

Appendixes

- Appendix 1: Summary of the 2001 Country Environmental Analysis
- Appendix 2: Conclusions and Recommendations of the Case Study on Environment and Natural Resource Management
- Appendix 3: Asian Development Bank Lending and Technical Assistance Program in Mongolia (2001–2003)
- Appendix 4: Asian Development Bank Technical Assistance and Lending Projects of Relevance to Mongolia’s Environmental Management (1992–2003)
- Appendix 5: Mongolia Country Environmental Analysis Consultation, 12 April 2004 (List of Participants)
- Appendix 6: Post-2000 Foreign-Aided Environment-Related Projects in Mongolia
- Appendix 7: Laws and Regulations Relating to Environmental Management in Mongolia
- Appendix 8: Special Protected Areas and National Parks in Mongolia (2003)
- Appendix 9: List of Companies Licensed to Perform Detailed Environmental Impact Assessments in Mongolia (2001)
- Appendix 10: Principal Environment-Related Nongovernment Organizations in Mongolia
- Appendix 11: Approach to Risk and Vulnerability Assessment

Summary of the 2001 Country Environmental Analysis

The main text contains a broad review of the current environmental status of Mongolia and the emerging trends, as a basis for formulating recommendations for future Asian Development Bank (ADB)-Government of Mongolia cooperation in the environmental domain.

Among the environmental consequences of dismantling of the old economy and the subsequent pattern of economic transition in Mongolia have been

- (i) increasing pressure on the country's commons, from a return to the land;
- (ii) temporary worsening of prospects for solutions to environmental problems that rely on cost recovery;
- (iii) reduced pollution discharges by industrial entities being offset by reduced treatment and deterioration of urban environmental services;
- (iv) enhanced prospects for ecotourism, but also more illegal exports of wildlife products; and
- (v) steady flow of official development assistance, some of it environment-oriented.

Pastureland degradation in Mongolia has been in part the result of the disappearance of the transport subsidy. Greater spatial imbalance in pastureland use and lowered livestock mobility, rather than increasing livestock numbers, are a key to the observed pattern of degradation.

There has been substantial progress in the organization and regulatory backing of the protected area system. It is uncertain, however, whether these efforts are sufficient to stem a growing pressure on the country's wildlife, including illegal exports of wildlife products.

Forest management continues to be in disarray and forestry something of an institutional orphan. Increased frequency of forest fires in recent years

is a major problem. This is linked to greater reliance of the local population on forest resources for livelihood maintenance. Models and practices of decentralized forest management use are needed.

The trend toward greater urbanization has resumed, after a temporary reversal in the mid-1990s. Ulaanbaatar, in particular, has continued to expand at a fast pace. Much of the existing urban growth has been in periurban areas. This has exacerbated the already pressing issues of air pollution, water supply, and municipal wastewater treatment.

Unsafe and incomplete waste disposal is a major and growing problem in all Mongolian cities. The provisions for dealing with hazardous and toxic waste are inadequate. Other specific problem areas include coal ash disposal, increasing proportion of nondegradable waste, existing incineration practices, and littering. No significant recycling of waste takes place in Mongolia.

Air pollution is a significant problem in Ulaanbaatar during winter, although not as serious as some reports indicate. However, given the continued growth of the capital, its likely future spatial pattern and the likelihood of continued rapid increase in vehicle registrations, a concerted program of remedial action is required, based on a comparison of relative abatement costs of a large number of remedial options.

The coal-using power sector continues to be environmentally backward, despite some retrofitting that took place during the 1990s. Even with substantial development partner assistance in recent years, there is a continued need to replace or improve *soum* (district)- and *aimag* (province)-level diesel generators and improve their functioning. It is the renewables where a number of promising options are found. The use of solar and wind power by individual herding families has been technically proven in Mongolia and could be a major source of improved livelihoods.

There continues to be a serious misallocation of water in Ulaanbaatar and many other cities, with apartment dwellers consuming the bulk of the available water supply. Water is misallocated and mispriced and in effect underpriced. In rural areas, existing wells continue to fall into disrepair and are unlikely to be rehabilitated until new forms of cooperative herd management emerge. Wastewater treatment plants and facilities continue to suffer from lack of repair and maintenance, as well as from absence of appropriate incentive structure for treatment and arrangements for cost recovery.

A vast amount of work was undertaken, directly as well as indirectly, on environmental planning in Mongolia during the 1990s. The same is true of the development of the legislative and regulatory framework for environmental management. Improvements are still possible and needed, but a key challenge now is better implementation. Here, improved funding of local governments' environmental activities is essential, in turn

necessitating a review of natural resource taxation, manner of assigning tax proceeds to different levels of the government, and revenue raising potential of different administrative units.

Environmental impact assessment has been successfully incorporated into Mongolia's environmental practices and substantial practical experience in this type of assessment conduct now exists. Compliance with assessment provisions should be the focus of future attention.

There has been extensive and steady development partner support for environment-related activities in Mongolia. The United Nations Development Programme (UNDP) has continued to perform the usual coordinating role, with some hiccups. Several projects in Mongolia have been financed or cofinanced by the Global Environmental Facility (GEF). Major bilateral programs are in place in Mongolia. Among those with important environment-related components are those of Deutsche Gesellschaft für Technische Zusammenarbeit, European Union, Japan International Cooperation Agency, Netherlands, and United States Agency for International Development.

Environmental conditions and poverty have been linked closely in Mongolia, especially as safety net provisions and social services provided by soums and aimags got substantially scaled down. Environmental problems and livelihood pressures overlap in rural and periurban areas, suggesting potential directions of assistance that simultaneously target environmental improvement and better livelihood. Improving the efficiency of domestic stoves in periurban areas of Mongolia typifies such complementary opportunities.

The review of principal environmental problems and the scale and direction of existing government and foreign-assisted programs directed at the problems resulted in nine priority areas for ADB consideration. It is from this group that elements of modification of the design of existing pipeline projects or widening of the country assistance plan should mainly come. The priorities, in a random order of importance, are as follows:

General Priorities

- (i) ADB needs to build on, and periodically return to, the best work already done in Mongolia. Some of ADB's previous technical assistance retains its validity and should be used to the fullest.
- (ii) Continuity is not desirable where stated objectives have been substantively achieved. New projects should then not be pursued simply

because of ADB's past involvement. This is the case, for instance, with further development of environmental impact assessment in Mongolia.

- (iii) ADB should not necessarily create new environmental programs and projects but try to enhance the positive environmental repercussions of many ongoing or proposed activities. In many cases, these promise to be greater than the impact of projects with more explicit environmental goals.
- (iv) The effectiveness and the Government's ownership of ADB's environment-and-livelihood-improvement projects is substantially enhanced whenever the success of project implementation does not call for, and depend mainly on, the availability of more counterpart resources but demonstrates either income-generating or revenue-generating potential.
- (v) ADB grant resources likely to be available for environmental management objectives in Mongolia are relatively modest compared with those of some bilateral agencies. ADB has never actively sought to match these, nor should it. Neither should ADB compete with UNDP and its coordination role, with one exception: access to GEF resources. The principal vehicles for ADB to maintain or increase its effectiveness in Mongolia's environment should be (i) stepping up its technical and loan cofinancing efforts involving bilaterals and GEF; (ii) making conscious efforts to shape the design of technical assistance and loan projects in ways that provide for a maximum overlap between the objectives of livelihood improvement and environment; and (iii) maximizing impacts through a fuller use of the Mongolia Resident Mission.
- (vi) ADB should not finance any action or master plans related to the environment unless the preparation of such plans has Ministry of Finance and Economy support, besides relevant technical ministry support.
- (vii) While remaining supportive of Ministry of Nature and Environment (MNE), ADB should not equate environmental management in Mongolia with MNE only. ADB should encourage MNE to work more effectively with MID than before and shed some of its reluctance to be a major player in areas such as water management and sanitation policy or industrial pollution control.
- (viii) ADB should consistently seek ways to make environmental policy formulation and execution in Mongolia more informed by economics. There are a large number of situations in Mongolia where planning and investment decisions would benefit from economic valuation of natural resource use. In addition, very little use has so far been made of existing public health statistics and other suitable proxies in

attempting to approximate the economic cost of pollution and resource degradation.

- (ix) There is a general support for the idea of environmental funds in Mongolia. The important debate surrounding such funds' pluses and minuses has not taken place in Mongolia. ADB should promote such debate, supported by experiences in other developing member countries, such as Thailand.

Review of the Terms of Reference and Influencing the Design of Several Existing Technical Assistance and Loan Candidates

If reluctant to change the composition of the country assistance plan 2001–2003, ADB should at least consider modifying the design of some technical assistance and loan candidates in directions suggested by the nine environmental priorities. Specifically, the following is proposed:

Rural Finance (2001 loan). If still possible, consider a component for solar and/or wind power for financing under the Japan Fund for Poverty Reduction, to be integrated into the support to savings and credit unions, the focus of the proposed loan.

Crops Sector Study (2001 advisory technical assistance). If still possible, give specific attention to sustainable farming (use of organic fertilizers, crop rotations, water harvesting, low or no-till practices, integrated pest management, and others).

National Statistics Office Capacity Building in Social Statistics (2001 technical assistance). Strengthen the quality of public health data to support estimates of the health impact of pollution and contamination in Mongolia.

Capacity Building for Aid Coordination (2001 advisory technical assistance). Ensure a prominent place is given to ADB-GEF partnership, having prepared the groundwork for this beforehand. Include a subtopic of closer coordination between MNE and MID (and possibly the Ministry of Food and Agriculture) in implementing environment-oriented projects.

Provincial Towns Urban Services II (2001 project preparatory technical assistance and 2002 loan). The technical assistance to consider the possibility of incorporating (i) a component for upgrading medium-sized boilers in

selected aimags and soums, possibly with GEF cofinancing; (ii) a component for installation of hybrid solar, wind, and diesel systems for selected communal facilities in aimags and soums, possibly with GEF cofinancing. Make solid and toxic and hazardous waste management a significant component of the loan. Draw from the list of priority areas to strengthen the project design.

Integrated Management of Urban Development (2002 advisory technical assistance). Incorporate the consideration of the identified list priorities (solid and toxic and hazardous waste disposal, water and air pollution, and possibly even management of periurban grasslands and pollution permitting and charges).

Rural Sector Employment Generation (2002 project preparatory technical assistance). Prepare a component for ADB-GEF cofinancing supporting livelihood improvement and employment generation in zones adjacent to areas of global biodiversity or international waters importance. Draw from the list of priority areas to strengthen the project design (e.g., forestry, periurban grasslands, and others).

Rural Sector Capacity Building (2003 advisory technical assistance). Consider modifying this in the direction of local land-use planning and zoning, in line with the brief description given earlier. Consider deliberate reformulation of the entire technical assistance undertaking as a project preparatory technical assistance undertaking for ADB-GEF cofinancing with emphasis on improved management of buffer zone resources of arid areas. Rename it Dry Ecosystems Land Management.

Possible Modifications of the Country Assistance Plan (Part I)

This is a matter of possibly including components that are not, or cannot be, easily addressed by projects already in the existing pipeline or under implementation. In terms of technical assistance, the best candidate would be improved financing of local environmental management (as a new advisory technical assistance undertaking expanding the nine priority areas listed previously, which involve economic valuation of natural resources and environmental sinks as a tool for improved implementation of environmental laws and regulations).

Possible Modifications of the Country Assistance Plan (Part II: Asian Development Bank-Global Environmental Facility Partnership)

ADB should pursue an ADB-GEF partnership in Mongolia because Mongolia offers an unusually large number of opportunities for simultaneously generating global benefits and reducing poverty. The decision to seek actively such an association, however, has programming consequences. The existing country assistance plan makes little room for this or is insufficiently well articulated to judge whether such room exists. The pursuit of ADB-GEF partnership requires that a dialogue be established with the main competitors for GEF grant funds in Mongolia (i.e., UNDP and the World Bank). In overcoming this omission, three approaches suggest themselves: (i) formulation of components for GEF funding to be included into projects already in the country assistance plan (as suggested), (ii) suitable reformulation of some of the existing pipeline projects (also mentioned); and (iii) formulation of new stand-alone technical assistance or loan projects for ADB-GEF cofinancing. The most suitable in the last-mentioned category would be activities designed to lessen land degradation pressures on the Mongolian side of transboundary watersheds and promotion of solar and wind power among the dispersed (and, in Mongolia, mobile) rural population. This should initially be structured to fit GEF's Operational Program 6 rather than necessarily conceived in the expectation of financing by the Clean Development Mechanism of the United Nations Framework Convention on Climate Change. The experience of the ALGAS project should be reviewed to assist a possible search for attractive greenhouse gas-reducing options with low policy barriers applicable to Mongolia.

The Mongolia Resident Mission is well placed to act as a facilitator in any ADB-GEF partnership initiatives in Mongolia and should be assigned such a responsibility.

Regional Activities

ADB should continue to assist Mongolia in integrating itself into emerging regional groupings, especially those involving ADB's developing member countries. In particular, the Regional Cooperation for Sustainable Mountain Development in Central Asia, based on RETA 5876, should be enlarged to include Mongolia.

ADB should give consideration to formulating a transboundary livelihood improvement and environmental conservation project involving Kazakhstan, Mongolia, People's Republic of China, and possibly Russia and seek GEF or bilateral cofinancing for this.

The Mongolia Resident Mission should encourage the Government to respond immediately to the invitation to participate in RETA 5972 (Promotion of Renewable Energy, Energy Efficiency and Greenhouse Gases Abatement Project).

Conclusions and Recommendations of the Case Study on Environment and Natural Resource Management

Choice of Environment and Natural Resources Management Priorities and Strategy Formulation

The Asian Development Bank (ADB)'s environment and natural resources management program in Mongolia was highly relevant. The program was based more on ADB's accumulated regional experience and internal loan-processing requirements than on detailed assessment. Nevertheless, and with only a small number of exceptions, the accumulated experience proved to be largely transferable and contributed to ADB's starting properly in Mongolia (through technical assistance to develop environmental impact assessment procedures). The absence of a country-specific environmental analysis until 2001 turned out to not have serious consequences on the choice of priorities but may have resulted in insufficient advantage being taken of certain design possibilities not apparent without a detailed assessment.

Unlike priority setting in genuine sectors that could be (and were) supported by strategic master and action plans, the cross-sector nature of environmental management embraced by ADB early on argued against an environment and natural resources management-specific blueprint that would guide the prioritization process.

ADB's initial environmental interventions (1992–1995) were formulated at a time when domestic priorities were articulated incompletely. Thereafter, ADB's program was well within the Government's own statements of environmental priorities. Throughout the period, no strong pressure by the Government was put in policy dialogues conducted on ADB to defend its strategic direction.

The fragmentation of environmental insights within ADB was among the factors contributing to ADB's relatively low degree of being strategically informed throughout the decade.

Fit with Operational Strategy and Internal Consistency

Environment and natural resources management elements of ADB assistance conformed reasonably well with the overall country operational strategy. Problems lay more in omissions or underestimation of several transition-related problems, such as the effect of privatization on the country's commons or the changing pattern of pollution in the wake of temporary deindustrialization, rural-urban population movements, and other factors.

Few components are present in the current ADB assistance program that effectively link poverty alleviation with environmental improvement, but scope does exist for identification of such components under solid waste management, heating efficiency and stoves improvements, semi-intensive livestock management, and others. While opportunities to modify the country assistance program exist, these were made little use of until the completion of the country environmental analysis, but the increasing willingness to consider such modification is evident now.

ADB practices varied across sectors and projects and programs in Mongolia. The lack of consistency of approach did not have any particularly serious consequences for implementation effectiveness as far as environment and natural resources management was concerned. Sector specifics often dictated the balance of approach and militated against excessive uniformity.

Ownership of Environment and Natural Resources Management Projects

Government ownership of ADB-funded environment and natural resources management activities was invariably strong at the stage of country programming but vacillated in some cases in the course of implementation, especially in policy loans with environment and natural resources management conditionalities.

Arguably, ADB's environmental activities were not sold effectively outside the Government. There was little involvement by the public and nongovernment organizations. Ownership of ADB activities was rather narrow. ADB was partly handicapped by received (and reinforced) notions in Mongolia that environment is only or mainly about nature conservation.

ADB needs to publicize better the environment impacts of its mainstream activities, such as urban environmental improvements.

Capacity to program environment and natural resources management activities on the Government's side varied and has been particularly weak at the local level. This could adversely affect the degree of the Government's ownership under the latest country operational strategy, which indirectly envisages some decentralization of development efforts.

Design and Implementation

In Mongolia, effectiveness of environment and natural resources management assistance tends to suffer from insufficient integration across sectors (e.g., lack of cross-sector approach to air pollution control interventions in Ulaanbaatar). In the past, ADB was not successful enough in overcoming this fragmentation. Novel implementation arrangements are needed (e.g., greater use of multisector working groups) as well as a greater appreciation by ADB of its contribution to the local implementation overload.

ADB's assistance to environment and natural resources management (the Ministry of Nature and Environment capacity building and energy-efficiency projects) had a strong Ulaanbaatar bias. Weak local capacity reduced the effectiveness of some financed activities (e.g., use of environmental impact assessment).

Provisions for monitoring and evaluation of environmental impacts were consistently weak and largely excluded civil society. Partly as a result of the balance of ADB's program, civil society also played no or a minimal role in project design.

Heavy reliance on policy-based lending in ADB's assistance to Mongolia during the past decade may have facilitated environment-positive reforms (e.g., in pricing of environmental resources).

Continuity and Sustainability

Sustainability of ADB funding of selected activities needs to be distinguished from the long-term viability of the activities themselves. What deserves to be sustainable is the desired pattern of economic development, not necessarily the mechanisms selected to bring this about.

ADB is more businesslike than most bilateral development partners and more ready not to renew certain activities for the sake of continuity. This can be a plus. Yet, it is important to identify cases where changes in the

direction of the country operational strategy threaten to leave ADB's environmental agenda half finished (e.g., energy) and seek to ensure that a suitable successor can be found, even if the ultimate credit may go to others.

Global Environmental Facility

ADB did not make any use of Global Environmental Facility (GEF) cofinancing possibilities in shaping its environment and natural resources management program. ADB should seek GEF cofinancing for projects designed to improve if the delivery of global benefits (GEF's responsibility) are strengthened by the delivery of local benefits (ADB's responsibility). Considering GEF's current financial situation and its existing commitments in Mongolia, with a heavy focus on biodiversity conservation, the main areas for potential ADB-GEF partnership should be desertification control and greenhouse gases reduction through renewable energy provision. ADB should pursue these possibilities more actively.

Appendix 3

Asian Development Bank Lending and Technical Assistance Program in Mongolia (2001–2003)

Tables A3.1–A3.6 examine technical assistance and loans during 2001–2003.

Table A3.1: Technical Assistance
(2001)

Sector	Project Name	Type and Number	Amount (\$'000)
Agriculture and Natural Resources	Crop Production Integrated Development of Basic Urban Services in Secondary Towns	PP 3686	500.0
Social Infrastructure	Second Health Sector	PP 3685	700.0
	Improving Social Statistics	PP 3750	600.0
Governance	Improving Aid Coordination and Management	AO 3684	500.0
	Strengthening Policy for Social Security Reform	AO 3811	300.0
Other		AO 3709	600.0
Total			3,200.0

AO = advisory and operational, PP = project preparatory.

Source: Asian Development Bank.

Table A3.2: Technical Assistance
(2002)

Sector	Project Name	Type and Number	Amount (\$'000)
Social Infrastructure	Capacity Building for Integrated Regional Development Planning	AO 3948	600.0
Governance	Capacity Building for Accounting and Auditing Professionals	AO 3913	500.0
	Strengthening Public Sector Administration and Financial Management	AO 3920	650.0
	Retraining of Legal Professionals in a Market Economy (Phase II)	AO 4077	150.0
Finance and Trade	Trade Policy Review	AO 3934	150.0
	Support to Privatization in the Banking Sector	AO 3904	150.0
Energy	Renewable Energy Development in Small Towns and Rural Areas	AO 3965	400.0
Transport	Civil Aviation Policy Development	AO 3938	300.0
	Third Roads Development	PP 3990	600.0
Other	Expanding Employment Opportunities for Poor Disabled	JFPR 9014	1,000.0
	Improving the Living Environment of the Poor in Gher ^a Areas on Mongolia's Cities	JFPR 9015	2,200.0
Total			7,350.0

AO = advisory and operational, JFPR = Japan Fund for Poverty Reduction, and PP = project preparatory.

^aGher = traditional Mongolian tent dwelling.

Source: Asian Development Bank.

Table A3.3: Technical Assistance
(2003)

Sector	Project Name	Type and Number	Amount (\$'000)
Social Infrastructure	Support for Health Sector Reform	PP 4123	650.0
Governance	Procurement Management		
	Capacity Building	AO 4304	150.0
Finance	Third Financial Sector Program	PP 4236	500.0
Total			1,250.0

AO = advisory and operational, PP = project preparatory.

Source: Asian Development Bank.

Table A3.4: Loans
(2001)

Sector	Project Name	Type and Number	Amount (\$'000)
Social Infrastructure	Housing Finance (Sector)	1847	15.0
Transport	Roads Development	1364	25.0
Multisector	Social Security Sector Development Program	1836/1837	4.08.0
Total			52.0

Source: Asian Development Bank.

Table A3.5: Loans
(2002)

Sector	Project Name	Type and Number	Amount (\$'000)
Social Infrastructure	Second Education Development Project	1908	14.0
	Integrated Development of Basic Urban Services	1907	20.1
Total			34.1

Source: Asian Development Bank.

Table A3.6: Loans
(2003)

Sector	Project Name	Type and Number	Amount (\$'000)
Social Infrastructure	Second Health Sector Development Project	1998	14.0
Others	Governance Reform Program II	2010	13.5
	Capacity Building for Governance Reforms 2011		2.0
Total			29.5

Source: Asian Development Bank.

Appendix 4

Asian Development Bank Technical Assistance and Lending Projects of Relevance to Mongolia's Environmental Management (1992–2003)

Tables A4.1 and A4.2 show technical assistance and loans relevant to Mongolia's environmental management.

Table A4.1: Technical Assistance

Number	Project Name	Type	Amount (\$'000)	Year Approved
1647	Strengthening Environmental Assessment Procedures	AO	370.0	1992
1653	Egiin Hydropower	PP	1,400.0	1992
1750	Energy Audit, Efficiency and Conservation Study	AO	407.5	1992
2093	Power Rehabilitation	PP	100.0	1994
2095	Power Sector Master Plan Study	AO	595.0	1994
2208	Strengthening the Environment Management Capability of the Ministry of Nature and Environment	AO	574.0	1994
2350	Energy Conservation	PP	100.0	1995
2458	Strengthening Land Use Policies	AO	580.0	1995
2582	Provincial Towns Basic Services	PP	600.0	1996
2602	Study of Extensive Livestock Production System	AO	600.0	1996
2610	Ulaanbaatar Heat Rehabilitation	PP	450.0	1996
2819	Agriculture Sector Development Program	PP	492.0	1997

continued on next page

Table A4.1: Technical Assistance (continued)

Number	Project Name	Type	Amount (\$'000)	Year Approved
2881	Capacity Building for the Provision of Urban Services in Provincial Towns	AO	825.0	1997
2887	Egiin Hydropower Build, Operate, and Transfer	PP	60.0	1997
3016	Energy Rehabilitation		900.0	1998
3029	Improving Energy Authority's Billing and Collection System	AO	450.0	1998
3299	Capacity Building for Energy Planning	AO	700.0	1999
3395	Capacity Building for Cadastral Survey and Land Registration	AO	990.0	2000
3685	Integrated Development of Basic Urban Services in Secondary Towns	PP	700.0	2001
3686	Crop Production	PP	500.0	2001
3948	Capacity Building for Integrated Regional Development Planning	AO	600.0	2002
3965	Renewable Energy Development in Small Towns and Rural Areas	AO	400.0	2002
9015	Improving the Living Environment of the Poor in Gher ^a Areas on Mongolia's Cities	JFPR	2,200.0	2002
Total				14,593.5

AO = advisory and operational, JFPR = Japan Fund for Poverty Reduction, and PP = project preparatory.

^a Gher = traditional Mongolian tent dwelling.

Source: Asian Development Bank.

Table A4.2: Loans

Number	Title	Loan Amount (\$million)	Year Approved
1152	Egiin Hydropower	3.8	1993
1334	Power Rehabilitation	40.0	1994
1409	Agriculture Sector Program	35.0	1995
1492	Energy Conservation	10.0	1996
1548	Ulaanbaatar Heat Efficiency	40.0	1997
1560	Provincial Towns Basic Urban Services	6.8	1997
1736	Cadastral Survey and Land Registration	15.0	2000
1821	Agriculture Sector Development Program—Program Loan	7.0	2000
1822	Agriculture Sector Development Program —Project Loan	10.0	2000
1907	Integrated Development of Basic Urban Services	20.1	2002
Total			187.7

Source: Asian Development Bank.

**Mongolia Country
Environmental Analysis
Consultation
12 April 2004
(List of Participants)**

Mr. Erdenebulgan	International Cooperation Department, Ministry of Nature and Environment (MNE)
Dr. Avirmed	Deputy Director, Nature, Forest and Water Resource Agency, MNE
Mrs. Munkhzul	Nature, Forest and Water Agency, MNE
Mr. Ihanbaia	Director, Policy Coordination Department, MNE
Ms. Tuul	Mongolian Business Development Agency
K. Rutter	Team Leader, Agriculture Sector Development Program, Ministry of Food and Agriculture
Mr. Batsaikhan	Environment Management Department, Ulaanbaatar City Government
Dr. Enkhtsetseg	Public Health Department, Ministry of Health
Dr. Batima	National Agency for Hydrology and Meteorology, Climate Change Project
Ms. Gantigmaa	Tuul 21 Project, Ministry of Infrastructure
J. Wingard	World Bank Consultant
H. Hoffmann	Adviser, Community-Based Natural Resource Management, Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ)
S. Schmidt	New Zealand Nature Institute—Initiative for People-Centered Conservation
H.-T. Moeller	GTZ
Ms. Elbegzya	Program Officer, United Nations Development Programme
Mr. Batnasan	Program Coordinator, World Wildlife Fund
Prof. Dorjdagva	National Council for Sustainable Development
B. Erdene-Ochir	Mongolian Consortium for Environment and Nature
D. Teter	Mongolia Resident Mission, Asian Development Bank
I. Ruzicka	Asian Development Bank Consultant

Post-2000 Foreign-Aided Environment-Related Projects in Mongolia¹

Tables A6.1–A6.3 list projects implemented by the Ministry of Nature and Environment, MID, and others.

Table A6.1: Projects Implemented by Ministry of Nature and Environment

Number	Project Name	Financial Source	Budget (\$'000, unless otherwise specified)	Time Frame
Environmental Policy Formulation				
1	(a) Development of Bio-Safety National Action Plan	United Nations Environment Programme	160.0	2002–2004
		Subtotal	160.0	
	(b) Ministry of Nature and Environment Capacity	World Bank	300.0	2003–2004
Strengthening				
	Strengthening Environmental Management Capacity at National and Local Level			
		Subtotal	300.0	
	(c) Global Environmental Facility (GEF)-Supported Projects			

continued on next page

¹ The list does not include many projects funded by international nongovernment organizations that are not coursed through a government agency. These projects are not listed here. This in no way implies their unimportance. Agencies such as World Vision have annual grant programs (including environmental components) in Mongolia on the order of \$5 million (i.e., comparable to, or greater than, many official bilateral programs. This is acknowledged in regular development partner consultations in Mongolia in which these organizations are represented and play an active role.

Table A6.1: Projects Implemented by Ministry of Nature and Environment
(continued)

Number	Project Name	Financial Source	Budget (\$'000, unless otherwise specified)	Time Frame
Biodiversity				
1	Nature Conservation Pilot Projects in Western Mongolia	GEF and World Wildlife Fund	41.8	1997–2001
2	Altai-Sayan Conservation Community-Based Conservation of Biological Diversity in the Mountain Landscapes of Mongolia's Altai-Sayan Eco-region	GEF/UNDP	3,070.0	2001–2008
3	Biodiversity Conservation and Sustainable Livelihood Options in Eastern Mongolia	GEF and United Nations Development Programme (UNDP)	6,174.0	1998–2004
4	Conservation of the Gobi Desert Using Bactrian Camels as an "Umbrella Species"	GEF and UNDP	979.0	2003–2007
5	Conservation of Eg-Uur Watershed	GEF and World Bank	213.0	2003–2004
6	Dynamics of Biodiversity Loss and Permafrost Melt in Lake Hovsgol National Park	GEF and World Bank	830.0	2001–2005
7	Enabling Activities to Facilitate Early Action on the Implementation of the Stockholm Convention on Persistent Organic Pollutants	GEF and UNIDO	492.0	2002–2005
Energy Efficiency and Climate Change				
1	Improved Household Stoves in Mongolian Urban Centers	GEF and World Bank	750.0	2001–2005
2	Commercialization of Superinsulating Building Technology in Mongolia	GEF and UNDP	750.0	2003
3	Technology Needs Assessment in Energy Sector	GEF and World Bank	98.0	1999–2001
4	Provision of Energy Efficient Social Services	GEF, Norway, and UNDP5	2,020.3	1997–2002
5	Energy Efficient House	GEF, NLM NORD, and UNDP	1,750.0	2002–2005

continued on next page

Table A6.1: Projects Implemented by Ministry of Nature and Environment
(continued)

Number	Project Name	Financial Source	Budget (\$'000, unless otherwise specified)	Time Frame
Others				
	Strengthening of Montreal Protocol Implementation Structure Programme	GEF and United Nations Environment	66.0	2000–2002
		Subtotal (GEF)	13,463.8	
Biodiversity Conservation, Protected Areas, Buffer Zone				
1	(a) Nature Conservation and Buffer Zone Development, Phase II	Germany and Deutsche	DM5,000.0 (\$2,970.0)	1998–2004
	(b) Conservation and Sustainable Management of Natural Resources	Gesellschaft für Technische Zusammenarbeit (GTZ)		
2	Hustai Nuruu Mountain Steppe Reserve, Biodiversity Project, Phase II	Netherlands	3,200.0	1998–2003
3	Assessment of Capacity Building Needs and Country-Specific Priorities in Biodiversity	GEF and World Bank	195.0	2002–2003
4	Sustainable Management of Common Natural Resources in Mongolia Phase I	IDRC	30.0	2000–2005
5	Sustainable Management of Common Natural Resources in Mongolia Phase II	IDRC		2002–2004
6	Pasture Management Improvement and Anti-Desertification Measures	GTZ	580.0	2000–2003
		Subtotal	6,975.0+	
Forest Resources				
1	Friendship Afforestation	Hyogo Prefecture, Japan and Kobe Steel	\$8.9 million	2000
2	Reforestation	Hyogo Prefecture, Japan	\$17.8 million	2001
3	Conservation and Sustainable	GTZ	580.0	2000–2003

continued on next page

Table A6.1: Projects Implemented by Ministry of Nature and Environment
(continued)

Number	Project Name	Financial Source	Budget (\$'000, unless otherwise specified)	Time Frame
4	Use of Forest Resources in the Western Region of the Khan Khentii Protected Area Reforestation and Propagation of Trees	Netherlands and UNDP	100.0	2000–2001
5	Community-Based Natural Resource Management (Phase II)	Food and Agriculture Organization	198.0	
6	Emergency Measures to Fight Forest Pest	Food and Agriculture Organization	395.0	
	Subtotal		1,299.7	
Others				
1	Support to the Government for Tourism Development	UNDP	50.0	2002–2004
2	Environmental Public Awareness	Sheikh of Kuwait	300.0	2000–2002
	Subtotal		2,687.5	
Regional				
1	Transboundary Environmental Cooperation in Northeast Asia	Asian Development Bank (ADB)	350.0	2000–present
2	Combating Desertification in Asia	ADB and CCD	450.0	2000–present
3	Acid Rain Monitoring System	Japan (Japan International Cooperation Agency)		1999–2001
4	Preparation of a Strategic Action Programme for the Tumen River Area, Its Coastal Regions and Related Northeast Asian Environs	Secretariat of the Tumen River Program, GEF, and UNDP	5,000.0 5,199.9	2000–2001 2001–2003
5	Information System for Environment and Agriculture Monitoring	European Union Technical Assistance to Commonwealth of Independent States	800.0	1999–2001
6	Promotion of Renewable Energy, Energy Efficiency and Greenhouse Gases Abatement Projects	ADB and Netherlands	5,000.0	2001–present

continued on next page

Table A6.1: Projects Implemented by Ministry of Nature and Environment
(continued)

Number	Project Name	Financial Source	Budget (\$'000, unless otherwise specified)	Time Frame
7	Prevention and Control of Dust Storms in North-East Asia	ADB (Regional Technical Assistance 6068)		2003–present
	Assessment of Impact and Adaptation to Climate Change in Multiple Regions and Sectors Programme	GEF, United Nations Environment Programme, START, and TWAS		2002–2004
8	Greenhouse Emission Reduction from Industrial Sources in Asia Pacific	SIDA	2,500.0	
	Total (without regional projects and with omissions)		42,042.2	

Source: Ministry of Nature and Environment.

Table A6.2: Projects Implemented by MID

Number	Project Name	Financial Source	Financing	Budget (\$'000, unless otherwise specified)	Time Frame
Energy Related					
1	Baganuur, Shivee Ovoo Coal Mine for Project-1 1997.02.25/MON	Japan (Japan Bank International Cooperation)	Soft Loan	25,922.1	1997–2001
2	Baganuur, Shivee Ovoo Coal Mine Project-2 1997.02.25/MON	Japan (Japan Bank for International Cooperation)	Soft Loan	19,120.0	1997–2001
3	Energy Project	World Bank and IDA	Soft Loan	30,000.0	2001–2006
4	Utilization of Renewable Energy in Rural Areas of Mongolia	Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ)	Grant	DM3,000.0 (€3,000.0)	1999–2007
5	Research and Experimental Project on Photovoltaic Power Plant	NEDO (Japan)	Grant		2002–2004
6	Nomadic Electrification	Japan International Cooperation Agency	Grant	2,500.0	2002
7	Rehabilitation of Bogd River Hydropower Plant	GTZ	Grant	€3,000.0	2002–2005
8	Erdenbulgan Hydropower Plant	DANIDA	Grant	1,000.0	1997–2004
9	Development of Renewable Energy for Small Towns and Rural Areas	ADB	Grant	400.0	2002
10	Taishir Hydropower Plant	Kuwait Fund and Abu Dhabi	Grant and Soft Loan	20,000.0 13,000.0 5,000.0	1997–2006
11	Study of Hydropower Plant on Orkhon River	JETRO	Grant	700.0	2000–2001

continued on next page

Table A6.2: Projects Implemented by MID
(continued)

Number	Project Name	Financial Source	Financing	Budget (\$'000, unless otherwise specified)	Time Frame
Urban Environmental Infrastructure and Water					
1	Provincial Towns Basic Urban Services (TA 2582 and Loan 1560)	Asian Development Bank	Technical Assistance Grant and Soft Loan	600.0 6,800.0	1998–2001
2	Second Ulaanbaatar Urban Services Improvement Project (under processing)	World Bank	Soft loan	18,000.0	2004–2009
3	Cleaner Production and Waste Water Pollution Abatement by Mongolian Industries	Netherlands	Grant	2,000.0	1999–2003
4	Solid Waste Management	Netherlands	Grant		2000–2003
5	Ulaanbaatar Wastewater Treatment Plant Rehabilitation	Spain	Soft Loan		2003–2004

Source: MID.

Table A6.3: Projects Implemented by Organizations Other Than the Ministry of Nature and Environment and MID

Number	Project Name	Financial Source	Financing	Budget (\$'000, unless otherwise specified)	Time Frame
Strategy Development					
	Mongolian Action Program for the 21 st Century (MAP-21) Phase II	United Nations Development Programme and Capacity 21	Grant		2001–2003
Land Reform					
1	Cadaster System Development	Sweden	Grant	470.0	2000–2002
2	Cadastral Survey and Land Registration (TA 3395 and Loan 1736)	Asian Development Bank	Technical Assistance Grant and Loan	990.09 9,900.0	2000–present
Rural Development					
1	Gobi Regional Economic Growth Initiative Phase I (Phase II under preparation)	United States Agency for International Development	Grant Grant	10,000.0 10,000.0	1999–2004 2004–2007
2	Organized Rural Self Help	Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ)	Grant	DM6,000.0	1998–2007
3	Privatization of Veterinary Services	GTZ	Grant	DM6,500.0	1999–2005
4	Arhangai and Khovsgol Restocking Project	IFAD	Loan	5,000.0	1999–2003
5	Integrated Crop and Livestock	European Union Technical Assistance to Commonwealth of Independent States	Grant		2002–2004
6	Household Livelihoods Support Program	World Bank	Loan and Grant	12,000.0	2002–2009

continued on next page

Table A6.3: Projects Implemented by Organizations Other Than the Ministry of Nature and Environment and MID
(continued)

Number	Project Name	Financial Source	Financing	Budget (\$'000, unless otherwise specified)	Time Frame
7	Rural Poverty Reduction Project	IFAD and Government of Mongolia	Loan	17,400.0 2,300.0	2003–2010
8	Sustainable Grassland Management	United Nations Development Programme and Netherlands	Grant	3,300.0	2002–2007
9	Promotion of Organized Self-Help Groups in Rural Areas	GTZ	Grant		1998–2004
10	Study for Improvement of Livestock Farming in Rural Areas	Japan International Cooperation Agency	Grant	190.0	2003–2004
11	Pastoral Ecosystem Management Program (under preparation)	Swiss Development Corporation	Grant		2004–present
Public Health					
1	Healthy Settings and Environments Phase I and Phase II	World Health Organization	Grant	260.0 171.0	2002–2003 2004–2005
2	Health Information and Evidence for Policy, Phase I and Phase II	World Health Organization	Grant	218.0 132.0	2002–2003 2004–2005

Source: Asian Development Bank research.

Appendix 7

Laws and Regulations Relating to Environmental Management in Mongolia

Law	Year Enacted	Number of Related Regulations, Orders, and Others (as of the end of 2000)
Law on Environmental Protection	1995	
Law on Water and Mineral Water Resource Fee	1995	21
Law on Water	2004	
Law on Special Protected Areas	1995	16
Law on Buffer Zones	1998	
Law on Natural Plants	1995	3
Law on Natural Plant Use Fees	1995	
Law on Forests	1995	38
Law on Fees for Timber and Fuelwood Harvesting	1995	
Law on Prevention of Steppe and Forest Fires	1996	
Law on Underground Resources	1988	18
Petroleum Law	1991	
Law on Minerals	1997, 2002	
Law on Environmental Impact Assessment	1998	
Law on Hunting	2000, 2003	6
Law on Fauna	2000	
Law on Hunting Reserve Use Payments and on Hunting and Trapping Authorization Fees	1995	
Law on Reinvestment of Natural Resource Use Fees for Conservation	2000	
Law on Protection for Toxic Chemicals	1995	18
Law on Air	1995	
Law on Tourism	1998	
Law on Hydrometeorology	1997	
Law on Land Cadaster and Mapping	1999	
Law on Land Fees	1997	
Land of Land	1995, 2002	
Law on Land Possession	2003	
Law on Solid Waste	2002	

Sources: Deutsche Gesellschaft für Technische Zusammenarbeit and Ministry of Nature and Environment.

Appendix 8

Special Protected Areas and National Parks in Mongolia (2003)

Number	Names and Classification of Protected Areas	Area (000 hectares)	Year Established
1	Great Gobi Strictly Protected Area	5,311.7	1975
2	Khokh Serg	65.9	1977
3	Bogdkhan Mountain Strictly Protected Area	41.6	1978
4	Khasagt Khaikhan Mountain Strictly Protected Area	27.4	1965
5	Khan Khentii Mountain Strictly Protected Area	122.7	1992
6	Nomrog Strictly Protected Area	311.2	1992
7	East Mongolia Strictly Protected Area	570.3	1992
8	Mongolian Daguur Strictly Protected Area	103.0	1992
9	Orgontenger Mountain Strictly Protected Area	95.5	1992
10	Uvs Lake Strictly Protected Area	712.5	1993
11	Small Gobi Strictly Protected Area	1,839.2	1996
12	Khoriadol Saridag Strictly Protected Area	188.6	1997
	Total (Strictly Protected Area)	10,494.3	
1	Khovsgol Lake National Park	838.0	1992
2	Khorgo-Terkh Tsagan Lake	77.3	1995
3	Gobi Gurvan Saikhan National Park	2,694.7	1993/2000
4	Gorkhi-Terelj National Park	293.2	1993
5	Altai Tavan Bogd	636.1	1996
6	Khangai Mountain Range National Park	888.5	1996
7	Khar Us Lake National Park	850.3	1997
8	Noyon Khangai National Park	59.1	1998
9	Khustai Mountain National Park	50.6	1993/1998
10	Khan Lhokii-Kyarghas National Park	553.3	2000
11	Siilkhem Mountain Range National Park	140.1	2000
12	Tsambagarav Mountain National Park	111.0	2000
13	Tarvagatai Mountain Range National Park	525.4	2000
14	Onon-Balj National Park	415.7	2000
15	Tujiin Nars National Park	60.0	2002
16	Myangan Ugalzat Mountain National Park	80.7	2002
	Total (National Parks)	8,274.1	
	Nature Reserves (16)	2,020.2	1957–2000
	Natural and Historical Monuments (6)	79.3	1995–1996
	TOTAL	20,867.9	

Appendix 9

List of Companies Licensed to Perform Detailed Environmental Impact Assessments in Mongolia (2001)

Table A9.1: Company Information

No	Company	Director	Phone, Fax, E-mail	Location
1	Orchlon-Urtenz	B. Bayasgalan	Phone: 327271 (office), 329150 (home), 99190346 (mobile) Fax: 976-11-329150	Institute of Water and Meteorology
2	ENCO	A. Namkhai	Phone: 312655 (office), 322378 (home), 99192168 Fax: 312655	Agricultural Mapping Institute
3	Ecology	J. Garigkhuu	Phone: 99142221 (office)	New Capital Hotel
4	Eco-trade	D. Dorjsuren	Phone: 323569 (office), 368980 (home), 99190403 (mobile) Fax: 323569	Baga-Toiruu-2-35
5	ECOS	Ts. Sosorbaram	Phone: 328215 (office), 311505 (home), 99115116 (mobile) Fax: 328215	Institute of Geoecology
6	Nature and Energy	S. Jargalsaikhan	Phone: 322199 (office), 329601 (home), 99116675 Fax: 322199	Institute of Water and Meteorology
7	JEMR	R. Oyun	Phone: 326489 (office), 322230 (home), E-mail: jemr@magicnet.mn	Institute of Water and Meteorology
8	SATU	G. Tuvaansuren	Phone: 314170 (office), 682397 (home)	Construction Mapping Institute

continued on next page

Table A9.1: Company Information
(continued)

No	Company	Director	Phone, Fax, E-mail	Location
9	Mongol Khairkhan	Oyuntsetseg	Phone: 451837 (office), 329150 (home), 99295146	
10	Eco-mon	K. Ulikpan	Phone: 311347 (office)	Cultural Center
11	Agrar	N. Otgonbayar	Phone: 312771 (office), 99191449 (mobile)	Institute of Geoecology
12	Nemer international	P. Khukhuu	Phone: 328592 (office), 369695 (home), 99190346 (mobile)	Institute of Geoecology
13	Mongeo-ecotech	M. Myagmarjav	Phone: 312771 (office), 99191449 (mobile)	Institute of Geoecology
14	Min-tech	S. Avirmed	Phone: 318317 (office), 302216 (home), 991616885 (mobile)	Near Mothers Clinic II
15	TC-Eco	B. Tumendemberel	Phone: 99115397 (office)	Construction Mapping Institute
16	Nature-Ecology	B. Ikhbayar	Phone: 355910 (office), 99192565 (mobile)	Taxation Office, Bayanzurkh District
17	JNEP	J. Natsag	Phone: 365762 (office) 99163225 (mobile)	Institute of Geography
18	Hydro-Eco	Ts. Baldandorj	Phone: 322187 (office), 325993 (home)	Institute of Geoecology
19	Ecos-OSM	R. Mijiddorj	Phone: 315387 (office), 96114212 (mobile)	Technical University of Mongolia
20	TEKOL	G. Tomortulga	Phone: 99197700 (office)	Cultural Center
21	Gazar-Eco	Ch. Gonchisumlaa	Phone: 99175720 (mobile)	National University of Mongolia, Building 2

Table A9.2: Additional Information

Number	Company	Date Licensed	License Extension Date	Number of Environmental Impact Assessment Reports Completed	Employees	Resident Experts
1	Orchlon-Urtenz	1995.5.12	2000.7.28	12	5	18
2	ENCO	1996.2.9	1997.3.24	38	7	14
3	Ecology	1996.7.23	2000.7.28	16	4	16
4	Eco-trade	1996.10.16	1998.4.28	27	5	12
5	ECOS	1997.4.22	1998.4.28	40	8	20
6	Nature and Energy	1998.2.13	2000.2.29	6	8	12
7	JEMR	1998.4.28	1998.4.28	8	8	12
8	SATU	1998.4.28	2000.7.28	14	4	10
9	Mongol Khairkhan	1998.4.28		2	3	10
10	Eco-mon	1998.4.28	2000.7.28	10	3	12
11	Agrar	1998.4.28	2000.7.28	5	6	10
12	Nemer International	1998.4.29	2000.7.28	8	3	12
13	Mongeo-ecotech	1998.4.29				
14	Min-tech	1998.4.29	2000.7.28	10	4	11
15	TC-Eco	1998.4.29	2000.7.28	3	3	8
16	Nature-Ecology	2000.1.13		9	4	16
17	JNEP	2000.1.13		12	4	6
18	Hydro-Eco	2000.1.13		3	4	12
19	Ecos-OSM	2000.7.28		2	3	14
20	TEKOL	2001.1.19		1	5	12
21	Gazar-Eco	2001.1.19		4	5	12

Principal Environment-related Nongovernment Organizations in Mongolia

These are all Ulaanbaatar-based and include, by orientation

General

Mongolian Association for the Conservation of Nature and Environment
Mongolian Green Movement
Mother Earth Foundation
Parachuting Environmental Helpers Association
Development and Environment
Mongolian Society for Environment and Development
Women's Society for Environment and Development
Mongolian Nature and Environment Consortium
Union of Mongolian Environmental NGOs

Narrower Focus

Mongolian Protected Areas Society
Mongolian Integrated Association of Foresters
Mongolian Ecotourism Association
Khan Altai Foundation
Mongolian National Water Foundation
Mongolian Meteorological Society
Mongolian Society for Combating Desertification
Khustai International Research Center
Mongolian Forest Forum
The Ochirbat Foundation

Species Conservation

The Argali Research Center
Mongolian Society for the Protection of Birds
Mongolian Society for the Protection of Marmots
Society for the Protection of Elk
Mongolian Snow Leopard Center
Mongolian Butterfly Society
“Blue Wolf” Center
Mongolian Society for the Protection of Rare Animals and Plants
Mongolian Bird Research Foundation
Mongolian Hunters’ Society

Sources: Soros Foundation. Ministry of Nature and Environment.

Approach to Risk and Vulnerability Assessment

Strictly speaking, there is no such thing as a natural disaster, but there are natural hazards, such as cyclones and earthquakes. The difference between a hazard and a disaster is an important one. A disaster takes place when a community is affected by a hazard (usually defined as an event that overwhelms that community's capacity to cope). In other words, the impact of the disaster is determined by the extent of a community's vulnerability to the hazard. This vulnerability is not natural. It is the human dimension of disasters, the result of the whole range of economic, social, cultural, institutional, political and even psychological factors that shape people's lives and create the environment that they live in. (Twigg 2001)

In Box A11, a common conceptual approach to analyzing disasters and vulnerability is summarized.¹

Box A11

Approach to Vulnerability Assessment

Let vulnerability be understood as the capacity to suffer harm from exposure to perturbations or stresses (climate change and extremes, land degradation, but also demographic change and technological factors).

The extent of vulnerability is conditioned by a variety of factors (biophysical and socioeconomic) that shape the state of the people, system, or place being exposed.

Determinants of vulnerability are typically grouped into three groups: Exposure, sensitivity (affected by coping and adaptation capacities), and resilience. Steps to lessen vulnerability (responses) may target any of the dimensions of vulnerability as illustrated in the table below:

continued on next page

Box A11 (continued)
Approach to Vulnerability Assessment

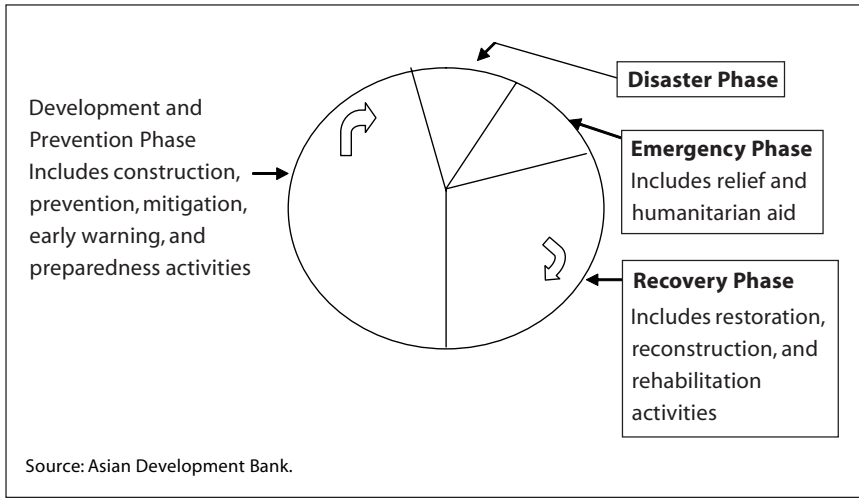
Example of Response	Dimension of Vulnerability Targeted			
	Exposure	Sensitivity	Capacities	Resilience
Anticipate exposures, prepare for potential effects	X	X		
Migrate or limit development in exposed place	X	X		
Eliminate or suppress disease vectors	X			
Transfer water to areas/activities of priority need		X		
Switch to more robust crop varieties		X		
Diversify sources of household income and livelihoods	X	X	X	
Establish mechanisms for water transfers			X	X
Expand health care infrastructure		X	X	X
Reform land tenure rules	X		X	X

The above view of vulnerability makes it easier to draw the line between the traditional impact assessment and vulnerability assessment. The former attempts to quantify and predict risks. Typical of this approach is modeling of future exposure and focus on a single stress. Impact assessment does not emphasize capacities but can integrate information about them with predicted exposures. By contrast, vulnerability assessment is driven by the search for ways of reducing risks. Typical of the vulnerability assessment method are understanding of the causes of vulnerability, especially social ones; attention to capacities to respond and adaptation; and consideration of multiple stresses.

The framework can be reworded in several ways without changing the substance. For instance, as a more general disaster risk management, the approach to it can be conceived as consisting of

- (i) risk identification and analysis (assessing hazards, vulnerabilities, and capacities);
- (ii) risk reduction (avoiding hazards and reducing vulnerability); and
- (iii) risk sharing and transfer (protecting investments and sharing the costs).

The Asian Development Bank's approach favored recently (Asian Development Bank 2005) is built around the concept of disaster management cycle. Although, over the years, the Asian Development Bank's own assistance has covered all three post-disaster phases, the 2005 policy places the prevention phase at the center of the disaster management cycle.



Applying the approaches sketched in Box A11 fully to Mongolia is well beyond the scope of the country environmental analysis. Nonetheless, the material presented in this analysis seeks to organize the information in a way that maintains the logic of vulnerability assessment, even if some of the building blocks (e.g., reliable account of local capacities to respond) may not yet be available.