Technical Assistance Report

Project Number: 48062-002
Capacity Development Technical Assistance (CDTA)
December 2014

Mongolia: Strategic Planning for Peatlands

(Financed by the Japan Fund for Poverty Reduction)

Asian Development Bank

CURRENCY EQUIVALENTS
(as of 3 December 2014)

Currency unit	–	togrog (MNT)
MNT1.00	=	$0.00053
$1.00	=	MNT1,878.00

ABBREVIATIONS

ADB	–	Asian Development Bank
CO_2	–	carbon dioxide
GHG	–	greenhouse gas
GIS	–	geographic information system
MEGD	–	Ministry of Environment and Green Development
TA	–	technical assistance

NOTE

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

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CAPACITY DEVELOPMENT TECHNICAL ASSISTANCE AT A GLANCE

1. Basic Data — **Project Number:** 48062-002

Project Name	Strategic Planning for Peatlands	**Department /Division**	EARD/EAER
Country	Mongolia	**Executing Agency**	Ministry of Environment and Green Development
Borrower	Not applicable		

2. Sector	**Subsector(s)**	**Financing ($ million)**
✓ Agriculture, natural resources and rural development	Forestry	0.14
	Land-based natural resources management	0.14
	Water-based natural resources management	0.13
	Total	**0.40**

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	High
Environmentally sustainable growth (ESG)	Eco-efficiency Natural resources conservation		
Regional integration (RCI)	Pillar 4: Other regional public goods		

4. Drivers of Change	**Components**	**Gender Equity and Mainstreaming**	
Governance and capacity development (GCD)	Civil society participation	No gender elements (NGE)	✓
Knowledge solutions (KNS)	Application and use of new knowledge solutions in key operational areas Knowledge sharing activities		
Partnerships (PAR)	Civil society organizations Implementation United Nations organization		

5. Poverty Targeting		**Location Impact**
Project directly targets poverty	No	Not Applicable

6. TA Category: B

7. Safeguard Categorization Not Applicable

8. Financing

Modality and Sources	**Amount ($ million)**
ADB	**0.00**
None	0.00
Cofinancing	**0.40**
Japan Fund for Poverty Reduction	0.40
Counterpart	**0.00**
None	0.00
Total	**0.40**

9. Effective Development Cooperation

Use of country procurement systems	No
Use of country public financial management systems	No

I. INTRODUCTION

1. During the 2014 country programming mission, the Government of Mongolia requested capacity development technical assistance (TA) from the Asian Development Bank (ADB) to implement a rapid assessment study, build capacity, and identify national priority actions for peatlands management in Mongolia.[1] The TA has been included in ADB's country operations business plan, 2014–2016.[2] In June 2014, an ADB mission visited Mongolia and reached an understanding with the Ministry of Environment and Green Development (MEGD) and other stakeholders on the TA project's impact, outcome, outputs, cost estimates and financing plan, implementation arrangements, and consultants' terms of reference. The design and monitoring framework is in Appendix 1.

II. ISSUES

2. Peatlands provide many important ecosystem services, including water regulation, biodiversity conservation, carbon sequestration and storage; and maintain productive pasture land for livestock grazing.[3] Peatlands and organic soils contain 30% of the world's soil carbon but only cover 3% of the earth's land area. To date, 15% of global peatlands are estimated to have been drained and converted to other uses, including for agricultural development, peat mining, and forestry, especially for bioenergy plantations. Including emissions from peat fires, these drained peatlands emit almost 6% of anthropogenic carbon dioxide (CO_2) emissions globally. This represents almost 25% of emissions from the entire land use, land use change, and forestry sector.

3. In Mongolia, peatlands constitute the last wet habitats in a major part of the country. The peatlands maintain wet habitats and pastures, feed rivers, prevent soil erosion, maintain levels of groundwater necessary for forest and crop growth, and keep wells full of water. During dry periods, which may continue for years, the moisture preserved in peatlands is a source of life and a barrier to desertification.[4]

4. Preliminary research findings indicate that almost 27,000 square kilometers (or almost 2% of Mongolia) are covered by peat. Peatlands are mainly used for grazing and sometimes as arable land, and belong to the most productive pasture areas in the country. Private cattle husbandry and the consequent overgrazing since the late 1990s are threatening peatlands. For example, overgrazing and human-induced fires, combined with recent climate change, have led to the loss of thousands of hectares of peatlands in the Orkhon and Ider valleys and the Darkhat intermontane basin. The hydrological and climate mitigation functions of these critical peatlands in Mongolia are being compromised for two reasons: (i) the expansion of pastures in peatland areas, which has been a consequence of long-term drought; and (ii) the development of extractive industries (gold, wolfram, and molybdenum).

5. Information regarding the distribution, natural functions, threats, and status of peatlands in Mongolia is insufficient and poor. This contributes to the lack of attention to peatlands in

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[1] The TA first appeared in the business opportunities section of ADB's website on 23 October 2014.

[2] ADB. 2014. *Country Operations Business Plan: Mongolia, 2014–2016*. Manila.

[3] Peatlands are wetlands with a thick water-logged organic soil layer (peat) made up of dead and decaying plant material. Peatlands include moors, bogs, mires, peat swamp forests, and permafrost tundra (Wetlands International. http://www.wetlands.org). In Mongolia, peatlands are one of the most productive pasture areas (International Mire Conservation Group. http://www.imcg.net).

[4] Minayeva et al. 2005. Mongolian Mires: From Taiga to Desert. *Stapfia 85.* Catalog of Upper Austria National Museum. New Series 35. 335-352. http://www.landesmuseum.at/pdf_frei_remote/STAPFIA_0085_0335-0352.pdf.

national development plans. Consequences of peatland degradation in Mongolia are not only loss of biodiversity and carbon stores, but also the loss of important and sometimes the last source of water in the middle range mountains. These peatlands protect permafrost lenses, which fulfill the role of glacial water reserves in high mountains. Highland peatlands accumulate a lot of precipitation, serving as water storage basins. This hydrological role of peatlands has not been addressed in land use planning to date in Mongolia. Recognizing the urgent need to address this issue and build capacity for peatland management in a systematic way, the government requested this TA.

6. In 2006, Mongolia's total net greenhouse gas (GHG) emissions were reported as only 15.6 million tons of CO_2 equivalent.[5] The report stated that the fastest growth in emissions in the future will be from the energy sector at 12.0% per annum over 2006–2030, as opposed to 0.2% for the agriculture sector. In 2008, estimated emissions of up to 45 million tons per annum put Mongolia as the seventh largest global emitter of CO_2 from degrading peatlands.[6] These figures show that the enormous amount of emissions from degrading peatlands in Mongolia has not yet been fully estimated and reported. In addition, the policy framework in place is inadequate to prevent further deterioration and facilitate restoration. An up-to-date overview of the distribution and status of peatlands in Mongolia is urgently needed to improve estimation of GHG emissions and formulate priority actions.

7. From a global perspective, better insight into peatlands emissions is necessary because the United Nations Framework Convention on Climate Change has started discussions on the position of land use in post-2020 GHG accounting, within the new global climate treaty. Better data on the distribution and status of peatlands are necessary for this. Countries are also being urged to consider the inclusion of peatlands in their nationally appropriate mitigation actions.

8. In 2003, Mongolia participated in the Global Peatland Initiative financed by the Netherlands. In 2007, an additional expedition to cover the eastern part of Mongolia (Onon river basin) took place and included field surveys and paleoecological studies. Preliminary work on the distribution of peatlands in Mongolia was conducted during these scientific surveys, but almost no other work has been done on peatlands in Mongolia. This TA builds on this work in Mongolia and current global and national initiatives in peatland management, restoration, and sustainable use.

9. The TA supports the interim country partnership strategy, 2014–2016 for Mongolia as part of the core sector on agriculture, natural resources, and rural development.[7] To prevent natural resource degradation and environmental pollution, the interim strategy indicates that ADB will support sustainable management of natural resources (i.e., water, land, forests, and peatlands); water security and information management; and protected area management. The TA directly responds to the priorities identified in the National Action Program on Climate Change (ratified by Parliament in 2010) in Mongolia. It responds to the action program's strategic objective 1, on supporting the establishment of the institutional framework on climate change; strategic objective 2, on strengthening national adaptation capacity; strategic objective 4, on capacity building related to climate change monitoring; and strategic objective 5, on community participation and livelihood support in relation to climate change. Measures outlined in the action program that this TA will support include the need to (i) develop action

[5] Government of Mongolia, Ministry of Nature, Environment and Tourism. 2010. *Mongolia Second National Communication.* Ulaanbaatar. http://unfccc.int/resource/docs/natc/mongnc2.pdf

[6] H. Joosten. 2010. *The Global Peatland CO_2 Picture: Peatland Status and Drainage Related Emissions in All Countries of the World*. The Netherlands: Wetlands International.

[7] ADB. 2014. *Interim Country Partnership Strategy: Mongolia, 2014–2016*. Manila.

programs for climate change adaptation in vulnerable sectors (e.g., livestock, agriculture, and water resources); (ii) enhance management systems for forest conservation and key ecological restoration programs in response to climate change; and (iii) reduce land degradation and desertification, and increase the carbon sequestration potential of pasture and soils. The proposed TA also supports Mongolia's commitments to the Convention on Biological Diversity and the Ramsar Convention on Wetlands.

III. THE CAPACITY DEVELOPMENT TECHNICAL ASSISTANCE

A. Impact and Outcome

10. The impact will be improved management of peatlands in Mongolia. It is expected that by 2020, MEGD will achieve its targets for improved management of peatlands and associated water resources as set out in the approved strategic plan, in accordance with the prescribed timelines.

11. The outcome will be increased capacity of key stakeholders and an improved planning and implementation framework for peatland restoration and management in Mongolia. The TA will contribute to improved environmental management and sustainable development in Mongolia by supporting the government's efforts in developing a strategic plan for peatland restoration and management. Through capacity building and development of priorities for peatland management and restoration, the TA will address climate change, ecosystem, and water management issues; and develop opportunities for improved livelihoods for communities dependent or associated with peatlands.

B. Methodology and Key Activities

12. The TA aims to achieve the outcome through the following outputs and associated activities.

13. **Output 1: A review and assessment of the distribution and status of peatlands in Mongolia.** This output will provide a better understanding of the distribution, status, diversity, functional characteristics, uses, and threats to peatlands based on literature reviews and gap-filling activities. The assessment will include a brief analysis of the social, economic, legal, and institutional aspects related to peatland management in Mongolia. Activities will include (i) literature review and field surveys, including preparation and analysis of additional remote sensing information; (ii) stakeholder and expert group meetings and capacity building on peatlands during information gathering; (iii) gap analysis and risk analysis for peatlands, and the ecosystem services it provides; (iv) estimation of emissions from peatlands; and (v) preparation of an assessment report on peatlands in Mongolia.[8] The TA is discussing cooperation and input from the Japan Aerospace Exploration Agency on additional remote sensing data to help with the gap-filling exercise.

14. **Output 2: Enhanced awareness and capacity of key stakeholders at the national and local levels in relation to sustainable management of peatlands.** This output will emphasize the development and initial implementation of a communication and stakeholder engagement strategy to build the awareness and capacity of key stakeholders regarding the

[8] In addition to new sites, for comparison purposes, it is proposed that the field survey sites include the sites where past preliminary peatland surveys were conducted. These include those sites located in Hovsgol, Arkhangai, Khentil and Selenge *aimags*.

role of peatlands in the ecosystem, and linkages to climate change and livelihoods. Activities will include (i) preparation of information material on peatlands in Mongolia, in the most appropriate format; (ii) capacity building and awareness programs targeting key sectors and communities in relation to peatland management and sustainable use; and (iii) preparation of a knowledge product (policy brief) on peatland management in Mongolia. Capacity building activities will be incorporated into the key consultation meetings and workshops planned under the TA.

15. **Output 3: A draft action plan with priorities for sustainable peatland management in Mongolia prepared.** The action plan for peatlands will include recommendations for management and restoration actions needed, and the financial resource requirements for implementation of these activities. The role of local communities and the private sector in peatland management and restoration (e.g., the mining industry) will also be explored, along with other innovative financing mechanisms for peatland management and restoration. Recommendations on the possible development of nationally appropriate mitigation actions associated with peatlands will also be explored. Anticipated activities include (i) establishment of a working group for development of the action plan; (ii) stakeholder consultation workshops; (iii) preparation of a draft action plan and priorities for peatland management in Mongolia, including recommendations for peatland-related mitigation actions; and (iv) recommendations for peatland management and livelihood improvement activities of the reindeer herders of northwestern Mongolia.[9]

C. Cost and Financing

16. The TA is estimated to cost $450,000, of which $400,000 will be financed on a grant basis by the Japan Fund for Poverty Reduction and administered by ADB. Complementary assistance will be provided by the Knowledge and Innovation Support for ADB's Water Financing Program through the engagement of one international expert under the ADB-UNESCO-IHE Institute for Water Education knowledge partnership.[10] The government will provide counterpart support in the form of counterpart staff time, logistical support, office facilities, cofinancing of workshops, and other in-kind contributions. The TA will be disbursed in accordance with the *Technical Assistance Disbursement Handbook* (2010, as amended from time to time). The cost estimates and financing plan are in Appendix 2.

D. Implementation Arrangements

17. The TA will be implemented from 1 January 2015 to 30 June 2016. MEGD will be the executing agency. A TA management office will be established in MEGD and will be responsible for day-to-day operations with ADB, consultants, and related government agencies. The chairperson of the climate change coordination office at MEGD will be the executive director of the TA management office. Advance payment facility will be set up within the TA management office, subject to the capacity of MEGD to complete the activities and liquidate advance payments according to ADB's procedures. The project officer of the climate change coordination office at MEGD will serve as the overall manager of the TA and will be responsible for coordination among ADB, consultants, and related government agencies.

[9] The Ministry of Environment and Green Development had also requested that the TA organize an international workshop or conference on peatlands. This will be discussed during the inception phase, and options for financing this international workshop will be explored during the TA inception phase.

[10] ADB. 2008. *Technical Assistance for Knowledge and Innovation Support for ADB's Water Financing Program.* Manila.

18. It is estimated that the TA will require 7 person-months of international and 15 person-months of national consulting services. Two international consultants (peatland management and restoration specialist and team leader, and remote sensing specialist) and four national consultants (ecosystem management and peatland specialist and deputy team leader, geographic information system specialist, communications and capacity building specialist, and social development specialist) will be required for TA implementation. A consulting firm will be engaged by ADB following its Guidelines on the Use of Consultants (2013, as amended from time to time) using the quality- and cost-based selection method, with a quality–cost weighing ratio of 80:20. The simplified technical proposal method will be used. Equipment will be procured following ADB's Procurement Guidelines (2013, as amended from time to time) and will be handed over to MEGD upon completion of the proposed TA. Operational expenses for translation, printing, and organizing of TA-related workshops will be included in the consultant's contract. The draft outline terms of reference for consultants are in Appendix 3. To support the field surveys (including geographic information systems and mapping work), it is expected that Mongolian technical institutes will be subcontracted by the main consulting firm during the inception phase of the TA.

19. A TA steering committee will be established to provide guidance on project implementation issues and to ensure intra- and inter-departmental coordination. The vice minister for environment and green development will chair the committee, which will consist of members from relevant sectors, research institutes, and civil society organizations. It is proposed that the following organizations and departments be represented on the TA steering committee—MEGD (including the focal points of the Convention on Biological Diversity, the Ramsar Convention on Wetlands, and the United Nations Framework Convention on Climate Change), the Division of Forest Conservation and Reforestation Management, MEGD, Ministry of Industry and Agriculture, National Emergency Management Agency, Institute of Botany, Institute of Meteorology and Hydrology, School of Power Engineering at the Mongolian University of Science and Technology, Institute of Hydrology and Meteorology, and Mongolian Environmental Civil Council. A separate technical working group will provide technical input to the draft peatland action plan developed by the consultants' team. The composition of the technical working group will be discussed at the TA inception workshop. MEGD will chair this technical working group.

20. Inception, interim, and final review missions will be fielded; and tripartite meetings will be held during the missions to review the consultants' performance, and TA implementation progress and deliverables, based on the design and monitoring framework and the consultants' work plan. The missions will also monitor the government's inputs and contributions as documented in the final TA report. The performance of the TA, including its outputs and outcomes, will be evaluated during the final review mission based on the design and monitoring framework. Good practices and lessons will be disseminated through workshops, conferences, and publications.

IV. THE PRESIDENT'S DECISION

21. The President, acting under the authority delegated by the Board, has approved ADB administering technical assistance not exceeding the equivalent of $400,000 to the Government of Mongolia to be financed on a grant basis by the Japan Fund for Poverty Reduction for Strategic Planning for Peatlands, and hereby reports this action to the Board.

DESIGN AND MONITORING FRAMEWORK

Design Summary	Performance Targets and Indicators with Baselines[a]	Data Sources and Reporting Mechanisms	Assumptions and Risks
Impact Improved management of peatlands in Mongolia	By 2020: MEGD achieves its targets for improved management of peatlands and associated water resources as set out in the approved strategic plan in accordance with the prescribed timelines	Annual reports of MEGD	**Assumptions** Key priorities for peatlands are adopted by Parliament Relevant sectors are committed to the need for improved peatland management and restoration in Mongolia
Outcome Increased capacity of key stakeholders and an improved planning and implementation framework for peatland restoration and management in Mongolia	By June 2016: The key priorities of the peatland action plan are submitted by MEGD for parliament level adoption as a subprogram under the National Action Program for Climate Change	Official communication from MEGD Climate Change Coordination Office	**Assumption** MEGD has sufficiently strong leadership and mandate for project coordination and management. **Risk** Stakeholder groups may have conflicting priorities for exploitation of peatlands
Outputs **1.** A review and assessment of the distribution and status of peatlands in Mongolia	Preliminary field surveys and assessments completed by month 6 Preliminary assessment reports and mapping presented by month 10, during the interim review mission	TA review mission reports and memorandums of understanding Consultant technical reports from study Documentation of regular dialogue and feedback from the executing and implementing agencies	**Assumption** Good inter-sectoral cooperation and data sharing among key sectors and support provided to the consultant team
2. Enhanced awareness and capacity of key stakeholders at the national and local levels in relation to sustainable management of peatlands	Participants in national and local level capacity building workshops (at least two to be held under the TA) on peatland management and sustainable use are able to prioritize actions for peatland management and restoration based on best available information and knowledge Draft knowledge product discussed by month 10 at the interim workshop	Preliminary priorities for peatland management and restoration based on sound rationales are identified by MEGD in meeting notes from workshops	

Design Summary	Performance Targets and Indicators with Baselines[a]	Data Sources and Reporting Mechanisms	Assumptions and Risks
3. A draft action plan with priorities for sustainable peatland management in Mongolia prepared	Preliminary draft action plan prepared by month 10 and discussed during interim review mission (Baseline: No action plan on peatlands available)	Interim report includes draft action plan	**Assumption** Key stakeholders provide input to preparation of the peatland action plan
Activities with Milestones[a] Organize TA launching workshop in month 1. Mobilize team of experts, develop study framework, and complete inception activities by month 3. Prepare inception report with detailed approach and implementation arrangements; organize inception workshop by month 3. Organize interim review mission and meeting; prepare report by month 10. Prepare the final report, summarizing key results and the way forward by month 15. Organize final review mission and final workshop by month 16. Prepare and submit revised final report and action plan by month 17. **1. A review and assessment of the distribution and status of peatlands in Mongolia** 1.1. Conduct literature review on peatland management in Mongolia by month 4. 1.2. Implement and complete selected rapid field assessments or surveys by month 6. 1.3. Organize small-scale stakeholder consultation workshops for capacity building and information gathering on Mongolian peatlands and management issues by month 7. 1.4. Prepare draft assessment report by month 10. **2. Enhanced awareness and capacity of key stakeholders at the national and local level in relation to sustainable management of peatlands** 2.1. Prepare information material on peatland management in Mongolia by month 8. 2.2. Conduct capacity building and awareness activities targeting key sectors in relation to peatland management and sustainable use throughout TA implementation, in particular during scheduled workshops. 2.3. Prepare a knowledge product (policy brief) on peatland management in Mongolia by month 14. **3. A draft action plan with priorities for sustainable peatland management in Mongolia prepared** 3.1. Establish working group for development and input to the action plan by month 3. 3.2. Organize consultations with key communities and NGOs in the targeted pilot sites (especially the reindeer herders of northwestern Mongolia) on peatland management issues and activities to support livelihood improvement. 3.3. Prepare draft final report and action plan and priorities for peatland management in Mongolia by month 15. 3.4. Organize stakeholder consultation workshops, including a final workshop on peatland management, by month 16.			**Inputs** **ADB: $400,000** Note: The government will provide counterpart support in the form of counterpart staff time, logistical support, office facilities, cofinancing of workshops, and other in-kind contributions.

ADB = Asian Development Bank, MEGD = Ministry of Environment and Green Development, NGO = nongovernment organization, TA = technical assistance.

[a] The starting point of all references to “by month xx” in this section is from the estimated TA effectiveness date of 1 January 2015.

Source: Asian Development Bank.

COST ESTIMATES AND FINANCING PLAN

($'000)

Item	Amount
Japan Fund for Poverty Reduction[a]	
1. Consultants	
a. Remuneration and per diem	
i. International consultants[b]	132.0
ii. National consultants[c]	98.0
b. International and local travel[d]	24.0
c. Reports and communications[e]	12.0
2. Equipment[f]	25.0
3. Workshops, local training, seminars, and conferences[g]	27.0
4. Surveys[h]	40.0
5. Miscellaneous administration and support costs[i]	14.0
6. Contingencies[j]	28.0
Total	**400.0**

Note: The technical assistance (TA) is estimated to cost $450,000, of which contributions from the Japan Fund for Poverty Reduction are presented in the table above. The government will provide counterpart support in the form of counterpart staff time, logistical support, office facilities, cofinancing of workshops, and other in-kind contributions. The value of government contribution is estimated to account for 11% of the total TA cost.

[a] Administered by the Asian Development Bank.

[b] For 5 months of time input of the international peatland management and restoration specialist and team leader, which includes an anticipated 3 months in the field.

[c] For the national ecosystem management and peatland specialist, geographical information system (GIS) specialist, social development specialist, and communications and capacity building specialist.

[d] Includes three international roundtrips for the international peatland management and restoration specialist and team leader, and domestic travel for both international and national specialists.

[e] Includes the cost for translation and printing of the knowledge product (policy brief) and other reports.

[f] Includes the cost for equipment and data. Anticipated equipment includes field survey equipment—two global positioning system units, one laptop computer, and the cost of purchasing remote sensing data from external agencies. Equipment purchased under the TA will be turned over to the executing agency upon completion of the TA.

[g] Includes costs for workshops (launching, inception, interim, and final) and provincial level consultation meetings.

[h] Costs for actual survey work, including engaging additional research assistants to support field survey work and national technical institutes to support the survey and GIS mapping work.

[i] For review and editing of the knowledge product (policy brief) and other unanticipated administrative costs.

Source: Asian Development Bank estimates.

OUTLINE TERMS OF REFERENCE FOR CONSULTANTS

1. The technical assistance (TA) will require 7 person-months of international and 15 person-months of national consulting services. Two international consultants (peatland management and restoration specialist and team leader, and remote sensing specialist);[1] and four national consultants (ecosystem management and peatland specialist and deputy team leader, geographic information system (GIS) specialist, communications and capacity building specialist, and social development specialist) will be required for TA implementation. A consulting firm will be engaged by the Asian Development Bank (ADB) following its Guidelines on the Use of Consultants (2013, as amended from time to time) using the quality- and cost-based selection method, with a quality–cost weighing ratio of 80:20. The simplified technical proposal method will be used. Operational expenses for translation, printing, and organizing of TA-related workshops will be included in the consultant's contract. The Ministry of Environment and Green Development (MEGD) will be responsible for organizing the TA launching workshop. Disbursements under the TA will be done following ADB's *Technical Assistance Disbursement Handbook* (2010, as amended from time to time).

2. The consultant team leader will submit the following reports upon consolidation of the input from the relevant individual consultants: (i) an inception report within 3 months after the TA starts; (ii) an interim report 10 months after TA effectiveness; (iii) a draft final report and knowledge product 15 months after TA effectiveness; and (iv) a revised final report at the conclusion of the TA. The final report will reflect comments made by ADB, the government agencies, and other relevant parties. The consultants will submit all reports—six copies each in English and Mongolian—to the government, and three copies of the English version to ADB, including an electronic copy on CD-ROM. The reports will be published in English and Mongolian languages, and posted on the websites of ADB and MEGD.

A. Terms of Reference

3. **Peatland management and restoration specialist and team leader** (international, 5 person-months). The specialist will be responsible for the overall coordination and supervision of the TA activities and outputs, and day-to-day liaison with the executing and implementing agencies as well as with other national government agencies supporting the related work. The specialist will have (i) an advanced university degree in environmental science, natural resources management, or a related field, with at least 10 years of relevant experience; (ii) a sound understanding of the issues affecting peatlands, hydrological management, and broader wetland ecosystem restoration and management; (iii) experience and understanding of peatland, climate change, water management and social dimension and/or livelihood linkages, with on-the-ground working knowledge in Mongolia or the region; and (iv) demonstrated experience in similar assignments with international organizations, including functioning as team leader. The specialist will have the following responsibilities:

(i) Develop the overall detailed assessment framework, and take the lead in drafting of the TA inception, midterm, and final reports along with inputs from other specialists and in consultation with MEGD and ADB.

[1] The remote sensing specialist will be recruited separately as this will be financed from the Knowledge and Innovation Support for ADB's Water Financing Program under the ADB-UNESCO-IHE knowledge partnership (ADB. 2008. *Technical Assistance for Knowledge and Innovation Support for ADB's Water Financing Program.* Manila). The arrangements follow the anticipated contract for the partnership between ADB and UNESCO-IHE. The contracting party will be the UNESCO-IHE.

(ii) Coordinate and implement overall assessments of peatlands, field assessments, and remote sensing data requirement and application together with relevant national technical institutes and the remote sensing specialists.
(iii) In consultation with the national ecosystem management and peatland specialist, prepare detailed terms of reference for the technical institutes that will support the surveys (i.e., fieldwork, GIS, and mapping work), and supervise their work.
(iv) Lead in the preparation of field studies, including rapid assessment of social, legal, and institutional issues affecting peatlands, and preparation of priority actions for peatland restoration and sustainable use.
(v) Participate in stakeholder and expert group meetings and provide input to discussion on national priorities for peatland management and restoration.
(vi) Work with the national communications and capacity building specialist in providing input to the preparation of the communication, awareness, and stakeholder engagement action plan in relation to the peatlands in Mongolia.
(vii) Prepare technical thematic content for information material on peatlands, and provide input to the specific deliverables prepared by the communications and capacity building specialist.
(viii) Manage and ensure timely implementation of the project activities.
(ix) Take the lead in the preparation of the knowledge product in consultation with key stakeholders and ADB.
(x) Prepare recommendations for possibilities of nationally appropriate mitigation actions associated with peatlands in discussion with key experts and stakeholders.
(xi) Supervise the national consultants in implementing the field assessments, and consolidate all the reports prepared by the national specialists.
(xii) Coordinate and ensure wide review and feedback from key stakeholders is received on all TA sub-outputs and reports.
(xiii) Work with MEGD and ADB in organizing the TA workshops (i.e., inception, midterm, and final workshops) and other seminars discussing and presenting the TA results.

4. **Remote sensing specialist** (international, 2 person-months). The specialist will obtain and analyze the relevant remote sensing data to support the assessment and mapping of peatlands (footnote 1). This will include analysis of the remote sensing data (optical and radar), including data on soil moisture, land cover, land use, settlements, and other relevant data as agreed with the team leader. Preferably, the consultant will have (i) a university degree (bachelor's degree or above) in remote sensing and GIS or equivalent; and (ii) at least 10 years of experience in analyzing remote sensing data, and classifying land cover and land use with different types of remote sensing data. Previous experience in peatland or wetland distribution and mapping using remote sensing is preferred. The specialist will have the following responsibilities:

(i) Prepare a detailed remote sensing data requirements report at the inception phase in consultation with the consultant team leader, team members, and relevant Mongolian technical institutes engaged to support the TA. The report will include a brief methodology for the remote sensing analyses, and how the data will be used to support the work.
(ii) In consultation with the relevant Mongolian technical institutes and national GIS specialist, review available digital data and mapping information of past preliminary assessment work related to peatlands in Mongolia, and verify the accuracy of key data layers.

(iii) Based on the identified remote sensing data needs, liaise with the relevant earth observation data providers to obtain relevant datasets that will be used to support the assessment and mapping of peatlands, especially targeting key peatland areas identified in past surveys.
(iv) Under the guidance of the team leader, take the lead in analysis of the remote sensing data to support the mapping work for the peatlands.
(v) Participate in the field surveys and ground-truthing exercises when deemed necessary by the team leader.[2]
(vi) Provide technical written input to the remote sensing component of the TA inception, interim, and final reports and workshops as required and requested by the team leader.
(vii) Prepare reports and deliverables in a format agreed with the team leader and ADB.

5. **Ecosystem management and peatland specialist and deputy team leader** (national, 6 person-months). The specialist will have (i) an advanced university degree in environmental sciences, with at least 10 years of relevant experience; (ii) a sound understanding of the ecology, and the functions and values of peatlands in Mongolia; (iii) experience and understanding of peatland, climate change, water management, and livelihood linkages, with on-the-ground working knowledge in Mongolia; and (iv) demonstrated experience in similar assignments. The specialist will have the following responsibilities:

(i) Contribute to the overall detailed assessment framework, and specific components of the TA inception, midterm, and final reports.
(ii) Support the team leader in the peatland assessment work and provide written input based on the field assessments and rapid analysis of the social, economic, legal, and institutional aspects of peatland management.
(iii) Participate in field assessments and the remote sensing data requirement and application together with relevant national technical institutes and the GIS specialist.
(iv) Contribute to the preparation of detailed terms of reference for the technical institution that will support the field surveys and GIS mapping work, and support in the supervision of their work.
(v) Participate in the preparation and implementation of field studies and preparation of the priority actions for peatland restoration and sustainable use.
(vi) Participate in stakeholder and expert group meetings, and provide input to discussion on national priorities for peatland management and restoration.
(vii) Work with the team leader and communications and capacity building specialist to prepare a simple communication and awareness action for the peatlands of Mongolia.
(viii) Contribute to technical contents for information material on peatlands and provide input to the specific deliverables prepared by the communications specialist.
(ix) Work with the team leader in the preparation of the knowledge product.
(x) Prepare technical reports of field assessments in close coordination with the relevant technical institutes participating in the field work.
(xi) Facilitate grassroots level consultation workshops to identify key issues affecting peatlands and livelihoods in selected sites.

[2] Ground-truthing is the process of determining the accuracy of remotely sensed or mathematically calculated data based on data actually measured in the field. http://support.esri.com/en/knowledgebase/GISDictionary/search

(xii) Organize preliminary consultations with the reindeer herders in northwestern Mongolia to understand their livelihood activities in relation to peatland management, and identify initial priorities and opportunities for community-based ecosystem restoration and management and livelihood improvement.
(xiii) Support MEGD and ADB in organizing the TA workshops (i.e., inception, midterm, and final workshops) and other seminars discussing and presenting the TA results.
(xiv) Give presentations at workshops and seminars.
(xv) Provide input to related technical tasks as requested by the TA team leader.

6. **Geographic information system specialist** (national, 4 person-months). The specialist will be responsible for overall preparation of the necessary mapping information for the field assessments and report preparation. The specialist will have (i) at least 10 years of experience in GIS and demonstrated proficiency in GIS software used by the government, and the ability to develop databases; (ii) the ability to compile and harmonize large amounts of digital data efficiently; (iii) the ability to produce high-quality maps; (iv) a sound understanding of, and expertise in, the application of remote sensing data in mapping land use and land cover changes; and (v) a graduate degree or equivalent training in environmental planning or GIS. The specialist will have the following responsibilities:

(i) in liaison with the international remote sensing specialist, prepare maps as required by the team leader and team members.
(ii) prepare a report on the mapping requirements for the TA work based on consultation with the team leader, MEGD, and other specialists.
(iii) liaise with the relevant MEGD or national research institute GIS focal points in preparation of the relevant mapping and data requirements.
(iv) liaise with the international remote sensing specialist and relevant Mongolian institutes in obtaining the necessary remote sensing data, and technical advice for preparation of the required maps.
(v) provide support to the communications and capacity building specialist in the preparation of relevant maps for the information material and knowledge product.
(vi) contribute to preparation of the inception, interim, and final reports of the TA.
(vii) make presentations at workshops or seminars as required.
(viii) provide input into other related technical tasks as requested by the TA team leader.

7. **Communications and capacity building specialist** (national, 3 person-months). The specialist will support the team and will have (i) an advanced university degree in communications with at least 8 years of relevant experience, (ii) a good understanding of development communications, and (iii) demonstrated experience in similar assignments. The specialist will have the following responsibilities:

(i) function as the leading expert in the preparation and implementation of a brief communication plan, to support the crosscutting outputs and intended outcome of the TA.
(ii) support the team leader in the preparation and review of knowledge products and policy briefs.
(iii) prepare information material in the most appropriate format, based on the priorities identified in the communications plan developed during the inception phase.
(iv) provide technical support in the preparation of presentation material for relevant workshops and seminars, especially the capacity building and awareness programs conducted at the national level.

(v) prepare a report on the specific and crosscutting role of communications to support implementation of peatland management and restoration priorities in Mongolia.
(vi) support MEGD and ADB in preparing draft press releases and other public awareness material to raise awareness on the project.
(vii) provide input to related tasks as assigned by the TA team leader.

8. **Social development specialist** (national, 2 person-months). The specialist will support the team by participating in field surveys and conducting a preliminary assessment of the livelihoods relationships between the communities and peatlands in the targeted key areas surveyed. The specialist will have (i) an advanced university degree in social sciences, development studies, or equivalent, with at least 8 years of relevant experience; (ii) a good understanding of ecosystem-based livelihood activities (livestock grazing, farming, agriculture etc.); and (iii) demonstrated experience in similar assignments and assessments. Under the guidance of the team leader, the specialist will have the following responsibilities:

(i) meet with relevant key stakeholders (government, nongovernment organizations, and other relevant organizations) and document preliminary information (social and economic statistics) of the key communities in the targeted project sites.
(ii) implement rapid field assessments in key targeted peatland areas (including the peatlands near the reindeer herders in northwestern Mongolia) to understand the relationship between current livelihood activities and peatland management issues.
(iii) identify livelihood improvement opportunities and possibly other livelihood activities that will support peatland management and restoration.
(iv) contribute to preparation of the inception, interim, and final reports of the TA.
(v) provide input to other related technical tasks as required by the TA team leader.

9. Delivery of the final report and deliverables will be subject to written acceptance by ADB, and such acceptance will be at his/her reasonable discretion.