



Technical Assistance Report

Project Number: 51199-002
Transaction Technical Assistance (TRTA)
September 2017

Mongolia: Ulaanbaatar Air Quality Improvement Program

Asian Development Bank

CURRENCY EQUIVALENTS

(as of 18 September 2017)

Currency unit	–	togrog (MNT)
MNT1.00	=	\$0.000407
\$1.00	=	MNT2,454.00

ABBREVIATIONS

ADB	–	Asian Development Bank
IAP	–	implementation action plan
µg/m ³	–	micrograms per cubic meter
PBL	–	policy-based loan
PM _{2.5}	–	particulate matter of less than 2.5 micrometers in diameter
TA	–	technical assistance

NOTE

In this report, "\$" refers to US dollars.

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TECHNICAL ASSISTANCE FOR PROGRAM PREPARATION

A. Justification

1. The proposed technical assistance (TA) was requested by the Government of Mongolia to meet the capacity building needs of implementing agencies and facilitate the compliance of policy actions while improving their effectiveness and future sustainability.
2. Some of the policy changes that the policy-based loan aims to promote might be politically unpopular and difficult for the public to accept (e.g., policy action on preferential tax for higher-quality, less-polluting, and transportation fuel). Environmental education, such as on the link between air pollution and health, and fuel consumption and the environment, is critical to secure public support. The TA will recruit an environment education and communication specialist to assist the government in designing and implementing effective campaigns to educate citizens on the health risks from air pollution, and on environmentally friendly behaviors that can cumulatively reduce emission.
3. In addition, better understanding of air pollution problems and quality assurance would improve the usefulness of the air quality data to assess progress and inform new air pollution policies. The Ulaanbaatar urban air quality and emission monitoring network would benefit from a needs assessment, upgrade, and expansion (to cover the rapidly expanding urban areas). The air quality monitoring specialist will assist the central and municipal agencies in preparing a roadmap for the monitoring network upgrades. A needs assessment will also be conducted for the portable emission monitors for compliance control (e.g., heat-only boilers' or vehicles' compliance with emission standards). A budget plan will be developed for fundraising.
4. Government agencies need assistance in devising sustainable solutions and financial incentives for greening the construction sector and promoting innovative yet affordable heating technologies—including alternatives to coal-based products; insulation and other energy-efficiency construction materials; and suitable feed-in tariffs for small-scale, renewable energy generation. Although there are multiple alternatives to household coal heating solutions (such as district heating, gas, electrical, and renewable heating), the government's challenge is to prioritize cost-efficient, time-bound interventions. Another challenge is to understand the affordability for individual households to replace traditional coal heating stoves with alternative clean technologies and improve their energy efficiency. Also, knowledge and capacity have been identified as constraints for government agencies and the private sector to access international climate financing for green technologies.

B. Major Outputs and Activities

5. **Output 1. Environmental education and outreach programs designed and delivered.** Environmental education on the link between fuel use and air pollution, air pollution and health, and air pollution and climate change is critical to secure public support for policy changes that may be politically unpopular or difficult for the public to accept, but can reduce cumulative emissions.
6. **Output 2. Air quality and air pollution monitoring capacity improved.** The needs of the Ulaanbaatar ambient air quality monitoring network will be assessed, and suggestions will be made on technology suitable for the city (e.g., monitors for particulate matter of less than 2.5 micrometers in diameter [PM_{2.5}]). The assessment will also review the appropriateness of low-cost air-quality sensors to further expand the network at a manageable cost. The improved

ambient air quality network will be complemented by portable emission monitors for compliance control (e.g., heat-only boilers' or vehicles' compliance with emission standards).

7. **Output 3. Green technologies, and financing mechanisms for their uptake, assessed and introduced.** The technical evaluation of energy-efficient heating systems and construction modes needs to be complemented by an assessment of financing strategies that government institutions and the private sector can use to ensure those technologies can be purchased and sustainably used by households. Capacity building is also needed to enable public institutions and enterprises to design cleaner and greener projects and access the growing opportunities for climate financing available to Mongolia. Such projects will be demonstrated by at least one pilot project.

8. The major outputs and activities are summarized in Table A3.1.

Table A3.1: Summary of Major Outputs and Activities

Major Activities	Expected Completion Date	Major Outputs	Expected Completion Date
Environmental education and outreach programs	October 2018	<ul style="list-style-type: none"> Public awareness campaigns developed; and Public awareness campaigns delivered. 	October 2018
Air quality and pollution control monitoring	March 2018	<ul style="list-style-type: none"> Assessment of needs and suitable ambient and emission monitoring technologies for Ulaanbaatar conducted; and Budget plan developed. 	March 2018
Green urban infrastructure and green finance	September 2018	<ul style="list-style-type: none"> Assessment of green technologies suitable for Ulaanbaatar and of financing mechanisms for their uptake conducted; At least two workshops on green and climate finance access delivered to public agencies and private sector SMEs; and At least one pilot demonstration project developed and approved. 	September 2018

SME = small and medium-sized enterprise.
Source: Asian Development Bank estimates.

C. Cost Estimate and Proposed Financing Arrangement

9. The TA is estimated to cost \$500,000, to be financed on a grant basis by the Asian Development Bank's (ADB) Technical Assistance Special Fund (TASF-VI) (\$250,000), and the Cities Development Initiative for Asia Fund (\$250,000). The government will provide counterpart support in the form of counterpart staff to facilitate dialogue with implementing agencies, office space for meetings, and other in-kind contributions. The detailed cost estimate is presented in Table A3.2.

Table A3.2: Cost Estimates and Financing Plan (\$'000)

Item	Total Cost
A. Asian Development Bank^a	
1. Consultants	
a. Remuneration and per diem	

Item	Total Cost
i. International consultants (6 person-months)	133.0
ii. National consultants (4 person-months)	24.0
b. International travel	21.0
2. Workshops, training, seminars, and conferences	7.0
3. Surveys	12.0
4. Miscellaneous administration and support costs ^b	30.0
5. Contingencies	23.0
Subtotal	250.0
B. Cities Development Initiative for Asia^c	
1. Consultants	
a. Remuneration and per diem	
i. International consultant (7 person-months)	155.0
b. International travel	14.0
2. Workshops, training, seminars, and conferences	40.0
3. Surveys	12.0
4. Miscellaneous administration and support costs	6.0
5. Contingencies	23.0
Subtotal	250.0
TOTAL	500.0

^a Financed by the Asian Development Bank's Technical Assistance Special Fund (TASF-VI).

^b Includes interpretation and translation costs.

^c Cities Development Initiative for Asia will recruit the urban green infrastructure and climate finance specialist.
Source: Asian Development Bank estimates.

D. Consulting Services

10. Four international specialists will be engaged for a total of 13 person-months, and two national specialists will be engaged for a total of 4 person-months. ADB will engage individual consultants in accordance with ADB Procurement Policy and Procurement Regulations for ADB Borrowers (2017, as amended from time to time). The consultants will work under ADB's supervision and in close coordination with the program's implementing agencies under executing agency supervision.

Table A3.3: Summary of Consulting Services Requirement

Positions	Person-Months Required	
	ADB	CDIA
International		
Environment education and communication specialist	3	
Air quality monitoring specialist	3	
Urban green infrastructure and climate finance specialist		7
National		
Environment education and communication specialist	2	
Urban green infrastructure and climate finance specialist	2	

ADB = Asian Development Bank, CDIA = Cities Development Initiative for Asia.

Source: ADB estimates.

11. The outline terms of reference for the TA consultants are described in paras. 12–14.

12. **Environment education and communication specialists** (international, 3 person-months; and national, 2 person-months). The specialists will have master's degree or higher in natural resources management, environmental management, or communications, with excellent communication and facilitation skills. The specialists will have at least 8 years' experience in environmental education and outreach, as well as in developing and implementing professional programs for educators with written and/or multimedia content for various audiences.

13. **Air quality monitoring specialist** (international, 3 person-months). The specialist will have a master's degree or higher in environmental engineering, air pollution sciences, or related field. The specialist will have at least 10 years' experience in air pollution monitoring, preferably with dedicated experience in air pollution issues in developing countries. The specialist will also have demonstrated ability to develop and manage research activities on air quality management tools, such as fugitive emission inventories and ambient air quality measurements.

14. **Urban green infrastructure and climate finance specialists** (international, 7 person-months; and national, 2 person-months). The specialists will have a postgraduate degree in economics, finance, public policy and management, or a related discipline; and 15 years' experience related to financing urban infrastructure. The specialists must have experience in credit risk evaluation. Experience in Mongolia and knowledge of public and private sector climate change mitigation and adaptation finance is desirable.

E. Implementation Arrangements

15. The TA executing agency will be the Ministry of Finance, and the implementing agencies will be the Ulaanbaatar Municipality, the Ministry of Construction and Urban Development, and the Ministry of Environment and Tourism.

16. The proposed TA processing and implementation schedule is listed in Table A3.4.

Table A3.4: Technical Assistance Processing and Implementation Schedule

Major Milestones	Expected Completion Date
Approval of concept paper	September 2017
Consultant selection and mobilization	September 2017
TA midterm review	March 2018
TA final review	September 2018
TA closing	December 2018

TA = technical assistance.

Source: Asian Development Bank estimates.