil disposal sites at completion of use. 	<p><u>Improved Urban Infrastructure services</u> Done for components that are done, but still go on for the upcoming components</p> <p><u>Akesu-Duolang Wetland Rehabilitation</u> Completed done.</p>	
2.6 Wetland ecosystem	Water quality	<ul style="list-style-type: none"> - Dredging and other construction activities will be scheduled to winter to reduce water quality impacts - Weirs and settlement ponds will be used to prevent muddy water and any wastewater from flowing to downstream waters - When constructing embankments, sand bags will be used to prevent soils into the water body 	<p>Done for the 1st and 2nd monitorings and will be done regularly as required in the monitoring plan.</p>	<p>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.</p>

		<ul style="list-style-type: none"> - Silt fences will be used to contain sediments from flowing away to wider areas - Construction garbage will be collected and disposed in local landfill - 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 		<p>During the reporting period of January to June 2019, although there were no construction activities, the new environmental monitoring agency, Xinjiang Xinhuan Inspection and Monitoring Institute (XXIMI) has conducted the monitoring for the project.</p>
	Aquatic plants	<ul style="list-style-type: none"> - Valued aquatic plants will be carefully relocated and replanted immediately after construction - Regular plants will be relocated to designated locations in the reconstructed wetlands 	Will be done as required in the EMP	
	Birds	<ul style="list-style-type: none"> - 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) - Prohibit construction activities at night - Use of low-air-emission and low-noise construction machinery - Avoid water pollution from construction spoils and oil leakage - Locate construction camp at least 500-m away from the wetlands - Erect warning signs to prohibit horn blowing and garbage throwing from diverted traffic - Awareness building and training of construction workers - Establish a wetland monitoring and management system, develop a manual and instructions to carry out the wetland monitoring for data collection and analysis - Develop training and education programs for local residents, 	Will be done as required in the EMP	<p>Akesu Water Resource Bureau under the support of implementation consultant (wetland and environment consultants) should conduct 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.</p> <p>In addition, consultations to wildlife conservation NGOs and Akesu City Environmental Protection Bureau to get advices for the designing, if any, was</p>

		<p>schools, government agencies for wetland protection and conservation</p> <ul style="list-style-type: none"> - Design and implement 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 		<p>conducted by APMO with supports by EASEN. A training for bird monitoring was provided in August 2017.</p>
2.6 Wetland ecosystem	Sediment dredging	<ul style="list-style-type: none"> - Conduct dredging works after draining and solidifying sediments to avoid sediment leachate and minimize odors. - 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 against GB4284-84 and GB15618-95 to ensure safe disposal; <ul style="list-style-type: none"> - Depending upon testing results, dewatered dredge sludge will be taken to approved spoil disposal sites/uses or to sanitary landfill. - Transport dried sediment in closed trucks to prevent scattering along the way. 	<p>Done for the 1st monitoring and will be done regularly as required in the monitoring plan.</p>	<p>The quality of the dredged sediments was tested before being transported to the wasteland in Kumalike River Gobi desert for greening use.</p>
2.6 Social and Cultural	Resettlement of affected persons	<ul style="list-style-type: none"> - All affected persons will be resettled in a timely and adequate manner, in accordance with the Resettlement Plan. 	<p><u>Improved Urban Infrastructure services</u> Done for components that are done, but still go on for the upcoming components</p> <p><u>Akesu-Duolang Wetland Rehabilitation</u> Completed done.</p>	

	<p>Compensation of lost assets</p>	<ul style="list-style-type: none"> - All affected persons will be compensated in a timely and adequate manner, in accordance with the Resettlement Plan. 	<p><u>Improved Urban Infrastructure services</u> Done for components that are done, but still go on for the upcoming components</p> <p><u>Akesu-Duolang Wetland Rehabilitation</u> Completed done.</p>	
	<p>Construction</p>	<p>Mandatory mitigation actions to be included in the site-specific EMP include:</p> <ul style="list-style-type: none"> - 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; - Each contractor shall seek his own electric supply system, preferably separated from the public grid; - Each contractor shall provide adequate and functional systems for sanitary conditions, toilet facilities, waste management, labor dormitories and cooking facilities. Work - 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; - 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 	<p><u>Improved Urban Infrastructure services</u> Done for components that are done, but still go on for the upcoming components</p> <p><u>Akesu-Duolang Wetland Rehabilitation</u> Completed done.</p>	

		<p>septic tanks;</p> <ul style="list-style-type: none"> - The camp sites should be secured against unauthorized access. Special precaution measures are required for securing and storing hazardous materials; - Each contractor shall construct, maintain and completely - 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; - 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; - 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. - Construction site operations must comply with PRC's State - Administration of Worker Safety Laws and Regulations. - 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	<ul style="list-style-type: none"> - Schedule linear constructions (road and water management) section by section. - Selecting haulage routes to reduce disturbance to regular traffic (where possible). - Traffic delays with traffic lights or flagmen shall be kept at reasonable periods (max. 10 min). 	<p><u>Improved Urban Infrastructure services</u> Done for components that are done, but still go on for the upcoming</p>	

		<ul style="list-style-type: none"> - Diversions shall be well-illuminated, furnished with drainage structures, and fenced with marked barriers. - Where applicable, for example at sites where school children approach the work sites, flagmen need to be present during critical hours. - 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. 	<p>components</p> <p><u>Akesu-Duolang Wetland Rehabilitation</u> Completed done.</p>	
	Interruption of public utilities and services	<p>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;</p> <ul style="list-style-type: none"> - All utilities subject to removal need to be fully replaced before disconnecting the existing service. - An "advance notice" of service interruption shall be published before the construction through radio and TV. - Construction billboards, which include construction contents, schedule, responsible person and complaint phone number, shall be erected at each construction site. <p>Any damage or hindrance/disadvantage to local businesses caused by the premature removal or insufficient replacement of public utilities is subject to full compensation, all at the full liability of the contractor who caused the problem.</p> <ul style="list-style-type: none"> - The contractor shall also maintain unhindered access and use of social, cultural and religious sites (e.g. mosques, cemeteries, cultural gathering places, sports facilities). - Should damage to private properties occur, the contractor will be held fully liable to compensate and rectify the inflicted damage. 	<p><u>Improved Urban Infrastructure services</u> Done for components that are done, but still go on for the upcoming components</p> <p><u>Akesu-Duolang Wetland Rehabilitation</u> Completed done.</p>	
2.6 Social and Cultural	Community health and safety	<ul style="list-style-type: none"> - Advance notice of construction will be published before the construction through radio and TV. 	<p><u>Improved Urban Infrastructure services</u></p>	

		<ul style="list-style-type: none"> - Construction billboards, which include construction contents, schedule, responsible person and complaint phone number, will be erected at each construction site. - Contractors will erect barriers to prevent public access to construction sites. - Traffic control staff at construction sites 	<p>Done for components that are done, but still go on for the upcoming components</p> <p><u>Akesu-Duolang Wetland Rehabilitation</u> Completed done.</p>	
	Construction site safety	<ul style="list-style-type: none"> - At all times during construction, the contractor will provide safe and convenient passages for vehicles, pedestrians, and livestock to and from side roads; - 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: <ul style="list-style-type: none"> - Provide personal protective equipment and clothing (goggles, gloves, respirators, dust masks, hard hats, steel-toed boots) for construction workers and enforce their use; - During heavy rains or emergencies of any kind, suspend all work; - Brace electrical and mechanical equipment to withstand seismic events during the construction. - Present details regarding maximum permissible vehicular speed on each section of road; - Establish safe sight distance in both construction areas and construction camp sites; - Place signs around the construction areas to facilitate traffic movement, provide directions to various components of the works, and provide safety advice and warnings. 	<p><u>Improved Urban Infrastructure services</u> Partly done but need to be improved.</p> <p><u>Akesu-Duolang Wetland Rehabilitation</u> Completed done.</p>	
	Cultural, physical and	<ul style="list-style-type: none"> - In case an important site is unearthed, 	<p><u>Improved Urban</u></p>	

	natural heritage protection	<ul style="list-style-type: none"> work should be stopped immediately and the matter promptly referred to the local Cultural Relics Preservation Bureau for evaluation and decision on appropriate actions. 	<u>Infrastructure services Done for components that are done, but still go on for the upcoming components</u> <u>Akesu-Duolang Wetland Rehabilitation Completed done.</u>	
2.7 Unexpected environmental impacts		<ul style="list-style-type: none"> 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 	<u>Improved Urban Infrastructure services Done for components that are done, but still go on for the upcoming components</u> <u>Akesu-Duolang Wetland Rehabilitation Completed done.</u>	No unexpected environmental accidents occur by now.
3. Operation Stage (Project Roads)				
3.1 Noise	Noise from increasing traffic volumes on Project roads	<ul style="list-style-type: none"> Improve traffic and parking management to avoid noise produced by stop-and-start driving and traffic jams; Enforce driving speed limitations; Control large and heavily loaded vehicles during night time; Signs to reduce use of horn; Road maintenance and timely repair of damaged road pavements; Proper maintenance of trees planted along the proposed roadsides after construction; Sensitive receptors shall be constructed at least 100 m away from the roads; 	Not yet due.	

		<ul style="list-style-type: none"> - 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); - 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; - For those roads where violations still persist with the implementation of the above mitigation measures, the - 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; - The ambient and indoor monitoring program will be - conducted annually thereafter and appropriate mitigation measures will be formulated and undertaken. 		
3.2 Air quality	Exhaust emissions from predicted traffic volumes on roads	<ul style="list-style-type: none"> - Speed limiting signs and enforcement; - 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); - Refuse registration to vehicles with excessive emissions; 	Not yet due.	
3.3 Dangerous goods	Hazardous goods haulage	<ul style="list-style-type: none"> - Ensure that all trucks carrying hazardous materials are marked according to PRC norms; - Enforce traffic controls, and set speed limits for trucks carrying hazardous material; - Prepare a rapid spill response and clean up protocol so that in the event of a 	Not yet due.	

		spill the appropriate people and equipment are quickly notified and action can be taken.		
3.4 Community safety	Traffic management and public safety education	<ul style="list-style-type: none"> - The capacity building program contains a human-centered - 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	<ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> - No tree planting within 5 m on both side of the pipelines' central lines, to prevent root penetration and damage; - Grass and small shrubs will be encouraged to grow over the backfill to assist in soil stabilization; - Undertake periodical checks and maintenance of the pipeline during the operation period. 	Not yet due.	
	Pipe maintenance, performance of associated facilities	<ul style="list-style-type: none"> - Regularly inspect and maintain water supply pipes sewers; - Review performance of linked WTPs and WWTPs (treatment performance, compliance with water quality and effluent standards), mitigate performance problems using process control measures. 	Not yet due.	
5. Operation Stage (Central Heating Pipes and Heat Exchange Stations)				
5.1 Central heating pipelines	Potential damages to pipelines	<ul style="list-style-type: none"> - No tree planting within 5 m on both side of the pipelines' central lines, to prevent root penetration and damage; - Grass and small shrubs will be encouraged to grow over the backfill to assist in soil stabilization; - Undertake periodical checks and maintenance of the pipeline during the operation period. 	Not yet due.	
5.2 Heat exchange stations	Noise	<ul style="list-style-type: none"> - Machines will be maintained on a regular basis; - Machines will be inspected on a regular basis, and malfunctioning and worn parts will be repaired / replaced 	Not yet due.	

		timely.		
	Backwash effluent	<ul style="list-style-type: none"> - Build and maintain equalization and sedimentation tanks in each HES for pH adjustment and sedimentation ($SS \leq 400 \text{mg/L}$) before discharging backwash effluent into the municipal sewer; - Regularly clean the sedimentation tank, dispose of - accumulated sludge and sediments in the municipal landfill; 	Not yet due.	
6. Operation Stage (Solid Waste Management)				
6.1 Solid waste	Cleaning of garbage	<ul style="list-style-type: none"> - Garbage bins and containers will be cleaned on a regular basis; collection will be more frequent during summer; - Broken bins and containers will be replaced / repaired timely. 	Not yet due.	
6.2 Waste transport	Transport of domestic garbage	<ul style="list-style-type: none"> - Select haulage routes to minimize impacts to residential areas. - Ensure garbage haulage trucks are properly covered, maintained and operated. 	Not yet due.	
6.3 Waste transfer station	Future urban expansion	<ul style="list-style-type: none"> - 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). 	Not yet due.	
	Operation of station	<ul style="list-style-type: none"> - Environmental protection equipment and measures (e.g., odor removal, screens) should be maintained on a regular basis; malfunctioning and broken ones should be replaced / repaired timely; - Buffer tree belts surrounding the borders of the station should be maintained regularly and properly. 	Not yet due.	
7. Operation Stage (Public and Street Parks)				
7.1 Vegetation	Maintenance of vegetation	<p>The vegetation will be well maintained by regular irrigation and by replanting when necessary; Plants will be irrigated regularly on an as-needed basis. Vegetation will be fertilized regularly, with the use of dredged sediment from the</p>	Not yet due.	

		Duolang wetlands or other types of organic fertilizers; Pest control will be undertaken regularly to ensure proper plant growth; Low-toxicity pesticides should be used.		
8. Operation Stage (Wetland Rehabilitation)				
8.1 Dredging	Dredging of sedimentation zone	<ul style="list-style-type: none"> - The sedimentation zone will be dredged as required to maintain its sediment removal function - 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	<ul style="list-style-type: none"> - Transport of dredged sediment should use sealed and covered vehicles to avoid leakage and littering along the transport routes; - Transport routes should be periodically reviewed and adjusted if necessary to avoid sensitive receptors and areas; - Storage site should be protected from secondary pollution of air, surface and groundwater; - Dredged sediment should be used for urban landscaping and for other beneficial purposes (e.g., farming, construction materials, etc.). 	Not yet due.	
8.2 Water source	Water source protection from degradation	<ul style="list-style-type: none"> - Industrial and urban point source and agricultural non-point source pollution regulations and standards should be strictly enforced to protect the water source of the wetlands. - If pollution loads exceed the carrying capacity of the wetlands, reduction targets should be set and enforced. 	Not yet due.	
8.2 Wetland health	Protection of wetland from outside impacts	<ul style="list-style-type: none"> - Establish pollution control measures at perimeters to ensure that neighboring land uses do not pollute the wetlands; - Access control will be implemented to ensure that illegal dumping or poaching of wildlife is 	Not yet due.	

		prevented.		
	Biodiversity	<ul style="list-style-type: none"> - Develop training and education programs for local residents, schools, government agencies for wetland protection and conservation; - 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 Frequency	and 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, NH ₃ -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, NH ₃ -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, NO _x	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 Frequency and	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)	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: NO _x , 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 Frequency and	Implementing Agency	Supervising Agency
	Odor: H ₂ S, NH ₃	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 <i>Surface Water Quality Standards</i> (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 , NO _x , NO ₂ , CO, as per PRC <i>Ambient Air Quality Standards</i> (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 Frequency and	Implementing Agency	Supervising Agency
2. Surface Water Quality	23 basic parameters as per class III of PRC <i>Surface Water Quality Standards (GB 3838-2002)</i>	Duolang wetlands, Duolang Canal	3 samples each time; twice per year	AEMS	AEPB
4. Noise	Leq (dB(A)) as per PRC <i>Ambient Acoustic Quality Standards (GB 3096-2008)</i> .	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	2 samples each time, 2 samples during daytime, 2 at night each time; twice per year	AEMS	AEPB
5. Wetland Sediment	Parameters as per <i>Soil Quality Standards (GB 15618-1995)</i>	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 (<i>as defined in biodiversity monitoring plan (to be developed during project implementation)</i>)	Entire Duolang wetlands	<i>As defined in biodiversity monitoring plan (to be developed during project implementation)</i>	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, NH₃-N = ammonia nitrogen, OEE = onsite environmental engineer, pH = measure of acidity and alkalinity, PM₁₀ = particulate matter smaller than 10 micrometers, SS = suspended solids, TN = total nitrogen, TP = total phosphor, TSP = total suspended particulates

B. Monitoring Results and Assessment

23. During the reporting period of January to June 2018, there was no construction activities, but the new environmental monitoring agency, Xinjiang Xinhuan Inspection and Monitoring Institute (XXIMI) has conducted the monitoring for the first half of 2019 for the wetland component.

1. Monitoring Results for Wetland Component

a. Water Quality

24. Xinjiang Xinhuan Inspection and Monitoring Institute (XXIMI) carried out the monitoring of water quality at the construction sites on November 7, 2019. Monitoring of surface water quality was conducted at the 10 points of the wetland. The monitoring results are shown in Table VI-2.

Table VI-2: Summary of Surface Water Monitoring Data

Monitoring Result mg/l (pH exclusive)	Sampling Location										Integrated Surface Water Quality Standard (GB3838-2002) Grade III
	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	
pH	7.86	7.97	7.86	7.84	7.85	7.77	7.79	7.83	7.90	7.72	6-9
NH₃-N	0.225	0.127	0.105	0.128	0.137	0.127	0.151	0.225	0.195	0.144	1.0
TN	1.42	1.14	0.91	1.04	1.19	1.05	1.07	0.83	0.94	0.76	1.0
Water Temperature	13.7	13.7	13.8	13.7	13.7	13.7	13.7	13.7	13.9	13.8	-
DO	7.27	7.30	7.36	7.29	7.30	7.32	7.31	7.35	7.31	7.30	≥5
TP	0.01	0.01	0.01	0.01	0.01	0.01	0.01	<0.01	0.01	0.01	0.2
Cyanide	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.2
Oil	<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	0.2
Fluoride	1.27	1.25	1.25	1.26	1.23	1.21	1.22	1.21	1.22	1.20	1.0
COD Mn	1	1	1	1	1	1	1	1	1	1	6
Volatile phenol	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	0.005
COD	11	12	13	12	11	12	12	13	11	11	20
BOD₅	1.7	1.7	1.8	1.8	1.6	1.6	1.8	1.4	1.7	1.7	4

Fecal Coliform	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	10000
Sulfide	< 0.005	0.05									
Hg	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.0001
As	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	0.05
Zn	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	1.0
Se	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	0.01
Cd	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	0.005
Pb	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	0.05
Cu	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	1.0
Cr⁶⁺	< 0.004	0.05									

Note: 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; 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.

25. The over-standard results were highlighted in red. Except for total nitrogen and fluoride at some of the points, most 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

26. 24.Xinjiang Xinhuan Inspection and Monitoring Institute (XXIMI) carried out the monitoring of air quality at the construction sites on November 8-13, 2019. Monitoring frequency was 24h/day for TSP, PM₁₀, NO_x, SO₂ and CO, for five days. Air quality monitoring results are shown in Table VI-3.

Table VI-3: Monitoring Data of Ambient Air Quality

Monitoring date	Points	Monitored indicator				
		SO ₂ (μg/m ³)	NO ₂ (μg/m ³)	PM ₁₀ (μg/m ³)	TSP (μg/m ³)	CO (mg/m ³)
November 8-9, 2019	In the east of the wetland	10	26	77	188	0.8
November 9-10, 2019		11	29	81	216	0.9
November 10-11, 2019		12	33	80	199	0.6
2November 11-12, 2019		9	35	85	208	0.7
2November 12-13, 2019		10	33	87	199	0.7
November 8-9, 2019	In the south of the wetland	9	28	86	190	0.8
November 9-10, 2019		13	32	89	217	0.7
November 10-11, 2019		10	31	82	201	0.8
2November 11-12, 2019		13	29	91	207	0.6
2November 12-13, 2019		8	35	90	197	0.6
November 8-9, 2019	In the west of the wetland	12	30	79	192	0.7
November 9-10, 2019		9	34	83	213	0.7
November 10-11, 2019		13	34	77	202	0.7
2November 11-12, 2019		10	31	84	205	0.8
2November 12-13, 2019		12	30	78	198	0.6
November 8-9, 2019	In the north of the wetland	11	27	92	186	0.6
November 9-10, 2019		8	31	108	212	0.6
November 10-11, 2019		9	30	103	198	0.6
2November 11-12, 2019		8	30	101	204	0.7
2November 12-13, 2019		8	30	105	199	0.7
November 8-9, 2019	In the middle of the wetland	9	28	111	188	0.6
November 9-10, 2019		9	32	109	215	0.6
November 10-11, 2019		10	32	97	194	0.7
2November 11-12, 2019		10	32	106	206	0.7
2November 12-13, 2019		11	32	100	200	0.6
Ambient Air Quality Standard (GB3095-2012)		150	80	150	300	4

27. According to the data in Table VI-3, the air quality at all the monitoring points met the requirements of Grade II of the *Ambient Air Quality Standard* (GB3095-2012).

c. Noise

28. The data of the noise monitoring during construction period are shown in Table VI-4. Monitoring frequency: each during daytime for this subproject.

Table VI-4 Monitoring Data of Noise at Construction Boundary and Sensitive Points

Unit: dB(A)

Points	November 11-12, 2019		November 12-13, 2019	
	Day time	Night time	Day time	Night time
East of the wetland	56.4	45.2	56.3	45.2
South of the wetland	53.4	44.8	53.4	44.7
West of the wetland	54.4	43.5	54.5	43.5
North of the wetland	53.9	43.2	53.7	43.1
Emission standard of environment noise for boundary of construction site GB12523-2011	70	55	70	55

29. According to the data in Table VI-4, 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

30. 24.Xinjiang Xinhuan Inspection and Monitoring Institute (XXIMI) carried out the monitoring of air quality at the construction sites on November 14-17, 2019. Monitoring frequency was 24h/day for TSP, PM₁₀, NO_x, SO₂ and CO, for five days. Air quality monitoring results are shown in Table VI-5.

Table VI-5: Monitoring Data of Ambient Air Quality

Monitoring date	Points	Monitored indicator				
		SO ₂ (μg/m ³)	NO ₂ (μg/m ³)	PM ₁₀ (μg/m ³)	TSP (μg/m ³)	CO (mg/m ³)
November 14-15, 2019	Gairui Dairy Products Company	13	32	177	215	0.7
November 15-16, 2019		13	32	156	264	0.6
November 16-17, 2019		15	33	171	438	0.6
November 14-15, 2019	Xintian Fruit Industry Co., Ltd.	12	32	165	216	0.7
November 15-16, 2019		15	34	183	265	0.7
November 16-17, 2019		17	32	197	452	0.7
November 14-15, 2019	Akesu Tongwang Logistics Co., Ltd.	15	33	206	219	0.9
November 15-16, 2019		17	35	216	265	0.8
November 16-17, 2019		15	34	223	446	0.6
November 14-15, 2019	Xinjiang Jinyuan Bohai Biological Co., Ltd.	14	32	209	215	0.6
November 15-16, 2019		14	31	263	267	0.7
November 16-17, 2019		15	34	291	440	0.8
November 14-15, 2019	Yingbin Mingyuan Community	13	33	303	218	0.6
November 15-16, 2019		12	36	297	267	0.6
November 16-17, 2019		16	35	355	463	0.7
Ambient Air Quality Standard (GB3095-2012)		150	80	150	300	4

31. According to the data in Table VI-5, 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

32. 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	November 14-15, 2019		November 15-16, 2019	
	Day time	Night time	Day time	Night time
Xintian Fruit Industry Co., Ltd.	56.3	45.2	56.4	45.1
Aksu Unified Enterprise	56.1	45.4	56.1	45.7
Akesu Tongwang Logistics Co., Ltd.	57.4	45.1	56.9	45.2
Xintiandi Jujube Industry	56.9	45.2	56.9	45.3
Xinjiang Jinyuan Bohai Biological Co., Ltd.	57.7	46.5	57.8	46.5
Tengxin Kitchenware Factory	56.5	45.5	56.5	45.2
Tianhai Oasis Group	56.6	45.7	56.9	45.7
Akesu Agricultural Technology	56.9	45.5	56.8	45.3
Jinzhou Express Hotel	56.2	45.6	56.5	45.3
Yingbin Mingyuan Community	56.3	45.6	56.4	45.5
Yinfeng Fruit Industry	56.7	45.1	56.7	45.3
Vocational School Driving School	56.0	45.3	56.1	45.4
Emission standard of environment noise for boundary of construction site GB12523-2011	70	55	70	55

33. 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.

VII. PUBLIC CONSULTATION

34. 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, APMO, EMG,	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, APMO, EMG,	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

35. 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 complaint was received.

36. 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:

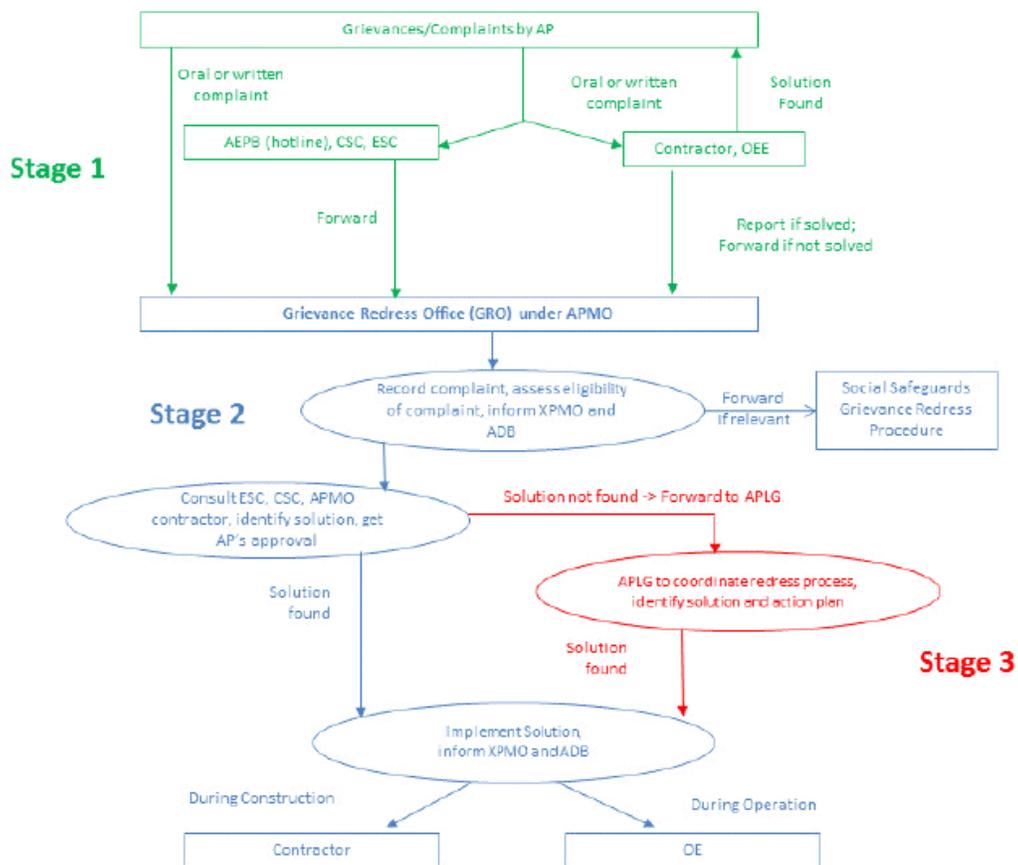


Figure VII-1: Grievance Redress Mechanism (GRM)

37. In the reporting period from July to December, 2019, there was no complaint 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.

38. 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.

39. 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

40. 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. KEY ENVIRONMENTAL ISSUES

41. 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 will be done.

X. CONCLUSION

A. Overall Progress of Implementation of Environmental Management Measures

42. 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.

43. 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.

44. For the proposed new subprojects, the domestic environmental assessment table has been completed by December 2017, and based on which an Addendum to the CIEE was prepared and is was submitted to ADB in January 2018, and re-submitted to ADB in March 2018 based on ADB's comments in February 2018. The Addendum has got ADB's approval.

B. Problems Identified and Actions Recommended

45. 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.

XI. APPENDICES

1. Photographs



Completed wetland