Project Administration Manual

Project Number: 37697
April 2015

Mongolia: Darkhan Wastewater Management Project

Contents

Project Administration Manual Purpose and Process

The project administration manual (PAM) describes the essential administrative and management requirements to implement the project on time, within budget, and in accordance with Government and Asian Development Bank (ADB) policies and procedures. The PAM should include references to all available templates and instructions either through linkages to relevant URLs or directly incorporated in the PAM.

The Ministry of Construction and Urban Development and the Darkhan-Uul *aimag* (province) government are wholly responsible for the implementation of ADB financed projects, as agreed jointly between the borrower and ADB, and in accordance with Government and ADB's policies and procedures. ADB staff is responsible to support implementation including compliance by the Ministry of Construction and Urban Development and the Darkhan-Uul *aimag* government of their obligations and responsibilities for project implementation in accordance with ADB's policies and procedures.

At Loan Negotiations the borrower and ADB shall agree to the PAM and ensure consistency with the Loan agreement. Such agreement shall be reflected in the minutes of the Loan Negotiations. In the event of any discrepancy or contradiction between the PAM and the Loan Agreement, the provisions of the Loan Agreement shall prevail.

After ADB Board approval of the project's report and recommendation of the President (RRP) changes in implementation arrangements are subject to agreement and approval pursuant to relevant Government and ADB administrative procedures (including the Project Administration Instructions) and upon such approval they will be subsequently incorporated in the PAM.

Abbreviations

ADB	=	Asian Development Bank
ADF	=	Asian Development Fund
DAG	=	Darkhan-Uul *aimag* (province) government
DEIA	=	detailed environmental impact assessment
DUS	=	Darkhan Us Suvag Joint Stock Corporation (public utility service organization)
EA	=	executing agency
EIA	=	environmental impact assessment
EMP	=	environmental management plan
GRM	=	grievance redress mechanism
IA	=	implementing agency
ICB	=	international competitive bidding
IEE	=	initial environmental examination
LAR	=	land acquisition and resettlement
LARP	=	land acquisition and resettlement plan
LIBOR	=	London interbank offered rate
LIRC	=	loan implementation resettlement consultant
LIEC	=	Loan implementation environment consultant
MEGDT	=	Ministry of Environment, Green Development and Tourism
MOF	=	Ministry of Finance
MCUD	=	Ministry of Construction and Urban Development
NCB	=	national competitive bidding
NGO	=	nongovernment organization
PAM	=	project administration manual
PMU	=	project management unit
PMUD	=	project management unit Darkhan office
PPMS	=	project performance management system
PSA	=	poverty and social analysis
QCBS	=	quality- and cost-based selection
RRP	=	report and recommendation of the President
SAP	=	social action plan
SOE	=	statement of expenditures
SPS	=	Safeguard Policy Statement

I. PROJECT DESCRIPTION

1. **Project rationale, location, and beneficiaries.** The proposed project targets environmentally sustainable urban development and improved living standards in Darkhan *soum* (district), Mongolia. The project will contribute to a more balanced national urban system and strengthened urban-rural relationships through contribution to the development of a second-tier city in the country. The project will support improvement of the city's wastewater management, its central wastewater treatment plant (WWTP), sewer system, and pump stations. The project will support project management, capacity development, training, and policy dialogue. An attached technical assistance (TA), Darkhan Urban Utility Institutional Improvement Action Plan, will be financed on a grant basis by the Urban Environmental Infrastructure Fund under the Urban Financing Partnership Facility,[1] and administered by the Asian Development Bank (ADB) (see chapter VI, D).

2. **Context.** Darkhan-Uul *aimag* is Mongolia's third largest province with a registered population of 92,000 and an urban population in Darkhan *soum* of 76,400,[2] of which an estimated 40.0% live in *ger* areas.[3] Poverty incidence is significant at 27.0% citywide and 44.0% in *ger* areas, respectively. Darkhan *soum* is located 220 kilometers (km) north of Ulaanbaatar and 130 km south of the Russian Federation border. Darkhan enjoys favorable conditions for farming and is rich in mineral deposits. It was founded as an industrial hub in 1961, and benefits from the Trans-Mongolian rail line and an ADB-supported road that connects Ulaanbaatar with Darkhan and the Lake Baikal region.[4] Industrial investments were made in recent years resulting in a slight population loss. Darkhan-Uul's gross domestic product doubled between 2010 and 2013 and is transforming into an urban economy with the service sector growing from 29.4% to 41.9% during that same period. To strengthen development of second-tier cities and to mitigate migration of people to Ulaanbaatar where almost half of the country's population resides, in 2012, the government identified Darkhan to become a national model city for urban sustainability and livability with a vision of becoming a "smart and green city" by 2028. An urban development master plan for Darkhan is under preparation. The government plan for Darkhan includes improvements of existing urban districts and *ger* areas, urban expansion in the form of new industrial and residential areas, strengthened academic institutions, and expanded and new public parks and environmental protection zones. By 2020, the registered population in Darkhan *soum* is estimated to grow to 83,000 with 75.0% of the population living in formalized and fully serviced residential districts. These industrial and residential developments will increase demand for urban services, including water supply and wastewater treatment. Investment in infrastructure is needed to meet present and future demand from improved and expanded services, and to support clustering of new businesses and industries.

3. **Current wastewater management in Darkhan.** The city's WWTP, and the sanitary sewer system[5] and pumping stations, were built in 1965, and degraded despite partial expansion in 1987. They are in urgent need of structural rehabilitation, replacement, or upgrade of equipment. The WWTP was significantly overdesigned with a capacity of 50,000 cubic meters

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[1] Financing partner: the Government of Sweden.
[2] An additional transient population accounts for approximately 8,000 that is being added for calculations.
[3] Based on Darkhan Land Administration Office estimates.
[4] ADB. 1995. *Report and Recommendation of the President to the Board of Directors: Proposed Loan and Technical Assistance Grant to Mongolia for the Roads Development Project*. Manila (Loan 1364-MON supported road improvements of the Ulaanbaatar-Altanbulag road connecting key economic centers and three largest cities of Mongolia—Ulaanbaatar, Erdenet, and Darkhan).
[5] Darkhan has a sanitary sewer system that collects domestic and industrial wastewater. Runoff from precipitation is collected separately in drainage channels. The sewer pipes will be extended under newly planned and built roads.

per day (m^3/day) and never fully utilized. It currently operates at 8,000 m^3/day to 10,000 m^3/day (summer and winter) with peak flows of 15,000 m^3/day. Many components are underutilized or unused and dilapidated. Even operating units are in need of serious repair. The sewer system totals 223 km with 65.0% built in 1965. Since 2010, domestic investments financed only sewer rehabilitation. Three sewer sections and two pumping stations are in serious need of replacement or repair and critical for the system functions. Sanitation in *ger* areas is currently in the form of on-plot pit latrines causing soil and groundwater pollution. Currently, wastewater is not collected in *ger* areas. Plans for incremental extension of the sewer network into *ger* areas have been prepared for government financing. The WWTP treats domestic sewage together with nontoxic industrial wastewater. Some industrial pretreatment plants remove toxic elements (e.g., from sheepskin processing). A slight temperature and precipitation increase is expected due to climate change. The frequency of droughts and floods and resulting variability of Kharaa River water flow, is projected to increase.[6] Darkhan's central water supply system serving the formal urban areas was recently improved,[7] while service in *ger* areas is provided through water kiosks, some of which are connected to the central water supply system. In some areas, kiosks are replenished by trucks. Incremental expansion of the centralized pipe network to serve all kiosks in *ger* areas is planned with the assistance of the Cities Development Initiative for Asia. Breakdowns of the current system cause untreated water to discharge into the groundwater and the Kharaa River. The existing WWTP will further rapidly deteriorate and fail, as the remaining life of the facility has been estimated at just 2 years. Moreover, planned and anticipated urban and industrial growth cannot be served by the existing system.

4. The project will improve the wastewater collection and treatment systems and ensure continuous treatment throughout implementation. The project will directly benefit more than 45,000 residents (60.0% of the urban population) and indirectly, more than 76,400 residents. Once in operation, it is anticipated that an expanded sewer system will further increase the beneficiary population to 62,000 residents (75.0% of the urban population) by 2020. The project will support improvement of the city's wastewater management, its central WWTP, sewer system, and pumping stations. The project will support institutional development, training, project management, and policy dialogue. The proposed project was requested by the Government of Mongolia for ADB consideration.[8]

5. **Strategic fit and innovation features.** The project is included in ADB's country operations business plan, 2014–2016 for Mongolia and it is aligned with the interim country partnership program, 2014–2016 for Mongolia.[9] With its objective to contribute to inclusive economic and environmentally sustainable growth, the project is aligned with ADB's Strategy 2020 and Midterm Review of Strategy 2020, and follows ADB's Urban and Water Operational plans. The proposed project is aligned with the Government Action Plan, 2012–2016, including its objectives of improving centralized wastewater systems in *aimag* centers, enforcing the Law on Water Supply and Sewer Use, and supporting the expansion of industrial development in Darkhan *soum*. Lessons learned from previous urban and water sector projects in Mongolia include wastewater treatment technology selection after thorough screening of recently tested

[6] The Kharaa River basin has a dry winter continental climate with a current annual mean temperature of around 0°C and a current annual mean precipitation of 320 millimeters. Climate change information: C. Yeager and H. Zhou. 2014. Assessing Climate Change Risks in the PRC and Mongolia. EAER Staff Guidance. Manila: ADB.

[7] The city received support from the Japan International Cooperation Agency and other donors to improve water supply with upstream pumping stations, water mains, and a state-of-the-art distribution and disinfection station. Total capacity is 70,000 m^3/day and current abstraction reaches up to 23,000 m3/day. As water supply and wastewater systems are closely interrelated, water supply is considered here as a factor.

[8] The Ministry of Economic Development submitted a request letter signed by Minister Batbayar on 28 June 2013.

[9] ADB. 2014. *Country Operations Business Plan: Mongolia, 2014–2016*. Manila; ADB. 2014. *Interim Country Partnership Strategy: Mongolia, 2014–2016*. Manila.

projects and proposals, and procurement management and choice of plant (design, supply, and install modality for the WWTP to ensure accountability and mitigate risks). The project supports the sustainability of and complements previous ADB assistance to Darkhan.[10] To structurally rehabilitate and retrofit an existing WWTP will be a demonstration feature and serve as a model for other cities in the region with comparable conditions.

6. **Project impact and outcome.** The project impact will be improved living conditions and environment in Darkhan *soum* and the Kharaa River basin. The project outcome will be improved system of wastewater collection and treatment for domestic and industrial users in Darkhan *soum*.

7. **Project outputs.** The project will have three outputs:

(i) **Output 1 – Improved wastewater treatment plant.** The project will establish a modern WWTP in Darkhan, through the structural renovation of those components of the existing facility that are structurally sound, on site new construction of the other components, and installation of new equipment throughout the facility. A new, effective, and energy-efficient treatment process (expected to be the so-called integrated fixed-film activated sludge) will be adopted, suitable for the cold climate and meeting national and international effluent standards. The base operating capacity will be 16,000 m^3/day with a peak capacity of 24,000 m^3/day.

(ii) **Output 2 – Rehabilitated pumping stations and sewer pipes.** The project will improve the wastewater collection system through replacement of 1,800 meters of dilapidated sewer pipes complementing earlier investment programs of sewer network rehabilitation by the government. Two existing pumping stations will be structurally renovated and fully and newly equipped ensuring delivery of the wastewater to the treatment plant at higher energy efficiency.

(iii) **Output 3 – Project management support and capacity development.** The project will (i) provide expert support for project management, institutional enhancement, and capacity development in utility management, operation, and service provision; emergency preparedness and response; and detailed technical design and construction supervision; and (ii) strengthen project management unit (PMU) capacities. Training and study tours will be provided during implementation. The project will include policy dialogue on water and wastewater tariff reform, sanitation improvements, and solid waste management. It will support public awareness campaigns on environmental management, sanitation, and solid waste management. The proposed loan will include a TA project to support institutional development of utility service provision, strategic planning, and operation improvements.[11]

[10] ADB assistance to Darkhan include: Loan 1847-MON: Housing Finance (Sector) Project (completed), Grant 9015-MON: Improving the Living Environment of the Poor in Ger Areas of Mongolia's Cities (completed), Grant 0204-MON: Southeast Gobi Urban and Border Town Development Project (ongoing), and Loan 2301-MON: Urban Development Sector Project (ongoing). ADB assistance to Mongolia include: Loan 1560-MON: Provincial Towns Basic Urban Services (completed), Loan 1907-MON: Integrated Development of Basic Urban Services in Provincial Towns Project (completed), and MFF 0078-MON: Ulaanbaatar Urban Services and Ger Areas Development Investment Program (approved December 2013).

[11] Attached Technical Assistance (accessible from the list of linked documents in Appendix 2 of the RRP).

II. IMPLEMENTATION PLANS

A. Project Readiness Activities

Indicative Activities	2014							2015			Responsibility
	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	
DEIA approval											MCUD, MEGDT
Technical Discussions											MOF, MCUD, DAG, ADB
Loan Negotiations approval											MOF, MCUD
Loan Negotiations											MOF, MCUD, DAG, ADB
ADB Board approval											ADB
Advance contracting actions PMU staff and loan implementation consultant firm recruitment											MCUD, ADB
Establish PMU, PMUD, and steering committees											MCUD, DAG, DUS
Loan signing											MOF, ADB
Government legal opinion provided											MOF, MOJ
Government budget inclusion											Government
Relending and Onlending agreed											MOF, MCUD, MOJ, DAG
Parliament Ratification of Loan Agreement											Government, Parliament
Loan effectiveness											MOF, DAG
Imprest accounts open											MOF, MCUD

ADB = Asian Development Bank, DAG = Darkhan-Uul *aimag* government, DEIA = detailed environmental impact assessment, DUS = Darkhan Us Suvag, MCUD = Ministry of Construction and Urban Development, MEGDT = Ministry of Environment, Green Development and Tourism, MOF = Ministry of Finance, MOJ = Ministry of Justice, PMU = project management unit, PMUD = project management unit Darkhan office.

Notes:

1. The project readiness covers activities from establishing PMU/IA's at the project preparation to the loan effectiveness.
2. Provision and request for advance contracting, please refer to RRP.
3. Loan signing, legal opinion, and loan effectiveness dates to be finalized.

B. Overall Project Implementation Plan

Indicative Activities	2014 (Qtr)				2015 (Qtr)				2016 (Qtr)				2017 (Qtr)				2018 (Qtr)			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
A. Design and Monitoring Framework																				
Output 1																				
Activity 1.1 Prepare employer's requirements and procure Design, Build and Operation Assistance for WWTP. Approvals.																				
Activity 1.2 Design and order equipment, update and implement LARP, demolish selectively, renovate structure, construct and install new equipment, commission of WWTP (2015–2016)																				
Activity 1.3 Start operating and monitoring of WWTP																				
Output 2																				
Activity 2.1 Detailed designs, approvals and procure sewer and pumping station works and equipment																				
Activity 2.2 Construct, commission, and start operating sewers and pumping stations																				
Output 3																				
Activity 3.1 Establish PMU, PMUD, and arrangements																				
Activity 3.2 Recruit consultants																				
Activity 3.3 Project management and implementation support																				
Activity 3.4 Institutional development																				
Activity 3.5 Provide staff training																				
Activity 3.6 Policy dialogue and public awareness campaigns																				
Activity 3.7 Develop emergency response plans																				
Activity 3.8 EMP, LARP, SAP implementation and monitoring																				
Annual/midterm review																				
Project completion report																				

EMP = environmental management plan, LARP = land acquisition and resettlement plan, PMU = project management unit, PMUD = project management unit Darkhan office, SAP = social action plan, WWTP = wastewater treatment plant.

III. PROJECT MANAGEMENT ARRANGEMENTS

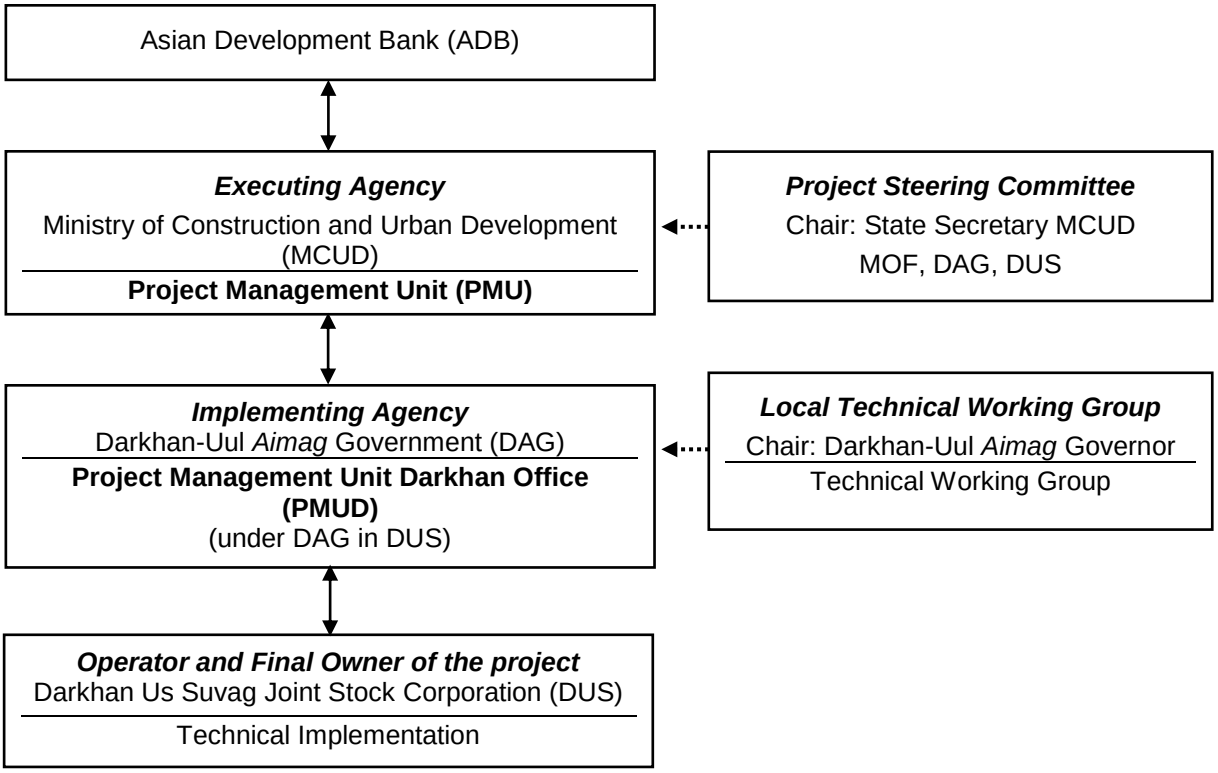
A. Project Implementation Organizations – Roles and Responsibilities

Organizations	Management Roles and Responsibilities
Asian Development Bank (ADB)	➢ Oversees project implementation, including compliance by executing and implementing agencies of their obligations and responsibilities for project implementation in accordance with ADB's policies and procedures
Ministry of Finance (MOF)	➢ Borrower's representative ➢ Ensures provision of timely counterpart funding ➢ Reviews and approves withdrawal applications ➢ MOF Establishes two imprest accounts and three sub-accounts (two managed by PMU, one managed by PMUD) in local currency in commercial bank acceptable to ADB ➢ Ensures annual audit of the project accounts ➢ Negotiates loan and project agreements
Project Steering Committee (under MCUD)	➢ Chaired by the State Secretary, MCUD ➢ Comprises representatives of MOF, MCUD, Darkhan-Uul *aimag* government, technical experts, and other agencies ➢ Provide strategic guidance and technical advice ➢ Meet at least once every 6 months until project completion
Executing Agency Ministry of Construction and Urban Development (MCUD)	➢ Responsible for project oversight, coordination with implementing agency, liaison with ADB, financial management, and administration ➢ Establish project steering committee, technical working group, and PMU ➢ Submits progress and safeguards monitoring reports prepared by PMU to steering committee for decision making and to ADB ➢ Accountable and responsible for proper use of imprest accounts' funds ➢ Responsible for procurement of international competitive bidding contracts, consulting services and PMU experts' recruitment, disbursement coordination, withdrawal applications, monitoring budget allocations, counterpart funding ➢ Ensures compliance with project covenants ➢ Holds quarterly tripartite meetings with the PMU and PMUD
Implementing Agency Darkhan-Uul aimag government (DAG)	➢ Responsible for project implementation, including administration, technical and national bidding procurement matters, monitoring and evaluation, safeguard compliance, and emergency response
Project Management Unit (PMU under MCUD)	➢ Responsible for all management, communication, and coordination work during project preparation and implementation periods ➢ Assists MCUD in procurement of works and equipment and consulting services, prepares procurement documents for MCUD ➢ Assists MCUD with management of engineering design, works, goods supply, and consulting services contracts ➢ Establishes and maintains project performance management system with support by the consultants ➢ Secures technical expertise for works prior to bidding and ensures monitoring and quality assurance during construction and installation ➢ Coordinates disbursements with ADB, prepares withdrawal/replenishment applications for endorsement by MCUD and MOF ➢ Submits progress and audit reports to ADB and MCUD on time ➢ Maintains project imprest accounts
Project Management Unit Darkhan Office (PMUD under DAG in Darkhan Us Suvag	➢ Responsible for project implementation and management ➢ Assists DAG and MCUD in procurement of works and equipment for national competitive bidding and for shopping contract packages ➢ Updates and submits final land acquisition and resettlement plan and environmental management plan for ADB approval prior to award of contracts and implements all required measures ➢ Manages surveys and engineering designs for component A2 ➢ Ensures quality assurance of civil works and equipment installation ➢ Ensures safeguards monitoring and grievance redress mechanism ➢ Endorses claims from the contractors and supplying companies

B. Key Persons Involved in Implementation

Executing Agency	
Ministry of Construction and Urban Development	Mr. B. Baasan Director General Department of Construction and Public Utilities Policy Department Tel.: +976 11 260974 Fax: +976 11 327 716 E-mail: batchimeg@mcud.gov.mn Office Address: Government Bldg. 12 Barilgachdin Talbai 3 Ulaanbaatar 15170 Mongolia
Implementing Agency	
Darkhan-Uul *aimag* government	Mr. S. Nasanbat Governor Tel.: +976 7037 8023 Fax: +976 7037 7121 E-mail: cnasaa2003@yahoo.com Office Address: Bag 14, Darkhan *soum* Darkhan-Uul *aimag* Mongolia
ADB	
Urban and Social Sectors Division (EASS)	Mr. Sangay Penjor Director Tel.: +63 2 632 6584 Fax: +63 2 636 2407 E-mail: spenjor@adb.org
Mission Leader	Mr. Stefan Rau Urban Development Specialist Tel.: +63 2 632 5812 Fax: +63 2 636 2407 E-mail: srau@adb.org
Mongolia Resident Mission	Mr. Robert Schoellhammer Country Director Tel.: +976 11 313440 Fax: +976 11 311795 E-mail: rschoellhammer@adb.org
Co-mission Leader	Ms. Tuul Badarch Senior Project Officer (Infrastructure) Tel.: +976 11 313440 Fax: +976 11 311795 E-mail: tbadarch@adb.org

C. Project Organization Structure



IV. COSTS AND FINANCING

1. The total cost of the project is estimated at about $20.68 million equivalent, including physical and price contingencies, interest, taxes and duties, and other charges. The investment plan for the program is summarized in Table 1 below.

Table 1: Project Investment Plan
($ million)

Item			Amount[a]
A.	**Base Cost**[b]		
	1.	Improved wastewater treatment plant	15.00
	2.	Rehabilitated pumping stations and sewer pipes	1.67
	3.	Project management support and capacity development	1.80
		Subtotal (A)	**18.47**
B.	**Contingencies**[c]		**1.51**
C.	**Financing Charges During Implementation**[d]		**0.70**
		Total (A+B+C)	**20.68**

[a] Includes taxes and duties of $2.18 million to be financed from government resources.
[b] In mid-2013 prices.
[c] Physical contingencies computed at 5% for civil works and consulting services. Price contingencies computed at 0.5%–2.2% for foreign exchange costs and 3.0%–8.0% on local currency costs; includes provision for potential exchange rate fluctuation under the assumption of a purchasing power parity exchange rate.
[d] Includes interest and commitment charges.
Source: Asian Development Bank estimates.

2. The government has requested a loan of $9.45 million from ADB's ordinary capital resources (OCR loan) and a loan in various currencies equivalent to SDR$6.159 million from ADB's Special Funds resources (Asian Development Fund [ADF] loan) to help finance the project. Both the OCR loan and the ADF loan will have a 25-year term, including a grace period of 5 years. The OCR loan will have an annual interest rate determined in accordance with ADB's London Interbank offered rate (LIBOR)-based lending facility,[1] a commitment charge of 0.15% per year (the interest and other charges during construction to be capitalized in the loan), and such other terms and conditions set forth in the draft loan and project agreements. The ADF loan will have an interest rate of 2.0% per annum during the grace period and thereafter, and such other terms and conditions set forth in the draft loan and project agreements. The government will relend the proceeds of the OCR loan and ADF loan to Darkhan-Uul *aimag* government (DAG) under a subsidiary loan agreement on the terms and conditions satisfactory to ADB and in accordance with the loan agreement and project agreement.

Table 2: Financing Plan

Source	**Amount** ($ million)	**Share of Total** (%)
Asian Development Bank		
Ordinary capital resources (loan)	9.45	45.70
Special Funds resources (loan)	9.05	43.76
Government	2.18	10.54
Total	**20.68**	**100.00**

Note: Numbers may not sum up precisely because of rounding.
Source: Asian Development Bank estimates.

[1] The OCR loan is based on straight-line principal repayment method. Based on this, the average loan maturity is 15.25 years and the maturity premium payable to ADB is 0.10% per annum.

A. Detailed Cost Estimates by Expenditure Category

Item	(MNT million) Foreign Currency	Local Currency	Total Cost	($ million) Foreign Currency	Local Currency	Total Cost [a]	% of Base Cost	% of Total Cost
A. Investment Cost[a]								
1. Wastewater Treatment Plant	20.573	4.774	25.347	12.17	2.83	15.00	81	73
2. Pump Stations and Sewers								
2.1. Pump Stations	1.480	164	1.645	0.88	0.10	0.97	5	5
2.2. Sewers	711	474	1.184	0.42	0.28	0.70	4	3
Subtotal (2)	2.191	638	2.829	1.30	0.38	1.67	9	8
3. Project Management Support and Capacity Development								
3.1. PMS, Design and Capacity Development	2.062	237	2.299	1.22	0.14	1.36	7	6
3.2. PMU and PMUD[b]	676	67	743	0.40	0.04	0.44	3	2
Subtotal (3)	2.738	304	3.042	1.62	0.18	1.80	10	9
Subtotal (A)	**25.502**	**5.717**	**31.219**	**15.09**	**3.38**	**18.47**	**100**	**89**
B. Contingencies								
1. Physical	765	171	937	0.45	0.10	0.56	3	3
2. Price	1.492	118	1.609	0.88	0.07	0.95	5	5
Subtotal (B)	**2.257**	**289**	**2.546**	**1.34**	**0.17**	**1.51**	**8**	**7**
C. Financing Charges During Implementation								
1. Interest During Construction	1.104	0	1.104	0.65	0	0.65	4	3
2. Commitment Fees	88	0	88	0.05	0	0.05	0	0
Subtotal (C)	**1.192**	**0**	**1.192**	**0.70**	**0**	**0.70**	**4**	**3**
Total Project Cost (A+B+C)	**28.951**	**6.006**	**34.957**	**17.13**	**3.55**	**20.68**	**112**	**100**

PMS = project management support, PMU = project management unit, PMUD = project management unit Darkhan office.
Note: Numbers may not sum precisely because of rounding.
[a] Includes taxes and duties. Taxes and duties will be financed in form of cash contribution by the borrower. In October 2013 prices. Costs for implementing the environmental management plan and land acquisition and resettlement plan are included in A3.
[b] Includes PMU and PMUD staff salaries (PMU and PMUD staff will not be civil servants receiving salaries from the government), PMUD vehicle, furniture and information and communication technology equipment, PMU and PMUD operational costs, and annual audit costs subject to the Asian Development Bank's no-objection.
Source: Asian Development Bank estimates

B. Allocation and Withdrawal of Loan Proceeds

Table a: Allocation and Withdrawal of ADB Ordinary Capital Resources Loan Proceeds

ALLOCATION AND WITHDRAWAL OF LOAN PROCEEDS (OCR LOAN) Mongolia: Darkhan Wastewater Management Project				
CATEGORY				ADB ADF FINANCING
		Total Amount Allocated for ADB Financing ($)		Percentage and Basis for Withdrawal from the Loan Account
No	Item	Category	Subcategory	
1	Wastewater Treatment Plant[a]	4,570,000		100.00% of total expenditure[b]
2	Pump Stations and Sewers[c]	1,490,000		100.00% of total expenditure[b]
3	Project Management and Administration, Consulting Services	1,640,000		100.00% of total expenditure[b]
4	Interest and Commitment Charges	410,000		100.00% of total amount due
5	Unallocated	1,340,000		
	Total	**9,450,000**		

ADB = Asian Development Bank, ADF = Asian Development Fund.

[a] Includes wastewater treatment plant contract package in plant: design, supply, and install modality. This category will be financed by both the OCR and ADF loans. ADF loan will be frontloaded, which means that the ADF loan will finance 100% of this category for all first payments until ADF loan proceeds are fully utilized. OCR loan will finance 100% of this category once ADF proceeds have been fully utilized.

[b] Exclusive of taxes and duties imposed within the territory of the Borrower, and exclusive of costs for land acquisition and resettlement. All taxes and duties are financed in form of cash contribution by the Borrower.

[c] Includes insurance and transportation costs.

Source: Asian Development Bank estimates.

Table b: Allocation and Withdrawal of ADB Asian Development Fund Loan Proceeds

ALLOCATION AND WITHDRAWAL OF LOAN PROCEEDS (ADF LOAN) Mongolia: Darkhan Wastewater Management Project				
CATEGORY				ADB ADF FINANCING
		Total Amount Allocated for ADB Financing (SDR)		Percentage and Basis for Withdrawal from the Loan Account
No	Item	Category	Subcategory	
1	Wastewater Treatment Plant[a]	5,961,000		100.00% of total expenditure[b]
2	Interest	198,000		100.00% of total amount due
	Total	**6,159,000**		

ADB = Asian Development Bank, ADF = Asian Development Fund.

[a] Includes wastewater treatment plant contract package in plant: design, supply and install modality. This category will be financed by both the OCR and ADF loans. ADF loan will be frontloaded, which means that the ADF loan proceeds will finance 100% of this category for all first payments until loan proceeds are fully utilized. OCR will finance 100% of this category once ADF proceeds have been fully utilized.

[b] Exclusive of taxes and duties imposed within the territory of the Borrower, and exclusive of costs for land acquisition and resettlement. All taxes and duties are financed in form of cash contribution by the Borrower.

Source: Asian Development Bank estimates.

C. Detailed Cost Estimates by Financier

($ million)

Item	ADB Loan				Darkhan-Uul *aimag* government		
	OCR		ADF				
	Amount	Financing % of Cost Category	Amount	Financing % of Cost Category	Amount (Taxes and duties)	Financing % of Cost Category	Total Cost
A. Investment Cost[a]							
1. Wastewater Treatment Plant	4.57	31	8.76	58	1.67	11	15.00
2. Pump Stations and Sewers							
2.1. Pump Stations	0.85	87	0	0	0.12	13	0.97
2.2. Sewers	0.64	91	0	0	0.06	9	0.70
Subtotal (2)	1.49	89	0	0	0.19	11	1.67
3. Project Management Support and Capacity Development							
3.1. PMS, Design and Capacity Development	1.24	91	0	0	0.12	9	1.36
3.2. PMU and PMUD[b]	0.40	91	0	0	0.04	9	0.44
Subtotal (3)	1.64	91	0	0	0.16	9	1.80
Subtotal (A)	**7.70**	**89**	**8.76**	**0**	**2.02**	11	**18.47**
B. Contingencies							
1. Physical	0.49	89	0	0	0.06	11	0.56
2. Price	0.85	89	0	0	0.10	11	0.95
Subtotal (B)	**1.34**	**89**	**0**	**0**	**0.16**	**11**	**1.51**
C. Financing Charges During Implementation							
1. Interest During Construction	0.36	55	0.29	45	0	0	0.65
2. Commitment Fees	0.05	100	0	0	0	0	0.05
Subtotal (C)	**0.41**	**59**	**0.29**	**41**	**0**	**0**	**0.70**
Total Project Cost (A+B+C)	**9.45**	**45**	**9.05**	**44**	**2.18**	**11**	**20.68**

ADB = Asian Development Bank, ADF = Asian Development Fund, OCR = ordinary capital resources, PMS = project management support, PMU = project management unit, PMUD = project management unit Darkhan office.

Note: Numbers may not sum precisely because of rounding.

[a] In October 2013 prices.

[b] Includes PMU and PMUD staff salaries (PMU and PMUD staff will not be civil servants receiving salaries from the government), PMUD vehicle, furniture and information and communication technology equipment, PMU and PMUD operational costs, and annual audit costs subject to the Asian Development Bank's no-objection.

Source: Asian Development Bank estimates.

D. Detailed Cost Estimates by Outputs/Components

($ million)

Item	Total Cost	Wastewater Treatment Plant		Pump Stations and Sewers		Project Management and Capacity Development		PMU and PMUD	
		Amount	% Cost Category	Amount	% Cost Category	Amount	% Cost Category	Amount	% Cost Category
A. Investment Cost[a]									
1. Wastewater Treatment Plant	15.00	15.00	100	0	0	0	0	0	0
2. Pump Stations and Sewers									
2.1. Pump Stations	0.97	0	0	0.97	100	0	0	0	0
2.2. Sewers	0.70	0	0	0.70	100	0	0	0	0
Subtotal (2)	1.67	0	0	1.67	100	0	0	0	0
3. Project Management Support and Capacity Development									
3.1. PMS, Design and Capacity Development	1.36	0	0	0	0	1.36	100		0
3.2. PMU and PMUD[b]	0.44	0	0	0	0	0	0	0.44	100
Subtotal (3)	1.80	0	0	0	0	1.36	76	0.44	24
Subtotal (A)	**18.47**	**15.00**	**81**	**1.67**	**9**	**1.36**	**7**	**0.44**	**3**
B. Contingencies									
1. Physical	0.56	0.45	81	0.05	9	0.04	7	0.01	3
2. Price	0.95	0.76	80	0.08	9	0.08	8	0.03	3
Subtotal (B)	**1.51**	**1.21**	**81**	**0.13**	**9**	**0.12**	**8**	**0.04**	**3**
C. Financing Charges During Implementation									
1. Interest During Construction	0.65	0.53	81	0.06	9	0.05	8	0.02	3
2. Commitment Fees	0.05	0.04	81	0	9	0	8	0	3
Subtotal (C)	**0.70**	**0.57**	**81**	**0.06**	**9**	**0.05**	**8**	**0.02**	**3**
Total Project Cost (A+B+C)	**20.68**	**16.78**	**81**	**1.87**	**9**	**1.53**	**7**	**0.51**	**3**

PMS = project management support, PMU = project management unit, PMUD = project management unit Darkhan office.
Note: Numbers may not sum precisely because of rounding.
[a] In October 2013 prices and includes taxes and duties. All taxes and duties are financed by the borrower.
[b] Includes PMU and PMUD staff salaries (PMU and PMUD staff will not be civil servants receiving salaries from the government), PMUD vehicle, furniture and information and communication technology equipment, PMU and PMUD operational costs, and annual audit costs subject to the Asian Development Bank's no-objection.
Source: Asian Development Bank estimates

E. Detailed Cost Estimates by Year

Item	Total Cost	2015	2016	2017	2018	2019
			($ million)			
A. Investment Cost[a]						
1. Wastewater Treatment Plant	15.00	1.50	5.38	4.36	3.22	0.54
2. Pump Stations and Sewers						
2.1. Pump Stations	0.97	0.10	0.39	0.28	0.18	0.02
2.2. Sewers	0.70	0.07	0.21	0.20	0.18	0.04
Subtotal (2)	1.67	0.17	0.60	0.49	0.36	0.06
3. Project Management Support and Capacity Development						
3.1. PMS, Design and Capacity Development	1.36	0.14	0.34	0.40	0.27	0.20
3.2. PMU and PMUD[b]	0.44	0.04	0.11	0.14	0.09	0.07
Subtotal (3)	1.80	0.18	0.45	0.54	0.36	0.27
Subtotal (A)	**18.47**	**1.85**	**6.43**	**5.39**	**3.94**	**0.87**
B. Contingencies						
1. Physical	0.56	0.06	0.19	0.16	0.12	0.03
2. Price	0.95	0.05	0.28	0.30	0.26	0.07
Subtotal (B)	**1.51**	**0.10**	**0.47**	**0.46**	**0.38**	**0.10**
C. Financing Charges During Implementation						
1. Interest During Construction	0.65	0.02	0.09	0.15	0.19	0.20
2. Commitment Fees	0.05	0.03	0.02	0.01	0.00	0.00
Subtotal (C)	**0.70**	**0.04**	**0.10**	**0.16**	**0.20**	**0.21**
Total Project Cost (A+B+C)	**20.68**	**2.00**	**7.00**	**6.00**	**4.52**	**1.17**

PMS = project management support, PMU = project management unit, PMUD = project management unit Darkhan office.

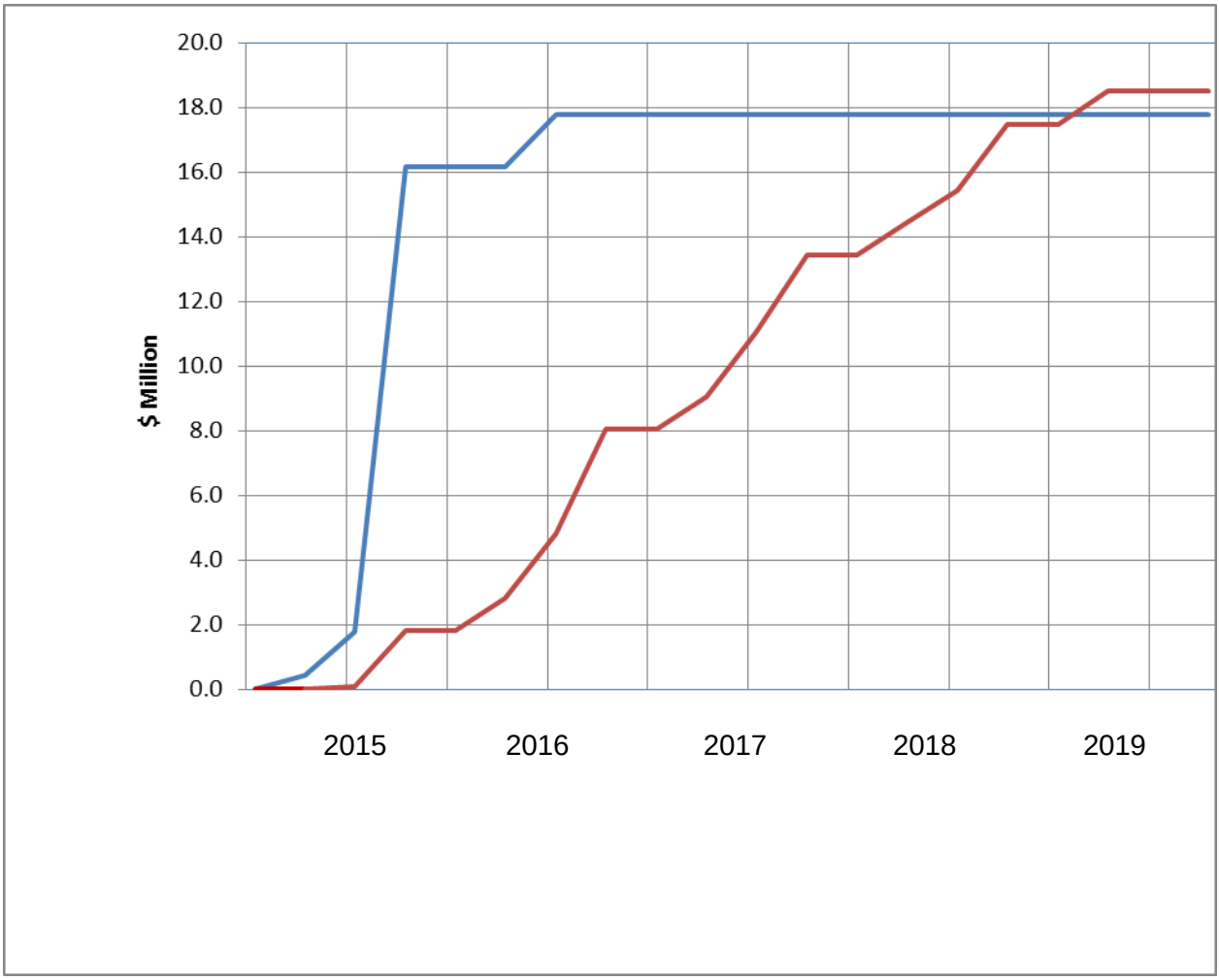
Note: Numbers may not sum precisely because of rounding.

[a] In October 2013 prices and includes taxes and duties. All taxes and duties are financed by the borrower.

[b] Includes PMU and PMUD staff salaries (PMU and PMUD staff will not be civil servants receiving salaries from the government), PMUD vehicle, furniture and information and communication technology equipment, PMU and PMUD operational costs, and annual audit costs subject to the Asian Development Bank's no-objection.

Source: Asian Development Bank estimates.

F. Contract Award and Disbursement S-curves



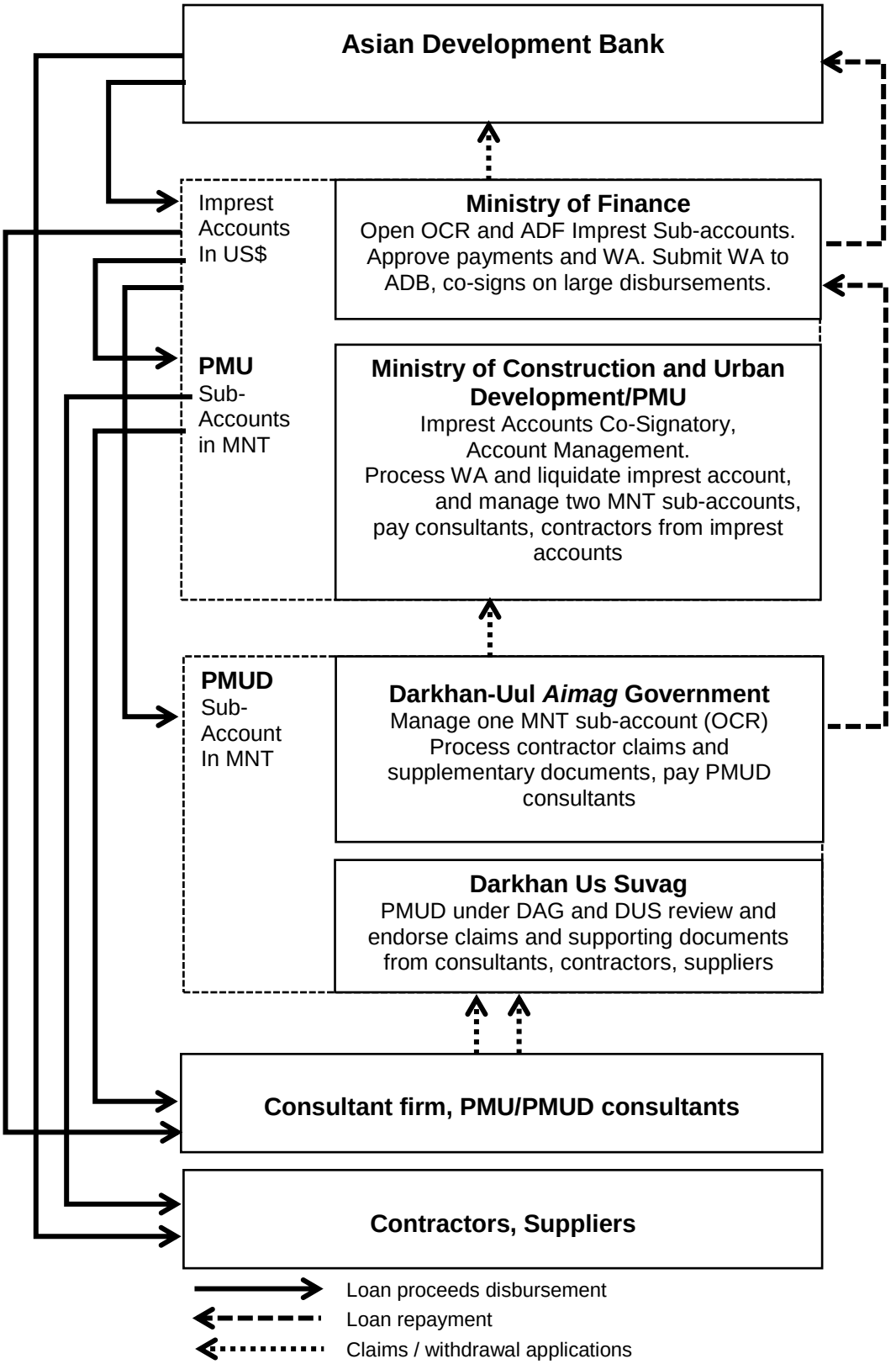
($ million)	2015	2016	2017	2018	2019
Contract Awards	16.17	1.63	0	0	0
Disbursement	1.80	6.26	5.36	4.04	1.04

Source: Asian Development Bank estimates.

($ million)	2015				2016				2017				2018				2019			
Quarter	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**
Contract Awards	0	0.4	1.4	14.4	0	0	1.6	0	0	0	0	0	0	0	0	0	0	0	0	0
Disbursement	0	0	0.1	1.7	0	1.0	2.0	3.3	0	1.0	2.0	2.4	0	0	2.0	2.0	0	1.0	0	0

Source: Asian Development Bank estimates.

G. Fund Flow Diagram



ADB = Asian Development Bank, ADF = Asian Development Fund, DAG = Darkhan-Uul *Aimag* Government, DUS= Darkhan Us Suvag, OCR = ordinary capital resources, PMU = project management unit, PMUD = project management unit Darkhan office, WA = withdrawal application.

V. FINANCIAL MANAGEMENT

A. Financial Management Assessment

1. Financial management assessments (FMAs) were carried out in accordance with the Asian Development Bank's (ADB) guidelines to establish the financial management capacity of (i) the Ministry of Construction and Urban Development (MCUD) as the executing agency of the project; and (ii) the Darkhan-Uul *aimag* government (DAG) as implementing agency, and Darkhan Us Suvag (DUS), as operating unit of the facilities. The assessments covered funds flow arrangements, accounting policies and procedures, staffing, internal and external audit arrangements, reporting and monitoring system, and the financial information systems.

2. Through its previous loan execution activities, various decrees, and training, the Government of Mongolia has strengthened the guidelines for financial management in its hierarchy of governance. The Public Sector Financial Management Law is the overarching legislation that regulates the financial management and reporting system of the government. The sector uses the accounting standard of Mongolia (ASM) and the international standard of auditing (ISA) which is in compliance with the Ministry of Finance and ADB.

3. MCUD generally has adequate knowledge and skills in project management, financial management, financial analysis, and management accounting. FMA on MCUD was previously carried out by ADB and the results of this assessment rated MCUD as moderate risk. However, recent MCUD experience with ADB-funded projects has enhanced the ministry's capability in project execution and management. In addition to ADB-funded projects, MCUD has undertaken studies and development projects funded by the government and a wide range of donors and international funding agencies such as the World Bank, Japan International Cooperation Agency, and others. MCUD was involved throughout the project cycle and is equipped with adequate information and technology hardware and software which enable the ministry to perform tasks efficiently and generate timely reports. Accounting and finance departments are functioning reasonably well using the electronic accounting system that is based on the government-prescribed system.

4. DAG has some project implementation experience, although mainly using its own funds, and is guided by accounting, budget and financing laws in project transactions. The DAG follows ISA and state accounting standards and has the capability to satisfactorily record all transactions and balances, support the preparation of regular and reliable financial statements and financial monitoring reports, safeguard the assets, and subject these to auditing arrangements acceptable to ADB. The FMA finds the *aimag* to comply with the minimum financial management requirements of ADB as a potential implementing agency, with a rating of moderate to substantial risk.

5. The results of the FMAs showed that both MCUD and DAG will require support and assistance and a financial management action plan was agreed, which includes the engagement of two financial and accounting specialists (and also two procurement specialists) one each to support the project management unit (PMU) and the project management unit Darkhan office (PMUD). In addition, training on financial management, accounting, auditing and procurement and support during implementation will be provided by the loan implementation consultants. Areas covered will include: (i) financial management and reporting, (ii) budget preparation and oversight, (iii) disbursement procedures, (iv) financial audit process and requirements, and (v) proper use and accounting of the imprest accounts and sub-accounts and other relevant areas as identified by the consultants during implementation. Training budget has

been allocated in output 3.

6. DUS has generally the capacity to implement the wastewater management project and has some prior experience in managing funds from external resources under the Japan International Cooperation Agency-financed water supply improvement project. The FMA was administered to DUS management, and particularly the Accounting Department, to assess the company's financial management systems and practices. The DUS financial staff will participate in the training provided to MCUD and DAG under component 3.

B. Disbursement

7. The loan proceeds will be disbursed in accordance with ADB's *Loan Disbursement Handbook* (2015, as amended from time to time),[1] and detailed arrangements agreed upon between the government and ADB.

8. Pursuant to ADB's Safeguard Policy Statement (2009) (SPS),[2] ADB funds may not be applied to the activities described on the ADB Prohibited Investment Activities List set forth at Appendix 5 of the SPS.

9. The financing and disbursement arrangements will include both: (i) direct payments by ADB for payments under the wastewater treatment plant contract, and (ii) imprest fund procedures for all other expenditures.

10. To facilitate project implementation through timely release of loan proceeds, the Ministry of Finance (MOF) will establish two imprest accounts and three sub-accounts, one each for the OCR loan and the ADF loan for PMU management, and one sub-account for the OCR loan for PMUD management promptly after loan effectiveness at a commercial bank acceptable to ADB.[3] The maximum ceiling of advances to the imprest accounts will not exceed the estimated ADB financed expenditures to be paid from the imprest account for the next 6 months respectively of the OCR and ADF loan amounts. The imprest accounts are to be used exclusively for the ADB's share of eligible expenditures. The currency of the imprest account will be US dollar. The MOF, who established the imprest accounts in its name, is accountable and responsible for proper use of advances to the imprest account. MCUD and the PMU that is arranged under MCUD will maintain and manage the imprest accounts. MOF and MCUD are co-signatories on the imprest accounts. The initial and additional advances to the imprest account may be requested based on 6 months estimated expenditures to be financed through the imprest accounts. The imprest accounts will be established, managed, and liquidated in accordance with ADB's *Loan Disbursement Handbook* and detailed arrangements agreed by the government and ADB. ADB's *Loan Disbursement Handbook* describes which supporting documents should be submitted to ADB and which should be retained by the government for liquidation and replenishment of the imprest accounts.

11. The PMU under MCUD will manage two sub-accounts (one ADF and OCR) and the PMUD under DAG will manage one sub-account (OCR) in local currency. The three sub-accounts are to be used exclusively for the ADB's share of eligible expenditures and payments from the imprest accounts to the sub-accounts will be made based on quarterly budget estimates that will be prepared by the PMU and approved by MCUD and MOF. MCUD will be

[1] Available at: http://www.adb.org/documents/loan-disbursement-handbook.
[2] Available at: http://www.adb.org/Documents/Policies/Safeguards/Safeguard-Policy-Statement-June2009.pdf
[3] The bank charges incurred in the operation of the imprest account may be financed from the loan proceeds.

accountable and responsible for the proper use of funds. The sub-accounts will be established, managed, and liquidated in accordance with ADB's Loan Disbursement Handbook and detailed arrangements agreed by the Government and ADB.

12. The statement of expenditures (SOE) procedure may be used for reimbursement of eligible expenditures or liquidation of advances to the imprest accounts. The ceiling of the SOE procedure is the equivalent of $100,000 per individual payment. Supporting documents and records for the expenditures claimed under the SOE should be maintained and made readily available for review by ADB's disbursement and review missions, upon ADB's request for submission of supporting documents on a sampling basis, and for independent audit. Reimbursement and liquidation of individual payments in excess of the SOE ceiling should be supported by full documentation when submitting the withdrawal application to ADB.[4]

13. Before the submission of the first withdrawal application, the government will submit to the ADB sufficient evidence of the authority of the person(s) who will sign the withdrawal applications on behalf of the Borrower, together with the authenticated specimen signature\s of each authorized person. All withdrawal applications will be consolidated by MOF and submitted to ADB.

14. For efficiency, the minimum value per withdrawal application is $100,000 equivalent, unless otherwise approved by ADB. Individual payments below this amount should generally be paid from the imprest account, or by MCUD and subsequently claimed to ADB through reimbursement. ADB reserves the right not to accept WAs below the minimum amount. Withdrawal applications and supporting documents will demonstrate, among other things that the goods, and/or services were produced in or from ADB members, and are eligible for ADB financing.

C. Accounting

15. MCUD as well as DAG will maintain separate project accounts and records by funding source for all expenditures incurred on the project. The PMU will prepare consolidated project financial statements in accordance with the government's accounting laws and regulations which are consistent with international accounting principles and practices.

D. Auditing

16. The PMU will cause the detailed consolidated project accounts to be audited in accordance with International Standards on Auditing and in accordance with the government's audit regulations by an independent auditor acceptable to ADB. The audited accounts will be submitted in the English language to ADB within 6 months of the end of the fiscal year by the executing agency. The annual audit report will include a separate audit opinion on the use of the imprest accounts and the SOE procedures.

17. The annual audit report will include an audit management letter and audit opinions, which cover: (i) whether the project financial statements present a true and fair view or are presented fairly, in all material respects, in accordance with the applicable financial reporting framework; (ii) whether loan and grant proceeds were used only for the purposes of the project or not; (iii) the level of compliance for each financial covenant contained in the legal agreements for the project; (iv) compliance with the imprest fund procedure; and (v) compliance with use of

[4] Checklist for SOE procedures and formats are available at Appendix 9B of the Loan Disbursement Handbook.

the SOE procedure certifying: (a) the eligibility of those expenditures claimed under SOE procedures, and (b) proper use of the procedure in accordance with ADB's *Loan Disbursement Handbook* and the project documents.

18. MCUD shall furnish to ADB, on an annual basis during a period from loan effectiveness to loan closing, no later than 1 month after approval by the relevant authorities, copies of its annual audited financial statements in the English language audited by an independent auditors whose qualifications, experience and terms of references are acceptable to ADB.

19. Compliance with financial reporting and auditing requirements will be monitored by review missions and during normal program supervision, and followed up regularly with all concerned, including the external auditor.

20. MCUD and DAG have been made aware of ADB's approach and procedures on delayed submission, and the requirements for satisfactory and acceptable quality of the audited accounts.[5] ADB reserves the right to verify the project's financial accounts to confirm that the share of ADB's financing is used in accordance with ADB's policies and procedures. ADB requires audited financial statements for the implementing agency. Public disclosure of the project financial statements, including the audit report on the project financial statements, will be guided by ADB's Public Communications Policy (2011).[6] After review, ADB will disclose the project financial statements for the project and the opinion of the auditors on the financial statements within 30 days of the date of their receipt by posting them on ADB's website. The Audit Management Letter will not be disclosed.[7]

[5] ADB approach and procedures on delayed submission of audited project financial statements:

- When audited project financial statements are not received by the due date, ADB will write to the executing agency advising that (i) the audit documents are overdue; and (ii) if they are not received within the next six months, requests for new contract awards and disbursement such as new replenishment of imprest accounts, processing of new reimbursement, and issuance of new commitment letters will not be processed.
- When audited project financial statements have not been received within 6 months after the due date, ADB will withhold processing of requests for new contract awards and disbursement such as new replenishment of imprest accounts, processing of new reimbursement, and issuance of new commitment letters. ADB will (i) inform the executing agency of ADB's actions; and (ii) advise that the loan may be suspended if the audit documents are not received within the next six months.

[6] When audited project financial statements have not been received within 12 months after the due date, ADB may suspend the loan.

[7] Available from http://www.adb.org/site/disclosure/public-communications-policy.

VI. PROCUREMENT AND CONSULTING SERVICES

A. Advance Contracting

1. To facilitate project readiness and timely implementation, the government requested the Asian Development Bank (ADB) to approve advance contracting for recruitment of consultants and project management unit (PMU) and project management unit Darkhan office (PMUD) specialists. Advance contracting will be adopted for recruitment of the consulting firm contract C1 consulting services and recruitment for a total of 13 individual specialists for PMU and PMUD support under package C2. All recruitment of consultants will be carried out in conformity with ADB's Guidelines on the Use of Consultants (2013, as amended from time to time).[1] This advance action is designed to enable assistance for a timely preparation of employer's requirement and detailed design and bidding documents for the procurement of the contract packages A1, A2-1, and A2-2. The issuance of invitations to bid under advance contracting will be subject to ADB approval. The borrower, MCUD, DAG, and DUS have been advised that approval of advance contracting does not commit ADB to finance the project.

B. Procurement of Goods, Works and Consulting Services

2. All procurement of goods and works will be undertaken in accordance with ADB's Procurement Guidelines (2013, as amended from time to time).[2]

3. Civil works above $5,000,000 or goods above $2,000,000 will be procured through international competitive bidding (ICB), and civil works beneath $5,000,000 through national competitive bidding (NCB). Goods packages worth $100,000 to $2,000,000 will be procured using NCB, while packages under $100,000 will be procured through shopping. Before commencement of NCB procurement, ADB and the government may review the government's procurement procedures to ensure consistency with ADB's requirements. Any necessary modifications or clarifications will be documented in the procurement plan.

4. The procedures to be followed for NCB shall be those set forth in the Public Procurement Law of Mongolia of 1 December 2005, effective 1 February 2006, as amended on 6 February 2007, 16 July 2009, 10 June 2010, 9 June 2011, and December 2011 (referred to as PPLM), with the clarifications and modifications required for compliance with the provisions of ADB's Procurement Guidelines.

5. An 18-month procurement plan indicating threshold and review procedures, plant, goods, works, and consulting service contract packages and national competitive bidding guidelines is in Section C.

6. All consultants will be recruited according to ADB's Guidelines on the Use of Consultants.[3] The outline terms of reference for all consulting services are detailed in Section D.

7. An estimated 357 person-months (30 international, 327 national) of consulting services are required to (i) facilitate project management and implementation, and (ii) strengthen the institutional and operational capacity of the executing agency. A consulting firm will be engaged using the quality- and cost-based selection (QCBS) method with a standard quality:cost ratio of

[1] Available at: http://www.adb.org/Documents/Guidelines/Consulting/Guidelines-Consultants.pdf
[2] Available at: http://www.adb.org/Documents/Guidelines/Procurement/Guidelines-Procurement.pdf
[3] Checklists for actions required to contract consultants by method available in e-Handbook on Project Implementation at: http://www.adb.org/documents/handbook-project-implementation.

90:10. Individual consultant selection will be used to recruit staff for the PMU and the PMUD. An attached technical assistance will further support institutional development of utility service provision, strategic planning, and operation improvements.

C. Procurement Plan

Basic Data

Project Name: Mongolia: Darkhan Wastewater Management Project	
Project Number: 37697	**Approval Numbers**: 3244/45
Country: Mongolia	**Executing Agency**: Ministry of Construction and Urban Development
Project Procurement Classification:	**Implementing Agency:** Darkhan-Uul *aimag* government
Procurement Risk: High	
Project Financing Amount: $20.7 million **ADB Financing:** $18.5 million **Cofinancing (ADB Administered):** **Non-ADB Financing:** $2.2 million	**Project Closing Date:** 30 June 2019
Date of First Procurement Plan 12 September 2014	**Date of this Procurement Plan**: 12 September 2014

A. Methods, Thresholds, Review and 18-Month Procurement Plan

1. Procurement and Consulting Methods and Thresholds

Except as the Asian Development Bank (ADB) may otherwise agree, the following process thresholds shall apply to procurement of goods and works.

Procurement of Goods and Works		
Method	**Threshold**	**Comments**
International Competitive Bidding (ICB) for Works	$5,000,000	
International Competitive Bidding for Goods	$2,000,000	
National Competitive Bidding (NCB) for Works	Beneath that stated for ICB, Works	
National Competitive Bidding for Goods	Beneath that stated for ICB, Goods	
Shopping for Works	Below $100,000	
Shopping for Goods	Below $100,000	

Consulting Services	
Method	**Comments**
Quality- and Cost-Based Selection (QCBS)	
Individual Consultant Selection	

2. Goods and Works Contracts Estimated to Cost $1 Million or More

The following table lists goods and works contracts for which the procurement activity is either ongoing or expected to commence within the next 18 months.

Package Number	General Description	Estimated Value[a]	Procurement Method	Review [Prior / Post/Post (Sample)]	Bidding Procedure	Advertisement Date (quarter/ year)	Comments
A1	**Component 1: Wastewater Treatment Plant** Structural renovation of reusable existing components, new construction of main reactor and other selected components and installation of new, state of the art equipment for a modern integrated fixed-film activated sludge wastewater treatment process including design, build and operation support for 3 years	$13.3 million	ICB	Prior	2S2E	Q2/2015	Plant

[a] Cost estimates are exclusive of taxes and duties

3. Consulting Services Contracts Estimated to Cost $100,000 or More

The following table lists consulting services contracts for which the recruitment activity is either ongoing or expected to commence within the next 18 months.

Package Number	General Description	Estimated Value[a]	Recruitment Method	Review (Prior / Post)	Advertisement Date (quarter/year)	Type of Proposal	Comments
C1	Project management, procurement and supervision support. Project design support Project safeguards and quality assurance monitoring and evaluation support. Capacity development and training. Policy dialogue.	$1.24 million	QCBS	Prior	Q4/2014	full technical proposal	International quality/cost ratio: 90/10

[a] Cost estimates are exclusive of taxes and duties

4. Goods and Works Contracts Estimated to Cost Less than $1 Million and Consulting Services Contracts Less than $100,000 (Smaller Value Contracts)

The following table groups smaller-value goods, works and consulting services contracts for which the activity is either ongoing or expected to commence within the next 18 months.

Goods and Works

Package Number	General Description	Estimated Value[a]	Procure-ment Method	Review [Prior/ Post/Post (Sample)]	Bidding Procedure	Advertisement Date (quarter/ year)	Comments
A2-1	Component 2-1: Pump Stations Structural repair works, supply and installation of new duty and standby pumps and 6 kilowatt power distribution networks at primary and secondary pump stations.	$0.85 million	NCB	Prior	1S1E	Q3/2015	Goods
A2-2	Component 2-2: Sewers Sewers replacement at: (i) primary "new" south pumping station: 1,400 meter (m) x 1 m diameter; and (ii) at old Darkhan hospital No. 2: 300 m x 0.3 m diameter; and bypass main at secondary pumping station: 100 m x 0.8 m diameter	$0.64 million	NCB	Prior	1S1E	Q3/2015	Works

[a] Cost estimates are exclusive of taxes and duties.

Consulting Services

Package Number	General Description	Estimated Value[a]	Number of Contracts	Recruit-ment Method	Review (Prior/ Post)	Advertise-ment Date (quarter/ year)	Type of Proposal	Comments
C2-1	Project Management Unit Support (1. Project Director 2. Procurement Specialist 3. Financial and Accounting Specialist 4. Administration and Operation Support Officer 5. Translator)	$200,000	5	ICS	Prior	Q1/2015		National
C2-2	Project	$200,000	8	ICS	Prior	Q1/2015		National

	Management Unit Darkhan Office Support (1. Project Coordinator and Wastewater Management Expert 2. Supervision and Quality Assurance Engineer 3. Environmental Officer 4. Resettlement and Social Development Officer 5. Procurement Specialist 6. Financial and Accounting Specialist 7. Administration and Operation Support Officer 8. Translator)							

[a] Cost estimates are exclusive of taxes and duties.

E. National Competitive Bidding

The procedures to be followed for national competitive bidding shall be those set forth in the Public Procurement Law of Mongolia of 1 December 2005, effective 1 February 2006, as amended on 6 February 2007 and 16 July 2009 (hereinafter referred to as PPLM), with the clarifications and modifications described in the following paragraphs required for compliance with the provisions of ADB's Procurement Guidelines.

1. The Standard Bidding Documents of Mongolia for Goods and Works that have been approved by ADB as acceptable for ADB-financed projects, together with ADB's clarifications and modifications thereto, shall be used.

2. Government-owned enterprises in Mongolia shall be eligible for projects only if they can establish that they (i) are legally and financially autonomous; (ii) operate under the principles of commercial law; and (iii) are not dependent agencies of the executing agency and/or the implementing agency.

3. If a bid security is required, the bid security shall be in any of the following forms at the bidder's option: (i) a bank guarantee; or (ii) a cashier's or certified check.

4. Bidders must be nationals of member countries of ADB, and offered Goods and Works must be produced in and supplied from member countries of ADB. Bidders or potential bidders shall not be required to register with the taxation and other registration authorities of the government as a condition or requirement of bidding or award, leaving these requirements for after award and before signing of contract.

5. Foreign bidders from eligible countries of ADB shall be allowed to participate in bidding under the same conditions as local bidders and without any domestic preference.

6. Prequalification shall not be required, except in the case of large or complex works, and with prior written concurrence of ADB.

7. Qualification criteria shall be clearly specified in the bidding documents, and all criteria so specified shall be used to determine whether a bidder is qualified. The evaluation of a bidder's qualifications shall only take into account the bidder's capacity and resources to perform the contract, in particular its experience and past performance on similar contracts, capabilities with respect to personnel, equipment and construction or manufacturing facilities, and financial position. The evaluation of the bidder's qualifications shall be conducted separately from the technical and commercial evaluation of the bid.

8. Evaluation and qualification criteria, and submission requirements, to be used in each bidding activity shall be clearly specified in the bidding documents. The evaluation of bids shall be done in strict adherence to the criteria specified in the bidding documents.

9. The invitation to bid and the bidding documents shall be prepared in the Mongolian language. If another language will be used, then such other language shall be English.

10. Bidders shall be requested to extend the validity of their bids only under exceptional circumstances and the Executing or Implementing Agency, as the case may be, shall communicate such request for extension to all bidders before the date of expiry of their bids. When the procurement is subject to ADB's prior review, the Executing or Implementing Agency, as the case may be, shall obtain in a timely manner the prior written concurrence of ADB for the extension of the bid validity period.

11. All bids shall not be rejected or new bids invited without ADB's prior written concurrence. No bid shall be rejected merely on the basis of a comparison with the estimated cost or budget ceiling without ADB's prior written concurrence (with specific reference to Article 30 of the PPLM).

12. Negotiations with bidders shall not be undertaken before award of contract, except as provided in Paragraph 2.63 of ADB's Procurement Guidelines (with specific reference to Article 30.2 of the PPLM). A bidder shall not be required, as a condition for award, to undertake obligations not specified in the bidding documents or otherwise to modify its bid as originally submitted.

13. Bidding documents and contracts under national competitive bidding procedures financed by ADB shall include a provision requiring suppliers, contractors and consultants to permit ADB to inspect their accounts and records relating to the bid submission and the performance of the contract by the supplier, contractor and/or consultant, as the case may be, and to have them audited by auditors appointed by ADB, if so required by ADB.

14. At the same time that notification on award of contract is given to the successful bidder, the results of the bid evaluation shall be posted on a well-known freely accessible website (namely Mongolia's Ministry of Finance [MOF] e-procurement website: www.e-procurement.mn) identifying the bid and lot numbers and providing information on the (i) name of each bidder that submitted a bid; (ii) bid prices as read out at bid opening; (iii) names of bidders whose bids were rejected and the reasons for their rejection; and (iv) name of the winning bidder, and the price it

offered, as well as the duration and summary scope of the contract awarded. The Executing Agency or Implementing Agency, as the case may be, shall respond in writing to unsuccessful bidders who seek explanations on the grounds on which their bids were not selected.

D. Implementation of Consulting Services

8. **Objectives**. The objectives of the consulting services are to (i) provide project design and procurement preparation support, (ii) project management and implementation support, (iii) capacity development and training, (iv) site supervision and quality assurance support, (v) progress and safeguards monitoring and evaluation support, and (vi) institutional development support. Consulting services are organized into a total of four groups, three of which are financed by the loan and one is financed by a grant and is attached to the loan. The three groups financed by the loan are C1: The loan implementation consultants (international firm), C2-1: Project Management Unit Support (individual specialists, national) and C2-2: Project Management Unit Darkhan Office Support (individual specialists, national). The scope and tasks of the three consulting arrangements financed by the loan are described in section E below. The fourth will be a technical assistance (TA) project Mongolia: Darkhan Urban Utility Institutional Improvement Action Plan financed by the multi-donor Urban Environmental Infrastructure Fund under the Urban Financing Partnership Facility administered by ADB and be implemented in parallel to the implementation of the loan project. Details on rationale and scope are described in linked document 7 and the terms of reference for consultants are in subsection 4 below.

9. **Cost and financing.** The consulting contract for the international firm under contract C1 is estimated to cost $1,240,000 exclusive of taxes and duties. The cost estimate includes study tours to domestic and international utility companies, and one overseas study tour will be planned and organized in coordination with the consultant of the attached technical assistance Darkhan Urban Utility Institutional Improvement Action Plan. The consulting packages of individual specialists under C2-1 and C2-2 are estimated to cost $200,000 each ($400,000 total) exclusive of taxes. The government will provide counterpart support as in-kind contributions including counterpart staff, office accommodation, office supplies, secretarial assistance, local transportation, and other in-kind contributions. A summary cost estimate for C1 is in table 1.

Table 1: Cost Estimates and Financing Plan of Consulting Services by International Firm (Contract Package C1)

($'000)

Item	Amount
A. Financed under the ADB Loan[a]	
1. Consultants	
Remuneration and per diem (incl. fees, international/domestic travel)	
i. International consultants	450.0
ii. National consultants	420.0
2. Capacity development, training, policy dialogue	
i. Training workshops and consultations	60.0
ii. Overseas/domestic study visits	180.0
3. Surveys and data collection	15.0
4. Office administration and operation	15.0
5. Contingencies	100.0
Subtotal (A)	**1,240.0**

Item	Amount
B. Counterpart financed	
1. Taxes and duties	120.0
2. In-kind contributions	100.0
Subtotal (B)	**220.0**
Total (A+B)	**1,460.0**

[a] All cost estimates financed by ADB are exclusive of taxes and duties.
Source: Asian Development Bank estimates.

E. Consultant's Terms of Reference

10. **Overall inputs and scope of work.** Execution and implementation of the project will require an estimated 357 person-months (30 international, 327 national) of consulting services. The services are divided into one contract and two contracts bundles to provide support to project design, management, implementation and monitoring support, and capacity development. One contract will be awarded to an international consulting firm for 137 person-months (30 international, 107 national) and will be procured as advanced action by the Ministry of Construction and Urban Development (MCUD). The contract bundle will include 13 contracts. Five contracts will be awarded to individual consultants for a total of 100 national person-months to provide project management unit (PMU) support. Eight contracts will be awarded to individual consultants to provide project management unit Darkhan office (PMUD) support for 120 person-months. For the 1 contract and 2 contract bundles (at 5 and 8 individual contracts) financed by the loan, expertise is required in the following fields: (i) wastewater treatment plant design, tendering, construction, and operation; (ii) water and wastewater infrastructure planning, design, tendering, construction, and operation and management; (iii) institutional strengthening and capacity building in water and wastewater management and operation; (iv) environmental and social safeguards; and (v) project monitoring and evaluation. The consultants will provide the following services: (i) capacity building of Darkhan-Uul *aimag* government (DAG) and Darkan Us Suvag (DUS); (ii) project management and implementation support; (iii) preparation of documents for the plant: design, supply, and install contract for the WWTP, and contracting process quality assurance; (iv) detailed design for the pumping station and sewer components; and (v) project implementation facilitation of project design, contracting, management, and implementation.

1. Project Design, Management, Implementation and Monitoring Support, and Capacity Development (Loan Implementation Consultants)

(i) Scope of Work, Outputs, and Key Activities

11. **Project design, management, implementation and monitoring support, and capacity development** (contract package C1) will provide loan implementation consultancy support for project preparation, management and implementation, construction supervision and quality control, progress and safeguards monitoring and reporting, detailed technical design, support of procurement procedures and preparation of employers requirements and bidding documents for components 1 and 2 and provide general support as required by the project and as requested by the PMU and PMUD. An international consulting firm will be engaged in accordance with ADB's Guidelines on the Use of Consultants (2013, as amended from time to time). The consultants will be selected and engaged through the quality- and cost-based selection method (QCBS) with a quality to cost ratio of 90% to 10% using the full technical proposal procedure. The consultants will work with the PMU and PMUD. A total of 137 person-months are required of which 30 person-months are international and 107 person-months are national consultants.

12. **Project technical design and procurement support.** The wastewater treatment plant (WWTP) specialists, wastewater treatment plant design and quality assurance specialists, wastewater treatment equipment specialists, SCADA specialists, structural and construction supervision engineers, the surveyor, and the procurement specialists will prepare and support technical design and procurement for components 1 and 2. For Component 1, the WWTP will need support for the preparation of procurement adopting the plant: design, supply, and install modality. Consultant support is required for the preparation of technical and bidding documents. For Component 2, the pump stations and sewers will be procured as at-measurement contracts and the consultants will provide detailed technical design, technical specifications, quantities and detailed cost estimates to support the preparation of bidding documents for national competitive bidding. Local detailed measurement surveyors will be engaged by the consultants to finalize designs and as a basis for land acquisition and resettlement updates. Procurement training will be required to build capacity of the DAG and MCUD before and during the entire tendering process.

13. **Design and procurement support for the WWTP.** Component 1 of the project provides for (i) the structural renovation and reconstruction of the WWTP in Darkhan; and (ii) installation of new equipment to provide a modern and efficient treatment system using integrated fixed-film activated sludge technology. This will be procured in plant: design, supply, and install modality using the ADB's standard tender procedures and contract documentation for plant: design, supply, and install. The contract will also include an extended period (3 years) of operation support. The procurement documentation will be prepared in the PMU under the guidance of MCUD and procurement will be executed by MCUD. The services of the consultants will assist the PMU and MCUD in (i) the preparation of contract documentation for the plant: design, supply, install procurement; (ii) the prequalification of potential contractors and suppliers to tender for the contract; (iii) the management of the tender process; (iv) the evaluation of bids; and (v) the award of contract. Specific tasks include but are not limited to:

(i) review the location of proposed works and the condition of existing infrastructure including underground utilities, infrastructure, and facilities (both on- and off-site) and assist the PMU and PMUD in confirming the design scope and approach;
(ii) in close collaboration with the PMU and PMUD, prepare a brief design project report setting out the approach to be adopted in the design, equipment supply, construction, and operational assistance for the new WWTP; and prepare overview of employer's requirements, reference designs, and performance specifications for the project. This will involve compiling and assessing information provided under the project preparatory technical assistance and feasibility studies and arranging it in the draft design project report to demonstrate technical and financial viability of the approach;
(iii) ensure the scope of the WWTP project is aligned with the proposal and conclusion of the project appraisal;
(iv) based on the approved design project report, finalize the information memorandum, employers requirements, reference designs, and performance specifications for the WWTP, and prepare all contract documents required for the tender process to enable bid submittals and effectively design and construct the project, supply and install the equipment, and provide operational assistance to the project, based on ADB's standard contract documentation for design, supply, and installation of plant;
(v) identify and include any necessary site investigations and soil surveys likely required by the contractor to allow approval by government of designs, and design and construction of the works by the contractor;

(vi) prepare the final bidding documents and invitation for bids and submit to MCUD and ADB for approval ensuring that tender documents for international competitive bidding follow both ADB Procurement Guidelines (2013, as amended from time to time) and the Public Procurement Law of Mongolia;
(vii) prepare and agree on tender evaluation criteria and assist the PMU in the preparation of tender administration and evaluation procedures;
(viii) assist the PMU in (a) responding to questions from bidders; (b) receipt of bids; (c) evaluation of bids; and (d) contract negotiations and contract award; and
(ix) design and agree with PMU and PMUD a supervision and third party quality assurance program for the works, and assist the PMU as necessary in contractor mobilization.

14. **Technical review, supervision, and monitoring of plant commissioning and support to initial operation.** The international team leader and national deputy team leader and wastewater management specialists will lead the technical review and quality assurance of the commissioning of the WWTP by the contractor/supplier, and will provide advisory support and assistance during the initial operational of the plant (first 6 months). In carrying out these tasks, the team leader and deputy team leader will be assisted and supported by the treatment plant design and quality assurance specialists, the WWTP equipment specialists, and SCADA specialists. Specific tasks will include, but are not limited to the following:

(i) review, comment upon, and as necessary assist in the finalization of the WWTP commissioning plan by the contractor/supplier, including the sequencing of switchover from the temporary treatment arrangements;
(ii) work with the contractor/supplier, PMUD, and DUS to ensure that (a) the commissioning plan is understood by all; and (b) all parties are familiar with their roles and responsibilities under the plan;
(iii) during the commissioning process, supervise and quality assure the commissioning activities of the contractor/supplier and work with DUS operational staff to ensure that their role in operation, supervision, and monitoring (as appropriate) is understood;
(iv) in coordination with the contractor/supplier, PMUD, and DUS, establish an operational and treatment parameter monitoring plan, and assist in the establishment and operationalization of this plan;
(v) liaise with the supplier/contractor/operator, DUS, *aimag* environmental office and other concerned stakeholders during the commissioning and initial operational period to establish and adjust as necessary standard operation procedures, and performance monitoring program, etc., specifically including those for sludge handling, treatment, and disposal;
(vi) ensure that the SCADA system is established, tested, calibrated, and operated so as to optimize plant treatment efficiency;
(vii) monitor and quality assure operation procedures and plant performance during the first 6 months of plant operation, and ensure that these are in line with Mongolian and international best practice; and
(viii) provide support for carrying out capacity building and training for government wastewater treatment, operational, and monitoring staff according to their responsibilities in plant operation and monitoring.

15. **Project management, administration, and implementation support.** The team leader and deputy team leader, the WWTP design and quality assurance specialists, the wastewater treatment equipment specialists, the SCADA specialists, the structural and construction

supervision engineers, the procurement specialists, and the financial management specialists will support the PMU and PMUD in carrying out the project activities to ensure smooth, timely, and high quality execution and implementation of the project. The services will comprise five main activities: (i) project management assistance to the PMU in execution of the project and reporting; (ii) project management assistance to the PMUD in project implementation and reporting; (iii) assistance to the PMU and PMUD in third party quality assurance of all civil works and equipment delivery and installation activities and supervision of construction of the project; (iv) assistance in compliance of environmental and resettlement safeguards monitoring and reporting; and (v) project benefit and performance monitoring and evaluation. The consultants will assist both the PMU and PMUD in carrying out, among others, the following tasks:

(i) prepare plans, schedules, and management and reporting arrangements for overall project execution and implementation activities for the project;
(ii) establish and assist with maintaining of a project performance management system (PPMS), procedures and reporting to the government, the project steering committee, and ADB on technical, financial, economic, and safeguards management implementation progress;
(iii) prepare annual implementation schedules with procurement activities, disbursement schedules, and budgets;
(iv) assist PMU and PMUD with technical guidance;
(v) assist the PMU and PMUD in third party supervision and quality assurance of all works and equipment installation, construction supervision, checking contractors' work progress, invoices against progress, progress payments, etc.;
(vi) prepare quarterly, semiannual, and annual progress reports and assist the PMU and PMUD with their reporting requirements; and
(vii) upon project completion prepare a comprehensive project completion report according to ADB requirements and standards.

16. **Preparation of an operational risk mitigation plan, and emergency preparedness and response plan for the wastewater management system.** The international team leader and national deputy team leader and wastewater management specialists will lead in the preparation of (i) an operational risk mitigation procedures plan, and (ii) an emergency preparedness and response plan for the wastewater collection system and WWTP. In carrying out these tasks, the team leader and deputy team leader will be assisted as necessary by the treatment plant design and quality assurance specialist, the WWTP equipment specialist, and SCADA specialist. Specific tasks will include, but are not limited to:

(i) identification of potential operational risks for the wastewater collection system and WTTP. These will include assessment of probabilities and possible impacts from power failures, equipment failures, shock pollutant loadings, system failures, and natural disasters due to extreme weather events, earthquakes, etc.;
(ii) based on potential risks identified, and probabilities of occurrence, prepare operational risk management procedures plans as well as an emergency preparedness and response plan to identify advance actions and mitigation actions to be taken in the event of the occurrence of risk events. This will include a schedule of operational procedure preparatory steps and mitigation actions to be taken and related responsibilities for responding to each potential operational failure or emergency, and associated financial and other resource requirements. Both shall be interrelated;
(iii) ensure that operational and emergency plans include arrangements for safely dealing with industrial or domestic wastewaters discharged to the power station

fly ash storage ponds under emergency arrangements;

(iv) prepare an audit of facilities to be used in the event of an emergency, and in particular carry out an environmental audit of the existing power station fly ash storage pond facilities to be used as an emergency recipient of wastewater, as well as related power station operations including in emergency;[4]

(v) ensue that arrangements are in place for the use of the power station fly ash ponds to be used for emergency storage in the event of (a) failure of WWTP pump stations or other WWTP units; and (b) toxic pollution event to prevent toxic influent entering the WWTP, and ensure that necessary environmental protection and mitigation measures are in place;

(vi) identify procedures to be put in place to ensure that the operator (DUS or its contractor) is prepared both for normal operations and emergencies and has the necessary information and resources in place to mitigate any negative impacts from the emergency;

(vii) work with the WWTP contractor/supplier, PMUD, and DUS to develop scenarios and ensure that (a) the emergency preparedness plan is understood by all; and (b) all parties are familiar with their roles and responsibilities under the plan;

(viii) Ensure that the SCADA system is calibrated so as to be able to identify operational problems which would necessitate execution of the emergency plan; and

(ix) provide support for carrying out capacity building and training for government wastewater treatment, operational, and monitoring staff (including management, operators, and chemical laboratory staff) according to their responsibilities both for normal operations and in emergency preparedness and response planning and execution.

17. **Financial management support.** The financial management specialists in the consultant team will support the PMU and PMUD in establishing a sound, effective, and efficient financial management, auditing, and reporting system for project implementation. The consultants will, among other tasks:

(i) assist with fund disbursement management, preparation, and review of withdrawal applications, assist with timely and regularly disbursement activities in accordance with ADB policy and procedural requirements;

(ii) support DAG and DUS with budget planning to ensure timely availability of counterpart funds;

(iii) support the borrower and sub-borrowers with financial review and with loan covenants compliance;

(iv) assist the PMU and PMUD with the preparation of financial statements and consolidated financial statements; and

(v) review annual audit reports and make arrangements as needed with auditing agencies to supervise the PMU and PMUD.

18. **Environment safeguards compliance monitoring and reporting support.** The environment specialists in the consultant team with practical experience in the implementation of environmental management plans (EMPs) and environmental monitoring, will support the

[4] A German government-funded technical assistance project “MoMo 3” may have some overlapping tasks with respect to managing industrial wastewater and treatment/management of toxic wastewater. If adequate, the consultants may coordinate some of the tasks with the “MoMo” experts and/or use some results after careful examination from the MoMo experts to avoid duplication of work and or if access to data and access to the facility is restricted.

implementation of the EMP and ensure the grievance redress mechanism functions effectively. With respect to environmental management, the experts will perform, among other tasks, the following:

(i) review initial environmental examination (IEE) and project EMP as well as domestic detailed EIA (DEIA) to understand the environmental issues associated with the project area;
(ii) consult with PMUD to identify if there are any changes in the project sites or baseline environmental conditions. Assess impacts of any changes and update EMP;
(iii) assist the PMUD in obtaining all necessary domestic environmental approvals to allow the projects to proceed, as required;
(iv) assist the PMUD in establishing a grievance redress mechanism (GRM) in accordance with GRM procedure defined in the IEE, coordinate consultation with local stakeholders as required, informing them of imminent construction works, updating them on the latest project development activities, GRM, etc. Facilitate consultation between the contractor and local stakeholders including *Bagh* committees and affected people (including residents, vendors, Old Darkhan Hospital, temple monks and School No. 16) with respect to construction scheduling, and proposed mitigation measures to control dust, and to minimize disruption to local traffic;
(v) review tender and contractor documents to ensure all required environmental specifications have been included, update as required;
(vi) prepare environmental audit checklists for weekly and monthly supervision of the EMP by the PMUD, and review contractor-EMPs to confirm compliance with the project EMP;
(vii) coordinate the conduct of periodic environment monitoring by licensed monitoring entities, as defined in the monitoring program;
(viii) on behalf of the PMU and PMUD, prepare annual EMP progress reports for ADB. The reports should review progress with project implementation, results of checking and monitoring, identify problems encountered, actions taken/or proposed to be taken to resolve problems and activities programmed for the next monitoring period. Include water quality and effluent sampling results and discussion in the monitoring reports and advise/support the contractor in taking remedial actions if any of the test results are not within the required limits;
(ix) conduct training events for the PMUD and contractors on the requirements and implementation of the EMP in accordance with the training plan defined in the project EMP;
(x) conduct regular site visits to the project area during the construction period; and
(xi) undertake research to identify local solutions for sewage sludge based on sewage quality data analysis. Liaise with national experts if required.

19. **Resettlement safeguards compliance and social monitoring.** The national resettlement and social development specialist, also referred to as the loan implementation resettlement consultant (LIRC) will be responsible to provide independent resettlement and social monitoring for the project implementation in compliance with ADB safeguard policies and procedures including the implementation of the land acquisition and resettlement plan (LARP) and the social action plan (SAP), and verify the internal reports by the PMUD. Specific tasks may include but are not be limited to:

(i) develop a detailed monitoring plan for the LARP, SAP, and the overall PPMS

monitoring system;

(ii) support PMUD in updating the LARP and SAP based on the detailed engineering design and submit for MCUD and ADB's approval prior to awards of contracts;

(iii) provide practical advice for PMU/PMUD on the implementation of the LARP and SAP within both ADB and domestic policy frameworks;

(iv) assist the PMU/DAG to develop plan for the establishment and implementation of PPMS, conduct baseline survey, and conduct annual PPMS survey according to the developed implementation plan, and complete annual PPMS monitoring report in accordance ADB policies and requirements;

(v) assist the PMU/DAG to develop the plan to carry out the LARP, provide assistance in implementing the LARP, conduct monitoring and coordinate with the PMUD resettlement/social specialist to ensure the implementation is carried out in accordance with government and ADB policies and procedures.

(vi) assist the PMU/PMUD to design and conduct public awareness campaigns identified under the SAP;

(vii) provide relevant inputs for project progress reports, semiannual monitoring reports, project completion report, and other project required documents;

(viii) provide support on technical review, procurement documents review and contract variation requests review, due diligence report, contractor's claims and other project management support; and

(ix) provide support for carrying out capacity building training, and provide management support to the capacity development activities. Provide training on (a) proper implementation of LARP and related ADB requirements; and (b) proper implementation of SAP and related ADB requirements.

20. **Capacity development and training, and policy dialogue.** The entire team of consultants under the guidance of the team leader, the capacity development specialist and trainer, and the public campaign specialist will carry out a training program, policy dialogue, and support public awareness raising campaigns. The consultants will review and assess the institutional strengths and weaknesses of MCUD, DAG, and DUS with respect to financial management, procurement capacity, technical capacity, organizational and management systems, and develop a capacity development and training plan. The consultants will also, based on the findings propose international and national study tours to wastewater treatment systems that provide lessons learned relevant to the situation in Darkhan. Consideration will be given to the activities carried out under the attached TA and the ADB funded twinning program between DUS and the water utility of Fairbanks, Alaska (USA). The consultants will engage in policy dialogue on tariff, sanitation, and solid waste management to promote systems improvements and sustainability. Some of the tasks are, but not limited to the following:

(i) assess training and institutional strengthening needs for project management and implementation support, and formulate a training program for MCUD, DAG, and DUS staff;

(ii) prepare training materials and carry out training workshops for MCUD, DAG, and DUS staff on technical, operational, maintenance, management, financial management, procurement, etc.;

(iii) provide proactively on-the-job training in the daily work environment to MCUD, DAG, PMU, PMUD, and DUS staff;

(iv) identify international and domestic case studies that provide lessons for wastewater management in Darkhan and propose, prepare, and carry out study trips with MCUD and DAG staff following relevant ADB procedures;

(v) prepare and carry out public campaigns to raise awareness for water

conservation, sanitation, solid waste management, and other related issues as outlined in the EMP and SAP;

(vi) carry out policy dialogue on issues that will promote the sustainability of the investment including tariff system and setting;

(vii) communicate and coordinate with the consultants under the attached TA developing and carrying out the utility institutional improvement action plan; and

(viii) communicate and coordinate as appropriate with the water and wastewater utility twinning program between Darkhan and Fairbanks.

(ii) Team of specialists required

21. To carry out the scope of work and tasks outlined above, the consulting firm will provide a total of 21 specialists (9 international, 12 national) to be engaged for a total of 137 person-months (30 international, 107 national). All consultants will be duly qualified with respective relevant academic degrees equivalent to master's degrees or higher. All international experts will have at least 15 years and all national experts will have more than 10 years of experience in their respective fields relevant to the project's requirements. Specialists required are (i) team leader/deputy team leader: WWTP specialists (international/national, 8/20 person-months, intermittent); (ii) WWTP design and quality assurance specialists (international/national, 4/10 person-months, intermittent); (iii) wastewater treatment equipment specialists (international/national, 2/6 person-months, intermittent); (iv) SCADA specialists (international/national, 2/12 person-months, intermittent); (v) structural and construction supervision engineers (international/national, 3/8 person-months, intermittent); (vi) surveyor (national, 6 months, full time); (vii) procurement specialists (international/national, 4/7 person-months, intermittent); (viii) financial management specialists (international/national, 3/10 person-months, intermittent); (ix) environment specialists (international/national, 2/12 person-months, intermittent); (x) resettlement and social development specialist (national, 8 months, intermittent); (xi) capacity development specialists and trainers (international/national, 2/4 person-months, intermittent); and (xii) public campaign specialist (national, 4 person-months, intermittent). An overview of the required consulting services is in Table 2 below.

Table 2: Summary of Loan Implementation Consulting Services Inputs

Area of Expertise	**International** (person-months)	**National** (person-months)
1. Team leader/deputy team leader: wastewater treatment plant specialists	8	20
2 Wastewater treatment plant design and quality assurance specialists	4	10
3. Wastewater treatment equipment specialists	2	6
4. SCADA Specialists	2	12
5. Structural and construction supervision engineers	3	8
6. Surveyor		6
7. Procurement specialists	4	7
8. Financial management specialists	3	10
9. Environment specialists	2	12
10. Resettlement and social development specialist (LIRC)[a]		8
11. Capacity development specialists and trainers	2	4
12. Public campaign specialist		4
Total	**30**	**107**

LIRC = loan implementation resettlement consultant.

[a] LIRC is alternate reference for this specialist.

Source: Asian Development Bank estimates.

(iii) Training program and study tours

22. The capacity development and training program will be arranged and carried out by the consultants during project implementation. Two streams of trainings are outlined: (i) for project management and implementation support, monitoring and evaluation training, and study tours to be carried out by the consultants (table below); and (ii) institutional development and management improvements to be supported by the consultants and carried out by the experts engaged under the attached TA (table in paragraph 41). Training programs and study tours will be coordinated with the expert teams carrying out the attached TA and the twinning program of Darkhan and Fairbanks, Alaska (USA) under the guidance of MCUD and DAG.

Indicative Training Program and Study Tours[a]

Training Program	Scope of Training	Trainer	Participants
ADB disbursement procedures and financial management	• ADB loan disbursement procedures • Roles and responsibilities of stakeholders • Flow of funds and utilization of loan proceeds • Risks of disbursement delays	LIC, MNRM	PMU, PMUD, MCUD, DAG, DUS
Project Financial Management and Financial Audit System	• Basic financial management of project and management and implementing agencies • Annual financial audit requirements – ADB and government requirements	LIC	PMU, PMUD, MCUD, DAG, DUS, Contractors
Procurement and Contract Management	• ADB procurement process • Tender document preparation • ADB tender evaluation guidelines, bid evaluation report preparation • Risks and implications of improper tendering and corrective measures • Variation orders and contract management	LIC, MNRM	PMU, PMUD, MCUD, DAG, DUS
Corruption Risks and Anticorruption Measures	• Definition, nature and types of corruption • Risks of corruption in project implementation • What to do in case that corruption is identified and mitigation measures • Case studies and international best practices	LIC, MNRM,	PMU, PMUD, MCUD, DAG, DUS
Construction Management	• Construction management: roles of client's representative, resident engineer, site engineers, inspectors etc.	LIC	PMU, PMUD, MCUD, DAG, DUS, Contractors

Training Program	Scope of Training	Trainer	Participants
	• Quality control • Quality assurance and third party verification		
Wastewater Treatment Plant Technology	• Wastewater treatment technology options and selection • Structural rehabilitation • Wastewater management equipment retrofitting • Effluent polishing and reuse • Sludge treatment and management	LIC	PMU, PMUD, MCUD, DAG, DUS
Water, sanitation, and hygiene and Urban Environmental Public Awareness raising campaigns training	• WASH awareness – water cycle, Solid waste management and personal hygiene • Urban environmental issues and awareness • Programs and initiatives to promote behavior change with respect to hygiene, sanitation, solid waste disposal and management at household level for apartment and *ger* area households	LIC	PMU, PMUD, MCUD, DAG, DUS
Sanitation in Ger Areas: Typologies and Solutions	• Water supply and sanitation options in *ger* areas • On-plot sanitation options and ecosan toilet • Cost recovery and financing options • Role for the community, NGOs and the private sector in *ger* area sanitation	LIC	PMU, PMUD, MCUD, DAG, DUS
Industrial Effluent Management	• Industrial effluent characterization and risks • Framework for industrial effluent pre-treatment and the polluter pays principle • Effluent management responsibilities • Effluent discharge monitoring and role for utility company • Emergency response	LIC	PMUD, MCUD, DAG, DUS
Implementation of EMP and other ADB and Government of Mongolia environmental safeguards requirements	• ADB environmental requirements • Government of Mongolia environmental policies, legislation and regulation • EMP and environmental monitoring: execution requirements and responsibilities,	LIC	PMU, PMUD, MEGDT, DAG, DUS, Contractors

Training Program	Scope of Training	Trainer	Participants
	inspection and reporting, feedback and adjustment • Grievance redress mechanism structure, procedures, responsibilities, and timeframes • Environment, health, and safety requirements and enforcement		
Implementation of LARP and SAP.	• ADB and government social, resettlement and compensation requirements • Progress and compliance monitoring and reporting • Grievance procedures and corrective actions	LIC	PMU, PMUD, MCUD, DAG, DUS
Project Benefit Monitoring and Evaluation	• Project performance management system (PPMS) • Roles and responsibilities for implementation of PPMS • Mechanisms for measurement of project outputs and outcomes • Beneficiary surveys on public perceptions of infrastructure and service delivery	LIC	PMU, PMUD, MCUD, DAG, DUS
Workshops on Key Project Issues	• Workshops on project progress and execution and implementation issues – as necessary	LIC	PMU, PMUD, MEGDT, DAG, DUS, Contractors
Study tour to examples of efficient WSS institutions in North East Asia (and North America)	• Study tour to help understand options for efficient WSS service delivery in small cities • Benefit from understanding experiences of other WSS utilities in similar socioeconomic and geographical circumstances (Northern PRC, Russian Federation, Northern and Eastern Europe, and North America including Alaska	Organizational Development Consultant, Coordinated with Twinning Program with Fairbanks, Alaska (USA) WSS Utility Company	MCUD, DAG, DUS

DAG = Darkhan-Uul *aimag* government, DUS = Darkhan Us Suvag, EMP = environmental management plan, LARP = land acquisition and resettlement plan, LIC = loan implementation consultants engaged under component 3, MCUD = Ministry of Construction and Urban Development, MEGDT = Ministry of Environment, Green Development and Tourism, MNRM = ADB Mongolia Resident Mission, PMU = project management unit, PMUD = project management unit Darkhan office, SAP = social development action plan, WASH = water, sanitation and hygiene, WSS = water supply and sanitation.

[a] This indicative training program under Project Management and Implementation Support and Monitoring and Evaluation is complemented by a training program under the attached TA. See para. 41.

Source: Asian Development Bank.

2. Project Management Unit and Project Management Unit Darkhan Office Support

23. Project management unit (PMU) and project management unit Darkhan office (PMUD) support will finance experts in (i) the PMU under MCUD, and (ii) the PMUD under the DAG in DUS. Key experts will be recruited under advance action prior to loan effectiveness to facilitate project readiness and timely project implementation. Outline scope of work and terms of reference are provided below.

(i) Project Management Unit

24. The Project Management Unit Support (contract bundle C2-1, 5 individual contracts) will require 100 person-months of national consultants engaged as experts working for the PMU. The PMU will be established under MCUD and will take overall responsibility for project management and for liaising with (i) all national and local agencies involved in the project, (ii) loan implementation consultants, and (iii) with ADB. It will be responsible for project execution, project management, procurement preparation and management for international competitive bidding contract packages, and procurement support to the PMUD for national competitive bidding and for all reporting requirements and activities. The responsible Director General in MCUD will be overseeing and guiding the PMU, appointed by the Minister, MCUD and be provided as counterpart staff time contribution. Five individual experts will be engaged to work in the PMU in accordance with ADB's Guidelines on the Use of Consultants (2013, as amended from time to time). The consultants will be selected and engaged following the individual consultant selection method (ICS). Five experts to be recruited are the (i) project director (36 person-months, full-time); (ii) procurement specialist (10 person-months, full-time during project inception); (iii) financial and accounting specialist (12 person-months, intermittent); (iv) PMU administration and operation support officer (36 person-months, full-time); and (v) translator (6 person-months, intermittent). Additional staff may be engaged as part of the counterpart contribution by MCUD. Below is an indicative outline of tasks and main responsibilities of the PMU overall, but is not limited to:

(i) establish strong working relationships with the PMUD, project steering committee (PSC), MCUD, MOF, DAG, DUS, and other concerned agencies as needed to effectively sequence project activities;
(ii) provide management guidance to the PMUD, its project coordinator, and experts;
(iii) monitor timely reporting and adequate compliance with loan and project agreement covenants including reporting by the PMUD i.e., on provisions of the environmental, land acquisition and resettlement safeguards plans, and ensure compliance with the environmental management plan;
(iv) collaborate with the PMUD and other project stakeholders to identify and address impediments related to project implementation in terms of local institutional capacities for planning, developing, operating, and maintaining project facilities;
(v) oversee stakeholder and community consultations;
(vi) provide overall guidance to the implementation of training and community awareness programs;
(vii) together with the PMUD compile monthly, quarterly, and semiannual progress reports as required for timely and proper reporting to the PSC, MCUD, DAG, DUS, and ADB;
(viii) manage consultancy inputs of the project;
(ix) monitor, manage, and maintain project imprest accounts and sub-accounts for all project activities;
(x) work with MCUD, DAG, and DUS to recruit PMUD experts;

(xi) prepare documentation for the engagement of the loan implementation consultants (LIC) under component 3, i.e., finalize terms of reference and requests for proposals, prepare a shortlist of firms, assist in the evaluation of CVs, technical and financial proposals, prepare for the selection of LIC;
(xii) in coordination with the PMUD and with assistance of the LIC, develop a detailed project implementation plan and project performance management system and manage its execution and monitoring;
(xiii) with the assistance of the LIC, in coordination with the DAG and DUS, carry out all activities relating to the procurement of the WWTP contract package under plant: design, supply, and install in international competitive bidding modality including employer's requirements, reference designs, design standards, and service levels, and prepare a project guide;
(xiv) review an adequate number of detailed design alternatives, estimates, and drawings to ensure that the designs are being carried out competently and within government and ADB guidelines and standards and aligned with the ADB-funded and MCUD-agreed feasibility study; and
(xv) arrange and provide all necessary support during ADB missions.

Table 3: Summary of Individual Consultants/Staff of the PMU, supported by the Loan

Area of Expertise	**Duration** (person-months)
National	
Project director	36
Procurement specialist (full time at project inception stage)	10
Financial and accounting specialist (intermittent)	12
PMU administration and operation support officer	36
Translator	6
Total	**100**

Source: Asian Development Bank estimates.

Outline terms of reference for the 5 individual consultants of the PMU are as follows:

1) **Project Director** (national, 36 person-months, full time)

25. The project director will have a master's degree in management or a technical field relevant to the project and with 10–15 years of proven management experience preferably in a development agency, donor organization, public institution, or a nongovernment organization. The individual will have a proven track record on managing effectively multi-agency and multidisciplinary processes. English language proficiency will be an advantage. The project director will report directly to the Director General in MCUD in charge the project and will coordinate with DAG. The project director will be responsible for the activities of the PMU, and his/her tasks will include but not be limited to the following activities:

(i) liaise with all concerned ministries and agencies and ensure effective and timely project communications, coordination, project meetings and approvals, i.e., MCUD, MOF, MEGDT, DAG, DUS, ADB, and others as needed;
(ii) closely cooperate and coordinate with the PMUD project coordinator in Darkhan;
(iii) advise, prepare, and support ADB missions, lead and participate in meetings;
(iv) manage and maintain project imprest accounts (as co-signatory with the MOF) and sub-accounts, oversee procurement and prepare reports as required during project implementation, including monthly, quarterly, and annually as required;

(v) supervise and coordinate PMU, consultants, contractors, and stakeholder activities to facilitate implementation according to plan, schedule, and budget;
(vi) facilitate consultant recruitment and selection for the international and local consultants in close cooperation with ADB and the PSC;
(vii) in coordination with the PMUD, MCUD, DAG, and DUS review detailed design and tender documents for the WWTP and the pump stations and sewers prepared by LIC and ensure designs are aligned with the agreed feasibility study and with stakeholder expectations and that standards adopted are consistent with national and international norms accepted by the national standardization committee;
(viii) coordinate and facilitate public and community relations in coordination with MCUD and DAG;
(ix) assist with obtaining licenses, permits of construction, rights of access to land and other compulsory administrative steps as needed by the relevant regulations in force in Mongolia and in agreement with ADB procedures;
(x) ensure through the PMUD project coordinator effective day-to-day supervision of project implementation and consolidate monthly progress reports prepared by contractors, suppliers and consultants;
(xi) administer contracts including processing of progress certificates, review of extension of time claims, preparation of change orders and nonconformance notices, subproject implementation progress monitoring, and subproject cost monitoring;
(xii) review and approve payments by the consultants, contractors and suppliers based on recommendations by the PMUD project coordinator and the relevant consultants;
(xiii) obtain “no objection” from ADB for any proposed modification, extension, or change from agreed contracts that exceeds initial budget by more than 15%;
(xiv) prepare withdrawal applications based on contracts, claims, and supporting documents for submission to the MOF and prepare requests for replenishment of the Imprest accounts to be submitted to the MOF;
(xv) in coordination with the PMUD, review annual implementation and update implementation schedule and projection;
(xvi) in close coordination with the LIC and the environmental and resettlement specialist oversee compliance with the social and environmental loan and project agreement covenants, and the implementation of the environmental management plan and the land acquisition and resettlement plan;
(xvii) ensure the implementation and practice of appropriate financial accounting and reporting and record keeping systems, compatible with the financial reporting systems by the government;
(xviii) ensure auditors recommendations are implemented and approve proposed action in the event of adverse financial audits or monitoring and evaluation reports; and
(xix) prepare, with the assistance from the PMUD and the LIC, a project completion report following ADB guidelines 6 months after physical project completion.

2) **Procurement Specialist** (national, full time during project inception period, 10 person-months)

26. The procurement specialist will have as a minimum a university degree in management, accounting, or related field with extensive demonstrated knowledge of procurement systems and processes. S/he will have at least 10 years of experience in procurement of civil works,

goods and services in Mongolia including international competitive bidding and preferably on ADB projects or other international agencies. Knowledge of ADB or other international donor organization procurement guidelines and procedures will be required. This position requires English language proficiency. The procurement specialist will report directly to the Project Director and will work in close contact with the consulting firm. Tasks and responsibilities of the PMU procurement specialist include but are not limited to the following:

(i) Assist the project director to procure goods, works, and consultants as required by the project and in accordance with ADB Procurement Guidelines (2013, as amended from time to time) and ADB Guidelines on the Use of Consultants (2013, as amended from time to time);
(ii) The main assignment for the PMU procurement specialist will be to organize the procurement process and prepare the documentation including bidding documents, employer's requirements, bid evaluation report, etc., for the wastewater treatment plant under international competitive bidding in plant: design supply install modality – in coordination and consultation with the project director, the consulting firm, MCUD, DAG, DUS, and ADB;
(iii) Coordinate with the PMU and consultants to ensure that procurement activities are scheduled to support procurement requirements, and that the relevant documents are completed;
(iv) Provide assistance to the Project Director and to the tender evaluation committee in the tendering process for the procurement under the project in accordance with ADB procurement guidelines, including: (a) preparation and publication of invitations to bid, (b) coordinate answers to bidders' queries, (c) evaluation of tenders, and (d) preparation of bid evaluation reports;
(v) Assist in addressing and providing answers to bidder queries and in organizing bidder site visits as needed;
(vi) Coordinate the processes of non-objection by the ADB during the procedures of evaluations of tenders and consultant's proposals;
(vii) Support the project director in preparing the necessary documentation for contract signing and consultant and contractor mobilization; and
(viii) Assist the PMU to carry out the annual review and update of the project Procurement Plan.

3) **Financial and Accounting Specialist** (national, intermittent, 12 person-months)

27. The financial and accounting specialist will have a university degree in finance, economics, or related field, or be a chartered accountant. S/he will have at least 10 years of proven experience working in project finance, accounting and financial reporting under ADB or other comparable international environment. S/he will report to the project director and will work closely with the financial and accounting specialist of the PMUD and with the finance specialist of the consulting firm engaged under component 3. S/he will work intermittently over the entire duration of project implementation and cover accounting and auditing activities. Tasks and responsibilities of the specialist will include but is not limited to the following:

(i) Maintain all project accounts, imprest accounts and sub-accounts and coordinate with the financial and accounting specialist of the PMUD on the maintenance of the local Darkhan subaccount;
(ii) Assist the finance specialist of the consulting firm set up a financial management system for the project and apply for budgeting, financial planning reporting;

(iii) Monitor project expenditures, and supervise quarterly and annual financial reports during the project implementation;
(iv) Consolidate financial statements and requests for payment by contractors and service providers and assist the PMU in the process of approval for payment release;
(v) Prepare annual budgets and disbursement projections during project implementation in coordination with the PMUD;
(vi) Compile and prepare project quarterly and annually financial progress reports as required by ADB;
(vii) Prepare draft withdrawal applications for payment of project costs in coordination with the PMUD and PMU and submit these to MOF for verification and sign-off by authorized signatories;
(viii) Prepare requests for replenishment to the imprest accounts; and
(ix) Provide MCUD, MOF, PSC, DAG, and ADB with project financial data, commentaries and recommendations as requested.

4) **PMU Administration and Operation Support Officer** (national, full time, 36 person-months)

28. The PMU administration and operation support officer will be a university graduate, and have at least three years of proven work experience in administration and operation assistance and office management, preferably in an international environment. English language proficiency will be an advantage and is desirable. The officer will report to the project director, and carry out tasks and be responsible for the following, but not limited to:

(i) Provide administrative and operational assistance and services for the PMU under the project director;
(ii) Organize and maintain a project filing system according to specifications by the PMU and ADB;
(iii) Record expenditures and keep accounting records and receipts according to formats and templates prescribed by the PMU following ADB requirements;
(iv) Arrange meetings and appointments and follow through with preparation of materials and logistics;
(v) Prepare meeting minutes, letters, reports and other documents per direction from the project director;
(vi) Assist with travel and transport arrangements for the PMU specialists;
(vii) Keep a record of PMU specialists project related attendance and movements; and
(viii) Perform other tasks assigned within the overall competence as reasonably requested by the Project Director or his/her designated alternate.

5) **Translator** (national, intermittent, 6 person-months)

29. The translator will be a university graduate with a language degree and be fluent in English and Mongolian. S/he will have at least 3 years of proven experience in translation and interpretation work in an environment of international agencies or equivalent and be familiar with the terminology employed by ADB and in urban or engineering projects. The translator will report to the program director. Specific tasks are to provide verbal and written translation services for the PMU, including:

(i) Written translation of documents from Mongolian to English, and English to Mongolian;
(ii) Verbal interpretations at meetings, workshops, etc.;
(iii) Organise simultaneous translation services for conferences and major workshops upon request; and
(iv) Maintain a dictionary of terms and abbreviations relevant to the project in English and Mongolian.

(ii) **Project Management Unit Darkhan Office**

30. The Project Management Unit Darkhan Office Support (contract bundle C2-2, 8 individual contracts) will require 120 person-months of national consultants engaged as staff of the PMUD. The project management unit Darkhan office (PMUD) will be established under the DAG and within DUS, and will take overall responsibility for project implementation and reporting under the guidance of the PMU. It will be responsible for project implementation, project technical management and construction supervision and quality control, procurement preparation and management (national competitive bidding (NCB) and shopping contracts) with the support from the PMU and for monitoring activities. The Project Director will be appointed by the Governor of Darkhan-Uul a*imag* with an intermittent assignment as part of counterpart staff time contribution and with responsibilities of project oversight and guidance. Eight individual experts will be engaged as PMUD staff in accordance with ADB's Guidelines on the Use of Consultants (2013, as amended from time to time). The consultants will be selected and engaged following the individual consultants selection method (ICS). The eight consultants are: (i) project coordinator and wastewater management expert (36 person-months); (ii) supervision and quality assurance engineer (10 person-months, full-time during procurement of NCB packages); (iii) environmental officer (10 person-months, intermittent); (iv) resettlement and social development officer (8 person-months, intermittent); (v) procurement specialist (6 person-months, intermittent); (vi) financial and accounting specialist (8 person-months, intermittent); (vii) PMUD administration and operation support officer (36 person-months, full-time); and (viii) translator (6 person-months, intermittent). Additional staff may be engaged as part of the counterpart contribution by DAG. Below is an indicative outline of tasks and main activities of the PMUD, but is not limited to the following:

(i) establish strong working relationships with the PMU, DAG, DUS, the *aimag*-level technical working group, affected persons, other stakeholders, and ADB;
(ii) assist DAG and MCUD in procurement of works and equipment for national competitive bidding and for shopping contract packages if any;
(iii) assist with the updating and submission of the final land acquisition and resettlement plan and environmental management plan for ADB approval prior to award of any contracts and implement all required measures;
(iv) with assistance from the PMU, prepare plans and schedules for project implementation and project design and procurement activities, and associated land and resettlement requirements;
(v) work with *aimag* government land administration department and DUS to ensure that the design minimizes land acquisition and resettlement impact and that all lands required for project are made available in timely fashion and in full compliance with ADB safeguards requirements;
(vi) establish and maintain project management system in coordination with PMU including reporting to *aimag*-level technical working group, *aimag* government, and PMU;
(vii) prepare annual implementation schedules with associated procurement activities

and budgets;

(viii) provide guidance and support to the consultants in their assessment and detailed designs for the pumping stations and sewers components of the project;

(ix) procure works and equipment with assistance from the loan implementation consultants (LIC) procured at the *aimag* level under component A2 of the project;

(x) carry out supervision and quality assurance activities for all civil works and equipment installation of the project;

(xi) monitor and enforce provisions contained within the land acquisition and resettlement plan and environmental management plan, and implement the grievance redress mechanism;

(xii) prepare quarterly progress reports for the *aimag* government, *aimag*-level technical working group, MCUD, and ADB;

(xiii) work closely with and assist the LIC, providing data, maps, office space, and logistical support;

(xiv) review and endorse claims from the contractors and supplying companies;

(xv) assist DUS and the contractor for the wastewater treatment plant (WWTP) as necessary to ensure full operation of the existing plant during all phases of construction and implementation of the project;

(xvi) collaborate with the PMU and other project stakeholders to identify, provide an assessment of, and address impediments related to project implementation in terms of local institutional capacities for planning, developing, operating and maintaining project facilities, and other issues as they arise; and

(xvii) support the program of stakeholder and community consultations regarding project components.

Table 4: Summary of Individual Consultants/Staff of the PMUD, supported by the Loan

Area of Expertise	**Duration** (person-months)
National	
Project coordinator and wastewater management expert	36
Supervision and quality assurance engineer (intermittent)	10
Environmental officer (intermittent)	10
Resettlement and social development officer (intermittent)	8
Procurement specialist (full time during procurement of NCB packages)	6
Financial and accounting specialist (intermittent)	8
PMUD administration and operation support officer	36
Translator (intermittent)	6
Total	**120**

PMUD = project management unit Darkhan office.
Source: Asian Development Bank estimates.

Outline terms of reference for the 5 individual consultants of the PMUD are as follows:

1) **Project Coordinator and Wastewater Management Expert** (national, full time, 36 person-months)

31. The PMUD project coordinator will have a master's degree in civil engineering or a field relevant to the WWTP project. S/he will have at least 10–15 years of proven experience in management of a wastewater management project in Mongolia or abroad. English language proficiency will be an advantage. The PMUD project coordinator will report to the Governor of Darkhan-Uul *aimag*. S/he will be in charge for the whole duration of the project implementation. The PMUD will be responsible for the implementation of the project and oversee day-to-day

activities. The project coordinator will be responsible for the activities of the PMUD, and will carry out, but not be limited to the following:

(i) liaise with all concerned local agencies and ensure effective and timely project communications, coordination, project meetings, and approvals involving DAG, Darkhan local project leading group, DUS, and administrative departments in Darkhan;
(ii) closely cooperate and coordinate with the PMU project director, MCUD, ADB, and others as needed;
(iii) advise, prepare, and support ADB missions to Darkhan, and sub-lead and participate in local meetings;
(iv) manage and maintain project local sub-account, oversee procurement for component 2, and prepare reports as required during project implementation, including monthly, quarterly, and annually as required;
(v) supervise and coordinate PMUD, consultants, contractors, and stakeholder activities to facilitate implementation according to plan, schedule, and budget;
(vi) in coordination with the PMU, MCUD, DAG, and DUS review detailed design and tender documents for the WWTP and the pump stations and sewers prepared by LIC, and ensure designs are aligned with the agreed feasibility study and with stakeholder expectations and that standards adopted are consistent with national and international norms accepted by the national standardization committee;
(vii) in close coordination and cooperation with the supervision specialist and the loan implementation consultants, monitor and carry out quality control of all project construction, equipment delivery, installation, and commissioning on a daily basis;
(viii) ensure effective day-to-day supervision of project implementation and consolidate monthly progress reports prepared by contractors, suppliers, and consultants;
(ix) administer contracts of component 2 including processing of progress certificates, review of extension of time claims, preparation of change orders and nonconformance notices, subproject implementation progress monitoring, and subproject cost monitoring;
(x) review and endorse payments by the consultants, contractors, and suppliers based on recommendations by the relevant consultants;
(xi) support the preparation of withdrawal applications by the PMU and supply information and supporting documents as needed;
(xii) assist with obtaining licenses, permits of construction, rights of access to land, and other compulsory administrative steps as needed by the relevant regulations in force in Mongolia and in agreement with ADB procedures, and oversee safeguards compliance;
(xiii) in coordination with the PMU, review annual implementation and update implementation schedule and projection;
(xiv) in close coordination with the LIC and the environmental and resettlement specialist, oversee compliance with the social and environmental loan and project agreement covenants, and the implementation of the environmental management plan and the land acquisition and resettlement plan;
(xv) coordinate and facilitate public and community relations in coordination with DAG;
(xvi) ensure the implementation and practice of appropriate financial accounting and reporting and record keeping systems compatible with the financial reporting

systems by the government, and coordinate these activities with the PMU project director;
(xvii) ensure auditors' recommendations are implemented, and approve proposed action in the event of adverse financial audits or monitoring and evaluation reports, and coordinate these activities with the PMU project director;
(xviii) support the PMU and the LIC, with the preparation of a project completion report following ADB guidelines 6 months after physical project completion;
(xix) review and ensure high quality of all design reports and tender documents including technical specifications as well as bills of quantities;
(xx) ensure, in cooperation with the LIC's environment and resettlement specialists that environmental and resettlement safeguards are complied with according to national and ADB requirements;
(xxi) review and approve the proposed training programs prepared by the loan implementation consultants;
(xxii) oversee all subproject commissioning procedures, review program completion reports, and on recommendation of the engineering consultant and the chief engineer, deliver subproject completion certificates and sign subproject final acceptance; approve release of performance bonds and warranty retention amounts;
(xxiii) coordinate with organizations responsible for operations of the completed works to conform that operating requirements are included in the designs and that training opportunities for operations personnel are included in the design and construction processes;
(xxiv) provide technical input as required for the preparation of bid evaluation reports;
(xxv) supervise, collect, and approve contractors' and consultants' monthly statements and invoices assembled by the construction supervisors and forward these to the PMUD project coordinator;
(xxvi) in close collaboration with the consulting engineering team, review and approve the training schedules and documents proposed by the contractors and suppliers and participate actively during the delivery of such training programs;
(xxvii) review and approve, in collaboration with the consulting engineering team, the operation and maintenance manuals prepared by contractors and suppliers;
(xxviii) provide monitoring and evaluation during the subproject commissioning and start-up phase and further, during the liability period; and
(xxix) provide inputs to the PMU for quarterly, annual, and final reports.

2) **Supervision and Quality Assurance Engineer** (national, intermittent, 10 person-months)

32. The construction and site supervision engineer will be a municipal engineer or wastewater management specialist with a university degree in civil engineering or related field. S/he shall have a minimum 10 years of proven experience in construction management, site supervision, and quality control of wastewater management projects. Possession of State Certification for construction supervision is required. S/he will report to the PMUD project coordinator and undertake, but not be limited to the following:

(i) supervise and monitor the quality of preparation and construction of all project civil works, structural rehabilitation, and equipment installation under the project on a day-to-day basis;
(ii) approve and confirm delivery of material, mechanical, and electromechanical equipment, and workmanship in accordance with the requirements of the contracts;

(iii) provide information and assistance to the loan implementation consultants during the inspections for quality control of works and materials and report to the project coordinator;
(iv) in collaboration with the project coordinator and the consulting engineers, review the detailed construction plans submitted by the contractors;
(v) provide assistance to the loan implementation consultants on the preparation of the schedule and manuals of operation and maintenance;
(vi) prepare and monitor construction schedules, and provide overall supervision of construction and quality control on works;
(vii) ensure that all design and construction documents are consistent with national and international engineering standards for design and construction of WWTPs, pump stations, and sewer networks, and ensure that all necessary government approvals are obtained by the engineering consultants, including technical conditions for the planned facilities;
(viii) supervise testing of existing structures of the WWTP, pump stations, sewers, and of materials and equipment;
(ix) review the equipment manufacturers' drawings and calculations to check arrangements for optimized operation and maintenance and verify compliance with contract specifications;
(x) review and set up inspection and reporting procedures for the supervision of construction works in cooperation with the loan implementation consultants;
(xi) organize and supervise the activities of the construction supervisors, and coordinate the requirements of state organizations in the supervision activities;
(xii) review the procurement and delivery program for each supply contract financed under the project and ensure compatibility and timely coordination with other contracts and works;
(xiii) provide answers to contractors' requests for information in all matters related to interpreting contract documents, ground survey controls, quality control testing, and other matters relating to the contract under the program;
(xiv) maintain a permanent record of all quantities for payment and test results;
(xv) confirm that the contractors are keeping as-built records during construction and that the as-built plans reflecting the changes in the design, dimensions/specification and actual work done at the site and request the records from the contractors and maintain updated records in the PMUD and DUS;
(xvi) collect and approve daily and monthly progress reports prepared by contractors and suppliers, and provide needed inputs for preparation and submission of monthly progress reports to the PMUD and PMU;
(xvii) provide inputs as needed to monthly, quarterly, and annual reports as well as for the preparation of subproject/program completion reports; and
(xviii) provide assistance during training workshops as needed and participate in training events including control, leak tests, new pipe-work disinfection, pipe repair, bulk water meter reading, and pressure monitoring.

3) **Environment Officer** (national, intermittent, 10 person-months)

33. The environmental officer will have preferably a university degree in environmental engineering or similar field and have a minimum of 5 years of experience in a relevant environmental safeguard and/or public participation and consultation position in a public institution or a nongovernment organization in Mongolia. S/he will be acquainted with Mongolian regulations and procedures and ADB policies on environmental impact assessment,

environmental management and public consultation, managing effectively local communities. English language proficiency will be an advantage. The environmental officer will report to the PMUD project coordinator and work closely with the loan implementation consultants. S/he will be the focal person to collect complaints and concerns from the community on environmental issues related to project implementation. The main tasks and responsibilities will be, but will not be limited to the following activities:

(i) Review the environmental management plan (EMP) and the grievance redress mechanism outlined in the EMP;
(ii) Make sure that the all environmental safeguard obligations, mitigation measures and compensations (if any) as outlined in the EMP will be implemented in accordance with the ADB environmental guidelines and national requirements;
(iii) Be the focal person in the PMUD for the community, residents and stakeholders for implementing the grievance redress mechanism and for receiving and recording grievances and complaints from stakeholders and residents;
(iv) Specific day-to day activities include consultation, participation and disclosure of the environmental management plan, its implementation and schedule, and the grievance redress mechanism, ensure that the Consultation and Participation Strategy is applied and reviewed as needed, and verify that the compensation plan adheres to the principles and policies of the agreed EMP;
(v) Address grievances and complaints and ensure that all stakeholders and residents affected by the project's construction activities and living in the areas affected by EMP activities are aware of and understand the proposed EMP activities and methods and verify that any complaints filed were resolved satisfactorily and in line with the principles and policies of the agreed EMP, and verify that the stakeholders paid no fees for filing complaints at any administration level;
(vi) Provide information, cooperate closely and consult with the loan implementation consultants on all activities, grievances and complaints and assist with providing information to the environmental monitoring reports;
(vii) Ensure that all complaints are promptly reported to the PMUD project coordinator, the PMU project director, the Darkhan-Uul *aimag* government, and MCUD and ADB;
(viii) Liaise with the Ministry of Environment, Green Development and Tourism (MEGDT) and make sure that such entities endorse all environmental assessment documents;
(ix) Supervise and evaluate the implementation of environmental mitigation and monitoring measures as specified in the environmental management plan (EMP); This includes undertaking the environmental monitoring audits as prescribed;
(x) Provide relevant inputs on monitoring in monthly and quarterly reports as well as to completion reports on EMP; and
(xi) Supervise the implementation of the EMP in accordance the ADB requirements and national regulations such as: the National Environmental Action Plan (1996-2000), State Policy for Ecology (1997), National Plan of Action to Combat Desertification (2010). Rare Animals Protection Plan (2012). National Plan of Action for Protected Areas, Mongolian Action Program for the 21st Century, National Action Plan for Climate Change (2011), National Water Program (2011), National Forestry Program, Program of Protection of Air, Sustainable Development Education Program (2009-2019), Special Protected Areas, Protection of Ozone Layer and other relevant document having force of

regulation, and provide as needed adequate mid-term feedback for refinement of the EMP.

4) **Resettlement and Social Development Officer** (national, intermittent, 8 person-months)

34. The resettlement and social development officer will have a university degree in social sciences and a minimum of 5 years' experience in social development (including public participation and consultation) and resettlement safeguards. S/he has to be acquainted with relevant Mongolian laws, regulations and procedures and ADB policies on social safeguards. English language proficiency will be an advantage. The resettlement and social development officer will report to the PMUD project coordinator and work closely with the loan implementation consultants. The main tasks and responsibilities will be, but will not be limited to the following activities:

(i) Assist the PMU/PMUD to review, update and finalize the land acquisition and resettlement plan (LARP) based on the detailed design and associated impacts in accordance with ADB's Safeguards Policy Statement (2009). Submit the updated LARP for MCUD and ADB review and approval prior to procurement of work contracts. Verify/update number of affected people (APs) and households (including non-titled). Verify/update the impact surveys through the services of a detailed measurement survey team to ensure that the inventory of losses and the measurement of affected assets have been done correctly. Carry out the detailed valuation survey of affected assets through the service of independent valuator and update the compensation rates and costs accordingly;

(ii) Verify that the compensation and rehabilitation plans adhere to the principles and policies of the agreed LARP and assist APs in getting the compensation for their land and properties acquired by the Project;

(iii) Make sure that all resettlement safeguard obligations, mitigation measures and compensations as outlined in the LARP will be implemented in accordance with the ADB resettlement safeguard guidelines and national requirements;

(iv) Ensure that the SAP is reviewed and updated, as needed. Make sure that the SAP is properly implemented and monitored;

(v) Be the focal person in the PMUD for the social, resettlement, and environment grievance redress mechanism and develop and maintain a grievance redress tracking system. Address grievances and complaints and ensure that (a) all affected persons and entities are aware of and understand the proposed LARP activities; (b) verify that any complaints filed were resolved in a timely manner and in line with the principles and policies of the agreed LARP, and (c) verify that the APs paid no fees for filing complaints at any administration level. Ensure that all complaints are promptly reported to the PMUD project coordinator, the PMU project director, DAG, MCUD, and ADB;

(vi) Conduct day-to day consultation activities with APs, including public meetings, participation activities and disclosure of the LAR related information. Assist the PMUD in arranging public consultations with stakeholders. and make sure that such consultations are in accordance with ADB' policies and guidelines such as Safeguard Policy Statement (2009) and Public Communication Policy (2011) and national regulations such as the Constitution (1992), the National Environmental Action Plan (1996), the Land Law (2006),the Law on Allocation of Land to Private Citizens (2003) and Civil Code (2002), and other relevant regulations as applicable;

(vii) Provide advice to the PMUD project coordinator and the PMU project director in the process of selecting service providers for the detailed measurement survey, inventory of losses and census, independent asset valuation surveys and information and participation campaigns; identify and compile a list of eligible service providers including nongovernment organizations (NGOs) that could be recruited to help for the implementation of LARP and SAP;
(viii) Ensure internal monitoring of LARP and SAP;
(ix) Provide relevant inputs for quarterly progress reports and annual reports as well as to completion reports on LARP and SAP;
(x) Provide information, cooperate closely and consult with the loan implementation consultants on all activities; and
(xi) In addition, to all above serve as a liaison between the loan implementation consultant, PMUD, PMO and maintain direct relationships with government authorities with respect to LAR and SAP tasks.

5) **Procurement Specialist** (national, full-time during NCB procurement activities, 6 person-months)

35. The procurement specialist will have as a minimum a university degree in management, accounting, or related field with extensive demonstrated knowledge of procurement systems and processes. S/he will have at least 10 years of experience in procurement of civil works, goods and services in Mongolia preferably on ADB projects or other international agencies. Knowledge of ADB or other international donor organization procurement guidelines and procedures will be required. English language proficiency will be an advantage. The Procurement Specialist will report directly to the project coordinator and will work in close contact with the consulting firm. Tasks and responsibilities of the PMUD procurement specialist include but are not limited to the following:

(i) Assist the project coordinator to procure goods, works, and consultants as required by the project and in accordance with ADB Procurement Guidelines (2013, as amended from time to time) and ADB Guidelines on the Use of Consultants (2013, as amended from time to time);
(ii) The main assignment for the PMUD procurement specialist will be to organize the procurement process and prepare the documentation including bidding documents for the pump stations and sewers component under national competitive bidding modality – in coordination and consultation with the project coordinator, the consulting firm, MCUD, DAG, DUS, and ADB;
(iii) Coordinate with the PMUD and consultants to insure that procurement activities are scheduled to support procurement requirements, and that the relevant documents are completed;
(iv) Provide assistance to the project coordinator and to the tender evaluation committee in the tendering process for the procurement under the project in accordance with ADB procurement guidelines, including (a) preparation and publication of invitations to bid, (b) coordinate answers to bidders' queries, (c) evaluation of tenders, and (d) preparation of bid evaluation reports;
(v) Assist in addressing and providing answers to bidder queries and in organizing bidder site visits as needed;
(vi) Coordinate the processes of non-objection by the ADB during the procedures of evaluations of tenders and consultant's proposals;
(vii) Support the project coordinator in preparing the necessary documentation for contract signing and consultant and contractor mobilization; and

(viii) Assist the PMUD to carry out the annual review and update of the project Procurement Plan.

6) **Financial and Accounting Specialist** (national, intermittent, 8 person-months)

36. The financial and accounting specialist will have a university degree in finance, economics, or related field, or be a chartered accountant. S/he will have at least 8 years of proven experience working in project finance, accounting and financial reporting under ADB or other comparable international environment. S/he will report to the project coordinator and will work closely with the financial and accounting specialist of the PMU and with the finance specialist of the consulting firm engaged under component 3. S/he will work intermittently over the entire duration of project implementation and cover accounting and auditing activities. Tasks and responsibilities of the specialist will include but is not limited to the following:

(i) Maintain local project subaccount;
(ii) Assist the finance specialist of the consulting firm set up a financial management system for the project and apply for budgeting, financial planning reporting;
(iii) Monitor project expenditures, and supervise quarterly and annual financial reports during the project implementation;
(iv) Consolidate financial statements and requests for payment by contractors and service providers and assist the PMUD in the process of approval for payment release;
(v) Prepare annual budgets and disbursement projections during project implementation in coordination with the PMU;
(vi) Compile and prepare project quarterly and annually financial progress reports as required by ADB and in cooperation and coordination with the PMU;
(vii) Prepare draft withdrawal applications for payment of project costs in coordination with the PMUD and PMU and submit these to MOF for verification and sign-off by authorized signatories; and
(viii) Provide MCUD, MOF, PSC, DAG, and ADB with project financial data, commentaries, and recommendations as requested.

7) **PMUD Administration and Operation Support Officer** (national, full time, 36 person-months)

37. The PMUD administration and operation support officer will be a university graduate, and have at least three years of proven work experience in administration and operation assistance and office management, preferably in an international environment. English Language proficiency will be an advantage and is desirable. The officer will report to the PMUD project coordinator, and carry out tasks and be responsible for the following, but not limited to:

(i) Provide administrative and operational assistance and services for the PMUD under the project coordinator;
(ii) Organize and maintain a project filing system according to specifications by the PMUD and ADB and coordinate this with the PMU administration and operation support officer;
(iii) Record expenditures and keep accounting records and receipts according to formats and templates prescribed by the PMUD following ADB requirements;
(iv) Arrange meetings and appointments and follow through with preparation of materials and logistics;

(v) Prepare meeting minutes, letters, reports and other documents per direction from the project coordinator;
(vi) Assist with travel and transport arrangements for the PMUD specialists;
(vii) Keep a record of PMUD specialists project related attendance and movements; and
(viii) Perform other tasks assigned within the overall competence as reasonably requested by the Project Coordinator or his/her designated alternate.

8) **Translator** (national, intermittent, 6 person-months)

38. The translator will be a language graduate and be fluent in English and Mongolian. S/he will have at least three years of proven experience in translation work of on Programs/programs of international lending agencies and be familiar with the terminology employed in urban development programs and those of the ADB. The translator will report to the program director. Specific tasks are to arrange and provide all verbal and written translation services for the PMO, including:

(i) Written translation of documents from Mongolian to English, and English to Mongolian;
(ii) Verbal interpretations at meetings, workshops, etc.;
(iii) Organize simultaneous translation services for conferences and major workshops upon request; and
(iv) Maintain a dictionary of terms and abbreviations relevant to the project in English and Mongolian.

2. Attached Technical Assistance: Mongolia: Darkhan Urban Utility Institutional Improvement Action Plan

39. The technical assistance (TA) is designed to enhance the sustainability of the ADB financed investment by strengthening the institutional and management capacity of Darkhan's water and wastewater services with the objective of improving effectiveness, efficiency and customer orientation towards corporatization of utility service management. The government requested ADB consideration of TA support attached to the proposed loan Mongolia: Darkhan Wastewater Management Project.[5] The TA is estimated to cost $430,000 with $400,000 funded by the Multi-Donor Urban Environmental Infrastructure Fund under the Urban Financing Partnership Facility, administered by ADB and in-kind counterpart contribution by the DAG. The scope, outputs, implementation arrangements, cost estimate, financing arrangements, and outline terms of reference for consultants were discussed and agreed with the counterpart. The TA will be implemented over a period of 24 months from 1 July 2015 to 30 June 2017 and will cover the utility service sector in Darkhan.[6]

40. An international consulting firm will be engaged in accordance with ADB's Guidelines on the Use of Consultants (2013, as amended from time to time). The consultants will be selected and engaged based on the quality- and cost-based selection method, with 90% weight on quality and 10% weight on cost, using the simplified technical proposal format. The consultants will work with the executing agency, the Ministry of Construction and Urban Development and with the implementing agency, the DAG and DUS. A total of 9 experts are required, 4 of which are international and 5 are national specialists. The TA will require 33 person-months of consultants of which 12 person-months are international and 21 person-months are national

[5] The TA was requested by MCUD in coordination with DAG requested the support during the ADB TA review mission in February 2014 and reiterated the request during the ADB pre-fact-finding mission on 21 April to 2 May 2014.
[6] The TA first appeared in the business opportunities section of ADB's website on 11 November 2014.

consultants' inputs. The consultants will have expertise in the reform and organizational development of water and wastewater utility service companies, water and wastewater company operations, water and wastewater services finance and financial management and accounting, customer relations, human resources, human resource development, capacity building and training. A detailed description of the TA is in Linked Document 8, the indicative training program and the outline terms of reference are below.

(i) **Terms of Reference for Consultants and Indicative Task Lists for Experts**

41. The consulting firm will provide expert input to support the Darkhan-Uul *aimag* government and Darkhan Us Suvag through a process of institutional reform and organizational change, human resource and capacity development to create a more sustainable institutional arrangement for water and wastewater service planning and service delivery in Darkhan. The technical assistance will mainly be directed at Darkhan Us Suvag, as service provider, but will also assist the *aimag* government in improving its planning and development approval role to optimize service delivery outcomes. The TA activities will be coordinated with the ADB-supported twinning program between the Fairbanks Alaska and Darkhan utility companies and also with the German government-funded "MoMo III" project as applicable. The list of suggested experts is in Table 5.

Table 5: Summary of Consultant Inputs of the Attached TA

Area of Expertise	**Duration** (person-months)
A. International	
1. Team leader: water and wastewater institutional and operations specialist	5.5
2. Utility financial management specialist	2.5
3. Utility service delivery and customer relations specialist	2.0
4. Infrastructure planning specialist	2.0
Subtotal (A)	**12.0**
B. National	
1. Deputy team leader: water and wastewater institutional and operations specialist	8.0
2. Utility financial management specialist	4.0
3. Utility service delivery and customer relations specialist	4.0
4. Human resource development specialist and trainer	3.0
5. Infrastructure planning specialist	2.0
Subtotal (B)	**21.0**
Total (A+B)	**33.0**

Source: Asian Development Bank.

42. **International water and wastewater institutional development and operations specialists/team leader** (5.5 person-months). The expert will have at least a Master's degree in engineering, organizational development, public administration, or related field. The experts will have at least 10 years of experience in water and/or wastewater utility service provision in the areas of technology, operations, management and organizational development. The experts must be familiar with international/national water supply and wastewater treatment technology and good institutional and management practices for utility service provision. Previous experience as full-time staff of a water and/or wastewater service provider is required. Experience in the urban water and/or wastewater sector in Mongolia will be an advantage for the international expert and international experience in the sector will be an advantage for the national expert. Specific tasks of the experts include but are not limited to the following:

(i) As team leader, organize and coordinate all international and national

consultants in guiding and executing the scope of work and producing the outputs and the capacity development;

(ii) Perform activities and contribute to all three outputs specific to the expert's specialty field and guide, oversee, edit and contribute the respective sections to the reports;

(iii) Assess current administrative, customer, finance, operations, maintenance, and planning activities and performance of the water supply and wastewater utility service provider Darkhan Us Suvag (DUS);

(iv) Identify the constraints to improved service delivery and sustainability and the underlying causes whether policy, organizational, financial, technical, and provide analysis how these issues may be addressed;

(v) Prepare a functional profile for water and wastewater utility, including service delivery arrangements and work flows, showing key roles and indicating gaps or overlaps in roles and responsibilities;

(vi) Review institutional development proposals and options considered and evaluated from previous technical assistance projects in Darkhan, and assess the practicality;

(vii) Assess the appropriate technologies and management arrangements for water supply and wastewater treatment for Darkhan;

(viii) Strategic review of sector reforms and progress at the national and local levels including considerations of strengthening the role and impact of the Water Service Regulatory Commission;

(ix) Develop an integrated 3 to 5 year business plan setting performance progress benchmarks towards defined standards of service, resourcing needs in terms of operating budget, capital investment, manpower and pricing implications to meet financial targets;

(x) Develop a draft performance contract between DUS and the Darkhan-Uul *aimag* government (DAG) to allow strategic "arms-length" supervision and include mechanisms for cost of extension of infrastructure and services into new development areas, that should be factored into land use and development approvals;

(xi) Propose and contribute to the institutional action plan including the introduction of advanced international water and wastewater utility management approaches;

(xii) Prepare training materials and provide classroom training and on-the-job training to DAG and DUS staff; and

(xiii) Assist and support with the implementation of the action plan.

43. **National water and wastewater institutional development and operations specialists/deputy team leader** (8 person-months). The expert will have at least a Master's degree in engineering, organizational development, public administration, or related field. The experts will have at least 10 years of experience in water and/or wastewater utility service provision in the areas of technology, operations, management and organizational development. The experts must be familiar with international/national water supply and wastewater treatment technology and good institutional and management practices for utility service provision. Previous experience as full-time staff of a water and/or wastewater service provider is required. Experience in the urban water and/or wastewater sector in Mongolia will be an advantage for the international expert and international experience in the sector will be an advantage for the national expert. Specific tasks of the experts include but are not limited to the following:

(xiv) As deputy team leader, organize and coordinate all international and national consultants in guiding and executing the scope of work and producing the

outputs and the capacity development;

(xv) Perform activities and contribute to all three outputs specific to the expert's specialty field and guide, oversee, edit and contribute the respective sections to the reports;

(xvi) Assess current administrative, customer, finance, operations, maintenance, and planning activities and performance of the water supply and wastewater utility service provider DUS;

(xvii) Identify the constraints to improved service delivery and sustainability and the underlying causes whether policy, organizational, financial, technical, and provide analysis how these issues may be addressed;

(xviii) Prepare a functional profile for Water and Wastewater utility, including service delivery arrangements and work flows, showing key roles and indicating gaps or overlaps in roles and responsibilities;

(xix) Review institutional development proposals and options considered and evaluated from previous technical assistance projects in Darkhan, and assess the practicality;

(xx) Assess the appropriate technologies and management arrangements for water supply and wastewater treatment for Darkhan;

(xxi) Strategic review of sector reforms and progress at the national and local levels including considerations of strengthening the role and impact of the Water Service Regulatory Commission;

(xxii) Develop an integrated 3 to 5 year business plan setting performance progress benchmarks towards defined standards of service, resourcing needs in terms of operating budget, capital investment, manpower and pricing implications to meet financial targets;

(xxiii) Develop a draft performance contract between DUS and the DAG to allow strategic "arms-length" supervision and include mechanisms for cost of extension of infrastructure and services into new development areas, that should be factored into land use and development approvals;

(xxiv) Propose and contribute to the institutional action plan including the introduction of advanced international water and wastewater utility management approaches;

(xxv) Prepare training materials and provide classroom training and on-the-job training to DAG and DUS staff; and

(xxvi) Assist and support with the implementation of the action plan.

44. **International/national utility financial management specialists** (2.5 person-months /4 person-months). The experts will have a Master's degree or equivalent in accounting or related field, and preferably will have a professional accounting qualification (such as Chartered Accountant or Certified Public Accountant). The expert will have at least 10 years of experience in supporting urban water and/or wastewater utility providers with financial management. Previous experience as staff of a water and/or wastewater utility service provider or in the water and/or wastewater sector will be an advantage. The expert will take the lead role in assessing and planning and implementing the financial management aspects including accounting and budgeting, tariff setting mechanisms, capital investment planning, and billing and collection system. The expert will prepare the financial management inputs to the institutional improvement action plan and assist to implement selected tasks of the plan. Specific tasks of the expert include but are not limited to the following:

(i) Perform activities and contribute to all three outputs specific to the expert's specialty field and contribute the respective sections to the reports;

(ii) Assess accounting, budgeting, business planning, and tariff setting policies and

procedures;

(iii) Review the financial information systems and procedures used in DUS and propose improvements, including use of financial information as aid to management decision making;

(iv) Develop proposals for improved financial sustainability and financial management;

(v) Develop and assist implementation of an institutional development program for accounting, customer services, finance, and purchasing;

(vi) Estimate appropriate annual operation and maintenance budgets based on realistic and affordable requirements over the next 5 and 10 years for each service type, and identify potential revenue sources to cover these costs;

(vii) Advise and assist on improving procedures for financial data collection and reporting;

(viii) Assess current administrative, customer, finance, operations, maintenance, and planning activities and performance;

(ix) Prepare a financial management improvement plan to modernize the financial management arrangements of DUS. The scope includes: (a) recurrent and capital budget reporting and controls; (b) improved cost controls; (c) use of job costing and activity based costing as appropriate; (d) development of relevant financial performance indicators and ratios; (e) control of working capital and cash flow; (f) use of financial planning and financial input to business plans; (g) computerization of systems as appropriate, (h) financial training for financial staff and for non-financial managers; and (i) improvements in financial procedures and regulations;

(x) Assist in the selection of software for computer based systems for financial and management accounting and other financial activities;

(xi) Recommend improvements to tariff setting procedure;

(xii) Advise on mechanisms to assure pro-poor tariff structures and/or subsidies;

(xiii) Prepare and execute a program of financial training seminars and courses for different levels of accountants and financial managers and for non-financial managers including preparation of training materials and provide classroom training and on-the-job training; and

(xiv) Assist and support with the implementation of the action plan.

45. **International /national utility service delivery and customer relations specialists** (2 person-months/4 person-months). The experts will have at least a Master's degree or equivalent in communications, social sciences/development, or related fields. The specialists should have 10 years of experience with design and implementation of customer relations and outreach programs for utilities or other urban service provision entities or local governments. Specific tasks of the experts include but are not limited to the following:

(i) Perform activities and contribute to all three outputs specific to the expert's specialty field and contribute the respective sections to the reports;

(ii) Assess service quality and delivery from the viewpoint of the utility and from the customer;

(iii) Organize customer surveys and focus discussion groups;

(iv) Develop and implement an institutional development program for customer services to promote client orientation;

(v) Recommend improvements to customer record keeping, billing, and collection;

(vi) Develop appropriate customer response or effective feedback strategies, and an improved mechanism for DUS to address these;

(vii) Review procedures for recording data needed for tariff calculations that include all aspects of the water supply and wastewater systems, customer services, and utility administration;
(viii) Work closely with the *aimag* government to formalize regulatory and tariff-setting systems;
(ix) Develop a methodology for the periodic review of tariffs so that the various interests of the government, customers, and DUS are safeguarded. The methodology should include: (a) compliance with pricing regulations; (b) customer affordability analysis; (c) review of company performance in terms of service and efficiency: (d) providing for the financial viability of the company: (e) review and justification of any cross-subsidization in pricing; (f) results from customer satisfaction and willingness to pay surveys and other public consultation; and (g) setting a defined timetable for price reviews;
(x) Review billing tariff and income collection arrangements and efficiency, and develop action plan for improvement where effectiveness or efficiency of income collection in needs improvement, including: (a) extent of computerization and scope for systems enhancement: (b) extent of arrears and mechanisms to reduce arrears and improve promptness of bill payment; (c) need for staff training; (d) management information to aid debt recovery; d) methods of billing, payment and payment processing; (e) bill layout and explanations given to customers; and (f) benefits and costs of a progressive introduction of "smart metering";
(xi) Carry out a brief market sounding to determine the interest in the domestic private sector for entering into private-public partnership in urban water supply and wastewater management sector in Darkhan;
(xii) Undertake a general review of Us Suvag's routine, periodic and emergency maintenance and preparedness programs and planning;
(xiii) Develop public awareness and education programs that include protection of water resources from pollution, water conservation, and water reuse;
(xiv) Prepare training materials and provide classroom training and on-the-job training to DAG and DUS staff; and
(xv) Assist and support with the implementation of the action plan.

46. **National human resource development specialist and trainer** (3 person-months). The expert will have at least a Master's degree or equivalent in organizational development, social sciences/development, or related field. The expert will have at least 10 years of experience with organizational development of urban infrastructure providers, including strategic and business planning, human resource management, and performance monitoring. The expert should have at least 10 years of experience establishing training programs and curriculum for urban government managers, utility service providers, and others. The expert will prepare the institutional and operations inputs to the institutional development program and then assist the participating service providers to implement selected tasks in the program. Specific tasks of the expert include but are not limited to the following:

(i) Perform activities and contribute to all three outputs specific to the expert's specialty field and contribute the respective sections to the reports;
(ii) Prepare institutional and organization development planning procedures;
(iii) Provide advice and training on strategic and business planning, human resources management, and performance monitoring;
(iv) Assist the utilities in developing an organization development plan;
(v) Recommend organizational improvements including staffing and equipment;

(vi) Make recommendations for improvements in human resource planning and assist in preparation of revised manpower plans;
(vii) Develop optimal organizational management structures for Us Suvag to assist in improving its business performance and identify key organizational changes;
(viii) Provide advice on arrangements for improved corporate governance including effective internal controls, considerations of rationalization of the existing Board of Directors and provide assistance in staffing;
(ix) Develop and assist implementation of an institutional development program for administration, engineering, operations, and maintenance;
(x) Design and assist in development of improved management information system to allow senior management to monitor actual company performance in real time against business plans;
(xi) Develop human resources policies and procedures to improve the skills and performance of the workforce including staff appraisal and performance measurement systems, identification of training needs and delivery of training, and reward mechanisms and incentive structure;
(xii) Prepare, agree, and implement a program of management training on operational and financial aspects;
(xiii) Prepare the training inputs to the institutional development program; and
(xiv) Develop and assist implementation of procedures that the utility can use to monitor and evaluate training.

47. **International and national infrastructure planning specialist** (2 person-months / 2 person-months). The experts will have at least a Master's degree or equivalent in infrastructure planning, civil engineering, urban planning or related field. The experts will have at least 10 years of experience with urban infrastructure planning and experience in cooperating in multidisciplinary planning teams working on urban master planning, strategic and business planning. The experts will create a link between infrastructure planning with urban master planning for Darkhan and liaise with the various stakeholders to support integration of initiatives and support institutional capacity development for planning and expansion of services. Specific tasks of the experts include but are not limited to the following:

(i) Review water and wastewater sector infrastructure investment plans, urban master plans and other relevant documents of Darkhan;
(ii) Review previous and current urban and regional economic, land use and transportation master plans for Darkhan and discuss and propose optimization from an integrated infrastructure efficiency perspective;
(iii) Cooperate with planning officers in charge of other sector planning in integrating various technical, environmental, economic and social aspects of development planning and infrastructure planning for Darkhan;
(iv) Contribute to the ongoing planning initiatives with proposals for integrating efficient water and wastewater infrastructure;
(v) Organize and participate in urban-rural infrastructure development planning workshops with local stakeholders, the DAG and the Ministry of Construction and Urban Development and other concerned agencies;
(vi) Review water and wastewater infrastructure expansion plans into existing urban areas including *ger* areas and propose technical and organizational solutions;
(vii) Assist DUS in the development procedures for identifying and prioritizing capital projects and link this process to the preparation of business plans and capital budgets;
(viii) Assist DUS in the development of an emergency preparedness plan to cover

both external (e.g., flood, earthquake), and internal (e.g., power failures, major system failures) emergencies;

(ix) Assist and support with the implementation of the utilities improvement action plan;

(x) Perform activities and contribute to all three outputs specific to the expert's specialty field and contribute the respective sections to the reports; and

(xi) Prepare training materials and provide classroom training and on-the-job training to DAG and DUS staff.

(ii) Capacity Development, Workshops and Training

48. **Workshops and training activities.** The capacity development technical assistance will include workshops and training activities and this will be included in the contract by the consulting firm. The consultants will be proposing and administering these training activities and will coordinate with the ministry to align with other activities of reform and improvement of the water and wastewater utility sector in Darkhan and in Mongolia and ensure that beneficiaries include DAG, DUS, MCUD, PMUD, PMU, as well as other cities and their utility companies to disseminate the model that will be created in Darkhan. These capacity development activities will be coordinated with those of the loan implementation consultants under the guidance of MCUD and DAG. Indicatively, workshops and training under this TA will include the following:

Table 6: Indicative List of Training Program

Training Program	Scope of Training	Trainer	Trainee
Service and Utility Delivery: Institutional Options	• Service Delivery Objectives • Service delivery institutional models • Examples from international experience • The regional and Mongolian context • Separation of regulatory, strategic planning and service delivery roles • Potential role for the *aimag* government, service delivery entity, consumer and private sector	Organizational Development Consultant	MCUD, DAG, DUS
Utility Company Business and Change Management Plan Preparation	• Business plan purpose and structure • Institutional and financial objectives • Change management challenges – corporate governance and management structure, finance, and human resources issues • Transition to a customer-facing organization • Promoting water supply and sanitation services in *ger* areas	Organizational Development Consultant	MCUD, DAG, DUS
Water Supply and Wastewater Management Utilities Planning	• Urban development and service demand projections • Levels of service and affordability issues • Service supply typology and service delivery innovation	Organizational Development Consultant	MCUD, DAG, DUS

Training Program	Scope of Training	Trainer	Trainee
	• Elements of the plan and sequencing		
	• of implementation. • The project cycle and achieving "value for money" in infrastructure investment		
Utility Services Financial Management and Cost Recovery	• Financial management of utility companies • Affordability, cost recovery and tariff regimes and options • Revenue enhancement, debt management and expenditure control • Financing options for capital improvements	Organizational Development Consultant	MCUD, DAG, DUS
Contracting Out: Management, Procurement and Financing Options and Modalities	• Roles for the private sector – form service contracts to divestiture; benefits and risks • Legal and regulatory environment for PPPs in Mongolia Management, operational and financing options involving the private sector in the Mongolian context.	Organizational Development Consultant	MCUD, DAG, DUS
Operation and Maintenance of Water Supply and Wastewater Management Assets	• Operational requirements of systems and facilities – the financial and economic case for asset protection • Definition of preventive, routine and periodic maintenance • Lifetime pricing and assessment of economic lifetime of assets • Facilities management • Maintenance planning and resource allocation • Emergency planning and response • A role for the community – with a focus on decentralized and household level systems	Organizational Development Consultant	MCUD, DAG, DUS
System operation and investment prioritization	• Problem of nonrevenue water and its reduction • Prioritizing network and facilities replacement and rehabilitation needs • Strategy for extension of networks into *ger* areas • Innovate techniques for defraying consumer installation costs	Organizational Development Consultant	
Environmental and Social Considerations	• The importance of environmental, social and safety considerations in investment planning and execution • Government of Mongolia environmental and social policies, legislation regulations and requirements	Organizational Development Consultant	DAG, DUS, Contractors

Training Program	Scope of Training	Trainer	Trainee
	• Involving the community and other stakeholders in project planning execution and operation		
Workshops on Key Institutional Development, Change Management and Human Resource Issues	• Workshops on key aspects of the institutional development and reform process as necessary and from time to time to include: ○ Community involvement in WSS strategies, implementation and management ○ Opportunities for nongovernment and community-based organization involvement in water supply and sanitation in *ger* areas ○ Involving the public – getting the most from public meetings and participation	Organizational Development Consultant	MCUD, DAG, DUS

DAG = Darkhan-Uul *aimag* government, DUS = Darkhan Us Suvag water and wastewater utility company, EMP = environmental management plan, LARP = land acquisition and resettlement plan, LIC = loan implementation consultants engaged under component 3, MCUD = Ministry of Construction and Urban Development, MEGDT = Ministry of Environment, Green Development and Tourism, MNRM = ADB Mongolia Resident Mission, PMU = project management unit, PMUD = project management unit Darkhan office, SAP = social development action plan, WSS = Water Supply and Sanitation.
Source: Asian Development Bank.

(iii) **Deliverables**

49. The consultants will submit the following reports and a policy note: (i) inception report within 1 month from the start of the assignment, focusing on output 1 and outlining outputs 2 and 3, including approach, detailed work plan and implementation schedule; (ii) interim report presenting the initial outputs according to the scope of work, completing output 1 and draft of output 2; (iii) draft final report covering the entire scope of work, completed outputs 1 and 2, and reporting on output 3 activities and progress; (iv) a final report, 2 weeks after receiving comments on the report from the government and ADB; and (v) policy note, summarizing lessons learned and recommendations for up-scaling and replication. All reports will be submitted in English and in Mongolian:

(iv) **Implementation Schedule**

50. The TA will be implemented over a period of 24 months. It is expected to commence on 1 July 2015 and conclude on 30 June 2017.

Table 7: Tentative TA Implementation Schedule

Activities and Milestones	Expected Completion Date
Inception Phase	Q3 2015
Interim Phase	Q4 2015–Q2 2016
Draft Final Phase	Q3 andQ4 2016
Final Phase	Q1 and Q2 2017

Source: Asian Development Bank estimates.

VII. SAFEGUARDS

A. Environment

1. **Environment safeguards due diligence.** The project was classified as category B for environment by the Asian Development Bank (ADB). An initial environmental examination (IEE), including an environmental management plan (EMP), have been prepared by the project preparatory technical assistance consultant on behalf of the Ministry of Construction and Urban Development (MCUD). Domestically, the project was subject to general environmental impact assessment (EIA) by the Ministry of Environment, Green Development and Tourism (MEGDT). The general EIA conclusion has required the preparation of a detailed EIA (DEIA). The DEIA was prepared by a licensed EIA institute (Environ LLC), and its approval is expected in June 2014. The EMP is in **Attachment 1** of this project administration manual (PAM).

2. **Anticipated environmental benefits and impacts.** The project will have substantial environmental and socioeconomic benefits. The strengthening of Darkhan's municipal wastewater collection and treatment capacity will provide protection and improvement to Kharaa River's water environment, which is key to the sustainability of Darkhan's socioeconomic development. The wastewater treatment plant (WWTP) will remove significant amounts of pollutants, including chemical oxygen demand (COD) (3,000 tons per year); biological oxygen demand (BOD) (1,700 tons per year); nitrogen (330 tons per year); and phosphorous (42 tons per year). Findings of the IEE and DEIA show that the project does not have any predicted significant, long term or irreversible impacts on the physical, biological or socioeconomic environment. The project will have short-term impacts during construction which can be mitigated to an acceptable level through mitigation measures which seek to reduce the potential for harm to the environment and human health. Dust and noise generated by sewer line rehabilitation activities will be a nuisance to nearby residents. Discharge of wastewater from construction sites could potentially pollute the Kharaa River. Mitigation measures defined in the EMP relate primarily to implementing good construction practice as well as meeting the particular needs of the project area through consultation with affected people. Good practice through comprehensive training and appropriate technological design will also contribute significantly to reducing the operational impacts of the project.

3. **Wastewater treatment plant operational plans and emergency response.** Although the proposed wastewater treatment process is relatively simple to operate, any large complex wastewater treatment plant (WWTP) requires significant technical expertise and management oversight to ensure proper operations. The volume and wastewater characteristics may vary considerably. There is also a non-negligible risk of accidental release of untreated or partially treated wastewater at the WWTP, due to a possible malfunctioning of the electric, mechanical, or control system, or the failure of the treatment process as a result of shock loads or chronic system overload. This risk has been identified and assessed in the feasibility study report and DEIA. The mitigation measures include (i) retaining of existing pond system with a retention time of approximately 100 days;[1] (ii) provision of dual power supply; (iii) spare parts for key components; (iv) regular inspection and proper maintenance of the WWTP; (v) automated on-line, real-time monitoring of influent and effluent quality; and (vi) an in-house analytical lab will be established prior to operation of the WWTP. The major analytical equipment will include the following: wastewater sampler, pH meter, flow meter, conductivity meter, Ultraviolet-Visible spectrophotometer, dissolved oxygen meter, COD speedy tester, thermostat incubator, electric

[1] This retention time will provide ample time to define corrective actions. Temporary mobile pumps would be deployed to pump untreated wastewater into the wastewater treatment process.

balance, and centrifuge. An emergency preparedness and response plan for the WWTP will be formulated and put in place before the WWTP becomes operational.[2] The emergency preparedness and response plan will address, among other things, training, resources, responsibilities, communication, procedures, and other aspects required to respond effectively to emergencies associated with the risk of accidental discharges at the WWTP. In order to mitigate the risk of potentially toxic wastewater from new industries discharging to the sewer system and affecting WWTP treatment process, MCUD and the Darkhan-Uul *aimag* government (DAG) have confirmed their commitment to enforce the order No a/11/05/A/18 of January 10 1997 which prescribes the "Allowable limits of industrial wastewater composition before letting effluents into the central wastewater system". The project will provide technical advice to Darkhan Us Suvag (DUS) with (i) developing mechanisms to effectively monitor industrial wastewater composition before it enters the public sewer system; (ii) strengthening emergency measures to ensure toxic flows are retained and/or diverted so they do not enter the sewer system; [3] and (iii) advising existing and new industries on optimal technology solutions for their respective industrial processes in case of potential toxic effluents.

4. **Environmental management plan implementation responsibilities.** The EMP specifies the roles and responsibilities of key project stakeholders (including MCUD, the project management unit (PMU), DUS LLC, DAG, the project management unit Darkhan office (PMUD), MEGDT, State Professional Inspection Agency, contractors, and loan implementation environment consultants) in overall environmental management.

(i) MCUD as executing agency has the overall responsibility for compliance with safeguards plans. The **PMU within MCUD** will manage the procurement process, including but not limited to: (i) updating the IEE and EMP after detailed design, including submission to ADB for clearance and web-disclosure; (ii) overseeing incorporation of EMP recommendations into the bidding documents; (iii) ensuring the procurement of environmentally responsible contractors; and (iv) ensuring that DEIA approval by MEGDT has been secured prior to the awarding of civil works contract.

(ii) The PMU will procure the services of **loan implementation environment consultants (LIEC)** to provide support in (i) project preparation including updating the project EMP; (ii) training; (iii) regular environmental quality monitoring (air, surface and ground water, and noise) in compliance with the monitoring plan; (iv) annual project EMP progress reporting; and (v) identifying environment-related implementation issues and necessary corrective actions.

(iii) The **PMUD** will be established under DAG, the implementing agency to handle day-to-day activities under the project. The PMUD will be staffed with at least one safeguard staff (PMUD-SS). Under the guidance of the LIEC, the PMUD-SS will be responsible for the supervision of the implementation of the EMP, including (but not limited to) (i) setting up and coordinating the grievance redress mechanism (GRM, see below); (ii) monitoring contractors to ensure adherence to

[2] Included in the terms of reference of the loan implementation consultant, see Project Administration Manual (PAM) and Appendix to the EMP.

[3] The current system includes an overflow from PS1 conveying wastewater from the industrial zone via an existing channel to a large fly ash containment pond. This emergency system, including online monitoring of industrial wastewaters, will be strengthened through the "MoMo" Phase III project, to be financed by the German Government, and through project output 3 (project implementation support, institutional advice for setting industrial wastewater online monitoring; see Terms of Reference in the Appendix to the EMP)

the project EMP and the contractor EMPs; (iii) preparing quarterly reports on project EMP implementation to the PMU; (iv) coordinating consultation with local stakeholders as required, informing them of imminent construction works, updating them on the latest project development activities, GRM, etc.; (v) coordinating the conduct of periodic environment monitoring by licensed monitoring entities, as defined in the monitoring program; and (vi) preparing together with the loan implementation consultants an emergency preparedness and response plan.

(iv) **Civil works contractors** (3 contracts) will be required to formulate contractor EMPs with complete management systems for adverse impacts, e.g., dust control, noise control, traffic management, addressing as minimum the requirements of the EMP (Appendix EMP) and the DEIA. The contractor EMPs will be renewed on a yearly basis, submitted to the PMUD and PMU for review, and to MEGDT for approval. To ensure that the contractors comply with the EMP provisions, the PMU will prepare and provide the following specification clauses for incorporation into the bidding procedures: (a) a list of environmental management requirements to be budgeted by the bidders in their proposals; (b) environmental clauses for contractual terms and conditions; and (c) the full project EMP and DEIA in Mongolian.

5. **Environment grievance redress mechanism.** Environment safeguards related complaints or disputes will be handled in accordance with the GRM established for the project. The PMUD will coordinate the environment GRM, with support of the LIEC. The GRM is defined in the IEE.

6. **Consultation, information disclosure.** Consultation conducted during the development of the IEE, particularly with Darkhan *aimag* and DUS, demonstrated that the project has local support as it will result in benefits in terms of the long term environmental and social sustainability of Darkhan's WWTP. More than 100 households were interviewed, which confirmed their support to the project. In compliance with the SPS, environmental information related to the Project will be disclosed as follows: (i) the IEE will be disclosed on ADB's project website (www.adb.org), and will be available for consultation in the PMUD's office; (ii) the DEIA approved by MEGDT will be disclosed on the MEGDT website; and (iii) annual reports on project's compliance with the EMP will be available at www.adb.org.

B. Involuntary Resettlement

7. The project is classified as category B for involuntary resettlement as it will not have significant land acquisition and resettlement (LAR) impacts. Based on the extent of LAR impacts, the MCUD PMU together with Darkhan-Uul *aimag* PMUD with assistance of the project preparatory technical assistance consultant prepared a land acquisition and resettlement plan (LARP)[4] for the project. The project will improve the sewerage system of Darkhan City of Darkhan-Uul *aimag* through (i) renewing the central treatment facility, (ii) renovation of pump station of Shine Omnod industrial area and construction of 1.4 kilometers sewerage pipeline which is planned to be constructed on the right side of the railway, (iii) renovation of a second pump station and 50 meters (m) sewerage pipeline, and (iv) 600 m length sewerage pipeline in fifth *bagh* area. In order to minimize resettlement impact, during the detailed design the right-of-way (ROW) of the pipelines will be reduced to 5 m in accordance with the Construction

[4] The LARP has been disclosed on the ADB website.

Standard and Rules of Mongolia for Water Supply, External Networks and Structures BNBD 40-02-06.

8. Based on the preliminary impact survey, only rehabilitation of some sewage pipelines ROW will involve LAR. Other portions will be constructed on either public or possessed land by DUS. A total of 8 entities will be affected, including 2 small enterprises, 3 commercial entities, and 3 state budget institutions. Five affected entities will lose a total of 2711.1 square meters of land. All these losses are partial. Land plots are possessed by the state institutions and private companies. No residential land or structures will be affected by the project. Fences and gates of three entities will be affected totaling 112 m in length. Other affected structures include entrance stairs to the food shop and hair and beauty salon, speed bump, and an advertisement board. Two businesses will experience a temporary impact. A summary of LAR impacts are summarized in table 1.

9. **Implementation arrangements.** The LARP specifies the roles and responsibilities of key project stakeholders (including MCUD, the PMU, DUS LLC, Darkhan-Uul *aimag*, the PMUD, contractors, and loan implementation resettlement consultant [LIRC]) in overall LAR management.

10. The executing agency for the project is MCUD, which will exercise its functions through the PMU located in Ulaanbaatar. The PMU is responsible for all management, communication and coordination work during project preparation and implementation periods. Darkhan-Uul *aimag* has overall responsibility for the LAR of the project. This includes preparation, implementation, and financing of all LAR tasks and cross-agency coordination and linkages. The *aimag* exercises its functions through the PMUD. The PMUD is responsible for planning and implementation of all LAR tasks, including identifying the possessors and occupants of affected land and valuating the properties of APs. The PMUD will be staffed with a Resettlement and social development officer who will work on an intermittent basis. Under the guidance of the national resettlement and social development specialist/LIRC of the loan implementation consultants, the officer will be responsible for the update and implementation of the LARP, including (but not limited to (i) updating the LARP based on detail design and submitting to ADB for clearance before the award of civil works contracts; (ii) setting up and coordinating the GRM jointly with the environment specialist; (iii) monitoring LARP implementation to ensure compliance with the LARP provisions; (iv) preparing semiannual reports on project LARP implementation and submit to MCUD and ADB; and (v) coordinating consultation with affected people, etc. A working group[5] made up of representatives from concerned agencies and chaired by the governor of Darkhan-Uul *aimag* will be established to oversee the project LAR implementation and make high level decisions, including resolving or serving as a final decision-making body for affected person (AP) grievances. With the support of the working group, the PMUD will ensure resettlement safeguard compliance prior to any LAR activities.

11. **Resettlement budget.** The cost estimates for LAR for the project is MNT74,003,000 or $42,928 as of November 2013, including contingencies. Land acquisition, demolition, and restoration activities will be completed prior to the physical construction of the relevant subproject. MCUD/PMU and Darkhan-Uul *aimag* will ensure that sufficient funds are made

[5] Members of the working group for land acquisition are as follows: Governor of Darkhan-Uul *aimag* (Chairman), Governor of *Bagh* (Vice Chairman), land acquisition specialist of PMUD, representative from the Darkhan-Us Suvag, representative from the Property Relations Department, representative from the Land Relations, Construction and Urban Development Department of Darkhan-Uul *aimag*, representatives of the APs, representative from a community-based or nongovernment organization registered by the government, if available.

available in a timely manner.

12. **Involuntary resettlement grievance redresses mechanism.** Resettlement safeguards related complaints or disputes will be handled in accordance with joint GRM established for the project. The PMUD will coordinate the resettlement grievances, under supervision of the PMU, and with support of the LIRC. The working group will serve as the initial committee for grievance redress and will provide a forum for raising objections and holding discussions to resolve complaints. Below is the description of GRM.

(i) **Stage 1:** An aggrieved AP may submit grievances to any member of the working group, who will log a complaint in the grievance action form and request the chairman to call a meeting, where it will be presented, addressed, and resolved within 1 week.
(ii) **Stage 2:** If the grievance is not resolved within 2 weeks from its lodging, the grievance will be submitted to the Land Relations, Construction and Urban Development Department by the working group member of land acquisition department and its resolution is recommended to the *aimag* governor for approval and action within 1 more week.
(iii) **Stage 3:** If still unresolved within another week the *aimag* governor will seek to resolve the issue and initiate action within another week.

13. The above mentioned grievance mechanism does not limit the citizen's rights to submit the case to the court of law at any point in time of the grievance process The affected person may file an appeal about any aspect of resettlement, including compensation rates. Alternatively, the aggrieved person(s) may submit a complaint to the ADB project team to try to resolve the problem. If good faith efforts are still unsuccessful, and if there are grievances that stemmed from a violation of ADB's Safeguard Policy (2009), the affected persons may appeal directly to ADB in accordance with ADB's Accountability Mechanism (2012).

14. The implementation of this LARP will be monitored and reported semiannually. The PMUD resettlement and social development officer with assistance of the LIRC will be responsible for monitoring LARP compliance during implementation and reporting the progress to MCUD and ADB. In addition to the semiannual monitoring reports, the PMU will include the results of LAR internal monitoring in its quarterly progress reports to MCUD and ADB. The project midterm review will include a separate section on the LARP implementation results. Upon completion of LAR activities, the PMU will prepare a resettlement completion report and submit to MCUD and ADB. LARP implementation schedule is presented in Table 2.

Table 1: Summary of Land Acquisition and Resettlement Impacts

No of AP	Name of company/ institutions	Business activity	Impact type		
			Land (m^2)	Building/ structure	Business/ employment
01	"Russian food" Co., LTD	Grocery shop	-	Removal and reestablishment of entrance way	Temporary business loss
02	"Munk-Altangegee" Co., LTD	Beauty salon	-	Removal and reestablishment of entrance way	Temporary business loss
03	"Jiguur" 16th school complex	Secondary school	72	30 m fence, gate and speed bump	
04	Health center II	Healthcare service	121.6	33 m fence and gate	
05	KHAAN Bank	Banking service	200	40 m fence and 16 trees	
06	Local Property Agency	Property registration agency		Removal of an electronic advertisement board	
07	Montech LLC	Unknown	1997.5		
08	"Nogoon burd" Co., LTD	Unknown	320		
	Total	**8**	**2,711.1**		**2 businesses, 7 employees**

Source: Asian Development Bank.

Table 2: Land Acquisition and Resettlement (LARP) Implementation Schedule

	2013		2014 (Qtr)				2015 (Qtr)				2016 (Qtr)				2017 (Qtr)			
Activities	**3**	**4**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**
Preparation of Draft LARP																		
Preliminary infrastructure designs																		
Identification of LAR scope an initial survey of Project impacts																		
LARP drafting																		
Review by ADB																		
LARP Update																		
Establishment of working group																		
Establishment of PMU and PMUD																		
Detailed design																		
Notification of APs and of cut-off date																		
Land and property measurements and valuation surveys																		
Census and socio-economic survey, and identification of vulnerable persons/households																		
AP consultation and disclosure of draft final LARP																		
Preparation of draft final LARP																		
Revision of draft final LARP																		
AP consultation: disclosure of revised draft LARP																		
ADB review and approval																		
Endorsement by DAG																		
Disclosure of approved LARP on ADB website and in AP community																		
LARP Implementation																		
Funding for LAR compensation																		
Conclusion of contractual agreements																		
Disbursement of compensation																		
Acquisition of land and other assets																		
Commencement of civil works																		
Internal monitoring																		

ADB = Asian Development Bank, AP = affected person, DAG = Darkhan-Uul *aimag* government, DUS = Darkhan Us Suvag, LAR = land acquisition and resettlement, LARP = land acquisition and resettlement plan, PMU = project management unit, PMUD = project management unit Darkhan office.
Source: Asian Development Bank.

C. Indigenous Peoples Safeguard (Ethnic Minority)

15. The project is category C for the indigenous peoples safeguard. Ethnic Mongols account for about 99.7% of the population of Darkhan City. The Khalkhs make up 82.8% of the population of the city. The remaining 16.9% includes Duruvud, Bayad, Zakhchin, and Buriad and others. The project components are all focused on urban areas of Darkhan, and the project investments will benefit all residents. No specific communities of ethnic minorities or groups are living separately and no adverse impacts are expected. The due diligence assessment by the TA consultant confirmed that there will be no negative impact on the minority population. No further actions are required.

VIII. GENDER AND SOCIAL DIMENSIONS

1. A poverty and social analysis (PSA) was undertaken during project preparation in accordance with Asian Development Bank (ADB) guidelines. The PSA included a desk review of secondary data, a household survey and focus group discussions, and key informant interviews. The collected information and analysis assisted in the design of the project by identifying the poor and economically vulnerable population, examining causes of poverty and recommending poverty reduction measures within the scope of the project.

A. Social and Poverty Benefits

2. Darkhan City, the center of Darkhan-Uul *aimag*, is the third largest city in Mongolia with 76,400 urban population after Ulaanbaatar and Erdenet. The city is located 220 kilometers (km) north of Ulaanbaatar and 130 km south of the Russian border. Darkhan enjoys favorable conditions for farming and is rich in mineral deposits. It was founded as an industrial hub in 1961, and situates at the Trans-Mongolian rail line and road that connects Ulaanbaatar with Darkhan and the Lake Baikal region. Poverty incidence[1] is significant at 27% citywide and 44% in *ger* areas respectively. It is almost the same as in Darkhan-Uul *aimag* (26.8%) and Central region (26.3%). However, the poverty rate is lower than the national average (29.8%) and higher than in Ulaanbaatar city (23.4%). Poverty is determined by high unemployment rate (14.3 % compare to 8.2% national average) due to migration from other *aimag*s, expansion of *ger* area in Darkhan City and decline of living conditions among city residents. Lack of quality wastewater sanitation services result in poor and unsanitary living conditions in the city and limited interest in economic investment in the area because of underdeveloped conditions. According to the PSA data the current situation of sanitation services has negative impact on both households and businesses. Inefficient operation of the sanitation services increase the probability of waterborne diseases and households' health-related expenditure. Due to sewage pipes regularly filling up and blocking of wastewater, the affected businesses need to spend additional money to improve wastewater and sanitary conditions in their buildings in order to meet the required hygienic standards. The project will directly benefit 12,153 households in the apartment areas and 1,699 public and private entities working in Darkhan City. Indirect beneficiaries of the project are all residents of Darkhan City who will benefit from the project through (i) extension of business activities and job creation in Darkhan City; (ii) improvement of sanitary and health conditions; and (iii) a pleasant ecology and environment for all residents not only in apartment districts, but also in *ger* areas. The project will improve wastewater treatment and management for domestic and industrial users in Darkhan and will create direct short-term employment for construction and indirect long-term income generating opportunities, including industrial development in Darkhan. It will benefit the poor and vulnerable households in the apartment districts by improving their health conditions and reducing health care expenditure due to illness caused by poor water quality and unsanitary environment conditions. It will increase participation of population, especially poor and women, in the city public services' improvement processes. Employment targets for vulnerable groups and women are included in the design and monitoring framework. A social action plan (SAP) was prepared. Implementation and monitoring of SAP is included in the loan assurances.

B. Gender Issues/Analysis

3. The project is classified as Some Gender Elements category. The PSA indicates that the project benefits men and women equally, including improved housing conditions and living

[1] National Statistical Office of Mongolia, 2011.

environment, health benefits, and job creation. However, the project will have some added benefits for women, as they are primarily responsible for disposing of wastewater. Adequate sanitation facilities at the home will ease the burden of women on tasks related to sanitation, health, and hygiene and will likewise reduce medical costs on waterborne and other infectious diseases. According to the PSA results among surveyed households 53% of family members, who are mainly responsible for sanitation issues are women. Therefore, to ensure successful implementation and sustainability of the project it is necessary to organize awareness campaign among project main beneficiaries, namely women. Specific gender actions and targets have been included in the SAP. In regard to women, the project will (i) ensure women's participation in the public awareness campaign on the importance of the project and training on maintaining sanitation facilities in proper ways (40% female participants); (ii) ensure women's participation in tariff increase consultations (40% female participants); and (iii) provide employment opportunities.

C. Social Action Plan

4. The SAP, included as Table 1, will facilitate continued consultation and participation of the local community during the project implementation. Actions include (i) public awareness program on wastewater sanitation and public health issues; (ii) public hearing on wastewater tariff increase; and (iii) targets for employment of local labor, women, and the poor during construction and operation. Its implementation will be monitored through the project performance management system, project progress reports, and ADB missions.

5. **Labor issues.** The project will create about 40 skilled and 30 unskilled construction jobs during rehabilitation of the wastewater treatment plant and sewer pipes; of which 30% of total jobs will be suited to women, and 15% of total jobs made available to the poor and other local vulnerable groups.

6. Core labor standards will be implemented. Civil works contracts will stipulate that (i) local people will be prioritized with respect to employment, (ii) equal wages will be paid for work of equal value and that women's wages will be paid directly to them, (iii) no child or forced labor will be employed, and (iv) all employees will be provided with a written contract in accordance with the format prescribed by the Mongolia national law. The Ministry of Construction and Urban Development, project management unit (PMU), and project management unit Darkhan office (PMUD) will monitor contractors' compliance with these project assurances in conjunction with relevant local municipal departments.

7. **Public health and HIV/AIDS.** In order to avoid potential infectious disease and to ensure health and safety of employees and local residents, the project will mitigate the risk by (i) requiring civil works contractors to raise awareness of HIV/AIDS/sexually transmitted infections and other communicable diseases for construction workers, in contract bidding documents; and (ii) ensuring that HIV/AIDS awareness activities are extended to communities in the vicinity of any camps for construction workers during the period of construction. Contractors should also provide necessary medical and first-aid services to construction workers during construction, and educate them on disease control, especially on infectious diseases such as HIV/AIDS and hepatitis. The PMU/PMUD will monitor and report on the progress and results. Control and prevention of HIV/AIDS/STI is included in the SAP.

The resettlement and social development officer of the PMUD, with the support and advice of the PMU and the loan implementation resettlement consultant, will ensure that SAP is implemented and that achievement of targets and objectives are monitored. The SAP will be

monitored quarterly and reported via quarterly project progress reports and during ADB review missions.

8. **Consultation and participation.** Consultation with communities and public awareness program will be conducted to strengthen wastewater sanitation awareness among residents and industries according to SAP. The project will strengthen also public participation in tariff reform of wastewater. Special attention will be paid to the participation of women and any other vulnerable groups, such as the poor.

TABLE: SOCIAL ACTION PLAN

Activity	Target and Indicators	Responsibility Party	Budget and Cost	Timing
A. Establishing a Public Consultation and Participation Mechanism				
1. Organize public awareness campaign on project benefits through possible channels. 2. Strengthen wastewater sanitation public awareness among residents and industries 3. Public hearing for wastewater treatment tariff	At least 40% of local residents (sex-disaggregated) and 30% of local industries reached Number of campaigns, consultations and workshops (40% residents and 30% industries) Number of public hearings held At least 40% female participants At least 30%of attendees are poor	Darkhan Us Suvag AOAs, BEA CCI EF *Bagh* and *kheseg* leaders/officials Darkhan City Mayor's Office	Awareness training costs included in Project budget	2015–2018
B. Generating job opportunities to increase residents' income				
4. Employment during project construction with a total of 70 positions Ensure employment priority to local people in construction contracts with contractors	At least 30% female laborers in construction At least 15% poor for unskilled labor in construction	Darkhan Us Suvag, PMUD, contractors, *Bagh* and kheseg *leaders*/officials	Included in project civil work cost	2015–2017
5. Ensure training on labor law, job skills, safety, sanitation, etc., to be provided by contractors	100% contracted laborers get training			
6. Control and prevention of HIV/AIDS/STI	100% construction staff and workers get HIV/AIDS/STI counseling and information	PMUD, contractors, sanitation services		

AOA= Apartment Owners' Association, BEA = Business Entrepreneurs Association, CCI= Chamber of Commerce and Industry, EF= Employers' Federation, PMUD = project management unit Darkhan office.

IX. PERFORMANCE MONITORING, EVALUATION, REPORTING AND COMMUNICATION

A. Project Design and Monitoring Framework (Table 1)

Design Summary	Performance Targets and Indicators with Baselines	Data Sources and Reporting Mechanisms	Assumptions and Risks
Impact Improved living conditions and environment in Darkhan *soum* (district) and the Kharaa river basin	**By 2025 (baseline 2013)** Kharaa River quality meets Mongolian ambient surface water quality standard	Government statistics and records Government survey ADB project performance evaluation report	**Assumptions** Mongolia's economic development remains strong. Government's commitment to improve wastewater operation and management remains strong. **Risk** Population growth and industrial development falls significantly behind forecast, reducing demand.
Outcome Improved system of wastewater collection and treatment for domestic and industrial users in Darkhan *soum*	**By 2018 (baseline 2013)** Population served by the improved wastewater collection and treatment system increased from 45,000 to 55,000	DUS operational record Local environmental monitoring station reports ADB PCR	**Assumption** MCUD and DAG remain committed to implement the project and improve wastewater operation and management. **Risk** Government fails to enforce industrial wastewater effluent standards for new industrial users.
Outputs 1. Improved WWTP	**By 2018 (baseline 2013)** WWTP process improved and actual capacity increased from 12,000 m^3/day to 16,000 m^3/day Wastewater effluent meets national standards (i.e., BOD, COD, and nutrients)	Project implementation and monitoring reports ADB review missions ADB PCR	**Assumption** Structural renovation, construction, and installation of new equipment are sequenced properly to ensure continuous wastewater treatment throughout construction. **Risk** Unknown structural and environmental conditions of the existing WWTP result in cost escalations

Design Summary	Performance Targets and Indicators with Baselines	Data Sources and Reporting Mechanisms	Assumptions and Risks
			during structural renovation.
2. Rehabilitated pumping stations and sewer pipes	Two pumping stations operating efficiently, avoiding overflow, and at 10.0% reduction in operating cost	Project implementation and monitoring reports ADB review missions ADB PCR	
3. Project management support and capacity development	New operational and financial management systems launched at DUS (baseline: single entry system) 10 training sessions on financial management, project management, procurement, and O&M of WWTP for at least 20 implementing agency staff of which at least 8 are women Five public awareness events on public health, environmental management, sanitation, and solid waste management attended by 100 residents of which at least 40 are women Tariff increase reviewed, proposed, and considered; affordability analysis conducted; and subsidy mechanism proposed	Project implementation and monitoring reports ADB review missions ADB PCR DAG and DUS customer records DAG and DUS financial records	

Activities with Milestones	Inputs
1. Improved WWTP 1.1 Finalize employer's requirements with assistance from consultants, and procure and award plant: design, supply, and install contract for WWTP (2014–2015). 1.2 Update and implement LARP prior to civil works. 1.3 Design, obtain approval, structurally renovate, construct, and install new equipment; provide operation assistance; and start operation and monitoring of WWTP with capacity of 16,000 m^3/day with peak capacity of 24,000 m^3/day (2015–2016). **2. Rehabilitated pumping stations and sewer pipes** 2.1 Finalize detailed design, obtain permits, and procure contract packages for pumping stations and sewers (2015).	**Loan** **ADB: $18.5 million** **Government: $2.2 million** **Grant Technical Assistance** **Urban Environmental Infrastructure Fund under the Urban Financing Partnership Facility: $400,000**

2.2 Structurally renovate and install new equipment, and start O&M of two pumping stations (2015–2016). 2.3 Replace 1,800 meters of sewer pipes and start operation (2015–2016). **3. Project management support and capacity development** 3.1 Establish PMU, PMUD, and PSCs and all working arrangements, procedures, and responsibilities (2014). 3.2 Recruit consultants to support procurement, project management, capacity development, and policy dialogue (2014–2015). 3.3 Provide project management implementation and monitoring support (2015–2018). 3.4 Assess institutional weaknesses, and prepare and start implementing institutional development plan (2015–2018). 3.5 Provide staff training for executing and implementing agencies, and project management units; and conduct public awareness campaigns (2015–2018). 3.6 Policy dialogue on further institutional improvements, tariff reforms, nonrevenue water reduction, sanitation, solid waste management, and urban and industrial cluster planning (2015–2018). 3.7 Develop and implement WWTP operational plans and emergency preparedness and response mechanism and operational procedures to manage possible accidents discharging toxic industrial wastewater (2015–2018). 3.8 Implement, monitor, and report on EMP, LARP, and SAP (2015–2018).	

ADB = Asian Development Bank, BOD = biological oxygen demand, COD = chemical oxygen demand, DAG = Darkhan-Uul *aimag* government, DUS = Darkhan Us Suvag, EMP = environment management plan, LARP = land acquisition and resettlement plan, m^3/day = cubic meters per day, MCUD = Ministry of Construction and Urban Development, O&M = operation and maintenance, PCR = project completion report, PMU = project management unit, PMUD = project management unit Darkhan office, PSC = project steering committee, SAP = social action plan, WWTP = wastewater treatment plant.
Source: Asian Development Bank.

B. Monitoring

1. **Project performance monitoring.** Within the first 3 months of loan effectiveness, a project performance management system (PPMS) including key indicators will be discussed and established with MCUD and the DAG and DUS. The PPMS will be established with the support from the loan implementation consultants. Disaggregated baseline data for output and outcome indicators gathered during project processing will be updated and reported quarterly through the quarterly project progress reports and after each ADB review mission. These quarterly reports will provide information necessary to update the PPMS.[1] By collecting data from the sources identified in the design and monitoring framework and also the EMP, LARP, and SAP, the PMU and PMUD will be able to report on an annual basis the performance of the project. Specific reporting requirements are described in the loan agreement between ADB and the government. The PMU and PMUD will collect the data, calculate the indicators, analyze the results, and prepare a brief report describing the extent to which the project is generating the intended outputs and outcomes, as well as the overall impact on Darkhan and the Kharaa River. On the government side, the PMU and PMUD will be overseen by a project steering committee (PSC) under MCUD with representatives from national agencies and the Darkhan-Uul *aimag* government. The PSC will meet at least once in every 6 months until project completion and will

[1] ADB's project performance reporting system is available at: http://www.adb.org/Documents/Slideshows/PPMS/default.asp?p=evaltool

review the progress and performance of the project during and after implementation. PMU and PMUD will frequently perform site inspections to monitor performance, impacts, and benefits during implementation and closely monitor risks and mitigation measure effectiveness.

2. **Safeguards monitoring.** The government and MCUD will ensure that laws and regulations of Mongolia governing safeguards, as well as ADB's Safeguard Policy Statement (2009) are followed. MCUD will ensure that all works contracts under the project incorporate provisions and budgets for safeguards plans implementation. A PMU will be established in MCUD. The PMUD will include full-time social and environment staff members responsible for social and environmental aspects of the project, respectively.

(i) **Resettlement plan monitoring.** Monitoring for LARP implementation will be carried out semiannually during the implementation of the resettlement plan. The PMUD Resettlement and Social Development officer with assistance of the loan implementation resettlement consultant will be responsible for monitoring LARP compliance during implementation and reporting the progress to MCUD and ADB. In addition to the semiannual monitoring reports, the PMU/PMUD will include the results of LAR internal monitoring in its quarterly progress reports to MCUD and ADB. The project midterm review will include a separate section on the results of LARP implementation. The PMUD is responsible for updating and managing LARP implementation and taking actions to handle the day-to-day issues. At the end of the project, the PMU/PMUD will prepare a resettlement completion report and submit to MCUD and ADB. Internal monitoring and evaluation methodology is specified in the LARP.

(ii) **Environmental management plan monitoring.** During construction, civil works contractors will develop contractor environment management plans (C-EMP) with environmental management and internal supervision systems based on the project EMP and the detailed environmental impact assessment, undertake self-check activities, and fully cooperate with the environmental inspectors of the Darkhan-Uul Department of the State Professional Inspection Agency. Contractors will submit monthly EMP implementation reports to the PMUD and PMU. Project EMP implementation coordination and verification for the construction period will be carried out routinely by the PMUD with the support of the services of the loan implementation environment consultant. Professional organizations and laboratories will be contracted by the PMU to conduct periodic environmental impact monitoring covering soil, air, surface and ground water, and noise. These organizations will submit semiannual monitoring reports to the PMU as well as the *aimag* environmental authorities of Darkhan-Uul. The results of project EMP implementation and environmental impact monitoring will be communicated to ADB through the annual project EMP progress reports, and summarized in the quarterly project implementation reports. The annual project EMP progress reports will be disclosed on the ADB website, and submitted to the Ministry of Environment, Green Development and Tourism, environmental inspectors of the Darkhan-Uul Department of the State Professional Inspection Agency, and *aimag* environmental authorities of Darkhan-Uul.

3. **Gender and social dimensions monitoring.** Monitoring the SAP will be incorporated into the PPMS. Clear targets and indicators have been established for monitoring purposes and some indicators are also captured in the design and monitoring framework. Assistance will be provided to the PMU and PMUD by the loan implementation resettlement/social consultant who

will set up an effective monitoring system and work with focal points in the PMU and PMUD to ensure timely and quality implementation of SAP. The SAP will be monitored quarterly and reported via quarterly project progress reports and during ADB review missions. Progress and results will be reported in annual reports, midterm review report, and project completion report.

C. Evaluation

4. ADB and the government will jointly review the implementation of the project once a year, covering a detailed evaluation of the scope, implementation arrangements, institutional, administrative, technical, economic, financial, achievement of scheduled targets, and other relevant aspects that may have an impact on the performance of the project. The review will examine the implementation progress and compliance with assurances in the loan agreement. Feedback from the PPMS activities will be analyzed. Within 6 months of physical completion of the project MCUD will submit a project completion report to ADB.[2]

D. Reporting

5. MCUD will provide ADB with (i) quarterly progress reports in a format consistent with ADB's project performance reporting system; (ii) consolidated annual reports including (a) progress achieved by output as measured through the indicator's performance targets, (b) key implementation issues and solutions, (c) updated procurement plan, and (d) updated implementation plan for next 12 months; and (iii) a project completion report within 6 months of physical completion of the project. To ensure projects continue to be both viable and sustainable, project accounts and the executing agency audited financial statements, together with the associated auditor's report, should be adequately reviewed.

6. **Environmental safeguards reporting.** Environmental monitoring and inspection activities and findings shall be documented for purposes of reporting, recording, verifying, referring on, and evaluating the environmental performance of the project. The documentation shall also be used as basis in correcting and enhancing further environmental mitigation and monitoring. Semiannual environmental monitoring reports will be reviewed and cleared by ADB and disclosed on the ADB website. Environmental monitoring reports shall be prepared as follows:

(i) **Monthly internal progress reports by the contractors** during construction, submitted to the PMUD. These monthly reports will include (i) physical construction progress; (ii) mitigation measures implemented; (iii) grievances received, resolved, closed, and/or directed to other mechanisms; (iv) emergencies responded to; and (v) corrective actions taken.

(ii) **Semiannual environmental impact monitoring reports by licensed monitoring institutes/laboratories** to report on the results of environmental quality monitoring as specified in the EMP. The reports will include the analysis results and assessment of compliance/noncompliance with Mongolian and international standards.

(iii) **Annual EMP progress reports, by the loan implementation environment consultant on behalf of PMUD/PMU** to be submitted to the ADB and the Ministry of Environment, Green Development and Tourism to comply with environmental agreement in the loan and Mongolian Law on environmental

[2] Project completion report format is available at: http://www.adb.org/Consulting/consultants-toolkits/PCR-Public-Sector-Landscape.rar

impact assessment. The annual EMP progress report will not only report on the progress and results of environmental monitoring and compliance of EMP implementation but will also briefly (i) assess the effectiveness of instituted measures; (ii) point out violation/s, if any; (iii) assess/recommend corrective actions; and (iv) cite any coordination made for corrective actions and, if applicable, certifications for having instituted them effectively. It shall also feature possible innovative mitigation measures applied by the contractor, operator, or affected residents themselves, and other lessons learned in EMP implementation. These will be useful in adjusting the EMP to adapt to real ground situations. Proposed adjustments/enhancement of the EMP must have prior ADB approval.

7. **Resettlement reporting.** Land acquisition and resettlement activities and results shall be recorded and reported semiannually during land acquisition and resettlement activities and any key issues or milestones will be included in the quarterly progress reports. The reporting shall also be used as basis for corrective measures as needed. Semiannual resettlement monitoring and evaluation reports will be disclosed on the ADB website after review by MCUD and ADB.

8. **Other social reporting.** Reporting of implementation of the SAP shall be prepared quarterly and be included in the quarterly project progress reports. Progress and results will be reported in annual reports, midterm review report, and project completion report.

Table 2: Summary of Key Reporting Requirements

Report	Reference	Frequency and Timing
Project Performance Reporting		
• Project performance management system reports (PPMS)	LA, PPMS including baseline and progress data	Established no later than 3 months after loan effectiveness; used for all monitoring reports
Progress Reporting		
• Quarterly progress reports	LA, PPMS	Quarterly, within one month after the end of each quarter
Financial Performance Reporting		
• Audited project accounts and financial statements auditor's report	LA, PPMS, incl. auditor's opinion on use of imprest fund and statement of expenditures	Not later than six months after the closure of fiscal year (30 June)
Environmental Safeguards Reporting		
• Monthly internal progress reports by the Contractors	LA, PPMS, IEE, EMP, DEIA, contract covenants	Monthly
• Semiannual environmental impact monitoring reports by licensed monitoring institutes/laboratories	LA, PPMS, IEE, DEIA	Semiannual until project completion report is issued
• Annual EMP progress reports	LA, PPMS, EMP, Mongolian Law on EIA	Annual
Resettlement Safeguards Reporting		
• Semiannual LAR monitoring reports	LA, PPMS, LARP	Semiannual, and key issues and milestones included in quarterly project progress reports
• Resettlement completion report		Within six months LAR project completion
Social Reporting (other)		
• Social action plan implementation report	LA, PPMS, SAP	included quarterly project progress reports

Report	Reference	Frequency and Timing
Project Completion Reporting		
• Project completion report	LA, PPMS, RRP, all above reports, review mission MOUs, statistics and surveys	No later than six months after project completion

DEIA = detailed environmental impact assessment, EIA = environmental impact assessment, EMP = environmental management plan, IEE = initial environmental examination, LA = Loan Agreement, LARP = land acquisition and resettlement, MOU = memorandum of understanding, PPMS = project performance management system, RRP = report and recommendation of the President, SAP = social action plan.
Source: Asian Development Bank.

E. Stakeholder Communication Strategy

9. The PMU with support of consultants will undertake consultations with key stakeholders. Communication with stakeholders will be managed by the PMU environmental and/or social safeguards specialist. The PMU will ensure local stakeholders are consulted, that information on the project is disseminated, and that questions and complaints are addressed quickly and effectively.

10. **Resettlement plan.** All affected persons and municipal governments have been involved in the project impact and social-economic survey. Through meetings, interviews, focus group discussions, public consultation workshops, and community consultation meetings, local representatives have participated in the planning and concerns have been integrated into the resettlement plan. Before implementation, Darkhan-Uul *aimag* PMUD will further discuss and consult with the representatives of the affected persons the impacts and detailed compensation plan to ensure affected persons' interests are protected. Darkhan-Uul *aimag* PMUD have disclosed the draft resettlement plan in offices and to affected people in the local language. The resettlement plan is posted on the ADB website. Resettlement information booklets are distributed to affected households. This booklet contains information such as the affected project area, proposed land acquisition and rehabilitation progress and procedure, compensation standards for land acquisition. The implementing agency will be responsible for supervision of implementation, continued public consultation, monitoring of progress, and response to grievances. The grievance redress mechanism will be established and steps are included in the resettlement information booklets.

11. **Social action plan.** Consultations with communities have taken place and will continue at different points in the implementation of the SAP within the project, and will be designed not only to inform people about the project specific activities related to its implementation, but also to enable people in the community to ask questions, make suggestions, state preferences, and express concerns. Special attention will be paid to the participation of women and any other vulnerable groups, such as the poor. Public awareness program on wastewater sanitation and public health issues, and public hearing on wastewater tariff increase will be conducted as part of the SAP. SAP will be monitored and reported quarterly.

12. **Environmental management, health, sanitation, and solid waste management.** Public awareness campaigns on environmental management, health, sanitation, and solid waste management will be organized by the PMUD with the support of consultants. The campaigns will educate and sensitize residents on ecosystem health, river ecology, sanitation options in *ger* areas. The participation program will promote behavior change eliminating illegal waste dumping, increasing hygiene and adapting to improved sanitation solutions and septage management and eliminating ground water pollution from unmanaged pit-latrines.

X. ANTICORRUPTION POLICY

1. ADB reserves the right to investigate, directly or through its agents, any violations of the Anticorruption Policy relating to the project.[1] All contracts financed by ADB shall include provisions specifying the right of ADB to audit and examine the records and accounts of the executing agency and all Project contractors, suppliers, consultants and other service providers. Individuals/entities on ADB's anticorruption debarment list are ineligible to participate in ADB-financed activity and may not be awarded any contracts under the Project.[2]

2. To support these efforts, relevant provisions are included in the loan agreement and the bidding documents for the project. In particular, all contracts financed by ADB in connection with the project shall include provisions specifying the right of ADB to audit and examine the records and accounts of the executing and implementing agencies and all contractors, suppliers, consultants, and other service providers as they relate to the project. In relation to the project, the executing and implementin agencies will ensure that (i) a supervisory body is established for prevention of undue interference in business practices, and adequate resources are made available for its effective operation; (ii) a leading group of officials from the supervision division of the executing and implementing agencies is located in offices involved in bidding, installation, and other operational activities under the project; and (iii) periodic inspections on the contractor's activities related to fund withdrawals and settlements are carried out. The executing and implementing agencies shall also initiate liaison meetings with the Prosecutor's Office, as needed, to discuss any warnings about, or information on, alleged corrupt, fraudulent, collusive, or coercive practices relating to the investment program.

3. The executing and implementing agencies will disclose to the public, and update annually the current status of the project and how the proceeds of the project are used. For each contract financed under the project, the executing and implementing agencies will disclose on their respective websites information on, among others, the (i) list of participating bidders; (ii) name of the winning bidder; (iii) basic details on bidding procedures and procurement methods adopted; (iv) amount of contract awarded; (v) list of goods/services, including consulting services procured; and (vi) intended and actual utilization of the facility proceeds.

[1] Available at: http://www.adb.org/Documents/Policies/Anticorruption-Integrity/Policies-Strategies.pdf
[2] ADB's Integrity Office web site is available at: http://www.adb.org/integrity/unit.asp

XI. ACCOUNTABILITY MECHANISM

1. People who are, or may in the future be, adversely affected by the project may submit complaints to ADB's Accountability Mechanism. The Accountability Mechanism provides an independent forum and process whereby people adversely affected by ADB-assisted projects can voice, and seek a resolution of their problems, as well as report alleged violations of ADB's operational policies and procedures. Before submitting a complaint to the Accountability Mechanism, affected people should make a good faith effort to solve their problems by working with the concerned ADB operations department. Only after doing that, and if they are still dissatisfied, should they approach the Accountability Mechanism.[1]

[1] For further information see: http://www.adb.org/Accountability-Mechanism/default.asp.

XII. RECORD OF PAM CHANGES

1. All revisions/updates during course of implementation are retained in this Section to provide a chronological history of changes to implemented arrangements recorded in the PAM.

No.	PAM changes/updates	Date	Remarks
1	Initial Draft	30 April 2014	First draft provided to executing agency during fact-finding mission
2	First Agreed Draft	10 November	Draft agreed by the Asian Development Bank and the government
3	Update the name of the executing agency from MRTCUD to MCUD and change “PIU” to “PMUD” (PMU Darkhan office) and formatting changes.	20 April 2014	Revised upon approval of the minor change memo; Loan and project agreements also updated before signing

APPENDIX: ENVIRONMENTAL MANAGEMENT PLAN

A. Objectives

1. This environmental management plan (EMP) has been prepared for the ADB supported Darkhan Wastewater Management Project, in line with ADB's SPS 2009. Specific measures are developed in relation to the design, construction and operation of each project component and the impacts identified in relation to physical, biological, cultural and socio-economic resources, as discussed in Section VI (Anticipated Impacts and Mitigation Measure) of the Initial Environment Examination (IEE).

2. The environmental management plan (EMP) for the project defines mitigation and monitoring measures and describes the institutions, responsibilities and mechanisms to monitor and ensure compliance. Such institutions and mechanisms will seek to ensure continuous improvement of environmental protection activities during preconstruction, construction, and operation of the project in order to prevent, reduce, or mitigate adverse impacts. The EMP draws on the domestic EIA and on discussions had with the relevant government agencies. The EMP will be reviewed and updated if there are any changes to the detailed design. The final IEE and EMP will be disclosed on ADB's website following any required updates.

B. Roles and Responsibilities

3. **Project Steering Committee (PSC).** The state-level PSC has been established for the Urban Sector Development Project for Mongolia (Loan 2301-MON) and will continue to provide overall policy guidance on the project and will have full powers to take decisions on matters relating to Project execution. The Project Coordinator is the Member Secretary and the committee is chaired by the State secretary of Ministry of Construction and Urban Development. Members of the committee include the Director Ministry of Economic Developments, Director Ministry of Finance, representatives of the MEGDT and Industry and the *aimag* government of Darkhan-Uul. Once the Project is made effective, the PSC will meet at regular intervals (at least once every 3 months) to review project performance and take decisions on major issues, such as, counterpart funding, implementation bottlenecks, land disputes, special procurement, policy reforms, etc. Reports on EMP implementation will be provided to the Steering Committee by the Executing Agency (EA).

4. **Executing Agency (EA)**. The Ministry of Construction and Urban Development (MCUD) will be the EA of the Project. The EA has overall responsibility for the project and therefore is ultimately responsible for ensuring the implementation of the mitigation in the EMP and for ensuring compliance with loan covenants.

5. **Project Management Unit (PMU)**. The existing PMU of the Urban Sector Development Project for Mongolia (Loan 2301-MON) will extend its existing responsibilities to include the Project. The PMU will continue to be headed by a Project Coordinator (PC). The PMU will reside in the EA and supports the EA in its duties. The PMU will manage the procurement process. With regard to EMP implementation, the PMU will (with the support of the LIEC) do the following: (i) updating the IEE and EMP after detailed project design; (ii) overseeing incorporation of EMP recommendations into the

bidding documents; (iii) ensuring the procurement of environmentally responsible contractors; (iv) ensuring that DEIA approval by MEGDT has been secured prior to the awarding of civil works contract.

6. **Implementing Agency (IA)**. Implementation of the WWTP improvements for Components A and B will be carried out by the Darkhan-Uul *aimag* government with assistance from MCUD.

7. **Project Management Unit Darkhan Office (PMUD).** A PMUD will be established under Darkhan-Uul *aimag* government and in Darkhan Us Suvag, headed by a senior engineer or technical specialist experienced in environmental engineering, wastewater management construction and equipment installation, as the PMUD Project Director. The PMUD will handle day-to-day activities under the project. The PMUD will be staffed with at least one safeguard staff (PMUD-SS). Under the guidance of the LIEC, the PMUD-SS will be responsible for the supervision of the implementation of the EMP, including (but not limited to) (i) setting up and coordinating the grievance redress mechanism (GRM, see below); (ii) monitoring contractors to ensure adherence to the project EMP and the contractor EMPs; (iii) preparing quarterly reports on project EMP implementation to the PMU; (iv) coordinating consultation with local stakeholders as required, informing them of imminent construction works, updating them on the latest project development activities, GRM, etc.; and (v) coordinating the conduct of periodic environmental compliance monitoring by licensed monitoring institutes (laboratories), as defined in the monitoring program.

8. **Role of Darkhan Us Suvag.** As the water undertaking, Us Suvag will continue to provide technical support to Darkhan-Uul *aimag* but will not have direct responsibilities for EMP implementation unless otherwise directed by the *aimag* government.

9. **LIEC**. The Project will procure the services of loan implementation environment consultants (LIEC) to provide support in (i) project preparation including updating the project EMP; (ii) training; (iii) regular environmental quality monitoring (air, surface and ground water, and noise) in compliance with the monitoring plan; (iv) annual project EMP progress reporting; and (v) identifying environment-related implementation issues and necessary corrective actions. The Terms of Reference for the LIEC is provided in the **Attachment to the EMP**.

10. **Civil works contractors** (3 contracts) will be required to formulate contractor EMPs with management systems for adverse impacts, e.g., dust control, noise control, traffic management, addressing as minimum the requirements of this EMP and the DEIA. The contractor EMPs will be renewed on a yearly basis, submitted to PMUD and LIEC for review, and to MEGDT for approval. Each civil work contractor will appoint an environment, health and safety officer (EHSO) to coordinate contractor EMP implementation. To ensure that the contractors comply with the EMP provisions, the PMU with the help and technical support of LIEC, will prepare and provide the following specification clauses for incorporation into the bidding procedures: (a) a list of environmental management requirements to be budgeted by the bidders in their proposals; (b) environmental clauses for contractual terms and conditions; and (c) the full EMP in Mongolian. The contractor will also fully cooperate with the environmental inspectors of the Darkhan Uul Department of the State Professional Inspection Agency (SFIA). Contractors will submit monthly contractor EMP implementation reports to the PMUD, and provide information including reports, monitoring results or other information relating to EMP implementation as requested by the PMUD, PMU, and LIEC.

C. Project Readiness Indicators

11. Table EMP-1 presents the Readiness Indicators which provide a measure of whether environmental commitments are being carried out and environmental management systems are in place before pre-construction.

Table EMP-1: Readiness Indicators Pre-Construction

Indicator	Measurement Methods	Measurement	
Surface water and effluent quality baseline monitoring	• Monitoring completed by Darkhan *Aimag* Meteorological Office and Us Suvag Water Laboratory	Yes	No
Environmental Supervision in place	• PMUD in position before construction, with PMUD-SS appointed	Yes	No
	• GRM established	Yes	No
Bidding documents and contracts with environmental safeguards	• Bidding documents and contracts incorporate the environmental loan assurances	Yes	No
	• Bidding documents and contracts incorporate the EMP mitigation and monitoring requirements	Yes	No
EMP financial support	• The fund from ADB and/or the Government of Mongolia is in place to support the EMP implementation.	Yes	No
Contract documents	• Environmental requirements of EMP included in contract documents for civil works construction contractors.	Yes	No
	• Contractor EMPs developed and submitted to PMUD and LIEC	Yes	No

Source: ADB Study Team

12. Performance indicators for monitoring environmental performance in relation to key project risks and impacts during construction are set out in **Table EMP-2.**

Table EMP-2: Performance Indicators During Construction

Indicator	Measurement Methods	Measurement	
Stakeholder Interviews	• Quarterly interviews with stakeholders in project area, submitted to Darkhan-Uul *aimag* (by PMUD-SS)	Yes	No
Water and Effluent Monitoring	• Quarterly monitoring results submitted to Darkhan-Uul *aimag* environment authorities (by PMUD-SS)	Yes	No
Health and Safety Reporting	• Monthly reports submitted to Darkhan-Uul *aimag* environment inspectors (by contractors)	Yes	No
EMP Implementation	• PMUD monitors mitigation implementation and confirms compliance, reporting quarterly to PMU	Yes	No

Source: ADB Study Team

D. Environment Impact Mitigation Plan

13. This section describes the potential environmental issues and impacts during the detailed design, pre-construction, construction and operation phases of the project, as identified during the Initial Environmental Examination (IEE), as well as corresponding mitigation measures designed to minimize the impacts. The recommended mitigation measures consist of actions, activities, plans and documents (including resettlement/compensation plan, environmental approval documents, Contractor EMP) that need to be undertaken, observed, obtained, prepared to prevent, mitigate, or compensate for, the salient adverse impacts enumerated in Chapter IV of the IEE. The broad measures are outlined below; while the specific measures are presented in the Environmental Mitigation Plan (**Table EMP-7**):

- Ensuring the engagement of environment-responsible Contractors by incorporating the SPS-

compliant Project EMP into the bidding documents, for use as basis in the preparation of the Contractor's C-EMP by the selected Contractors. C-EMP to be quantitatively and qualitatively evaluated against the Project EMP and cleared by the PMUD-SS and the LIEC prior to the commencement of any work on site, and sent to MEGDT;

- Quality construction supervision by the PMUD, and environmental monitoring by licensed monitoring institutes (to be contracted by the PMUD through the LIC budget);

- Observance of the grievance redress mechanism and prompt action/ resolution of lodged grievances.

14. The Environmental Mitigation Plan points out that most measures are the usual good engineering practices. The effectiveness of the measures will be evaluated based on the results of the environmental monitoring and inspection to determine whether they should be continued or improvements should be made. Improvements need to be confirmed through stipulated environmental management procedures.

E. Environmental Training Requirements

15. The Terms of Reference for the LIEC state that she/he will be responsible for providing EMP specific training during project implementation. The focus will be on the *aimag* officers, PMUD and PMU staff and the contractors regarding EMP implementation. Training on specific issues associated with operation of the WWTP will be provided to Us Suvag and appropriate *aimag* staff by the technology provider. Additional budget is provided to allow external technical specialists to deliver requested specific relevant training in order to develop Institutional Capacity.

Table EMP-3: Training Requirements

Training Participant and Provider	Topic	Timescale	Cost
Participants: *aimag* staff, *bagh* representatives, Us Suvag, PMUD and PMU staff **Provider**: LIEC	- Use and purpose of GRM - ADB requirements for GRM - GRM procedure	Pre-construction phase	$500
Participants: *aimag* staff, contractors, Us Suvag, PMUD and PMU staff **Provider**: LIEC	- EMP: Purpose, scope, and contractor responsibilities - Purpose and implication of EMP updates or revisions	Pre-construction phase	$500
Participants: Us Suvag, *aimag* meteorological office, other licensed monitoring institutes **Provider**: LIEC	- Environmental monitoring for EMP - purpose, requirements and data analysis - Agreement on monitoring program	Pre-construction	$1,000
Participants: As required, e.g. Us Suvag, *aimag* meteorological office, *aimag* environment inspectors, PMUD and PMU staff **Provider**: External Experts if required	Example training if required: - Environmental mitigation activities for construction, - Construction good practice, - Waste management	As needed	$3,000

Training Participant and Provider	Topic	Timescale	Cost
Participants: Us Suvag and *aimag* staff **Provider**: WWTP technology provider	- Operation and maintenance of WWTP	Pre-operation phase	Outside IEE - included in WWTP costs (contract package A1)
Total			***$5000***

Source: ADB Study Team

F. Environmental Monitoring

16. Civil works contractors will develop contractor environment management plans (C-EMP) with environmental management and internal supervision systems based on the approved project EMP and the DEIA, undertake self-check activities and fully cooperate with the environmental inspectors of the Darkhan Uul Department of the State Professional Inspection Agency (SFIA). Contractors will appoint environment, health and safety officers (EHSO), who will submit monthly EMP implementation reports to the PMUD. Project EMP implementation coordination and verification for the construction period will be carried out routinely by the PMUD through its safeguards specialist (PMUD-SS) with the support of the services of the loan implementation environment consultant (LIEC). Professional organizations and laboratories will be contracted by the PMUD (through the LIEC) to conduct periodic environmental compliance monitoring covering soil, air, surface water, sludge and noise. These organizations[37] will submit semiannual monitoring reports to the PMUD, LIEC as well as the *aimag* environmental authorities of Darkhan Uul. The results of project EMP implementation and environmental impact monitoring will be communicated to ADB through the annual project EMP progress reports, and summarized in the quarterly project implementation reports. The annual project EMP progress reports will be disclosed on the ADB website, and submitted to MEGDT, environmental inspectors of the Darkhan Uul Department of the State Professional Inspection Agency (SFIA), and *aimag* environmental authorities of Darkhan Uul. The project monitoring requirements for are set out in Table EMP-4.

Table EMP-4: Project Monitoring Requirements

Environmental Media/Issue	Location, Parameters, Monitoring Technique	Responsibility and Frequency
Pre-Construction Phase		
Project readiness	• **Method:** Review of Project Readiness based on indicators in Table EMP-1 • **Parameters:** Table EMP-1	PMUD-SS, LIEC Once before construction
Surface water and Effluent quality	• **Method, Location:** Kharaa River, 50 m upstream and 200m downstream of WWTP effluent outfall; WWTP effluent. • **Parameters:** Temperature, Suspended particles, pH, dissolved oxygen, chemical oxygen demand, biological oxygen demand, faecal coliforms (according to laboratory capabilities in Darkhan, including laboratory in Us Suvag)	Darkhan *Aimag* Meteorological Office, Us Suvag Central Water Lab Once before construction
Construction Phase		
Soil erosion	• **Method, Location:** Visual inspection; along pipe trenches, wastewater treatment plant construction footprint; • **Parameters:** adequacy of soil erosion prevention measures; adequacy of soil contamination prevention techniques;	EHSO - Weekly; LIEC – three times during construction period (April, July, October)

[37] Laboratories will include: Darkhan *Aimag* Meteorological Office; and the Us Suvag Central Water Laboratory;

Environmental Media/Issue	Location, Parameters, Monitoring Technique	Responsibility and Frequency
Soil contamination (compliance monitoring)	• **Method, Location:** Soil sampling and chemical analysis; effluent pipeline outlet, sludge pond, wastewater treatment area. • **Parameters:** heavy metals (Cr, Pb, Cd, Ni, Zn);	Licensed monitoring institute (contracted by PMUD) Twice per year (April, October)
Solid and liquid waste management	• **Method, Location:** Visual inspection of all active construction sites. • **Parameters:** Adherence to Site Waste Management Plan and Construction Camp Management Plan.	EHSO – Weekly; LIEC – three times during construction period (April, July, October)
Occupational health and safety	• **Method, Location:** Visual inspection and interviews with construction workers and contractors at active construction sites • **Parameters:** (i) adherence to the Environmental, Health and Safety Management Plan (EHSMP); (ii) worker complaints and concerns and recorded incidents.	EHSO – Weekly; LIEC – three times during construction period (April, July, October)
Community health and safety and GRM	• **Method, Location:** Visual inspection of all active construction sites, informal interviews with nearby residents. • **Parameters:** (i) availability of information on GRM; (ii) adequacy of construction site signage and fencing; (iii) adequacy of relevant mitigation measures; (iv) accidents involving public and workers; (v) emergencies and responses; (v) public complaints about issues such as noise, air pollution, construction site safety;	PMUD – Monthly LIEC – three times during construction period (April, July, October)
Surface water and effluent quality (compliance monitoring)	• **Method, Location:** Kharaa River, 50 m upstream and 200m downstream of WWTP effluent outfall; WWTP effluent. • **Parameters:** Temperature, Suspended particles, pH, dissolved oxygen, chemical oxygen demand, biological oxygen demand, faecal coliforms (according to laboratory capabilities in Darkhan, including laboratory in Us Suvag)	Licensed monitoring institute (contracted by PMUD) Twice per year (April, October)
Air quality (compliance monitoring)	• **Method, Location:** WWTP site, Output 2 Old Darkhan Hospital, School No. 16 and *gers* at Secondary and New South pumping stations. • **Parameters:** SOx, NOx, PM10	Licensed monitoring institute (contracted by PMUD) Twice per year (April, October)
Air Quality – dust	• **Method, Location:** Visual observation of dust at receptors/dwellings near construction sites. Observations to record if dust generated by construction activities crosses property boundaries. • **Parameters:** Fugitive dust emissions	EHSO – Weekly; LIEC – three times during construction period (April, July, October)
Noise (compliance monitoring)	• **Method, Location:** WWTP site, Output 2 Old Darkhan Hospital, School No. 16 and *gers* at Secondary and New South pumping stations. **Parameters:** Db(A) at receptors (dwellings) outside and inside if possible.	Licensed monitoring institute (contracted by PMUD) Three times per year (April, July, October)
Interview with APs	• **Method, Location**: Interview with potentially affected people (AP) adjacent to construction sites including street vendors, near Old Darkhan market/hospital and Getsogdarjaalin Monastery monks • **Parameters:** Discussion on environmental and socio-economic issues.	PMUD – Monthly Three times per year (April, July, October)

Environmental Media/Issue	Location, Parameters, Monitoring Technique	Responsibility and Frequency
EMP Compliance	• **Method, Location:** Review of project's adherence with EMP and loan covenants • **Parameters:** EMP and loan covenants	MCUD, LIEC, ADB – Annually
Construction Completion and Operation Phase		
Post-construction site inspection	• **Method, Location:** Visual inspection, post-construction environmental condition assessment at each construction site. • **Parameters:** Performance checked against the management plans submitted before construction for specific aspects such as aggregate, borrow pit and spoil management plan.	PMUD-SS, LIEC – Once after completion
WWTP effluent quality	• **Method, Location:** Automated monitoring, WWTP effluent point. • **Parameters:** COD, BOD, TKN, TP, (online); NH4-N, SS, EC, pH (parameters of MNS 4943:2011)	Us Suvag Central Water Lab – Daily (online monitoring); WWTP onsite laboratory
Sludge quality	• **Method, Location:** Sludge drying beds • **Parameters:** Heavy metals, ammonia, nitrate, phosphorous, faecal coliforms (according to laboratory capabilities in Darkhan, including laboratory in Us Suvag)	Us Suvag Central Water Lab – Weekly
Air quality (noise, odors)	• **Method, Location:** At boundary of WWTP, effluent point, sludge beds, pumping stations. • **Parameters:** dB(A), H_2S, NH_3.	Central Laboratory of Environment, Darkhan – Quarterly
Kharaa River water quality	• **Method, Location:** Water quality monitoring, 50m ustream and 200m downstream of effluent discharge point. • **Parameters:** Temperature, DO, SS, NH_3N, TN, TP, BOD_5, COD_{Cr}, sulfate, nitrate, chloride, oils.	Us Suvag Central Water Lab - Monthly

Source: ADB Study Team, DEIA.

G. Environmental Reporting

17. Environmental monitoring and inspection activities and findings shall be documented for purposes of reporting, recording, verifying, referring on and evaluating the environmental performance of the Project. The documentation shall also be used as basis in correcting and enhancing further environmental mitigation and monitoring. Environmental monitoring reports (EMRs) shall be prepared as follows (see also Table EMP-5):

(i) Monthly internal progress reports by the Contractors during construction, submitted to the PMUD and LIEC. These monthly reports will include; (i) physical progress of the component; (ii) mitigation measures implemented; (iii) grievances received, resolved, closed and/or directed to other mechanisms; (iv) emergencies responded to; and (v) corrective actions taken.

(ii) Semiannual environmental impact monitoring reports by licensed monitoring institutes/laboratories to report on the results of environmental quality monitoring as specified in the EMP. The reports will include the analysis results and assessment of compliance/non-compliance with Mongolian and international standards.

(iii) Annual EMP progress reports, by the LIEC (on behalf of PMUD/PMU) to be submitted to the ADB and MEGDT to comply with environmental agreement in the loan and Mongolian Law on EIA. The Annual EMP progress report will not only report on the progress and results of environmental monitoring and compliance of EMP

implementation but will also briefly: (i) assess the effectiveness of instituted measures; (ii) point out violation/s, if any; (iii) assess/recommend corrective actions; and (iv) cite any coordination made for corrective actions and, if applicable, certifications for having instituted them effectively. It shall also feature possible innovative mitigation measures applied by the Contractor, Operator or affected residents themselves, and other lessons learned in EMP implementation. These will be useful in adjusting the EMP to adapt to real ground situations.

Table EMP-5: Project Reporting Requirements

Report From	Report To	Purpose	Frequency
Contractor	Darkhan *aimag*, PMUD	Progress with EMP Implementation	Monthly
PMUD (PMUD-SS)	PMU	Progress with EMP Implementation	Quarterly
PMU	ADB	Project progress reports	Quarterly
Licensed monitoring institutes	PMU, PMUD, *aimag* environmental authorities of Darkhan Uul	Environment monitoring results (air, noise, water, soil, sludge)	Semiannually
LIEC (PMUD/PMU)	ADB	EMP progress reports	Annually

Source: ADB Study Team

H. EMP implementation cost estimates

18. The mitigation measures related to construction works, which will be shouldered and budgeted by contractors, amounts to approximately 1.5% of the construction costs (150,000 USD). The environmental mitigation and monitoring measures requiring a specific budget outside the civil works contracts are shown in **Table EMP-6**.

Table EMP-6: EMP Budget

Item	Estimated Cost $USD[a]
Loan Implementation Environment Consultant (6pm)	$ 20,000
PMUD safeguards staff (salary costs, 12pm)	$40,000
Environmental Monitoring by licensed monitoring institutes	$ 50,000
EMP-related training, consultation	$ 5,000
Transportation, Reporting, Translation	$ 10,000
Total	**$125,000**

[a] Included in component 3 cost estimates
Source: Asian Development Bank estimates.

Table EMP-7: Environmental Mitigation Plan

Issue	Location/ Component	Mitigation	Timeframe	Estimated Cost $ USD	Implemented by	Supervised/ approved by
Pre-Construction						
Strengthen local capacities to implement EMP	PMUD Office	Establish PMUD, appoint PMUD safeguards staff (PMUD-SS); Contract licensed environment monitoring institute (LMI); Contract loan implementation environment consultant (LIEC).	Tender Preparation	No additional cost	PMO, PMUD	ADB
Updating EMP	N.A.	Mitigation measures defined in this EMP will be updated and incorporated into the detailed design to minimize adverse environmental impacts.	Tender Preparation	No additional cost	PMUD, LIEC	ADB
Provide comprehensive and responsive complaints process	PMUD office	Development and implementation of Grievance Redress Mechanism (GRM)	Pre-Construction (1 month before construction commences)	No additional costs	PMUD, LIEC	PMU, ADB
EMP contractual obligations	3 civil works contracts	Tender and contract documents to include EMP obligations	Tender Preparation	No additional cost	MCUD (PMU)	ADB
Contractor EMP	3 civil works contracts	Preparation of Contractor Environmental Management Plans (C-EMPs), which shall include sub-plans, including Health and Safety Management Plan (HSMP), Soil Erosion Management Plan, Aggregate/Borrow Pits and Spoil Management Plan, Spill Management Plan, Hazardous and Non-Hazardous Waste Management Plan, Water Protection Management Plan.	Pre-Construction (approval 1 month before construction commences)	Included in contractor costs	Contractor	PMUD-SS, LIEC, *aimag* environment inspector
Environment monitoring	All construction sites	Develop detailed monitoring plan for construction period covering water, soil, air, noise, health and safety, and contract licensed monitoring institutes to conduct the monitoring during project implementation.	Pre-Construction (1 month before construction commences)	LIC budget	PMUD, LIEC	PMU, ADB
Consultation	Output 2	Consultation with Monastery, School No. 15, Old Darkhan Hospital, street vendors and affected residents regarding construction timing and approach.	Pre-construction	No additional cost	PMUD-SS, LIEC	PMU, ADB

Issue	Location/ Component	Mitigation	Timeframe	Estimated Cost $ USD	Implemented by	Supervised/ approved by
Utilities Interruption	3 civil works contracts	Consult relevant *aimag* departments to confirm location of utilities for each site	Pre-construction	Included in contractor costs	Contractor	PMUD-SS, LIEC
Construction Phase: Physical Resources						
Soil Resources – Erosion	All sites	- develop soil erosion management plan as part of the C-EMP before construction starts; - minimize the area of soil clearance; - maintain slope stability at cut faces by implementing erosion protection measures; - construction in the flood plain (tertiary pipe at Secondary Pumping Station) should be mainly restricted to the dry season; re-seed to re-vegetate with appropriate species of local provenance including cover on tertiary pipe; stock-proof fencing along length of pipe to ensure animals do not erode soil covering. - control silt runoff particularly around tertiary pipe at Secondary Pumping Station; - cover soil stockpiles; - properly stabilize slopes and re-vegetate disturbed surfaces; and - use of temporary berms or other appropriate temporary drainage provisions at construction sites to prevent water eroding cut faces, stockpiles and other exposed areas of soil.	During construction	Included in contractors costs	Contractor	PMUD-SS, LIEC, environment inspector
Soil Resources – Contamination	All sites	- Develop Spill Management Plan as part of the C-EMP; - Properly store hazardous chemicals and wastes on hard standing with containment tray or bunding. - Keep a stock of absorbent materials (e.g. sand, earth or commercial products) onsite to deal with spillages and train staff in their use. - Ensure wastes from spill management are suitably disposed of. - Record any spill events and actions taken in environmental monitoring logs and report to	During construction	Included in contractor's costs	Contractor	PMUD-SS, LIEC, environment inspector

Issue	Location/ Component	Mitigation	Timeframe	Estimated Cost $ USD	Implemented by	Supervised/ approved by
		PMUD-SS and *aimag* environment inspector. - Remove all construction waste from the site to approved waste disposal sites.				
Soil Resources – Borrow and spoil	Borrow and spoil disposal sites	- Develop and implement borrow and spoil management plan (as part of C-EMP), specifying location of borrow pits, quarries and spoil disposal sites; - ensure that borrow areas are located away from residential areas, water bodies and valuable pasture/grazing land; - after use, grade borrow and spoil areas to ensure drainage and visual uniformity, and - borrow pit restoration must follow the completion of works in full compliance with all applicable standards and specifications; -	During construction	Included in contractor's costs	Contractor	PMUD-SS, LIEC, environment inspector
Air quality - Dust	All construction sites	- Manage stockpile areas to avoid mobilization of fine material, cover with tarpaulin and/or spray with water. - Fill material should be delivered to construction sites in a damp condition - Water sprays or a dust suppression agent should be correctly applied to reduce dust emissions and reduce water usage - Any raw material spills should be removed promptly - Do not overload trucks transporting earth materials. - Equip trucks transporting earth materials with covers or tarpaulin to cover loads during transport. - Install wheel washing equipment or conduct wheel washing manually at each exit of the works area to prevent trucks from carrying mud onto public roads. - Immediately clean up all mud on public roads. - Frequent watering of unpaved areas and excavations to suppress dust. - Adjust practices as necessary to increase dust suppression if nomadic herders relocate	Throughout construction	No additional cost	Contractor	PMUD-SS, LIEC, environment inspector

Issue	Location/ Component	Mitigation	Timeframe	Estimated Cost $ USD	Implemented by	Supervised/ approved by
		to be near construction sites, such as more frequent watering of stockpiles and roads - Regularly inspect and certify vehicle and equipment emissions and maintain to a high standard. - Concrete batching or asphalt (or other pavement surface) plants to be sited at least 500 m from the nearest dwelling and locate downwind.				
Surface Water Quality	Central WWTP (Output 1)	- Adequate WWTP capacity will be maintained at all times throughout rehabilitation in accordance with the rehabilitation stage plan.	Throughout construction	No additional cost	Contractor for A1	PMUD-SS, LIEC, environmen t inspector
Surface Water Quality	Output 2 Tertiary pipe; secondary pumping station	- Temporary drainage provision will be provided during construction - Contaminated water will be removed off-site for disposal in the facilities identified in the Construction Site Management Plan	Throughout construction	No additional cost	Contractors for A2.1 and A2.2	PMUD-SS, LIEC, environment inspector
Surface and Groundwater Quality	All construction sites	- Develop and implement contingency plans for control of spills of oil and other hazardous substances (Spill Management Plan); - Fuel storage, maintenance shop and vehicle cleaning areas must be stationed at least 300m away from the nearest water body and will include enclosed drainage to ensure contaminated water does not cause pollution and storage, maintenance and cleaning activities will be on hard standing; - -Enclosed drainage around chemical storage areas on construction sites and storage will be on hard standing. - Construction wastes and materials (e.g. fuel) will be properly contained during construction on hard standing and fuel tanks will be located in a bunded area which has a capacity of 110% of the fuel tank. Wastes will be stored in a hard standing area which is protected from rain and wind and waste removed from site and taken to approved disposal facilities.	Pre-construction and during construction	No additional cost	Contractors	PMUD / MCUD
Waste Management	All sites	- Waste Hierarchy to be the guiding principal in the Waste Management Plan and Borrow	Pre-construction and during construction	Included in contractors costs	Contractors	PMUD-SS, LIEC,

Issue	Location/ Component	Mitigation	Timeframe	Estimated Cost $ USD	Implemented by	Supervised/ approved by
		and Spoil Management Plan; - Document consideration of waste prevention and reuse through procurement options if feasible; - Provide appropriate covered waste storage containers for all wastes and adequately segregate hazardous and non-hazardous waste streams; - Install confined storage points of solid and liquid wastes away from sensitive receptors; - Regularly haul wastes to an approved disposal facility as agreed with *aimag* authorities if appropriate; - If waste is removed by a third party, ensure the contractor is approved by the *aimag* authorities; - Contractors to be responsible for proper removal and disposal of any significant residual materials, wastes and contaminated soils prior to construction camp site handover; - Spoil will not be disposed of on slopes or near pasture land where it may impact on vegetation; - Rehabilitate and restore spoil disposal sites in accordance with the agreed plan. - Prohibit burning of waste at all times - Waste Management Plan to include (i) PCB assessment and management plan for all pumping station sites (ii) scope for long term storage of hazardous liquid waste (including PCB containing oils) which requires high temperature incineration - Prohibit burning of waste at all times; - Schedule of disinfection for each waste storage area to be implemented.				environment inspector
- Construction Phase: Socio-economic Resources						
Cultural Heritage	Output 2 (Old Darkhan Hospital site-Getsogdarjaalin Monastery)	- Maintain dialogue with Getsogdarjaalin Monastery monks during construction; - Feedback corrective mitigation actions to PMUD as required.	During Construction	Included in PMUD staff costs	PMUD-SS Contractors	PMUD-SS, LIEC, environment inspector

Issue	Location/ Component	Mitigation	Timeframe	Estimated Cost $ USD	Implemented by	Supervised/ approved by
Health and Safety: Noise	All sites	- Schedule construction activities, avoid noisy equipment working concurrently; - Avoid construction works from 1800hrs to 0800hrs - If night time construction needed, consult nearby residents beforehand for their consensus; - Locate sites for rock crushing, concrete mixing and other noisy activities at least 200m away from sensitive noise receptors which are present at the time of set-up; - Provide notices for advance warning of excavation works particularly for school and hospital on timing of noisy activities; - Ensure GRM information is disseminated; - All construction workers to use appropriate Personal Protective Equipment for protection against damage from noise.	Throughout construction	No additional cost	Contractors	PMUD-SS, LIEC, environment inspector
Pasture Land – Economic Resource	Output 2 - Tertiary pipe at secondary pumping station; and new south pumping station	- Spoil is to be disposed of only in areas delineated in the Aggregate and Spoil Management Plan which should avoid productive pasture land. - GRM will be signposted at each of the sites in order for those with grazing animals to contact the project if they have a problem with the construction works. - Notices in advance of construction work will be put up to warn residents, including owners of animals, that the work will commence including start/end dates and details of work.	During Construction	Included in contractor costs	Contractor	PMUD-SS, LIEC, environment inspector
Health and Safety: Construction site safety	All sites	- Clear signs placed at construction sites in view of the public, warning people of potential dangers such as moving vehicles, hazardous materials and excavation and raising awareness on safety issues - Heavy machinery will not be used after day light and all such equipment will be returned to its overnight storage area/position before night; - All sites, particularly pipe excavations will be made secure, discouraging access by	During Construction	Included in contractor costs	Contractors	PMUD-SS, LIEC, environment inspector

Issue	Location/ Component	Mitigation	Timeframe	Estimated Cost $ USD	Implemented by	Supervised/ approved by
		members of the public through fencing or security personnel, whenever appropriate; - Specific notices will be issued to the School Number 16, opposite Old Darkhan Hospital (Output 2) in order to inform children about construction site safety; - Road safety awareness signage - road users and pedestrians made aware of changes to traffic flows through clear signage.				
Health and safety - temporary traffic safety	Output 2, Old Darkhan Hospital - main road	- Consult and maintain dialogue with relevant *aimag* authority on the timing of the road excavation, including departments responsible for transport and traffic police; - Signage to warn motorists of when the road closure will be operational; and - Use of appropriate traffic signals if alternate line traffic is required to maintain access along the road.	During Construction	Included in PMUD and contractor costs	PMUD-SS Contractor	PMUD, LIEC, environment inspector
Occupational Health and Safety	All sites	- An Environment Health and Safety Officer (EHSO) will be hired or nominated to implement and supervise a Health and Safety Management Plan (HSMP); - HSMP implementation will be monitored by the EHSO and all incidents recorded and report with corrective actions identified.	During Construction	Included in contractor costs	Contractor	PMUD-SS, LIEC, environment inspector
- Operation Phase						
WWTP treatment performance	WWTP, Kharaa River	- Prior to commissioning of the WWTP, conduct a series of tests to ensure proper functioning of the WWTP and ability to achieve Mongolian discharge standard; - Install SCADA system including wastewater quality monitoring devices for real-time monitoring of key parameters (COD, TP, NH4-N); - Institute daily check, repair and maintenance procedures for all wastewater treatment steps; - Provide hands-on training to Us Suvag staff to make sure that capacities to operate, monitor and maintain the new facilities are created;	During commissioning and of operation	Included in construction costs	Design-construct-commission contractor; Us Suvag	Darkhan *aimag,* PMU

Issue	Location/ Component	Mitigation	Timeframe	Estimated Cost $ USD	Implemented by	Supervised/ approved by
		- Conduct regular WWTP effluent monitoring and Kharaa River water quality monitoring b (at least monthly) to confirm compliance with national ambient water quality standard (MNS 4586:1998) and Standard for wastewater discharge to water bodies (MNS 4943:2011).				
Risks of Accidents, Emergency Preparedness	WWTP, Kharaa River	- Retain existing pond system with a retention time of approximately 100 days for temporary retention of accidental discharge; - Provide dual power supply and spare parts for key components; - Conduct regular inspection and proper maintenance of the WWTP; - Install automated on-line, real-time monitoring of influent and effluent quality; - Establish onsite analytical lab prior to operation of the WWTP (wastewater sampler, pH meter, flow meter, conductivity meter, UV/VIS spectrophotometer, DO meter, COD speedy tester, thermostat incubator, electric balance, and centrifuge). - Formulate and implement emergency preparedness and response plan before the WWTP becomes operational. The emergency preparedness and response plan shall address, among other things, training, resources, responsibilities, communication, procedures, and other aspects required to respond effectively to emergencies associated with the risk of accidental discharges. -	During Commissioning and Operation	Included in detailed design and construction contract	Contractor, Us Suvag	Darkhan *aimag environment inspector*, PMU
Odor from WWTP	WWTP (intake screen, influent pump room, fine screen, main reactor, sludge filter press house, and sludge drying beds)	- Equip odor generating facilities with ventilation or odor containment; - Locate sludge filter press indoor with ventilation and odor removal facilities; - Institute daily check, repair and maintenance of all wastewater treatment facilities/equipment; - Conduct regular monitoring of H2S and NH3;	During operation	Included in Us Suvag operation budget	Us Suvag	Darkhan *aimag environment inspector*

Issue	Location/ Component	Mitigation	Timeframe	Estimated Cost $ USD	Implemented by	Supervised/ approved by
Noise	WWTP, pumping houses	- Design building walls with sufficient thickness and acoustic measures such as barriers or sound absorbing materials; - Conduct regular noise monitoring to confirm compliance with the national ambient noise standard (MNS 4585:2007).	During Design and Operation	Included in Us Suvag operation budget	Us Suvag	Darkhan *aimag environment inspector*
Pipe design and maintenance	Rehabilitated pipes (under output 2)	- Adequate layering and packing of earth around the tertiary pipe in order to protect it from cold weather. The depth of the material to be advised by a cold weather engineering specialist; - Maintenance and repair of stock proof fencing either side of the tertiary pipe in order to protect it from trampling by grazing stock, thus maintaining its integrity; - Us Suvag to regularly inspect all pipes and to implement repairs if required	During Operation	Included in Us Suvag operation budget	Us Suvag	Darkhan *aimag environment inspector*
Sludge management	WWTP	- Dewater WWTP sludge through a filter press to max. 80% moisture content; - Dispose sludge cake in the existing (but rehabilitated) sludge drying beds, - Monitor sludge quality, investigate alternative options for beneficial sludge.	During Operation	Included in Us Suvag operation budget	Us Suvag	Darkhan *aimag environment inspector*
Industrial pre-treatment of wastewater	Existing and future industries	- Take action to enforce the order No a/11/05/A/18 of January 10 1997 which prescribes the “Allowable limits of industrial wastewater composition before letting effluents into the central wastewater system”; - Ensure proper monitoring of pre-treatment systems is in place at all wastewater contributing industries; - Develop mechanisms to effectively monitor industrial wastewater composition before it enters the public sewer system; - Establish emergency measures at industry level to enable toxic flows to be contained so does not enter the sewer system; - Advise existing and new industries on optimal technology solutions for their	During Operation	Included in Us Suvag operation budget	Us Suvag	Darkhan *aimag environment inspector*

Issue	Location/ Component	Mitigation	Timeframe	Estimated Cost $ USD	Implemented by	Supervised/ approved by
		respective industrial processes in case of potential toxic effluents.				
Occupational health and safety	WWTP, pumping stations	- Use safety shoes or boots with non-slip soles; - Wear personal protective equipment and chemical resistant clothing to avoid exposure of skin or eyes to corrosive and/or polluted solids, liquids, gases or vapors; - Post safety instructions in each workshop regarding the storage, transport, handling or pouring of chemicals; - Check electrical equipment for safety before use; verify that all electric cables are properly insulated; take faulty or suspect electrical equipment to a qualified electricity technician for testing and repair; - Wear safety goggles in all cases where the eyes may be exposed to dust, flying particles, or splashes of harmful liquids; - Wear respiratory mask in the sludge dewatering and de-odor workshops and when moving and transporting sludge; - Obey all safety instructions concerning entry into confined spaces, e.g., check atmosphere for oxygen or for poisonous gases, use respiratory protection equipment if needed, have a co-worker stand guard in case of need for help, etc; - All workers will undergo periodic examinations by occupational physician to reveal early symptoms of possible chronic effects or allergies; and - Health and safety will be incorporated into the regular staff training programs.	During Operation	Included in Us Suvag operation budget	Us Suvag	Darkhan *aimag environment inspector*
Climate risk (adaptation)	WWTP, sewer network	- Climate proofing of civil works structures (WWTP foundation works) accounting for possible changes in soil moisture that could cause ground subsistence; - Assess annually the need to adjust WWTP and pipe network maintenance budget to	During Operation	Included in the design-build contract for the WWTP	Us Suvag	Darkhan *aimag environment inspector*

Issue	Location/ Component	Mitigation	Timeframe	Estimated Cost $ USD	Implemented by	Supervised/ approved by
		account for increased maintenance requirements resulting from climate change.				