Report and Recommendation of the President to the Board of Directors

Project Number: 42184-024
April 2016

Proposed Loan for Additional Financing and Administration of Technical Assistance Grant Mongolia: Southeast Gobi Urban and Border Town Development Project

Asian Development Bank

CURRENCY EQUIVALENTS
(as of 1 March 2016)

Currency unit	–	togrog (MNT)
MNT1.00	=	$0.0004926
$1.00	=	MNT2,030

ABBREVIATIONS

ADB	–	Asian Development Bank
EIRR	–	economic internal rate of return
FIRR	–	financial internal rate of return
GDP	–	gross domestic product
IFAS	–	integrated fixed-film activated sludge
m^3/day	–	cubic meter per day
MCUD	–	Ministry of Construction and Urban Development
PMU	–	project management unit
PUSO	–	public utility service organization
SDR	–	special drawing right
TA	–	technical assistance
WWTP	–	wastewater treatment plant

GLOSSARY

aimag	–	provincial administrative unit in Mongolia
aimag center	–	*aimag* capital
ger	–	traditional felt tent
khural	–	citizens' representative committee
soum	–	administrative subunit of *aimag*
soum center	–	*soum* capital

NOTES

(i) The fiscal year of the government ends on 31 December.

(ii) In this report, "$" refers to US dollars.

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CONTENTS

PROJECT AT A GLANCE

1. Basic Data — **Project Number:** 42184-024

Project Name	Southeast Gobi Urban and Border Town Development Project (additional financing)	**Department /Division**	EARD/EASS
Country	Mongolia	**Executing Agency**	Ministry of Construction and Urban Development
Borrower	Government of Mongolia		

	2. Sector	**Subsector(s)**	**ADB Financing ($ million)**
✓	**Water and other urban infrastructure and services**	Urban sewerage	19.43
		Total	**19.43**

3. Strategic Agenda	**Subcomponents**	**Climate Change Information**	
Inclusive economic growth (IEG)	Pillar 2: Access to economic opportunities, including jobs, made more inclusive	Climate Change impact on the Project	Low
Environmentally sustainable growth (ESG)	Environmental policy and legislation Urban environmental improvement		

4. Drivers of Change	**Components**	**Gender Equity and Mainstreaming**	
Governance and capacity development (GCD)	Institutional development	Some gender elements (SGE)	✓
Partnerships (PAR)	Foundations Official cofinancing		

5. Poverty Targeting		**Location Impact**	
Project directly targets poverty	No	Rural Urban	Low High

6. Risk Categorization: Low

7. Safeguard Categorization **Environment:** B **Involuntary Resettlement:** C **Indigenous Peoples:** C

8. Financing

Modality and Sources	**Amount ($ million)**
ADB	**19.43**
Sovereign Project loan: Asian Development Fund	19.43
Cofinancing	**1.00**
Bill and Melinda Gates Foundation - Technical Assistance	1.00
Counterpart	**1.74**
Government	1.74
Total	**22.17**

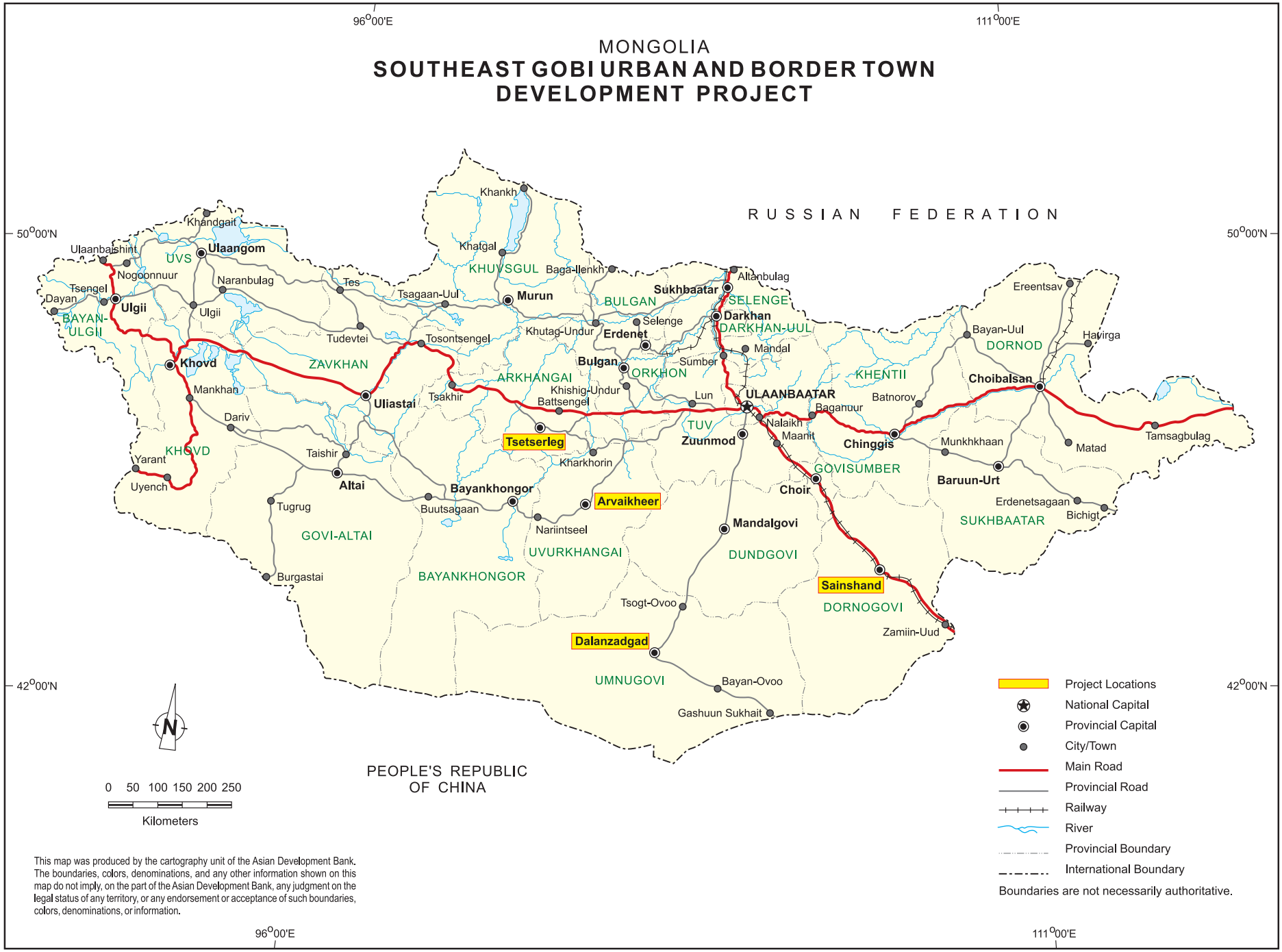
9. Effective Development Cooperation

Use of country procurement systems	Yes
Use of country public financial management systems	Yes

Source: Asian Development Bank

MONGOLIA

SOUTHEAST GOBI URBAN AND BORDER TOWN DEVELOPMENT PROJECT



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I. THE PROPOSAL

1. I submit for your approval the following report and recommendation on the proposed loan to Mongolia for the additional financing of the Southeast Gobi Urban and Border Town Development Project. The report also describes the proposed administration of technical assistance (TA) to be provided by the Sanitation Financing Partnership Trust Fund[1] under the Water Financing Partnership Facility for the Management and Reuse of Sewage Sludge from On-Site Sanitation Facilities and Decentralized Wastewater Treatment Plants. If the Board approves the proposed loan, I, acting under the authority delegated to me by the Board, approve the TA.[2]

2. The additional financing and the administration of the TA grant will scale up and extend the socioeconomic benefits of the project by improving the quality and reliability of wastewater management services in two *aimag centers*[3] from the current project, and by extending service improvements to two additional prominent and fast-growing *aimag centers*. The additional financing will also continue to strengthen through the TA, the wastewater management capabilities of *aimag* public utility service organizations (PUSOs) in both the current and additional project[4] *aimag centers*.

II. THE PROJECT

A. Rationale

3. On 19 April 2010, the Asian Development Bank (ADB) approved a grant of $15 million from its Asian Development Fund for the Southeast Gobi Urban and Border Town Development Project, to support the provision of infrastructure and service improvement in urban areas in Southeast Gobi.[5] At the time, the *aimags* of Dornogovi and Umnugovi were experiencing a rapid increase in economic activity from the expansion of mining operations and the strengthening of trade corridors with the People's Republic of China. This resulted in growth of urban populations, but the *aimag centers*[6] and key *soum centers* lacked consummate urban infrastructure and services.[7] The current project's anticipated impact is enhanced economic development and livability in the *aimag centers* and mining and border towns in Southeast Gobi. The expected outcome is improved urban development and governance, and expanded access to sustainable infrastructure and public utility services in urban places in Southeast Gobi.[8] Key outputs of the current project include urban roads, water supply networks, wastewater and district heating, solid waste collection and disposal systems, and urban service delivery reforms.

4. The most urgent outputs were identified during the feasibility stage of the current project. The government had planned to build new wastewater treatment plants (WWTPs) in Sainshand

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1 Financing partner: Bill & Melinda Gates Foundation.
2 The revised design and monitoring framework is in Appendix 1.
3 An *aimag* is a provincial administrative unit in Mongolia and is generally equivalent to a province. Its provincial capital is referred to as an *aimag center*.
4 For clarity, the original project is referred to as "the current project" and the additional financing as "the project".
5 ADB. 2010. *Report and Recommendation of the President to the Board of Directors: Proposed Grant to Mongolia for the Southeast Gobi Urban and Border Town Development Project*. Manila.
6 Dalanzadgad in Umnugovi and Sainshand in Dornogovi.
7 A *soum* is an administrative unit immediately below an *aimag*. Each *aimag* has a number of *soums*, each centered around a *soum center*—comprising several administrative buildings and a small population. Less than 30% of the urban population had adequate water service, and only 17% had access to adequate sanitation services.
8 The grant closing date is 31 May 2016.

and Dalanzadgad, to be financed through the state budget. Due to financial constraints they were not built and the government hence included the WWTPs in the proposed additional financing. The additional financing offers the opportunity of replication to other *aimag centers* with comparable geographic and economic characteristics and similar wastewater treatment needs. Subsequently, the government added to the scope of the additional financing project the *aimag centers* of Avairkheer (Uvurkhangai) and Tsetserleg (Arkhangai).[9]

5. The four project *aimags*, with an aggregate urban population of about 95,000,[10] typify rapidly growing second-tier cities[11] and make up 5% of the national urban population. Of the project *aimags*, two (Dornogovi and Umnugovi) have had above-average growth in population and their share in Mongolia's gross domestic product (GDP), while the other two (Arkhangai and Uvurkhangai) have population and GDP growth rates at or above the national average outside Ulaanbaatar.[12] All project *aimag centers* have a sewerage network serving the core area. The sewer systems are relatively new, and the PUSOs[13] assessed them to be in generally good condition with no need for replacement or expansion. All proposed project *aimag centers* have WWTPs that employ waste stabilization (oxidation) ponds as the main biological treatment method. The pond systems are preceded in some cases (Avairkheer, Dalanzadgad, and Sainshand) by preliminary (screening and grit removal) and primary (sedimentation) treatments; although in these cases the preliminary treatment units are no longer fully operational.[14] In all cases, the treatment systems (i) are generally in a poor state of repair, (ii) use technology unsuited to Mongolia's climatic conditions, and (iii) do not provide the consistent level of treatment that satisfies Mongolian wastewater discharge standards. Also, population growth in these *aimag centers* is now accelerating as the government supports an aggressive program of apartment construction.[15] This will lead to significant increases in wastewater flows as new apartment blocks are occupied, exceeding the capacity of most of the existing WWTPs.[16]

6. **Performance of the current project.** The current project is performing well and is rated on track.[17]

(i) **Output delivery.** The current project (footnote 2) has made significant progress toward achieving the project outcome and has largely accomplished outputs A and B by December 2015. Against the approved outcome, the current project has (a) significantly improved access to water supply, sewerage, solid waste

[9] The construction of these WWTPs will complete a series of ADB interventions (ADB. 2002. *Report and Recommendation of the President to the Board of Directors: Proposed Loan to Mongolia for the Integrated Development of Basic Urban Services in Provincial Towns Project*. Manila [L1907]; ADB. 2006. *Report and Recommendation of the President to the Board of Directors: Proposed Loan to Mongolia for the Urban Development Sector Project*. Manila [L2301]; and ADB. 2010. *Report and Recommendation of the President to the Board of Directors: Proposed Grant to Mongolia for the Southeast Gobi Urban and Border Town Development Project*. Manila [G0204]) to comprehensively improve provision of and access to public utility services.

[10] Direct beneficiaries (including businesses and institutions) estimated at 80,000 once WWTPs are at full capacity.

[11] The urban economy in Mongolia grew at an estimated annual average rate of over 10% during 2010–2014.

[12] The average population growth rates in 2005–2014 were national: 1.4%; Avairkheer 2.7%; Dalanzadgad 3.9%; Erdenebulgan (Tsetserleg): 1.6%; and Sainshand: 2.6%.

[13] Agencies responsible for operation of water and/or wastewater services on behalf of *aimag* governments.

[14] The pond systems will be decommissioned, except in Tsetserleg/Erdenebulgan, where they will be reused as polishing ponds. The capacities of existing plants are: Avairkheer: 1,500 cubic meters per day (m^3/day); Dalanzadgad: 1,800 m^3/day; Erdenebulgan: 2,000 m^3/day; and Sainshand: 1,500 m^3/day.

[15] Through the government's "100,000 houses" program.

[16] The total population of the project *aimag centers* is predicted to reach 148,000 by 2030 (average annual growth of 2.75%). Total wastewater discharge in *aimag centers* is predicted to increase from 5,600 m^3/day in 2015 to 12,700 m^3/day in 2030. The capacity of existing WWTPs is of 1,000–1,500 m^3/day and the planned plants are to treat 3,000–4,200 m^3/day to meet the demand from the growing population. It is assumed that the system will start operating in 2020 and that the plant capacity will be fully utilized by 2030.

[17] Summary of Project Performance (accessible from the list of linked documents in Appendix 2).

management, and heating coverage in planned (non-*ger*) areas in the project *soums*; (b) ensured that almost 95% of *ger* area dwellers in the project *soums* have access to potable water within 300 meters of their dwellings; (c) reduced water collection time for women and children; and (d) established and operationalized new water supply sewerage and heating networks. Against output A, standard lease agreements now form the basis of the service agreements between the local governments and PUSOs. General plans for Gurvantes, Khanbogd, and Tsogttsetsii *soums* of Umnugovi *aimag* and Sainshand *soum* of Dornogovi *aimag* were prepared, and approved by *aimag khurals* (citizens' representative committees) and the relevant state expertise agency.[18] Capacity-building seminars and training on institutional urban planning and implementation, and on land acquisition and resettlement were held for over 250 *aimag* officials. Against output B, the current project has financed new water supply, sewerage, solid waste management, and heating system improvements in project urban centers. All assets created under part B of the current project are completed and operational except for the Zamiin–Uud heating plant, which is awaiting the completion of associated works before being operational.

(ii) **Implementation progress.** Implementation progress is satisfactory. The current project has been implemented on time, and as of the end of the third quarter of 2015 (with 87.0% of project time elapsed), the physical progress is at 93.5% and the grant disbursement is at 93.0%.

(iii) **Safeguard compliance.** Safeguard requirements have been met satisfactorily. Environmental and social safeguard screening procedures are well established under the current project and applied to every subproject. The environmental management plan was executed according to project safeguards requirements.

(iv) **Management of risks.** The following risks were identified: (a) poor capital investment and budget planning; (b) underdeveloped institutional frameworks and poor capacity; (c) lack of monitoring and evaluation; (d) poor procurement integrity; and (e) weak national contractors. Project management and implementation support provided by the project management unit (PMU) and project implementation units managed most of the risks successfully by (a) building the investment planning capacity of the local government and improving service delivery and operation; (b) supporting institutional change on measuring and improving service delivery performance; (c) adopting a modality for procurement of priority infrastructure improvements to attract better-qualified national contractors; and (d) combining individual small civil works activities into larger contract packages to generate economies of scale.

7. **Additional financing eligibility criteria met.** ADB's due diligence confirmed that the additional financing meets the eligibility criteria. The additional financing is in line with the Government of Mongolia's action program for 2012–2016 and the high priority given to the development of infrastructure and services in *aimag centers*.[19] The project is included in ADB's country operations business plan, 2015 for Mongolia and is aligned with the interim country

[18] General plans for Khanbogd, Tsogttsetsii, and Gurvantes *soums* of Umnugovi *aimag* were approved by an *aimag khural* on 27 March 2014 and by a state expertise agency on 6 August 2015. The general plan for the Sainshand *soum* of Dornogovi *aimag* and the "New Sainshand" residential district partial general plan were approved by an *aimag khural* on 4 December 2013 and by a state expertise agency on 24 June 2015.

[19] Government of Mongolia. 2012. *Action Program of the Reform Government through the Years 2012–2016*. Ulaanbaatar (the document is in Mongolian and has no official English translation).

partnership program, 2014–2016.[20] With its objective to contribute to inclusive economic and environmentally sustainable growth, the project is also aligned with ADB's Midterm Review of Strategy 2020, and follows ADB's urban and water operational plans.[21]

8. **Additional financing priority met.** The additional financing has a high degree of readiness since detailed designs were already prepared and due diligence carried out, and feasibility is established. The PMU's capacity for project management, implementation support, and due diligence, including safeguards, built during the current project, adds to the project readiness. The subprojects under the additional financing build on the urban infrastructure and service improvements carried out in Dalanzadgad and Sainshand under the current project.

9. **Changes in project scope.** The additional financing will expand the scope of the current project by (i) adding the construction of new WWTPs in the current project *aimag centers* of Dalanzadgad and Sainshand; (ii) extending the geographical scope of the project by including the construction of new WWTPs in the additional *aimag centers* of Avairkheer and Tsetserleg; and (iii) building on the institutional reform and capacity building already carried out in Dalanzadgad and Sainshand, and extending this to Avairkheer and Tsetserleg, with a particular focus on wastewater tariff reform and on decommissioning existing WWTPs. The focus of the project outcome extends to achieving government standards for wastewater discharges, reusing sewage effluent, and improving local environmental quality.[22] The project will contribute to a more balanced national urban system and strengthened urban–rural relationships by contributing to the development of second-tier cities in the country. It will also improve environmental conditions and reduce environmental pollution in and around the project cities. The project will support project management, capacity development, and training.

10. The project design incorporates lessons from the current project when it comes to the detailed designs[23] and location of the WWTPs, and the capacity building needs of the PUSOs. Lessons will be drawn from an ongoing ADB wastewater project in Darkhan,[24] which introduces the same treatment technology and thus saves time on preconstruction activities and increases the reliability of cost estimates. In addition, the institutional support and capacity-building subproject focuses on using national consultants to help the PUSOs incorporate organizational and management reforms already set out in guidelines and manuals prepared under the current project and through prior urban development projects.

B. Impact and Outcome

11. **Project impact and outcome.** The project impact will be enhanced economic development and livability in project *aimag centers* and border towns in Southeast Gobi. The project outcome will be improved urban development and governance, and expanded access to sustainable infrastructure and public utility services in urban places in Southeast Gobi.

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[20] ADB. 2015. *Country Operations Business Plan: Mongolia, 2015.* Manila; and ADB. 2014. *Interim Country Partnership Strategy: Mongolia, 2014–2016*. Manila.

[21] ADB. 2014. *Midterm Review of Strategy 2020: Meeting the Challenges of a Transforming Asia and Pacific.* Manila; ADB. 2013. *Urban Operational Plan, 2012–2020.* Manila; and ADB. 2011. *Water Operational Plan, 2011–2020.* Manila.

[22] Recent ADB projects have built piped water supply systems and connected water kiosks in some *ger* areas of the *aimag centers* of the project. However, due to the harsh climate and terrain conditions, a cost-effective solution to build sanitation and/or wastewater facilities and networks in *ger* areas has yet to be found. The government did not request such interventions and priority was given to the construction of modern and efficient WWTPs.

[23] The project is based on detailed designs already completed for the WWTPs.

[24] ADB. 2014. *Report and Recommendation of the President to the Board of Directors: Proposed Loans and Technical Assistance Grant to Mongolia for the Darkhan Wastewater Management Project*. Manila.

C. Outputs

12. The project will have the following outputs: (i) wastewater collection and treatment infrastructure constructed and operated, delivering effluents that satisfy Mongolian wastewater discharge standards; and (ii) strategic planning, management, and cost recovery for wastewater management by the project PUSOs strengthened.

13. **Output A: Wastewater collection and treatment infrastructure constructed and operationalized.** The project will establish modern wastewater treatment facilities to replace inadequate waste stabilization pond systems. This will be achieved by building new, effective, and energy-efficient treatment processes with integrated fixed-film activated sludge (IFAS) technology. This system is suitable for the cold climate in the project *aimag centers*, and produces an effluent that meets national and international effluent standards. The operating capacity of the plants will be 3,000 cubic meters per day (m^3/day) in Arvaikheer, Dalanzadgad, and Tsetserleg; and 4,200 m^3/day in Sainshand.[25]

14. **Output B: Strategic planning, management, and cost recovery for wastewater management strengthened.** The project will (i) provide expert support for project management, institutional enhancement, and capacity development in utility management, operation, service provision, emergency preparedness and response, and construction supervision; and (ii) strengthen the capacity of the PMU and PUSOs. It will include policy dialogue on wastewater tariff reform and on the decommissioning of the existing WWTPs with the PUSOs and *aimag* governments. It will support public awareness campaigns on environmental management and sanitation, institutional development of utility service provision, and operation improvements.

D. Investment and Financing Plan

15. The current project financing amounts to $21.87 million; the proposed project will require additional financing estimated at $21.17 million. The total investment for the extension project includes physical and price contingencies, and financing charges during implementation and loan commitment fees. Table 1 presents the project investment cost**.**

Table 1: Revised Project Investment Plan

($ million)

Item	Current Amount[a]	Additional Financing[b]	Total
A. Base Cost[c]			
1. Civil works	12.50	12.92	25.42
2. Materials and equipment	2.37	2.07	4.44
3. Project management and consulting	2.81	2.31	5.12
Subtotal (A)	**17.67**	**17.30**	**34.97**
B. Contingencies[d]			
1. Physical	0.62	1.87	2.49
2. Price	3.58	1.38	4.96
Subtotal (B)	**4.20**	**3.24**	**7.45**
C. Financing Charges During Implementation		**0.63**	**0.63**
Total (A+B+C)	**21.87**	**21.17**	**43.04**

Note: Numbers may not sum precisely due to rounding.

[a] Refers to the original amount. Includes taxes and duties of $1.45 million.

[b] Includes taxes and duties of $1.74 million to be financed from government resources.

[25] This is the capacity that will be fully utilized in the design year of 2030. The existing and future flows include all commercial establishments, businesses and institutions within the *aimag centers*. Many *ger* dwellers not connected to the central network use facilities of friends or family members within the connected areas for bathing.

[c] The current amount includes financing and other charges. Additional financing is based on December 2015 prices and an exchange rate of $1.0 = MNT1,989.5.
[d] For additional financing, physical contingencies are computed at 12% for works and goods. Price contingencies are computed applying purchasing power parity based on exchange rate and domestic inflation rates: 7.6% for 2016 and 7.0% in 2017 onward; and foreign inflation rates: 1.5% for 2016, 1.4% in 2017, and 1.5% for 2018 onward.
Source: Asian Development Bank estimates.

16. The government has requested a loan in various currencies equivalent to SDR13,994,000 from ADB's Special Funds resources to help finance the project. The loan will have a 25-year term, including a grace period of 5 years, at an interest rate of 2% per annum during the grace period and thereafter, and any such other terms and conditions set forth in the draft loan and project agreements. The loan will be free of any commitment charge and interest during construction will be capitalized in the loan. The average maturity is 15.25 years. ADB will finance 100% of contingencies and financing charges. The government will finance 100% of taxes and duties amounting to $1.74 million. Table 2 presents the revised financing plan of the current and additional financing project.

Table 2: Revised Financing Plan

	Current[a]		**Additional Financing**		**Total**	
Source	**Amount** ($ million)	**Share of Total** (%)	**Amount** ($ million)	**Share of Total** (%)	**Amount** ($ million)	**Share of Total** (%)
Asian Development Bank						
Special Funds resources (loan)			19.43	91.78	34.43	80.0
Special Funds resources (grant)	15.00	68.59				
Government of Mongolia (*aimag*[b])	6.87	31.41	1.74	8.22	8.61	20.0
Total financing	**21.87**	**100.00**	**21.17**	**100.00**	**43.04**	**100.0**

[a] Refers to the original amount and any previous additional financing.
[b] An *aimag* is a provincial administrative unit in Mongolia.
Source: Asian Development Bank estimates.

E. Implementation Arrangements

17. The Ministry of Construction and Urban Development (MCUD) will be the executing agency, supported by the existing PMU, which will extend its responsibilities for the current project to include the proposed additional financing project. The professional capacity of the PMU will be strengthened by adding two technical positions in the area of construction management and supervision. The MCUD will nominate a project director for the project, and the PMU will continue to be headed by a project coordinator. MCUD will be responsible for overall strategic guidance, technical supervision, and execution of the project, and for ensuring compliance with loan covenants through the existing state-level steering committee for externally financed urban projects. The project steering committee will provide overall policy guidance and will have full powers to take decisions on matters relating to project execution. The PMU will implement the additional financing project. PUSO support units with PUSO staff assigned to the project part-time will assist project supervision at the *aimags*. Project management and implementation support will be provided to the PMU through consultants hired under Part B of the current project. The consultant will assist the PMU and the PUSO support units in project management, procurement, supervision, and safeguards monitoring.

Table 3: Implementation Arrangements

Aspects	**Arrangements**
Implementation Period	June 2016–December 2019
Estimated completion date and loan closing date	31 December 2019 and 30 June 2020
Management	
(i) Oversight body	PSC

Aspects	Arrangements		
(ii) Executing agency	MCUD		
(iii) Implementing agencies	*Aimag* (provincial administrative unit) governments through the PUSOs		
Procurement	National competitive bidding	4 contracts	$16,600,000
	Quality- and cost-based selection	1 contract	$745,000
	Quality-based selection	1 contract	$350,000
	Individual consultant selection	24 person-months	$72,000
Disbursement	The ADF loan proceeds will be disbursed in accordance with ADB's *Loan Disbursement Handbook* (2015, as amended from time to time), and the detailed arrangements agreed between the government and ADB.		

ADB = Asian Development Bank, ADF = Asian Development Fund, MCUD = Ministry of Construction and Urban Development, PSC = project steering committee, PUSO = public utility service organization.
Source: Asian Development Bank.

III. TECHNICAL ASSISTANCE

18. The safe disposal of sludge generated by sewage treatment plants is becoming increasingly problematic as the proportion of domestic sewage treated in WWTPs in Mongolia increases. While there are potential beneficial uses of sewage sludge, dried sludge is now stored at WWTPs before being disposed in the landfills. The TA will be executed jointly with the proposed loan, and will explore possible opportunities for sludge reuse and pilot possible approaches. The TA will include the following activities: (i) assess current obstacles (regulatory and sociocultural) to sludge reuse in Mongolia; (ii) determine potential beneficial uses for sewage sludge in Mongolia, with a focus on the project *aimags*; (iii) recommend measures to boost sludge reuse, with a particular focus on the regulatory framework and measures to overcome sociocultural objections to reuse; (iv) support the government in drafting regulations, technical specifications, and guidelines for sewage sludge management and reuse; and (v) from among the project *aimags*, select one or two locations to implement a pilot sludge reuse project, including evaluation and assessment of impacts and results. The TA is estimated to cost $1 million, which will be financed on a grant basis by the Sanitation Financing Partnership Trust Fund under the Water Financing Partnership Facility and administered by ADB.[26] The project will be implemented over a period of 2 years, tentatively from October 2016 to October 2018. ADB will be the executive agency and the management and execution of the project will be supported through the PMU for the Southeast Gobi Urban and Border Town Development Project – additional financing.

IV. DUE DILIGENCE

A. Technical

19. The project is technically feasible based on a detailed technical assessment of wastewater management systems in extreme cold climate conditions around the world and in Mongolia. The wastewater treatment technology proposed for adoption in all four *aimags* was subjected to intensive scrutiny and analysis, resulting in a short list of technology choices that are most suited to operation under local conditions. A two-stage process was adopted to evaluate alternative wastewater treatment solutions and select the best and lowest-cost solution possible. For the analysis, maximum use was made of the current operating experience in Mongolia, including the technical preparation for the Darkhan wastewater management project, which adopts the same technology. The evaluation concluded that the IFAS process provides the most appropriate technical solution for wastewater treatment. Measures to mitigate possible

[26] Financing partner: Bill & Melinda Gates Foundation. Funding was approved by the Urban Financing Partnership Facility Steering Committee on 22 February 2016.

operational and lifetime risks will be taken, such as (i) ensuring that the existing WWTPs can be operated throughout the entire reconstruction process while meeting treatment standards; (ii) using the polishing ponds as emergency storage in case WWTPs fail; and (iii) committing the contractor to continue to support plant operation for 3 years after commissioning, and take responsibility for the continuity and consistency of performance during this period.

B. Economic and Financial

20. Economic and financial analyses were prepared for the overall project and for individual subproject *aimag centers* and PUSOs following ADB guidelines.[27] The economic analysis included an assessment of the least-cost analysis of alternative options to ensure optimum benefits accruing to service populations. The least-cost analysis resulted in the choice of IFAS technology over a bioreactor. The proposed project will result in health benefits, such as avoided medical costs, resource cost savings such as domestic wastewater disposal time and treatment, and a better and safer environment. The economic benefits were estimated from the results of the willingness-to-pay survey conducted in the appointed service areas. The economic analysis indicates that the individual subprojects are economically viable and have an economic internal rate of return (EIRR) of 12.6% to 13.1%, exceeding the economic opportunity cost of capital set at 12.0%. The EIRR for the project overall is estimated at 13%, with the economic net present value at MNT2,778 million. Based on a sensitivity analysis, the project EIRR will fall below 12% when the capital cost increases by 10%, the benefit decreases by 10%, and the project implementation is delayed by 1 year.

21. The project was assessed for its financial viability by measuring in terms of the financial internal rate of return (FIRR), which should exceed the weighted average cost of capital (estimated at 0.84% in real terms). FIRRs for individual subprojects range from 1.7% to 2.8%. For the overall project, the FIRR is at 2.5%, with the financial net present value calculated at MNT9,404 million. Subproject PUSOs have recently implemented tariff increases based on rates approved by the National Water Regulatory Commission. Before that, the PUSOs were incurring net losses nearly annually, prompting *aimags* to partly subsidize operations lest services suffer. Tariffs were projected based on existing rates in accordance with National Water Regulatory Commission guidelines cognizant of operations and maintenance cost recovery. To maintain project sustainability, tariffs are proposed to be adjusted every 5 years starting in 2020, when construction is completed. Tested for affordability, tariffs fall well within acceptable levels[28] at less than 1% of average household income. The sensitivity analysis reflects that an increase in operating costs, a decrease in revenue, and a delay in implementation will adversely affect the project.

C. Governance

22. The financial management assessments of the *aimag* governments and PUSOs, and a procurement capacity assessment of MCUD, confirmed that, with the support of the PMU, MCUD and the *aimag* governments have adequate capacity for financial management and procurement under the project. The PMU staff for the current project, who are familiar with the government's and ADB requirements on disbursement, procurement, and safeguards, will continue to support project implementation. ADB's Anticorruption Policy (1998, as amended to

[27] ADB. 1999. *Handbook for the Economic Analysis of Water Supply Projects*. Manila; ADB. 1997. *Guidelines for the Economic Analysis of Projects, and Financial Management and Analysis of Projects*. Manila; and ADB. 2009. *Financial Due Diligence: A Methodology Note.* Manila.

[28] In terms of tariff affordability, the generally acceptable level for water supply is 4% to 5% of the average household income; and including sewerage, from 6% to 8% of household income.

date) was explained to and discussed with the government and the MCUD. The specific policy requirements and supplementary measures are described in the project administration manual.[29]

D. Poverty and Social

23. The poverty head count national average was 21.6% in 2014. The poverty level was higher in rural areas (27.0%) than in urban places (18.0%), and the former continue to have the largest share of poor people in Mongolia. In 2011, of the four project cities, Arvaikheer (41.1%) and Tsetserleg (37.9%) experienced higher poverty than Dalanzadgad (11.9%) and Sainshand (15.9%). In total, 94,295 urban residents will benefit from the project intervention in the four project cities. Direct beneficiaries are households in apartment and *ger* areas (6,245 households and 25,000 residents) and public and private entities (844) working in the project cities. The project will benefit the poor and vulnerable households in apartment and *ger* areas by improving their health conditions and reducing health-care expenditures for illnesses caused by poor water quality and unsanitary environment conditions. The project will increase the participation of the population, especially women and the poor, in the public services' improvement processes. It is estimated that 200 temporary jobs will be created by the project, and most unskilled jobs will be provided to the local people. Details on specific measures to ensure the poverty and social benefits are in the social and gender action plan included in the project administration manual.

24. **Gender.** The current project was classified as *effective gender mainstreaming*. The original gender action plan is still ongoing, with about 50% of activities completed and 67% of targets achieved. The additional financing project is classified as *some gender elements*. The reason for downgrading the categorization is the change of the technical and geographic scope of the additional financing. The additional financing will focus only on improving the quality and reliability of wastewater management services in the two *aimag centers* included in the current project, and by extending these service improvements to two additional *aimag centers*. Therefore, it is unlikely to satisfy the threshold for effective gender mainstreaming, and a combined social and gender action plan has been developed.

E. Safeguards

25. **Environment**. The environment categorization of the current project and additional financing is B—no unprecedented or irreversible impact on the environment is anticipated. In compliance with ADB's Safeguard Policy Statement (2009), an initial environmental examination and an environmental management plan were prepared for the components to be supported through additional financing.[30] Short-term impacts are anticipated during construction, including dust, noise, and waste generated during earthwork and civil works activities, as well as minor community and occupational health and safety risks. Operation and maintenance training and performance monitoring will minimize operational impacts and risks, and optimize environmental benefits. The project's climate risk is low.

26. **Involuntary resettlement**. The additional financing is categorized as C for involuntary resettlement as the project will not cause any direct or indirect, permanent or temporary land acquisition and resettlement impacts. The construction of the WWTPs will be done on state-owned vacant land.

[29] Project Administration Manual (accessible from the list of linked documents in Appendix 2).
[30] Initial Environmental Examination (accessible from the list of linked documents in Appendix 2).

27. **Indigenous peoples**. The categorization for indigenous peoples is C. The project will be implemented in urban areas where no specific communities of ethnic minorities or groups are living. All residents will equally benefit from better wastewater treatment service. The ADB policy requirements for indigenous peoples will not be triggered by this project.

F. Risks and Mitigating Measures

28. Major risks and mitigating measures are summarized in Table 4 and described in detail in the risk assessment and risk management plan.[31] The overall risk rating of the project is low. The integrated benefits and impacts of the project extension are expected to outweigh the costs.

Table 4: Summary of Risks and Mitigation Measures

Risks	Mitigation Measures
Poor choice of technology or poor quality of construction, and equipment installation compromises	Designs are based on the experience of existing WWTPs in Mongolia. Top management supervision and third-party quality assurance consultancy will be provided throughout the construction, commissioning, and early stages of operation.
Limited procurement and project management skills, capacity, and experience compromise tendering and project quality	Provision of TA to the PMU in procurement, project management, and supervision. Effective transition of experience and knowledge from the current project's PMU.
Poor cost recovery compromises operational sustainability	The TA is provided to assist the PUSOs in the development and implementation of an institutional strengthening and reform road map and action plan for improved financial management and cost recovery.

PMU = project management Unit, PUSO = public utility service organization, WWTP = wastewater treatment plant, TA = technical assistance.
Source: Asian Development Bank.

V. ASSURANCES AND CONDITIONS

29. The government, MCUD, and *aimag* governments have assured ADB that implementation of the project shall conform to all applicable ADB policies, including those concerning anticorruption measures, safeguards, procurement, consulting services, and disbursement as described in detail in the PAM and loan documents.

VI. RECOMMENDATION

30. I am satisfied that the proposed loan would comply with the Articles of Agreement of the Asian Development Bank (ADB) and recommend that the Board approve the loan in various currencies equivalent to SDR13,994,000 to Mongolia for the additional financing of the Southeast Gobi Urban and Border Town Development Project, from ADB's Special Funds resources, with an interest charge at the rate of 2% per annum during the grace period and thereafter; for a term of 25 years, including a grace period of 5 years; and such other terms and conditions as are substantially in accordance with those set forth in the draft loan and project agreements presented to the Board.

Takehiko Nakao
President

1 April 2016

[31] Risk Assessment and Risk Management Plan (accessible from the list of linked documents in Appendix 2)

REVISED DESIGN AND MONITORING FRAMEWORK

Impact the Project is Aligned with

Current Project
Economic development and livability in *aimag centers* (mining and border towns in Southeast Gobi) enhanced[a] (Infrastructure Plans for the Southern Gobi and Government Action Plan 2012–2016[a])

Overall Project
Unchanged

Results Chain	Performance Indicators with Targets and Baselines[b]	Data Sources and Reporting	Risks
Outcome			
Current project	**Current project**		
Improved urban governance and expanded access to sustainable infrastructure and services in urban places in Southeast Gobi	By September 2015: a. Water, sewerage, SWM, and heating coverage in planned (non-*ger*) areas increased from 0% to 95% in *soums*, and from 95% to 100% in *aimag centers* b. *Ger* area population with access to water kiosks within 300 meters of dwelling increased to 95% (2010 baseline: 20%) c. Revenues of service operators increased from 95.0% to 100% of recurrent costs d. 20% reduction in average time women spend on accessing drinking water (2011 baseline: 17.8 minutes)	a. Annual National Statistical Office yearbook, national government, annual statistics yearbook of local governments, *aimag* governments b. Annual statistics yearbook of local governments, *aimag* governments c. Annual audited financial statements of PUSOs d. Annual household survey, PUSOs annual progress reports	Operational related funds from local governments are not available in timely manner
Overall project	**Overall project**		
Unchanged	a. New water, sewerage, SWM, and heating use in planned (non-*ger*) areas increased to 95% in *soums* and to 100% in 4 *aimag centers* by 2016. (2010 baseline: *soums* 0%, 4 *aimags* 95%) b. At least 9,000 m^3/day of fully treated wastewater discharged in 4 *aimags* (2015 baseline: 0 m^3/day) c. At least 3 of 4 PUSOs with annual revenues greater than expenses (2014 baseline: 1) d. At least 90% of new infrastructure projects started in 2016–2020 follow approved		

Results Chain	Performance Indicators with Targets and Baselines[b]	Data Sources and Reporting	Risks
	urban master plans in *soums* and *aimag centers* (2014 baseline: not applicable)		
Outputs **Part A** **Output 1** **Current project** Infrastructure services reforms, including performance-based contracts for urban services delivery, implemented **Overall project** Unchanged **Output 2** **Current project** Urban planning and policy making, including master plans for participating towns, strengthened **Overall project** Unchanged **Output 3** **Current project** Cross-border cooperation established **Overall project** Unchanged **Part B** **Output 4** **Current project** Water source development,	1. **Current project** Operating management contracts for provision of basic services in place and operational in both project *aimags* by November 2014 (2010 baseline: 0) **Overall project** Unchanged 2a. **Current project** 4 urban plans prepared and adopted by the participating *aimag* and *soum* governments by November 2014 (2010 baseline:1) **Overall project** Completed 2b. **Current project** At least 30% of participants in consultative workshops are women (2010 baseline: not applicable) **Overall project** Completed 3. **Current project** Zamiin-Uud–Erlian Joint Border Development Commission established with urban development working group (2010 baseline: not established) **Overall project** Completed Current project target for 4–9: by September 2015 4a. **Current project** At least 38 km of transmission and distribution water main installed (2010 baseline:0) **Overall project**	1–3. Quarterly project progress reports of PMU 2b. Annual gender action plan implementation report, PMU 4–10. Annual National Statistical Office yearbook, national government, quarterly	Lack of government support for reforms, regional cooperation, and institutional strengthening Political interference with project implementation

Results Chain	Performance Indicators with Targets and Baselines[b]	Data Sources and Reporting	Risks
transmission, storage and distribution completed **Overall project** Unchanged **Output 5** **Current project** Wastewater collection infrastructure constructed and operationalized **Overall project** Unchanged **Output 6** **Current project**	Completed 4b. **Current project** 11 water kiosks constructed and operational in *ger* areas (2010 baseline: 0) **Overall project** Completed 4c. **Current project** 3 water reservoirs constructed (2010 baseline: 0) **Overall project** Completed 5a. **Current project** At least 28 km of sewers installed and operational (2010 and 2015 baselines: 0 **Overall project** At least 30 km of sewers installed and operational by 2020 (2010 baseline 2010: 0; 2015 baseline: 28) 5b. **Current project** 2 wastewater treatment plants constructed and operational (2010 and 2015 baselines: 0) **Overall project** 2 WWTPs constructed (total capacity 800 m^3/day) and operational by 2016, and three 3,000 m^3 and one 4,200 m^3 plants by 2020 (2010 and 2015 baselines: 0) 6a. **Current project** 8.4 MW heating boilers supplied, installed, and operational (2010 baseline: 0) **Overall project** Unchanged and/or completed 6b. **Current project** At least 8 km of heating pipeline supplied, installed, and operational	project progress reports of PMU	

Results Chain	Performance Indicators with Targets and Baselines[b]	Data Sources and Reporting	Risks
District heating infrastructure constructed and operationalized **Overall project** Unchanged	**Overall project** Unchanged and/or completed 6c. **Current project** 3 heat distribution centers installed and operational **Overall project** Unchanged and/or completed		
Output 7 **Current project** Surfaced central roads constructed **Overall project** Unchanged	7. **Current project** About 9 km of concrete access roads constructed (2010 baseline: 0) **Overall project** Unchanged and/or completed		
Output 8 **Current project** Solid-waste collection and disposal enhanced **Overall project** Unchanged	8a. **Current project** 2 solid-waste landfill site constructed and operational (2010 baseline: 0) **Overall project** Unchanged and/or completed 8b. **Current project** 12 sets of tractors and trailers for solid waste collection supplied and operational by May 2014 (2010 baseline: 0)		
Output 9 **Current project** Storm water drainage infrastructure constructed and operationalized **Overall project** Unchanged	**Overall project** Unchanged and/or completed 9a. **Current project** At least 2 km of storm water drainage line installed and operational (2010 baseline: 0)		
Output 10 **Overall project** Capacity on project management, strategic planning, and accounting systems increased	**Overall project** Unchanged and/or completed 9b. **Current project** At least 30% of participants in public meetings on project design and construction activities are women (2010 baseline: 0) **Overall project** Unchanged and/or completed		

Results Chain	Performance Indicators with Targets and Baselines[b]	Data Sources and Reporting	Risks
	10. **Overall project** At least 100 PUSO and local government staff with new knowledge and skills on waste water operations and management by 2020, of which 35% are women (2010 baseline: not applicable)		

Key Activities with Milestones

Outputs 1–3

1. Establish and staff the PMU, PIUs, PSC, and *aimag* working groups (Q1 2011)
2. Establish all working arrangements, procedures, and responsibilities for the project (Q1 2011)
3. Tender, award, and engage consultants to implement planning reforms and structure plan preparation (Q3 2012)
4. Urban plans prepared for all project towns (Q2 2014)
5. Tender, award, and engage consultants to support the development of enhanced regulatory and institutional arrangements for service delivery (Q3 2012, Q4 2016)
6. Establish and make operational a service delivery organization, and prepare rolling annual business and investment plans (Q4 2014)

Outputs 4–10

1. Tender advisory consultancy assistance for the preparation of reference designs and management of D&B contracting (Q2 2012)
2. Complete reference designs and prepare D&B and operating management contract documents (Q3 2012)
3. Tender D&B and operating management contract; select preferred tender; and negotiate, prepare, and agree contract (OMC: Q4 2014)
4. Establish service provider and commence the implementation of priority infrastructure improvements (Q4 2014)
5. Implement construction and rehabilitation priority infrastructure improvements and new wastewater treatment plants (Q2 2013–Q3 2019)
6. Implement the social and gender action plan (throughout project implementation)

Inputs

	ADB ADF	Cofinancier	Government
		TA Grant	
Current Project	$15.00 million	$0.00 million	$6.87 million
Additional Project	$19.43 million	$1.00 million	$1.74 million
Overall	$34.43 million	$1.00 million	$8.61 million

Assumptions for Partner Financing

Not applicable.

ADB = Asian Development Bank, D&B = design and build, km = kilometer, MW = megawatt, OMC = operating management contract, PIU = project implementation unit, PMU = project management unit, PSC = project steering committee, PUSO = public utility service organization, Q = quarter, SWM = solid waste management.

[a] Government of Mongolia. 2010. National Development and Innovation Committee, *Infrastructure Development Plans for the Southern Gobi*. Ulaanbaatar; and Government of Mongolia. 2012. *Government Action Plan, 2012–2016.* Ulaanbaatar.

[b] The indicators/targets in the DMF differ from the ones in the RRP of the current project approved in 2010. Through a retrofitting exercise in 2011, COSO allowed changes to be undertaken to DMFs. In this particular case, the indicative indicators/targets used in the DMF of the RRP of 2010 were therefore updated to reflect figures from detailed designs finalized a few months after the approval of the RRP.

Source: Asian Development Bank.

LIST OF LINKED DOCUMENTS

http://www.adb.org/Documents/RRPs/?id=42184-024-3

1. Loan Agreement
2. Project Agreements
3. Sector Assessment (Summary): Water and Other Urban Infrastructure and Services
4. Project Administration Manual
5. Summary of Project Performance
6. Contribution to the ADB Results Framework
7. Development Coordination
8. Attached Technical Assistance: Water Financing Partnership Facility for the Management and Reuse of Sewage Sludge from On-Site Sanitation Facilities and Decentralized Wastewater Treatment Plants
9. Financial Analysis
10. Economic Analysis
11. Country Economic Indicators
12. Summary Poverty Reduction and Social Strategy
13. Initial Environmental Examination
14. Risk Assessment and Risk Management Plan

Supplementary Documents

15. Financial and Economic Analysis (Tables)
16. Financial Management Analysis
17. Procurement Capacity Assessment