ATTACHED TECHNICAL ASSISTANCE: DARKHAN URBAN UTILITY INSTITUTIONAL IMPROVEMENT ACTION PLAN

A. Introduction

1. The capacity development technical assistance (TA) is designed to enhance the sustainability of an Asian Development Bank (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 toward corporatization of utility service management. The government requested ADB consideration of TA support attached to the proposed Darkhan Wastewater Management Project loan.[1] The scope, outputs, implementation arrangements, cost estimate, financing arrangements, and outline terms of reference for consultants were discussed and agreed. The TA will be implemented over 24 months from 1 July 2015 to 30 June 2017, and will cover the utility service sector in Darkhan.[2]

2. **Context.** Darkhan-Uul *aimag* (province) is Mongolia's third largest province, with a registered population of 92,000 and an urban population in Darkhan *soum* (district) of 76,400,[3] of which an estimated 40.0% live in *ger* (traditional tent) areas.[4] Darkhan 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.[5] Few industrial investments have been made since the 1990s. Darkhan-Uul's gross domestic product doubled from 2010 to 2013 and is transforming into an urban economy, with the service sector growing from 29.4% to 41.9% of the gross domestic product during that period. To strengthen development of second-tier cities and to mitigate migration 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.

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[1] The TA was requested during the ADB TA review mission in February 2014 and reiterated during the ADB pre-fact-finding mission from 21 April to 2 May 2014 The request came from the former Ministry of Construction and Urban Development which became the Ministry of Roads, Transportation, Construction and Urban Development (MRTCUD) per Parliament approval on 7 October 2014 in coordination with the Darkhan-Uul *aimag* government (DAG).

[2] The TA first appeared in the business opportunities section of ADB's website on 11 November 2014.

[3] An additional transient population accounts for about 8,000 that is being added for calculations.

[4] Based on Darkhan Land Administration Office estimates.

[5] 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 Mongolia's three largest cities—Ulaanbaatar, Erdenet, and Darkhan).

3. **Wastewater management and water supply in Darkhan.** The city's wastewater treatment plant (WWTP), and the sanitary sewer system and pumping stations, were built in 1965, and degraded despite partial expansion in 1987.[6] They are in urgent need of structural rehabilitation or replacement. The WWTP was significantly overdesigned, with a capacity of 50,000 cubic meters per day (m^3/day), and never fully utilized. It 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. Of the total 223 km of sewer pipes, 65.0% were built in 1965, and since 2010 domestic funding 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 in the form of on-plot pit latrines, causing soil and groundwater pollution. 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. Industrial pretreatment plants remove toxic elements (e.g., from sheepskin processing). A slight temperature and precipitation increase is expected as a result of climate change. The frequency of droughts and floods and the resulting variability of Kharaa River water flow, which drains into Lake Baikal, is projected to increase.[7] Breakdowns of the wastewater collection and treatment system cause untreated water to discharge into the groundwater and the Kharaa River. The existing WWTP will rapidly deteriorate and fail, as the remaining life of the facility has been estimated at 2 years. Moreover, planned and anticipated urban and industrial growth cannot be served by the existing system.

4. **Water and wastewater utility management issues.** Darkhan Us Suvag (DUS) joint stock company is majority-owned by Darkhan-Uul *aimag* government (DAG). It is the public utility service organization in charge of water supply and wastewater management in the city. An assessment of institutional, financial, operational, and customer relations management identified a range of weaknesses: (i) lack of strategy and vision to operate as a corporate entity and expand the services and client base; (ii) water and wastewater tariffs below cost recovery of operations and maintenance, with an annual loss of about $400,000; (iii) ineffective billing and collection system; (iv) lack of service delivery and client orientation; (v) high rate of nonrevenue water; (vi) increasing number of technical failures reported; (vii) inefficient facilities operation causing high electricity consumption; and (viii) outdated equipment and facilities using outdated technology.[8]

B. Outputs and Key Activities

5. The TA is designed to study and address weaknesses and to promote a reform of the vision, strategy, financial, technical, and managerial aspects toward increased effectiveness and efficiency and stronger customer orientation of urban utility service provision in Darkhan. The TA impact will be improved quality of urban services in Darkhan. The TA outcome will be financially and technically sustainable, customer-oriented provision of water and wastewater services delivered by a strengthened utility company in Darkhan. The TA will produce three outputs developed through carrying out the following key activities:

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[6] 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.

[7] The Kharaa river basin has a dry winter continental climate with an annual mean temperature of about 0°C and 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.

[8] The ADB-administered Water Financing Partnership Facility provided support for the Darkhan Wastewater Management Project, financing consultant input for preparation of the proposed loan project.

Output 1: Institutional, financial, management, and operation performance assessment:

(i) analyzing strengths, weaknesses, opportunities, and threats; and political, economic, social, technological, legal, and environmental aspects of DAG and DUS public utility service office;
(ii) assessing the capacity and performance of planning and delivery of water supply and wastewater in Darkhan, including organization and management, lines of responsibility and reporting, resource mobilization arrangements, investment planning and budgeting, business planning, and accounting;
(iii) assessing human resources development, technical and financial aspects, and managerial skills availability and training needs;
(iv) assessing mechanisms for tariff setting, pro-poor tariff subsidies, billing and collection, customer relations, marketing, and customer orientation practices;
(v) reviewing and analyzing sector reform progress and investment programs at the national and local levels, including strengthening the implementation capacities of the national-level Water Services Regulatory Commission;
(vi) conducting case studies for domestic and international good practice of water and wastewater service provision; and
(vii) identifying constraints to institutional improvements.

Output 2: Darkhan urban utility institutional improvement action plan:

(i) strategy, including short-term incremental improvements and medium- to long-term institutional reform;
(ii) vision for financially sustainable, customer-orientated, utility company;
(iii) plan for improving corporate governance, including considerations of possible future private sector participation;
(iv) plan for improving management and organizational structure, clarifying lines of responsibilities;
(v) plan for training staff and developing human resources;
(vi) plan for improving operation and maintenance, reducing nonrevenue water, and promoting technical innovation;
(vii) plan for improving tariff setting mechanisms, billing system, and collection effectiveness;
(viii) plan for improving and expanding services, increasing the client base within existing urban areas, including *ger* areas;
(ix) plan for improving coordination and integration of utility service infrastructure planning with overall urban development planning, and facilitating smooth expansion to new urban and industrial development areas;
(x) emergency preparedness and response plan; and
(xi) plan for exploring possible inclusion of further utility service provision as one-stop-solution, including central heating and electricity following the example of Erdenet, Mongolia.

Output 3: Capacity building, training, and action plan implementation support:

(i) implementing and phasing schedule of the action plan;
(ii) providing hands-on consulting support, integrated within the work force, enabling and assisting DAG and DUS in implementing the action plan, focusing on prioritized aspects;
(iii) delivering capacity building, and classroom and on-the-job training in key disciplines such as accounting, budgeting, tariff setting, billing and collection,

customer relations, human resource development, management, and others as needed for DAG and DUS;

(iv) developing and arranging for DAG and DUS, and in coordination with the loan implementation consultants, one overseas study tour to utility companies that demonstrate good practice on all aspects of management; and

(v) liaising with and complementing ADB-supported twinning program between Fairbanks, Alaska, in the United States (US) and Darkhan on wastewater operation and management practices.[9]

C. Cost and Financing

6. The TA is estimated to cost $430,000, of which $400,000 will be financed on a grant basis by the Urban Environmental Infrastructure Fund under the Urban Financing Partnership Facility and administered by ADB.[10] The government will provide counterpart support in the form of counterpart staff, office accommodation, office supplies, secretarial assistance, domestic transportation, and other in-kind contributions.

Table 1: Cost Estimates and Financing Plan
($'000)

Item	Amount
A. Asian Development Bank[a]	
1. Consultants	
a. Remuneration and per diem	
i. International consultants	200.0
ii. National consultants	75.0
b. International and local travel	25.0
c. Reports and communications	10.0
2. Training, seminars, and conferences	60.0
3. Surveys	10.0
4. Contingencies	20.0
Total	**400.0**

Note: The technical assistance (TA) is estimated to cost $430,000, of which contributions from the Asian Development Bank are presented in the table above. The government will provide counterpart support estimated at $30,000 in the form of counterpart staff, office accommodation, office supplies, secretarial assistance, domestic transportation, and other in-kind contributions. The value of government contribution is estimated to account for 7.5% of the total TA cost.

[a] Financed by the Urban Environmental Infrastructure Fund under the Urban Financing Partnership Facility and administered by the Asian Development Bank.

Source: Asian Development Bank estimates.

D. Implementation Arrangements

7. The Ministry for Roads, Transportation, Construction and Urban Development (MRTCUD) will be the executing agency of the TA. MRTCUD's office of the director general of the Housing and Public Utilities Policy Implementation and Coordination Department will be responsible for coordinating TA implementation. The project management unit that will be established under the proposed loan will be responsible for overall management of the TA. The project steering committee, chaired by the state secretary of MRTCUD and comprising officials from the state government, DAG, representatives of civil society, and the private sector, will provide guidance on TA implementation. DAG will be the implementing agency. The project

[9] ADB. 2008. *Technical Assistance for Knowledge and Innovation Support for ADB's Water Financing Program*. Manila (RETA 6498). Proposed Water Operators Partnership between DUS Joint Stock Company (Mongolia) and Golden Heart Utility (US) in Fairbanks, Alaska.

[10] Financing partner: the Government of Sweden.

implementation unit in Darkhan, which will be established to implement the proposed loan, will also implement the TA. Implementation will be overseen by the Darkhan project steering committee and by the project working group comprising members from the local government, DUS, and civil society. Training and workshops will be included in the consultant's contract and are detailed in the project administration manual.[11]

8. An overview of the required consulting services is summarized in Table 2 and described in detail in the project administration manual (footnote 11).

Table 2: Summary of Consulting Services

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.

9. An international consulting firm will be engaged using the quality- and cost-based selection method with a standard quality:cost ratio of 90:10 in accordance with ADB's Guidelines on the Use of Consultants (2013, as amended from time to time).

10. **Workshops and training activities.** The TA will include in the contract with the consultant firm workshops and training activities targeted at DAG and DUS. The consultants will assess training needs, propose a training and workshop program and administer and carry out the training activities, and coordinate them with the ministry's other activities of reform and improvement of the water and wastewater utility sector in Darkhan and other cities in Mongolia. At least two workshops will include participants from other cities and utility operating companies in Mongolia to ensure dissemination of lessons from the model that will be created in Darkhan. Indicatively, workshops and training events will cover topics on service and utility delivery; institutional options; utility company business and change management plan preparation; water supply and wastewater management utilities planning; utility services financial management and cost recovery; contracting out management, procurement, and financing options and modalities; operation and maintenance of water supply and wastewater management assets; system operation and investment prioritization; environmental and social considerations; workshops on key institutional development; change management and human resource management; and an arrangement of a study tour to cities that demonstrate best practices in all aspects of water and wastewater utilities management in northern regions of Asia, Europe, and the US. The study tour will be targeting DAG and DUS, and coordinated with the loan implementation consultants. The budget of the tour is included in the loan implementation consultant budget.

[11] Project Administration Manual (accessible from the list of linked documents in Appendix 2).