

**MONGOLIA: COUNTRY ENVIRONMENTAL  
ANALYSIS**

**ASIAN DEVELOPMENT BANK**

**June 2004**

## PREFACE

The present volume brings to a wider audience some of the analysis behind the country strategies and assistance programs that the Asian Development Bank formulates in consultation with its member countries. The focus of the document is environmental management, one of ADB's priority concerns not diminished by the more forceful and explicit attention given in recent years to poverty alleviation.

Leaving aside China, always special, the ADB member countries under the responsibility of the East and Central Asia Department (ECRD) include "textbook" transition economies, six out of seven of them countries of the former Soviet Union (FSU). This amounts to unique opportunities for ADB to influence for the better the course of economic and social development in these fledgling market economies. In the present report, ADB deals with Mongolia, not a FSU country, yet one sharing a socio-economic imprint with the FSU group.

ADB's support for environmental management in ECRD's geographical area of responsibility is not new. Earlier ADB publications devoted to the same broad subject include *Central Asian Environments in Transition* (1997), *Environmental Profile of Tajikistan* (2001), *Mongolia's Environment and the Implications for ADB Operations* (2002) and a series of *Country Environmental Analyses* prepared for Kazakhstan, Tajikistan and the Kyrgyz Republic respectively earlier this year. These reports complement a considerable body of detailed unpublished material used by ADB staff.

The document presented here is one of the outputs of the regional technical assistance project No. 6095 (Integrating Environmental Concerns in Government Policies, Plans and Programs) and it is based on the work of Ivan Ruzicka, an ADB consultant, assisted by Erdene-Ochir Badarch. It incorporates a number of comments made by ADB staff during the document's preparation.

ADB wishes to record its gratitude to Mongolia's Ministry of Nature and Environment (MNE) for facilitating the report's preparation and for the spirit of openness brought to that effort. Staff of MNE and Ministries of Health, Infrastructure, and Food and Agriculture supplied valuable technical insights as did the National Council for Sustainable Development. Local representatives of UNDP, several bilateral agencies and NGOs supplied their perspectives. Robin Grayson of Eco-Minex International generously shared with ADB his vast experience of Mongolia's mining sector and James Wingard of IC International Inc. did the same with the legislative aspects of environmental management. ADB alone, however, rather than any of the individuals mentioned above, is responsible for any possible inaccuracies that the report may contain.

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25 June 2004

## CURRENCY EQUIVALENTS

(as of April 2004)

Currency Unit	-	Tugrik (Tg)
Tg1.00	-	\$
\$1.00	-	Tg1,170

## ABBREVIATIONS

ALAGaC	-	Administration of Land Affairs, Geodesy and Cartography
AOTA	-	Advisory and operational technical assistance
ALGAS	-	Asia Least Cost Greenhouse Gas Abatement Strategy
A&O, AO	-	Advisory and operational
CACILM	-	Central Asia Countries' Initiative for Land Management
CAP	-	Country Assistance Plan
CAPE	-	Country Assistance Program Evaluation
CCD	-	Convention to Combat Desertification (U.N.)
CDM	-	Clean Development Mechanism (under the Kyoto Protocol)
CG	-	Consultative Group (of donors)
DMC	-	Developing member country (of ADB)
ECRD	-	East and Central Asia Department (of ADB)
ENRM	-	Environment and natural resource management
EPA	-	Environmental Protection Agency (within MNE)
GEF	-	Global Environmental Facility
GGfHS	-	Good Governance for Human Security
GHG	-	Greenhouse gases
GOM	-	Government of Mongolia
GTZ	-	German Agency for Technical Cooperation
IFAD	-	International Fund for Agriculture and Development
JFPR	-	Japan Fund for Poverty Reduction
JICA	-	Japanese International Co-operation Agency
MFA	-	Ministry of Food and Agriculture
MOH	-	Ministry of Health
MOI	-	Ministry of Infrastructure
NCSD	-	National Council for Sustainable Development
OECD	-	Organization for Economic Co-operation and Development
PPTA	-	Project preparatory technical assistance
PRC	-	People's Republic of China
PREGA	-	Program on Renewable Energy and Greenhouse Gas Abatement
SEU	-	Sheep equivalent unit
SIA	-	State Inspection Agency
SPA	-	Strictly Protected Areas
TACIS	-	Technical Assistance to the Commonwealth of Independent States
UB	-	Ulaanbaatar
UNDP	-	United Nations Development Program
UNFCCC	-	United Nations Framework Convention on Climate Change
WB	-	World Bank
WSS	-	Water supply and sanitation
WVM	-	World Vision Mongolia
WF	-	World Wildlife Fund

## WEIGHTS AND MEASURES

kg	-	kilogram
km <sup>2</sup>	-	square kilometer
m <sup>3</sup>	-	cubic meter
mg	-	milligram
t	-	tons

## GLOSSARY

<i>aimag</i>	province (21 <i>aimags</i> exist in Mongolia plus Ulaanbaatar City)
<i>bag</i>	sub-district (1671 <i>bags</i> and <i>khoroos</i> )
<i>duureg</i>	an administrative division of a city, urban equivalent of a <i>sum</i>
<i>dzud</i>	a severe winter episode with a lot of snow posing risk to livestock
<i>gher</i>	traditional Mongolian tent dwelling
<i>Ikh Khural</i>	Great Assembly, the Parliament
<i>khot ail</i>	informal grouping, usually kin-based, of several herding households for shared tasks
<i>khoroos</i>	urban equivalent of a <i>bag</i>
<i>negdel</i>	former collective farm
<i>placer</i>	ore-bearing alluvial deposit
<i>soum</i>	district (340 <i>soums</i> and <i>duuregs</i> exist in Mongolia)

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## EXECUTIVE SUMMARY (SUMMARY CEA)

### Building on Past Involvement

Preparation of a new Country Strategy and Program (CSP) should be backed by knowledge and experience of ADB's past support for Mongolia's environmental management, broadly defined. Its main phases and components have been the following:

- (i) Initial emphasis on stand-alone technical assistance
  - EIA procedures and capacity building in the Ministry of Nature and Environment (MNE), advisory assistance on several aspects of energy efficiency
- (ii) Early lending with significant environmental content
  - Power sector (energy conservation, power rehabilitation, heat rehabilitation), roads development (Road Master Plan, roads upgrading).
- (iii) Environmental elements of program lending
  - Agriculture Sector Program (emerging topics of pasture degradation, land use reform, environmental impacts of agriculture privatization).
- (iv) Environment and natural resource management (ENRM) activities at the turn of the decade
  - Upgrading of provincial urban towns and environmental services, continued support to land use reforms, Agriculture Sector Development Program and its environment-related elements.
- (v) Recent technical assistance and regional ENRM initiatives
  - Renewable Energy Development in Small Towns and Rural Areas, PREGA, Control of dust storms.
- (vi) Recent poverty alleviation and environment activities
  - Improving living environment in the poor *gher* areas of Mongolia's cities.

### Main Developments Since 2001

Environmental management in Mongolia and ADB's role were extensively reviewed in 2001, and again in 2002 as a component of Country Assistance Program Assessment (CAPE). The 2001 review formulated an approach to ADB future involvement in Mongolia that maximizes positive environmental impacts through integrating environmental considerations into mainstream development activities. This broad approach remains valid. More specific recommendations made this time reflect changes that have taken place during the last two years.

The new institutional developments include (i) strengthened policy role of Ministry of Nature and Environment (MNE), (ii) improved environmental governance (de-linking of compliance activities from MNE, improved MNE internal structure), (iii) legislative amendments targeting land, water, solid waste, and natural resource management, (iv) more active inter-sectoral consultation, and (v) improved structure of land management (unification of land administration in a single agency). Few doubt the Government's genuine concern about

continued pressures on the environment and a desire to apply effective remedies and safeguards.

The developments under principal areas of environmental concern have been the following:

(i) **Pasture degradation, desertification, deforestation**

- A viable model (UNDP/GTZ/others) built around herder groups, income diversification options and wells-rehabilitation is emerging. Policies are finally being harmonized but more patient work is needed. Some conflicts with the provisions of the Mining Law have emerged. At the same time, deforestation continues. Policy for forest management outside protected areas is weak and actual forest management is weaker still. There is no agreed approach on dealing with illegal forest output (two thirds of the total).

(ii) **Water**

- New water policy makes river basins the focus of management. The policy seeks to increase the use of surface water relative to groundwater. The implications of the policy for irrigation rehabilitation, hydro-power development and nature conservation have not been fully explored. Institutional capacity to implement the new policy is weak.

(iii) **Urban Environmental Management, Industrial Pollution Control**

- Ulaanbaatar continues to attract migrants. The capital's population now exceeds 800,000 and the demands for urban infrastructure, especially water and solid waste management in suburban areas, multiply. Huge differences in water use between apartment dwellers and the rest persist. Water pricing and cost recovery need continuous attention. Significant amount of preparatory work has been undertaken on new approaches to wastewater management but implementation continues to lag behind. Vehicular pollution in the capital is increasing, and the use of unleaded gasoline is cause for concern. Industrial and investment policy containing environmental incentives may be needed. Development and application of sectoral EIA guidelines is underway.

(iv) **Energy and Climate Change**

- While the main thermal energy segment is still "digesting" de-regulation and struggling with cost recovery, increased donor support has been given to renewable energy and decentralized energy. Few generalizations have emerged so far about the right model (models) to be applied country-wide and the most appropriate role for the Government. Fuelwood is wrongly being omitted from renewable energy debate. The economic case for hydro- and mini-hydro power would merit a review and hydro-power projects need to be integrated with the new water policy. Mongolia has not yet ratified the Kyoto Protocol and this has slowed down the preparations for tapping the Clean Development Mechanism (CDM) to tackle local energy inefficiency.



(v) **Mining**

- The industrial mining sector has further gained in prominence. The new Minerals Law is considered sound (despite some conflicts with other laws) and conducive to further expansion of exploration and production. Rehabilitation of mining areas and conditions of mine tailings are the principal environmental concerns. A new and rapid expansion of poorly regulated or unregulated small-scale gold mining has taken place in the last few years. Over 100,000 people are now involved, changing the dynamics of rural employment and patterns of settlements. Environmentally benign production methods in placer area co-exist with highly damaging methods of extracting gold (using mercury) used in hard-rock mining, making this a major public health issue.

(vi) **Environment and Public Health**

- Greater recognition should be given to the work of the Ministry of Health on environmental health impacts, sanitation, and urban issues. A less opportunistic interpretation is needed by donors and sectoral interests of existing public health data in support of various environmental initiatives. Among MOH's priorities are back-up power systems for *soum* hospitals, safe disposal of hospital waste, and consideration of health impacts in EIAs.

The Ministry of Nature and Environment has increased its profile recently but it faces a number of challenges. Centralization of all GEF-related activities in MNE has added to the Ministry's coordination workload as most GEF activities are strongly cross-cutting in nature. Several key policies not to be better developed and articulated (e.g. forests). Some National Action Plans need to gain more support outside MNE. Greater role given to MNE in water and land management is well ahead of its institutional capacity, especially at the local level.

Environment *is* being "mainstreamed" in Mongolia. The principal mechanisms used to facilitate cross-sectoral co-ordination are the National Council for Sustainable Development (NCSD), National Coordination Committees (for most natural resources, land reform, public health, and all international environmental conventions, etc.), and *ad hoc* working groups. The Committees are headed by different ministries (MNE, MFA, MOH) according to the underlying concern. The effectiveness of the Committees varies, their work often stopping short of substantive policy issues. Main integration challenges remain in industrial pollution control, urban environmental issues, and energy. The National Council for Sustainable Development has played a major and positive public awareness role but has rarely gone beyond a generalized support of sustainable development (SD) rather than promoting any tightly-argued version of SD. Areas of persisting weakness across the whole spectrum of environmental concerns include legislative drafting and weak economic content of policies.

Donor funding continues to underwrite a substantial portion of MNE's and other ministries' "upstream" activities as well as much of MNE field activities in protected areas. The knowledge of the flow of resources into Mongolia's "environment" is incomplete, the funding by international NGOs the least well documented. Greater disclosure of financial information would be a plus. Financing of local environmental management continues to be poorly understood and a review (and probably a reform) of existing natural resource taxation supported by economic analysis could improve environmental outcomes.

Despite absence of a donor thematic or working group on environment, donor and

international finance institutions' coordination has improved of late, in particular in rural development, Ulaanbaatar City development and integrated river basin management. Calls for closer donor coordination in the aftermath of the 2003 Consultative Group Meeting are beginning to run into capacity and time constraints on the *donors'* side. To this day, there is no reliable information clearance mechanism in Mongolia that could say who is doing what, by environmental themes. For that to happen, more than desk- and internet-based work is needed.

## **Recommended ADB Strategy**

The overall ADB's support to environmental management in Mongolia should retain the broad direction recommended in 2001, with only some modifications. That means that ADB should favor an integrated approach to environmental problems rather than stand-alone interventions. Environmental improvements as a by-product of income generating activities should be the preferred directions of assistance. Environmental safeguards accompanying job and income creation should also have a place in ADB's strategy. The recommended approach calls for attention to cross-sector coherence and greater use of existing national coordination mechanisms.

There are good possibilities to address environmental concerns through a combination of lending and technical assistance. In both cases, ADB should actively seek bilateral or GEF co-financing. Such co-financing should be based on the meeting of minds, not merely on administrative and financial convenience.

## **Potential Areas of Involvement**

The following are environment-related activities most suitable for consideration during CSP formulation. They are organized by themes first, and assistance modality (loan or AOTA), second.

### Theme 1: Environment Management Capacity

*Improved financing of local environmental management* (AOTA, largely unchanged from the same proposal made in 2001).

In Mongolia, local environmental management depends on resource-related fees. At present, these are under-priced or unpriced. Better resource valuation could increase the amount of resources potentially available to local authorities for environmental management. The ramifications of PSFML for local environmental budgets are yet to be explored. There are a number of related specific concerns: Policies on eco-tourism and hunting are currently not supported by hard data about the revenues generated, subsequent use of the revenues and the economic costs and benefits of these activities. Choices involving grazing, mining, eco-tourism and hunting need to be better informed by appropriate economic valuation of each of these conflicting or complementary options. Here, Mongolia has yet to emulate work done in a number of other eco-tourism and hunting-dependent economies.

### Theme 2: Urban Environmental Concerns

2.1 Implementation of wastewater management strategy in Ulaanbaatar City (PPTA and a loan).

Considerable amount of preparatory work on wastewater management along the Tuul (the

recipient of all discharges from Ulaanbaatar) has been completed with bi-lateral funding. New wastewater discharge policy and legislation are being readied. Implementation has been slow and piecemeal. In the meantime, operations of several dozens of small-scale tanneries in the city are creating serious environmental problems. These industries match Mongolia's comparative advantage yet they are among the most polluting anywhere. Offering the existing and prospective tanneries the option to relocate to an industrial estate equipped with a pre-treatment facility could dramatically improve the industry's prospects *and* the pattern of pollution in the Tuul river. ADB's assistance could demonstrate the effectiveness of combining incentive-with enforcement approaches to environmental management and drive "green" industry promotion policies. Opportunities exist to extend the scope of the project to municipal wastewater treatment, either in areas already connected to centralized treatment plants or in *gher* areas not yet connected to the centralized network.

## 2.2 Formulation of strategy on phasing out of leaded gasoline (AOTA)

Using successful examples from other DMCs, the assistance would generate a menu of existing options for phasing out leaded gasoline together with their likely cost. With Russia being the principal source of automotive fuels at present and refinery modifications in Russia possibly the least cost option, the conduct of such a project may either have to await Russia's membership in ADB or require a pattern of co-financing (e.g. with UN ECE, UN ESCAP) that overcomes the current procedural obstacles to implementing the project in part outside the ADB procurement area.

## 2.3 Solid and hazardous waste management in Ulaanbaatar (PPTA and a loan)

The unsatisfactory state of solid waste disposal in Mongolia's capital is well known as is the absence of any facilities for hazardous (e.g. hospital) waste treatment/disposal. Besides the day-to-day operations and the functioning of the truck fleet, the problem extends to unsafe, inappropriately located and inadequate principal disposal sites. New, environmentally safe, disposal site(s) need to be created, together with a hazardous waste treatment facility. Construction of such facilities would be an opportunity for introducing improved mechanisms of waste disposal financing.

## Theme 3: Mining-related Issues

*Environmental, health and social safeguards in small-scale mining* (AOTA or PPTA plus loan with bilateral co-financing and/or JFPR component)

Use of mercury by a segment of the mushrooming informal small-scale gold mining sector in the last few years has created a major public health hazard (threat of the "Minamata disease"). Nevertheless, small-scale gold mining has become something of a savior of the rural economy and a poverty escape route recently. Its environmentally less damaging segment (placer mining) needs light-hand regulation and government support (e.g. delivery of social services closer to the mining areas). The environmentally damaging segment (hard-rock mining) should be phased out and the existing practitioners re-directed towards placer areas. This process is likely to be gradual and health monitoring is needed in all areas affected. Rules and mechanisms of co-existence between the small-scale miners and industrial operators are badly needed as is development of environmental safeguards to small-scale mining operations.

## Theme 4: Water Management

### 4.1 Strengthening of capacity for water management (AOTA)

The new government water policy is structured around integrated river basin management. This management approach is new in Mongolia and little or no experience with its application exists. Development of policy details and regulations is needed as is training of government staff at both central and river basin level.

### 4.2 Irrigation and water conservation

Attempts to rehabilitate portions of the old irrigation network were sporadic during the last decade and frustrated by the continuing uncertainty about the ownership structure of the former state farms. More recently, that structure has become clearer and the new land legislation has created conditions under which rehabilitation of parts of the former irrigation network could be viable. There is a greater willingness on the part of MFA to approach irrigation rehabilitation in a pragmatic manner and in a way that would divide the cost between the government and the water users. ADB assistance could spearhead this process.

## Theme 5: Land Degradation/Forest Management

### *Dry Ecosystem Land Management* (PPTA, loan with GEF co-financing)

A generalized class of projects aimed at lessening of degradation or desertification pressures on pasturelands that border the globally important ecosystems enjoying some degree of protection status. (e.g. transboundary watersheds). Such projects would be prepared following the procedures and mechanisms developed under CACILM or ADB/GEF Partnership for Land Degradation in PRC, the experience of which and possible applicability to Mongolia should be closely followed.

## Theme 6: Energy, Climate Change

### Use of CDN in support of greater energy efficiency (AOTA, GEF co-financing)

It would be possible and desirable to build on the substantial amount of work funded by ADB (ALGAS, PREGA) and others to develop proposals for financing energy efficiency activities in Mongolia under the Clean Development Mechanism. The work would have to be conditional on the ratification of the Kyoto Protocol by Mongolia and fulfillment of certain institutional prerequisites, including an improved linkage between UNFCCC-sponsored activities and those of MOI.

## INTRODUCTION

1. The year 2004 is the last year of Asian Development Bank's (ADB) current (2001-2004) country program for Mongolia. A new country program and strategy (CSP) is to be formulated in the summer of 2004 for the period 2005 to 2008.
2. Sound formulation of a new country assistance strategy and program in any country requires many things, adequate understanding of principal cross-cutting themes high on the list of pre-conditions. Country Environmental Analyses (CEAs) deal with one such theme, namely environmental management. A CEA is an input into the Country Strategy and Program (CSP). It identifies environmental constraints, assesses the policy and institutional preparedness of the country in question and links these considerations to other elements of ADB's involvement.
3. In its turn, the environmental strategy contained in CEA needs to reflect the hierarchy of ADB priorities deriving from the ADB's core mission of poverty alleviation. Mongolia was amongst the first developing member countries (DMCs) to enter, in 2000, into a Poverty Partnership Agreement (PPA) with ADB and the subject of poverty and its links with other components of the country's economy -including the environment-related variables-has since assumed even more prominence with the approval of IMF-brokered Economic Growth Support and Poverty Reduction Strategy (EGSPRS).
4. Unlike in most other DMCs, the drafting of this CEA was facilitated by the preparation of its 2001 predecessor<sup>1</sup> at a time when the label CEA was not yet current. Another initiative, namely a comprehensive stock-taking of ADB's involvement in Mongolia's environmental management since the outset of the Bank's Mongolia operations, was made a year later during the Country Assistance Program Evaluation (CAPE)<sup>2</sup>. It would not be unreasonable to accept those two reports as a basis for addressing environmental issues in the forthcoming CSP formulation. Yet, and despite the relatively short period since the completion of those two assessments, several new developments have taken place and better understandings emerged in some cases. This has made it necessary to update the 2001 CEA. While the reader of this CEA is urged to consult the 2001 document for a review of the developments up to that point, the emphasis and data used in this document tend to be those of the post-2001 period. The update reflects other factors, too. The approach to CEA and its purpose have matured since 2001. Rather than a mere document no matter how complete or analytical, CEA is increasingly seen as a means of initiating and facilitating continuous dialogue between ADB and the DMC client on environment-related matters. And in terms of its content, more attention than before is given in CEAs to the topic of integrating environmental considerations into the economic and social development mainstream<sup>3</sup>.
5. The new technical elements covered in the 2004 CEA are four: First, several institutional changes have taken place in the last two years and new legal instruments have been adopted or are under consideration. It is important to say whether and how these are likely to contribute to greater effectiveness in environmental management. Second, ADB's increasing engagement with GEF and GEF's widening of its operational scope to land degradation have made it necessary to expand on this topic. Third, a major economic, demographic and environmental

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<sup>1</sup> ADB (2001) referred to in this report as "the 2001 CEA". Its contents and recommendations are summarized in Annex 1.

<sup>2</sup> See ADB (2002a). The conclusions are summarized in Annex 2.

<sup>3</sup> Not by chance was the preparation of this CEA undertaken under RETA 6095 titled "Integrating Environmental Concerns in Government Plans, Programs and Policies."

change linked to informal small-scale gold mining is underway in many parts of Mongolia. Its repercussions deserve to be explored. Partly linked to that is the fourth element, namely the continuing debate about the optimum pattern of spatial development and its environmental dimension. Appropriate targeting of infrastructural investments, in particular the position to be taken to urban environmental investments, is an aspect of this debate.

## THE BACKGROUND

### Maturing Economic Transition: Economic Change and Environmental Repercussions

6. Rightly, much has been made of Mongolia's ecological and social uniqueness in discussing the country's economic performance (see Box 1). Mongolia's remote location, a climate that requires relatively large energy investments and constrains agricultural productivity, the thinness of rural population and markets and a nomadic past and present are well known to most with an interest in Mongolia. The broad links between these factors and the direction of environmental impacts have also been sketched both under the centrally planned era and the recent transition decade<sup>4</sup>.

#### Box 1: A few geographical reminders

Mongolia lies at least three ecological crossroads: its territory is divided into three hydrological basins (Pacific, in the East, Arctic Ocean around the Selenge river in the north, also containing the second largest freshwater lake in Asia, the Khovsgol, and Central Asian Internal Drainage basin containing the most important Central Asia wetlands, the shallow lakes of Uvs, Khar Us, Khar and Khyargas). In terms of vegetation, in Mongolia the Siberian coniferous taiga forest (with permafrost) meet high-altitude grasslands (steppes) and, further to the south, the great Gobi Desert. Also, Mongolia is covered by two out of three major waterfowl flyways in the Asia-Pacific.

Zone	Area (million km <sup>2</sup> )	% of total area
Desert	0.297	19
Desert steppe	0.329	21
Steppe	0.406	26
Forest steppe	0.125	8
Boreal forest	0.063	4
Montane	0.344	22
Total	1.564	100

Source: MNE (2003)

7. To summarize, they can be largely structured around: (i) the barriers to the mobility of livestock that more than anything else determines the overall conditions of pasturelands, (ii) the pressure on unique ecosystems<sup>5</sup> (iii) the degree of willingness and ability of the Mongolian society to maintain and add to urban environmental and public health infrastructure, and (iv) unit cost of energy provision. All of these are reviewed and updated in the sections that follow. In addition, this report addresses some of recent developments that have far-reaching, and often

<sup>4</sup> See ADB (2001) for a historical and cross-country perspective.

<sup>5</sup> Mongolia provides a good illustration of the notion that uniqueness of ecosystems can be substantively linked to uniqueness of lifestyle.

complex, environmental repercussions. The opening of the Mongolian economy to China and OECD countries has led not only to changes in the structure of the national herd or the rapid expansion of mining and mining exploration -both well known-but also to the emergence of markets for scrap metal, for instance, much less well known. Similarly, the interplay of foreign investment in mining, loss of traditional rural earning opportunities and several other factors is behind the explosion in informal gold mining that started only several years ago but has already changed the dynamics of rural employment and the pattern of population settlement in several regions of Mongolia, besides having environmental repercussions.

### Macroeconomics

8. Much has been said about the “downside” of Mongolia’s economic transition during its first decade, and efforts to counter it, particularly in recent years. Little point would be served revisiting this material. Suffice it to say that GDP continues to grow albeit at a slow rate, inflation remains contained (4.7% in 2003), and trade continues to expand (exports in excess of \$600 million p.a. for the first time with the share of mining increasing in importance<sup>6</sup> though trade balance continuing to deteriorate). Employment creation has been the Achilles heel of the economy for some time. The skepticism expressed in 2001 about the growth prospects of the pastoral sector remains. Agriculture accounted for 23.5% of GDP in 2002 against 38% in 1995, and employment in agriculture is now down to 45% of the total and possibly less<sup>7</sup>, the difference taken up by the service sector (25% in 2002 against 17% in 1995). On the positive side, there are increasing reasons to abandon the notion that mining cannot be a source of growth and the driver of local -and possibly also broad-based-- development. The flow of money generated by informal mining in Mongolia has had a positive impact well outside the mining areas themselves (with important qualifications made further below). The trading and service sector that seemed of minor importance in mid-1990s has become the single largest constituent of the country’s GDP (without even counting the black economy) by now<sup>8</sup>. Its environmental repercussions are varied and spill into areas such as solid waste management, structure of demand for urban environmental services, and the design of environmental regulation. On balance, Mongolia seems to have been a net beneficiary of globalization<sup>9</sup>. Bloated public bureaucracy continues to be a concern<sup>10</sup> and a major consideration whenever calls for increasing staffing strengths of environment-related agencies are made.

<sup>6</sup> Metals, dominated by gold and copper, accounted for 49% of total exports in 2003. The fast-expanding gold exports (official production worth \$137 million in 2003) alone were 2.3 times greater than all food imports, this “cushion against external vulnerability” growing thicker in recent years casting some doubts on the justification of the policy of greater domestic self-sufficiency in grains (wheat production up from 142,000 t in 2000 to 165,000 t in 2003, still less that a fourth of what it was at its 1980s peak). The figure of \$137 million compares with some \$65 million worth of all agricultural exports in 2003. The value of production by the informal gold mining sector in 2003 was put at around \$75 million [Greyson et al (2003)].

<sup>7</sup> Official figures put the number of people employed in mining and quarrying at 24,000 in 2002. Recent survey-backed work [Greyson (2003)] puts the figure of individuals engaged in small-scale mining in 2003 at over 100,000 (some on part-time basis). Thus, the 391,000 people officially listed as employed in agriculture is almost certainly a serious overestimate or at least a misleading number hiding the part-time nature of much of agricultural employment.

<sup>8</sup> In terms of GDP industrial composition, the service sector (trade etc.) and transport (plus storage etc.) taken together accounted for over 40% of the country’s GDP in 2002 and this share is further increasing. Mongolian economy today is indeed dramatically different from what it was only a decade ago.

<sup>9</sup> Official figures illustrate the importance of exports to China of unprocessed animal products (either a boon or a curse depending on the view taken of the competitiveness of local processing). Other trends, such as increasing exports of metal scrap to China, are unrecorded in official statistics but documented in detailed studies [see Eggerth and Diaz (2002)].

<sup>10</sup> 44,000 people were employed in public administration and defense in 2002, up from 31,500 in 1999. When education, health and community services are added, the total employment in the state sector rose from 134,000 in 1999 to 164,000 in 2002, i.e. about 19% of the total employment. A large number of government agencies is part of the picture. “One public agency per 350 Mongolians”, is how ADB (2004) put it.

9. The assessment made in the 2001 CEA of the environmental repercussions of temporary “de-industrialization” of Mongolia continues broadly to hold: it has resulted in increased pressure on the commons as many former government and industry employees turned to the land and forests for their livelihood (some subsequently switching to underground resources as we discuss later on). Nonetheless, by now, “de-industrialization” has largely run its course and some resumption of industrial production is evident though not in the original locations. Many *aimag*-level and most *soum*-level processing facilities continue to be non-functional and in many cases, probably past the point where they could be re-habilitated even if market circumstances justified it. New economic activities have been vital but have created their own environmental problems (e.g. tanneries in and around Ulaanbaatar). Elsewhere, doubts common in the mid-1990s regarding the existence of entrepreneurship -especially at the *soum* level-are beginning to melt thanks to several convincing demonstrations of the local capacity to adapt [Schmidt (2002)].

### **Population, Mobility and Regional Balance**

10. The temporary outflow of urban residents to rural areas following the privatization of the national herd in the early 1990s came to a halt by 1995 and the long-term trend of urbanization has since resumed. By 2003, urban population had surpassed its 1990 peak percentage of about 57 %. The capital with over 800,000 people now accounts for more than a third of the country’s population. Urban registration fees in force in Ulaanbaatar until between 1995 and 2003 are no more<sup>11</sup> and there is every indication that the city’s growth will continue. New centers of population, often far more numerous and economically active than *soum* centers have sprung up in the vicinity of gold mining operations (e.g. in Zaamar) raising questions about existing patterns of social service delivery and the direction of regional development.

11. The high unit transport cost in a vast and thinly populated country was easily identified in the 2001 CEA as a factor posing economic as well as environmental challenges. Today, there is little reason to substantially change this assessment. Greater reliance on market forces in the last decade and the disappearance of fuel and other subsidies continue to move economic resources towards high-value-to-volume/weight commodities, most notably cashmere and gold (see Box 2 below). It is also clearer now than it was a few years ago that location of economic activities in Mongolia cannot be discussed in isolation from the topic of administrative and fiscal decentralization. (see para. 96) Recent World Bank assessment [World Bank (2002)] provides sufficient grounds to believe that major improvements are possible, and indeed necessary, in the way budget resources –including those for local environmental management-- are generated and managed. The passage of the new Public Sector Financial Management Law in 2003 is a clear improvement but by itself, probably insufficient to bring about fundamental change in the local capacity to manage the environment.

#### **Box 2: Regional Planning and Environmental Impacts in Mongolia**

<sup>11</sup> Cancelled by GOM in June 2003. The existence of the fees during the period 1995-2003 helps explain underestimation of the capital’s true population in official statistics until now as well as associated problems of social service delivery [See Bulganchimeg (2003) for a discussion of the evolving situation on Ulaanbaatar’s fringes]. By now, registration remains not so much a duty as a condition of access to social services.



Recent regional development proposals of the Mongolian Government (“Regional Development Concept”) favor re-centralization of population and service provision along a small number of key axes. Although rightly criticized for a tendency to *legislate* poles of economic activity they recognize the fundamentally weakened case for decentralized provision once the full economic cost of fuel and other inputs is allowed to influence the allocation of resources. The question of interest to this report is whether a more market-driven approach to regional development, agreed to be desirable on economic grounds [see PDP Australia (2003)], would be also more sensible from an environmental management point of view. The answers are not straightforward. In general, market-drivenness is a friend of concentration of economic activities and population. This would be bad for pasture management, but might be good for dealing with urban environmental problems. Even that is not certain, however, given recent experience with the management of *gher* areas around major Mongolian towns, especially Ulaanbaatar. Concentration may create an opportunity for cost-effective action. Absent such action, however, an opportunity easily transforms itself into a concentrated environmental (and social) problem.

### Poverty and Health

12. Latest (2003) official figures indicate modest improvements in the worrisome indicators picked up in the 1996 and 1998 poverty surveys. On the health side, substantive work has now been undertaken by Mongolia’s Ministry of Health on the links between changing environmental conditions and the health status of Mongolia’s population, identified in the 2001 CEA as an area of particular weakness. The results [Public Health Institute (2003)] are less clear-cut than prevailing notions about how serious these impacts are. All is not well but the situation is not critical. In contrast, recent work conducted on the exposure of small-scale miners to mercury [Tumenbayar et al (2003)] has zeroed in on a major public health hazard (see para. 44 ff below). Partial data have also become available on the arsenic content of Gobi water [Bolormaa et al (2003)] indicating existence of a potential problem.

### Environment and Mongolia: Twelve Years After Rio.

13. It is now more than a decade since Mongolia’s entry into the world of international environmental discussion, a process nurtured by a broader desire for opening to the world at large, beyond the former boundaries of COMECON. By now the integration of Mongolia into the environmental mainstream is almost complete. Mongolia is an active member of the UN system and signatory of most international environmental conventions. In some of them, Mongolia plays a prominent role (e.g. hosting TPN5 of UNCCD and meetings of Asian focal points of UNFCCC). The notable gaps include the non-ratification of the Kyoto protocol so far and absence from Mongolia of the Aarhus and Espoo Conventions<sup>12</sup>. The global awareness and openness has served Mongolia well, among other things generating substantial funding by GEF and other donors for environment-related activities (see Annex 6 for a list of donor-financed environment-related projects since 2000). Thanks to this funding also, many prominent local environmental specialists have been able to escape -or part-escape-- low-paying routine government positions. More importantly, Mongolians, especially those in Ulaanbaatar, have gained a much better understanding of how the outside world manages their environments as well as how it structures its assistance to developing nations such as their own.

14. The “international” approach to debating environmental problems has become commonplace in Mongolia and is evident in the language and framing of domestic approaches to dealing with environment-related issues. Yet, the gap between the apparent sophistication of some of the work on environmental management, in particular in support of international environmental conventions, and the world of “getting things done” has grown larger. The former

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<sup>12</sup> Aarhus Convention of 1998 on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters and the 1991 (Espoo) Convention on EIA in a Transboundary Context, both featuring importantly in other transitional economies of Asia.

reflects the tradition of scientific training in Mongolia as well as received notions about what the role of science is. Modeling results multiply and donors neither question them nor demand peer reviews. Ecology theoreticians communicate poorly with “people-also-policy-makers” and field staff. Policy makers, on the other hand, rarely ask hard analytical questions, especially those relating to efficiency of resource use. And like everywhere else, getting things done in Mongolia is difficult because it demands simultaneous and often unpopular action on many different fronts.

15. The Government has been active, building further on its 2000 Program for Good Governance for Human Security (GGfHS), the pace of legislative amendments and formulation of new programs unrelenting. Positive because placing environmental concerns in the limelight the approach appears nevertheless to have devalued somewhat the government approval. This has far too often been given to undigested, unmonitorable and non-binding policies and programs (see paras 0 for examples).

16. A few months ahead of the 2004 parliamentary election there is little reason to expect major changes in official positions, generally supportive of the environment. The differences are mainly those of style. It is doubtful that recent vacillation or retreat on certain market-based elements of environmental policy (e.g. park entrance fees) or reluctance to tackle hard tariff-related issues (water, wastewater) will feature importantly in the pre-election debate. Genuine policy differences are found in matters wrongly considered to be of little environmental importance such as approach to crop production (where a strong *dirigiste* direction of the recently adopted agricultural policy is being opposed by some). Views on regional policy, now with a strong central planning flavor, could become the most revealing of the differences in approach by the political protagonists.

### PRINCIPAL ENVIRONMENTAL CONCERNS: AN UPDATE

17. Certain portions of the text that follows reproduce the material contained in the 2001 CEA. This is done for convenience and only in those cases where the 2001 account continues to be valid.

#### Land degradation

18. The official designation of lands --not synonymous with the actual use<sup>13</sup>-- is reproduced in Table 1. As to the area under each category, noticeable is the reduction of agricultural, especially pasture- and forest-, land, by about 10 % in each case since 1998. Although part of this decline is due to re-categorization of land, the remainder is the worrying element, namely the impact of land degradation.

**Table 1: Classification of Land in Mongolia**

Land classification	1998		2003	
	'000 ha	% of total	'000 ha	% of total
Agricultural land	129,132	82.6	115,580	73.9
Of which: pastureland	125,740	80.4	111,281	71.1

<sup>13</sup> Inconsistencies in Mongolian land classification and (especially) land use statistics are common but not exceptionally serious. The greatest gap between the official designation and actual use is under the categories of forest land and arable land. These are discussed in various places in the text.

hay production land	2,045		1,809	
arable land	953		706	
Other	394		1,784*	
Towns, villages, settlements	377	0.2	433	0.3
Roads	330	0.2	353	0.2
Forest	17,852	11.4	14,674	9.4
Water resources	1,665	1.1	943	0.6
Reserve land	7,056	4.5	0**	
State special purpose land	0		24,428***	15.6
<b>Total</b>	<b>156,412</b>	<b>100.0</b>	<b>156,412</b>	<b>100.0</b>

Source: MNE

\*Includes 1.26 million hectares described as unsuitable for agriculture

\*\* The category abolished in 2002

\*\*\* Includes, among others, protected areas

19. Land degradation in Mongolia is a matter of four main processes: (i) Pasture degradation: This takes a number of different forms ranging from lower fodder yield, worsening composition of the grasses, rodent damage to damage caused by vehicles or outright pastureland loss. In the country's steppes and the Gobi fringes, pasture degradation can come close to, or become synonymous with, desertification; (ii) Soil degradation on farmed areas. Farming in the extremely fragile Mongolian conditions is fraught with environmental dangers, soil erosion foremost among them; (iii) Loss of productive land to mining, roads, military installations, etc. and (iv) Forest degradation; In what follows, we summarize the situation under the first three headings reserving more room for forest degradation, described separately.

### Pasture Degradation and Desertification

20. The late 1990s official data on pasture degradation are given in Table 2.

**Table 2: Extent of pasture degradation, Mongolia, late 1990s**

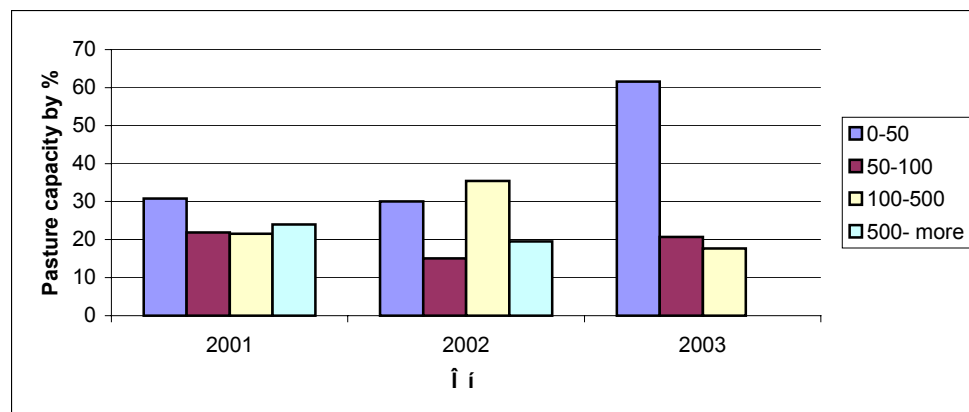
Extent of degradation	Slight	Moderate	Severe	Very severe	Total area
Per cent	76	20	3	1	100
Area (mil ha)	92.8	24.4	3.6	1.2	122.2

Source: ADB (2001) quoting Government of Mongolia data

21. The 2003 State of the Environment data (Figure 1 below) suggest that further degradation has taken place since late 1990s. Pastureland dominates other categories of land under threat. Areas under particular pressure are some 15 million hectares near rural settlements, natural water sources and towns. Not surprisingly, given that the impact of de-collectivization of herding was superimposed on a far greater fragility of the underlying eco-system, degradation and desertification pressures have been particularly severe in the steppe and Gobi areas<sup>14</sup>. In any event (and in a de-personalized world of resource allocation), it is not absolute degradation but the speed of deterioration that should guide remedial investments. ("Let desert be a desert and try to reverse deterioration in areas that are potentially much more productive").

### Figure 1: Pattern of pasture degradation, 2001-2003 (in SEUs)

<sup>14</sup> Although official figures of areas occupied by sand have remained stable since 1940, amounting to about 4.3 million ha, there has been progressive drying up of lakes and tributary streams in Mongolia's south and damage cause to wells and other structures by moving sand dunes.



Source: MNE, State of the Environment 2003

22. The 2001 CEA made the dismantling of collectivized herding and subsequent search for alternatives the core of the analysis of pastureland degradation. The reader is referred to that document for a review of main arguments. By now, numerous projects are underway in Mongolia tackling the problem of pasture degradation (see Table C of Annex 6). Although approaches vary (and a much needed harmonization of approaches is being finally attempted) the remedial steps are well understood though by no means easy. Action has targeted one or several pre-conditions of livestock mobility (restoration and maintenance of water-wells, locally agreed regimes of pasture use that place limits on the pasturelands' characteristics as commons, emergency response, and others). Worth noting is that "thanks" to 2000 and 2001 *dzuds*, animal stocking now is not historically high (see Table 3)<sup>15</sup> and that the number of small herders has declined from its peak in mid-1995 of over 200,000 herding families. Considerable efforts are directed towards new forms of community-based land use and herder cooperation (distinct from the discredited co-operatives of the past), the application to pastureland of the provisions of the Land Law among key challenges.

**Table 3: Livestock and population in Mongolia, 1918-2003**

Item	1918	1924	1940	1970	1990	2000	2003
Population ('000)	648	684	744	1265	2149	2407	2510
Camel ('000 head)	228	270	643	633	537	323	256
Horse	1150	1340	2358	2318	2262	2661	1958
Cattle	1078	1510	2723	2108	2849	3028	1784
Sheep	5700	8400	15384	13312	15083	13206	10706
Goats	1488	2100	5096	4204	5126	10077	10603
Total no. of animals	9,644	13,620	26,204	22,575	25,857	29,295	25,308
SEU equivalent**	22,263	29,574	55,653	48,801	54,668	58,719	44,324
Arable land (000 ha)	-	-	26	744	1347	1176*	706*
Pastureland (000 ha)	na	na	140151	139940	124285	129294	111281
SEU**/km2 pastureland			39.7	34.9	44.0	45.4	39.8

Sources: based on data for 1918-1990 based on Karamisheff, W. (1925), *Mongolia and Western China*, Tienstsin, and *National Economy of the MPR for 70 years 1921-1990*, cited in Humphrey and Sneath (1995) Vol 1, p.14. Data

<sup>15</sup> The statistical weakness of this estimate is important to acknowledge, nevertheless. A more accurate measure would require the use not only of SEU but also a "pastureland equivalent" (rather than gross area).

for 2000 and 2003 from *Mongolian Statistical Yearbook 2000* and *Monthly Bulletin of Statistics*, December 2003, respectively.

*Notes:*

\* of which only 209,000 ha were sown in 2000 and 225,500 in 2003

\*\* SEU: sheep=1, cattle=6, horse=6, camel=8.4, goat=0.86 (following the Mongolian *bod* concept instead of the international sheep=1, cattle=5, horse=6, camel=7, goat=0.9)

\*\*\* figures of 2003 population figure extrapolated from official 2,475 in 2002 at 1.4 % growth rate.

23. If the essential requirement of reduced pastureland degradation is greater livestock mobility, this has not always been clearly translated into policy. Instead, recent policy calling for more intensive animal husbandry (Resolution #29 of *Ikh Hural* of 2003) does not clearly distinguish between intensive livestock production -inappropriate in Mongolian conditions where fodder “on stump” is cheap unlike other forms of fodder supply-and other forms of animal husbandry that may well thrive in the vicinity of settlements. If the policy is advocated as a means of reducing pasture degradation in the vicinity of settlements, the proponents need to explain better how the policy would reverse pasture degradation under new institutional and market circumstances and what complementary actions would need to be taken to achieve the environmental objective<sup>16</sup>. More than anything else, a non-dogmatic and market-backed solutions to animal husbandry are needed with a parallel vigorous action on facilitating livestock mobility.

24. Pasture degradation and desertification are now more readily recognized as a cross-cutting theme with linkages to an evolving framework of land ownership and management (see para.0) and the pattern of alternative employment opportunities. Other important linkages exist to global climatic trends. Since the last review of the topic in 2001, more work has been done in Mongolia on the subject both under the aegis of the UNCCD and UNFCCC<sup>17</sup>. The results give more substance to concerns about the impact of global warming on pastureland and the condition of permafrost (with a complex sequence of repercussions), the changing behavior of Mongolia’s wetlands, a shift of the vegetation line northwards<sup>18</sup>, further forest degradation and reduction of suitable habitats within protected areas [Batnasan 2003]. These are important findings. Nonetheless the balance of causes of land degradation and desertification continues to lean towards anthropogenic factors, not climatic (or indirectly anthropogenic, to be more precise) ones. In any case, Mongolia may be risking too much by waiting for a reversal of climatic trends. The emphasis on adaptive strategies in recent round of UNFCCC-related work [Batima (2003)] is therefore appropriate.

25. Given the importance of the topic for Mongolia, a brief summary of the institutional setting is needed. Mongolia ratified UNCCD in 1996, and is host to Asian Regional Thematic Program Network 5 of that Convention (Strengthening capacity for mitigating drought impact and desertification control)<sup>19</sup>. National Committee to Combat Desertification was set up in 1997, National Research Center to Combat Desertification within the Mongolian Academy of Sciences

<sup>16</sup> These comments are not meant to minimize the complexity of the issue. Particular patterns of intensified management may be favored by the meat processing industry as a means of controlling animal disease and optimize processing schedules.

<sup>17</sup> See Adyasuren (2002) and Batima et al (eds) (2003), respectively.

<sup>18</sup> ADB (2001) points out that when such shifts are described in terms of forest boundary, they may unwittingly reinforce a rather narrow view of forests and trees in Mongolian landscape for they draw a sharp line between forests and non-forests leaving many vital forms of tree and shrub vegetation (tree shelters in pastures, desert shrubs, etc) out of consideration.

<sup>19</sup> The links with other TPNs, i.e. TPN1: Desertification Monitoring and Assessment (PRC as host), TPN2: Agroforestry and soil conservation (India), TPN3 Rangeland management and sand-dune fixation in arid areas, and TPN4: Water Management (Syria), are weak.

was created in 1998. National Action Plan to Combat Desertification was first drafted in 1998. An extensive monitoring network exists structured around the National Agency for Hydrology and Meteorology (NAMHEM<sup>20</sup>) within MNE, and the Central Environmental Monitoring Network. A disaster management- and early warning systems are in place, and a revised Civil Defense Law provides another element of Mongolia's response. Taken together, these give a good indication of the importance attached to the topic by the Mongolians. Recent assessment [EERI and MNE (2002)] identified insufficient integration of data on drought and desertification, tendency to see desertification is only an environmental problem, and insufficient public involvement as principal areas of weakness.

### Loss of Productive Land

26. The 2001 CEA put the area of pastureland lost to "multi-tracking"<sup>21</sup> in the last decade at about 300,000 hectares, i.e. averaging about 30,000 ha p.a. This is admittedly less than 0.025 % of Mongolia's total land area, but more than 0.5 % of the total area of productive land and an even higher percentage of best land (that "attracts" vehicles). Two new elements need to be added to these figures. First, multi-tracking is not necessarily a problem caused only or mainly by outsiders. Much of it is due to herders who own a significant percentage of registered vehicles (see Table 4 below). To that extent, some of the damage is "internalized" and could be argued to demand no remedial action.

**Table 4: Pattern of Vehicle Ownership by Herder Households, 2003**

	Number of Households		
	1995	1997	2002
Motorcycles	26,700	26,226	32,641
Vehicles (incl. cars & jeeps)	4,900	7,348	18,447
Households with vehicles	31,600	43,574	51,088
<b>Total households</b>	<b>169,308</b>	<b>183,636</b>	<b>175,911</b>

Source: Mongolian Statistical Yearbooks for 1997 and 2002

27. Second, the rate of land lost to multi-tracking increased in mid 1990s with the growth of herding families and concentration of economic activities closer to settlements, and as family- or group-based provision of supplies replaced collective provision. In Mongolia, the damage to pastureland caused by vehicles is too long-lasting to respond quickly to any future (and uncertain) reduction of off-road transport.

28. Similar lack of reliable figures makes it difficult to estimate losses caused by mineral exploration and mining activities in Mongolia<sup>22</sup>. Here, the impacts are different, mine tailings and handling of overburden often creating special risks absent in "multi-tracking" where simple compaction is the chief or only culprit. More recently, the emergence of small-scale ("ninja")

<sup>20</sup> In 2003, NAMHEM consisted of 120 meteorological stations, 183 meteorological points, 7 upper atmosphere stations, and 118 hydraulic observation points.

<sup>21</sup> Multiplication of tracks caused by vehicles traveling off-road, many carving a new track. (see Photo 1 in the Annex).

<sup>22</sup> The 2001 CEA found vastly different estimates ranging from just over 1000 ha to "millions of hectares of land" degraded as a result of the activities of some 600 exploration and 200 active mining sites in Mongolia. The rate of mining exploration continues to grow. Based on field visit observations at Zaamar, a leading gold producing area of the country, the area disturbed, some of it irrevocably, is about 40 sq km, or 4,000 ha. (see Photo 2). MNE put the area affected by gold mining between 1992 and 2001 at 5,500 ha, not counting damage due to exploration activities. Adding other forms of mining, a figure of perhaps 50,000 ha affected so far would seem reasonable not counting a multiple of that figure affected moderately by exploration activities.

mining has produced new forms of land degradation whose overall impact is nevertheless overshadowed by large-scale removal of overburden by industrial mining operators (see Photo 2). Similar concerns, supplemented by potential risks to water quality, accompany losses of land to waste disposal sites said somewhat arbitrarily [UNDP (2000)] to have occupied 30,000 ha of land.<sup>23</sup>

### Soil Degradation

29. Wind erosion affects almost all cultivated lands in Mongolia and steadily reduces their organic content. The area cultivated in Mongolia has declined from the peak of about 1.2 million hectares in 1980's to about 400,000 ha now. That which is a grave concern for the relevant "production ministry" (MFA) has become something of a relief to the environment's custodians. Removing the least suitable –usually the most fragile-- areas from cropping could well be a particularly efficient way of reducing land degradation<sup>24</sup>. It is unlikely that a rapid change in technology away from deep plowing towards environmentally more benign cultivation methods (low tillage etc.) will take place in the short to medium run. The problem has both a local and trans-boundary dimension. The phenomenon of duststorms affecting the whole of Easter Asia has its origins in part in inappropriate land management practices in large segments of Central Asia including Mongolia and Inner Mongolia. Through RETA 6068 (Prevention and Control of Dust Storms in North-East Asia) ADB was among the first specifically to respond to this challenge.

30. It is important to question rehabilitation/development policies for the crop sector that use past acreages as a desirable target for the future. The relatively weak strategic case for greater self-sufficiency in grains was mentioned earlier (para. 8)<sup>25</sup>.

### Forest Resources and Their Management

31. The 2001 CEA contains a summary of the situation as it existed around the year 2000, characterizing the sector then as both neglected and crisis-ridden. Much of that summary remains intact. A recent World Bank-commissioned assessment [Crisp et al. (2003)] -the only analytical look at the sector so far --has added to our understanding and introduced new elements. Elevated within the new MNE organization structure (see para. 88), the sector nevertheless remains crisis-ridden. To quote from the report's summary:

*"The forestry sector in Mongolia is rapidly approaching a crisis for which it seems largely unprepared:*

- (i) *The present estimated levels of forest harvesting are unsustainable; being at least 4 times the sustainable Annual Allowable Cut on the designated Utilization Zone and at least 1.75 times the sustainable Annual Allowable Cut if about 25% of the Protected Zone were made available for commercial harvest;*
- (ii) *The forest area zoned for utilization is inadequate to support a viable domestic wood-based industry or to attract the capital it needs to modernize for greater efficiency;*
- (iii) *Between 36 and 80% of total harvest is illegal; Government of Mongolia receives*

<sup>23</sup> Much more ought to be said about landscape scarring caused by uncontrolled dumping of waste, found on the outskirts of most Mongolian settlements. A positive new development has been rapid disappearance of scrap metal from these areas as Chinese demand has created a market for the commodity, eagerly seized by the Mongolians.

<sup>24</sup> The process could be accompanied by increased production in more suitable sub-areas, e.g. those once irrigated

<sup>25</sup> A more charitable explanation for the strong push for domestic grain sufficiency could be the importance of local production of alcohol, possibly offering multiplier effects (some positive).

- no royalties or taxes on this and it severely distorts domestic prices for both construction wood and fuelwood;*
- (iv) *Market forces and prices are not reflected in the allocation of cutting quotas or in the setting of stumpage fees;*
  - (v) *Fuelwood currently constitutes between 65 and 80% of total wood harvest and is used by many poor rural and urban households for both cooking and residential heating;*
  - (vi) *If alternative sources of domestic fuel are not developed and current levels of forest depletion continue unabated, serious fuelwood shortages will begin to be experienced in urban areas by the end of this decade;*
  - (vii) *Instead of dealing constructively with the primary problem of unsustainable resource exploitation, Government of Mongolia has tended to focus on peripheral issues, such as an outmoded forest inventory system, fire control, insect and disease control, and reforestation, for which neither an ecological nor an economic rationale is apparent.*
  - (viii) *Top-down enforcement of regulations has been ineffective; a two-pronged strategy involving gradual expansion of community forest management and strengthening of the existing government enforcement regime offers the best possibility to reduce illegal harvesting”*

32. The facts behind these conclusions are the following: In Mongolia, about 7 % of land area was under closed forest at the turn of the century representing nonetheless a vast area of over 10 million ha<sup>26</sup>. This figure excludes saxaul (*Haloxylon ammodendron*) shrubs<sup>27</sup> scattered on further 2 million ha or so in the southern portion of the country and the Gobi fringes<sup>28</sup>. The average standing volume of the northern closed forest is estimated to be 103 m<sup>3</sup> per ha, giving a total standing volume of around 1,300 million m<sup>3</sup>. (See Table 5).

**Table 5: Estimate of Area and Standing Volume of Mongolian Forests, 2000**

	Area ('000 ha)	St. volume (mil m <sup>3</sup> )
Larch ( <i>Larix siberica</i> )	7,527	1,030
Pine ( <i>Pinus silvestris</i> )	662	71
Cedar ( <i>Pinus cembra</i> )	985	161
Other conifers	29	4
Broadleaf species ( <i>Betula, Populus, Salix</i> )	1,199	86
Saxaul ( <i>Haloxylon a.</i> )	2,029	1
Total	12,431	1,335

Sources: White Book of Mongolian Environmental Situation 2000, Crisp et al. (2003)

33. Under a mean annual increment of 1.4 m<sup>3</sup>/ha considered typical of the larch/pine/cedar forests of Mongolia's north, the total increment is in excess of 2 million m<sup>3</sup> p.a., seemingly a comforting figure when compared with the allowable cut, now around 600,000 m<sup>3</sup> p.a. However, to relate these estimates to the situation on the ground, the following elements are important:

- (i) Forest fires and insect damage in the past decade. These have been extensive and put in doubt the validity of existing estimates of the standing stock and its increment.

<sup>26</sup> It is estimated that Mongolia lost about 2.2 million of closed forest since 1950 (Crisp et al. 2003).

<sup>27</sup> A shrub, normally less than 2 meters tall, considered vital to erosion and desertification control in the southern part of the county.

<sup>28</sup> Careful reader of CEA 2001 will notice a more guarded statement of forest totals in this CEA. This reflects uncertainty about the rate of forest depletion in recent years and incompleteness of recent forest inventories.



- (ii) Forest zoning. Most of the forested area is unavailable for production under the existing system that distinguishes Strict, Protected and Utilization Zones. Of the total area of 17.8 million ha designated as forest estate, 47 % is placed within the strict zone, 46 % in the protection zone and only 7% (or 1.2 million ha) in the utilization zone where commercial harvesting is permitted. At first sight, this might seem a robust defense of the forest estate. Alas, there are other factors:
- (iii) Rapid increases in illegal harvest. The legal harvest in 2002 was 40,000 m<sup>3</sup> of roundwood and 580,000 m<sup>3</sup> of fuelwood, about one fourth of actual consumption [Crisp et al 2003].
- (iv) Uneven utilization of the standing stock. Most “legal” logs come from a relatively small but accessible area of about 300,000 ha (mostly in the Selenge *aimag*). Even the legal log production is very unevenly distributed in space, and depletion occurs in the utilization zone.
- (v) Ineffectiveness of reforestation in Mongolia. With a possible exception of urban forestry, man-made reforestation is unsuitable for Mongolia. Natural regeneration accompanied by protection is preferable.

34. Answers to the forestry crisis in Mongolia clearly do not lie in additional official protection accorded to forests and do not lie in afforestation<sup>29</sup>. Over 90 % of forests already enjoy one or another kind of formal protection status. Neither is there a shortage of forest-related legislation: Mongolian Forest Law of 1995 provides for classification of forests, contains detailed provisions for their management within Special Protected Areas and National Parks, and specifies the determination of disaggregated annual allowable cut, timber sale contracts, fuelwood harvest permits, and much more. Other complementary legislation, multi-tiered and relatively complex, exists dealing with subjects such as prevention of forest and steppe fires. What *is* missing are viable management regimes, either community-based or commercial, containing incentives and environmental safeguards, and local capacity to regulate forest activities. National Forestry Program and Forestry Action Plan have little to say about these vital topics. Furthermore, to return to comments made in the 2001 CEA, many practical aspects of forest management issues such as forest taxation and funding of local forest administration have not been addressed.<sup>30</sup> With the exception of Germany, donors have stayed away from the “controversial” production forestry preferring to respond to their domestic constituencies’ interest in conservation.

### **Conservation of Biological Resources and the Key Ecosystems**

35. New developments in the area of conservation since the 2001 CEA have been mainly institutional, namely assignment of field responsibilities for all protected areas to MNE (and simultaneously removing MNE’s oversight from the management of other land resources that are now solely local governments’ responsibility). A further small increase has taken place in the protected realm and about 20.9 million ha (i.e. 13.2 % of the territory of Mongolia) are under some form of protection at present (see Annex 8 for the listing of SPAs, NPs, and NRs<sup>31</sup>). Main

<sup>29</sup> This view is not popular within MNE that allocates more own funds for afforestation than for any other NRM activities (a total of Tg 626 million in 2003, to be precise, or 30.1% of the total).

<sup>30</sup> Since 2003, with the separation of EPA from MNE, MNE ‘s responsibilities have shifted significantly towards protected areas. This leaves forest utilization zones and forest protection zone outside SPAs short of administrative oversight.

<sup>31</sup> Little was said in 2001 about wetlands: Mongolia joined RAMSAR Convention in 1998. At present, there are six

conservation concerns have not changed since 2001: poaching, sometimes trans-boundary, inappropriate hunting quotas, loss of habitats due to overgrazing, multi-tracking, as well lake sedimentation and different forms of pollution, and unsound management practices (e.g. cross-breeding of domestic and wild species). Depletion of saxaul vegetation in the Gobi continues but promising reversals of this situation have been realized under several donor-funded projects. Concerns have been expressed about potential threats to the country's principal wetlands by planned hydropower developments, especially the Durgon hydropower plant on the Chono-Khairakh river, part of the Khar Us Lake National Park. [Batnasan, (2003)]

36. The 2001 CEA mentions the strengthening of the buffer zone supported by the 1997 Law on Buffer Zones and the designation of twelve buffer zones around 10 SPAs and two National Parks, covering a total of about 10.5 million hectares. This further increases the total area enjoying some form of institutionalized protection in Mongolia. A new concern is apparent conflict between the Law on Buffer Zones and the new Mining Law that allows, by default, mineral prospecting in buffer zones without requiring prior consultation with local authorities and population<sup>32</sup>.

37. SPAs and National Parks are a focus of eco-tourism, considered by many to represent a potential source of funding for these areas' sustainable management, despite Mongolia's relatively unfavorable location and shortness of the tourist season. There were 205,000 visitor arrivals in Mongolia in 2003, up from 158,000 in 2000. Of these, about 180,000 came as private visitors. The arrivals were dominated by China and Russia that, taken together, accounted for 144,000 arrivals. Only 22,000 gave tourism as the main reason for the visit but many visitors are believed to mix tourism with other activities. Assuming the number of tourists and part-time tourists to be 50,000 and average local expenditure \$500 per visit, a respectable figure of \$25 million emerges, contrasting with a total 2003 budget allocation to MNE for protected areas' management of \$ 0.28 million equivalent. The category of trophy hunting with small numbers of visitors but high local expenditure continues to be incompletely documented to make it possible to correctly gauge its importance. We return to this topic further below (para. 84) in connection with local financing of environmental management<sup>33</sup>.

## Land Reform

38. The 2001CEA's broad account stands: Private ownership of land is a very recent concept in Mongolia and one giving rise to fears of excessive foreign ownership, land concentration and speculation. The Constitution prohibits privatization of pastureland but not of urban and arable land<sup>34</sup>. The crux of the current debate has been the extent of the constitutional right of the Mongolians to own land and the manner in which this right is to be exercised. The 1994 Law on Land (LL) established different classes of land and land rights (ownership, possession, use and limited use) some of which apply also to pastureland. The Law spells out the responsibilities of land users, and the procedures for land assessment, land use contracts

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RAMSAR sites in Mongolia with a total area of over 630,000 ha. Great Lakes Basin containing the main bodies of water (other than Khovsgol – see Box 1) are considered particularly vulnerable to overgrazing.

<sup>32</sup> S. Schmidt, *personal communication*.

<sup>33</sup> Wildlife exports (meat, skins, antlers, etc.) to China is an under-researched topic. A number of Mongolian and foreign specialists estimate illegal exports to be several times greater than legal trade. The extent to which this knowledge is reflected in the determination of hunting quotas is not certain.

<sup>34</sup> In all, not more than 0.8 % of Mongolia's territory is thus in principle open to private ownership. The exemption of pastureland from private ownership does not necessarily remove it from the ambit of taxation (see Section III.4 below). To many the *de facto* exemption of pastureland from taxation until now has deprived the Government of a potentially powerful economic instrument for discouraging excessive use pastureland near settlements and water points, a major economic and environmental problem today.

and land conservation. A 1997 amendment requires registration of land rights with the State Register for Immovable Property (SRIP). Law on Land Cadastre of 1999 added the methods and procedures for mapping and registration of the various land classifications established by LL. The primary responsibility for implementing the Law rests with *aimags* and *soums* that have interpreted the Law, including its applicability to pastureland, in a number of different ways. In some cases, possession rights have been allocated to winter camps, in other cases to both winter camps and winter pastures. The size of the recipient group (individuals or *khot ails*) and length of possession rights have varied<sup>35</sup>.

39. The Law on the Allocation of Land to Mongolian Citizens for Ownership (“Land Privatization Law”) of 2002, a 2003 revision of the 1994 Land Law, and the Property Rights Registration Law of 2003 represent the latest additions to the land legislation edifice. This framework clearly distinguishes between ownership (possession) and use rights and allows for transferability of these rights. The Land Privatization Law goes beyond land possession (let alone land use) licenses and provides for the possibility of full land ownership of residential land parcels. It gives every Mongolian citizen the right to own specified areas of urban land (0.07ha in Ulaanbaatar, 0.35ha in aimags, 0.5 ha in soums, to be received without payment if the option is exercised before 2005). Pastureland remains state property. Some 8,500 parcels had been allocated by October 2003, another 30,000 or so are pending. Registration of property deeds has been marked by delays.

40. On the institutional side, the most important and positive has been the merger in 2002 of the erstwhile (1) State Administration of Geology and Cartography under the Ministry of Infrastructure; (2) the Land Administration Authority under MNE and (3) the State Immovable Property Register under the Ministry of Justice into a single Agency of Land Administration, Geodesy and Cartography (ALAGaC) under the Prime Minister’s Office. The work of ALAGaC is complemented by 21 Land Management Offices at a provincial level and the Urban Development and Land Management Department within the Ulaanbaatar municipal government.

41. The primary concern now are the details of Land Law implementation that demand further strengthening the capacity of local governments to allocate and protect land rights in ways most suitable to local conditions.

## **Mining**

42. Mining, especially that of gold, has a long history in Mongolia. Russian and Chinese operations began in the 19<sup>th</sup> century. The economic importance of mining and its further expansion in today’s Mongolia was underlined earlier on (para 8).<sup>36</sup> Mongolia is a major producer and exporter of copper/molybdenum, gold, coal, and acid- and metallurgical grade fluorspar. By 2000, 500 deposits (including uranium and rare earths) had been identified, of these about 200 exploited, including 35 of construction materials. Since then, more deposits have been identified, some of global importance.

43. Relevant for environmental management have been the following factors: The vast majority of existing mines, mostly gold, in Mongolia are surface (placer) rather than deep mines. Their operation results in significant disturbances of the landscape and normally requires

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<sup>35</sup> The work of ADB’s TA 3606 (Capacity Building in Agriculture) has begun generating information about the early impact of these and more recent legislative changes on the management of pastureland and associated assets (water wells).

<sup>36</sup> Extensive information exists on mining, including the promising petroleum exploration, in Mongolia [see, Trifonov and Krouchkin (2000)].

excavation and washing of metal-bearing sands in dredges and other water washing devices (see Photo 3). They cannot operate in water deficient areas and, in Mongolia, are normally closed in winter. Main environmental challenges relating to copper/molybdenum mines in Mongolia are high energy-consumption and tailings storage (dust, contamination of water). The operations involve large quantities of acid, spread on old unlined overburden. Monitoring of chemicals' use, facilities and groundwater is essential. In coal mining, air quality, reclamation/mine closures (e.g. metal leaching after mine closure), dust from operations and rock overburden piles, and concentrations of carbon monoxide within the mines are the main problems.

44. Until recently, environmental concerns and the focus of EIAs in the sector were of the above, "traditional", kind targeting land disturbance, compliance with rehabilitation provisions, and conditions of mine tailings and tailing dams in principal production facilities such as the Erdenet complex. A 1999 World Bank-commissioned study of the environmental impact of gold mining around Zaamar [Dallas (1999)] added other considerations such as absence of a single authority to regulate the activities -and environmental impacts-of several dozens gold concessions and operations located in close proximity to one another.

45. While official policy not unreasonably had large operators and the burgeoning prospecting activities in its sights, a trickle and soon a wave of new type of mining appeared in Mongolia from the mid-1990s, namely informal small-scale ("ninja"<sup>37</sup>) gold mining. Responding to a loss of rural employment opportunities and led by redundant employees of old struggling mining companies, the new miners have worked illegally on the fringes of industrial operations or in abandoned areas. Low rates of gold recovery by industrial operators have widened the scope for profitable activities by the "ninjas". The "ninjas" have been exploiting both placer (alluvial) and hard-rock deposits. The difference between the two is crucial from the environmental point of view. While the impact of the former on physical environment and river ecology is relatively benign [Ibish et al. (2003)] the latter relies on the use of mercury for amalgamation and extraction of gold and presents a massive environmental hazard (See Box 3). Prolonged exposure to above-the-limits mercury is known to cause serious (and potentially fatal) neurological disorders ("Minamata disease"<sup>38</sup>)

46. The experience elsewhere (Minamata, mercury mining in Brazil) suggests that the rapid growth of "ninja" hard-rock mining in Mongolia should be a major public health concern. Human health problems are only now surfacing as the mercury usage is recent. Because mercury enters the soils of *soum* centers, virtually *all* residents are starting to be affected. Mercury cleanup would almost certainly be more expensive than relocation of the towns that may well become the only realistic option once the problem is fully acknowledged.

47. While rightly alarmed by the use of mercury, experts remind us that mercury is not used anywhere in Mongolia by placer "ninjas" miners (unlike, for instance, in Brazil<sup>39</sup>) and argue that placer mining could on balance play a strongly positive role in economic development provided

<sup>37</sup> So called because of the miners' resemblance –when carrying a typical plastic pan on their backs – to "ninja turtles" of a popular children television series.

<sup>38</sup> See Takizawa and Sekikawa (2004) for an epidemiological and policy review of the Minamata disease. The Minamata episode became a key event in the development of Japan's environmental regulation. For the sake of comparison with the totals in Box 3, the total amount of mercury deposited into the Minamata Bay during the 1950s was between 70 and 140 t.

<sup>39</sup> "Garimpeiros" are Brazil's "ninjas". Brazil's experience is not encouraging, the political pressures placing poverty alleviation (access to land by *garimpeiros*) ahead of environmental considerations (widespread use of mercury by the *garimpeiros*). It is vital that Mongolian authorities support placer "ninjas" in ways that removes any temptation to use mercury and facilitates movement of hard-rock operators towards placer areas.

the activities are suitably regulated. (Grayson et al 2003). Field work and analysis of exceptional quality has been generated on artisanal mining in the last several years by the Mongolian Business Development Agency and Ecominex International Inc.

48. The attention to the new threat of mercury contamination should not lead to less vigilance concerning the mining activities of the industrial producers. Here, the greatest potential threat is the condition of accumulated tailings and tailing dams [(Dick and Grayson (2004)].

### Box 3: Use of mercury in gold mining in Mongolia

Mercury use goes back to 1912 in the Boroo river area (within the Selenge watershed). Major leaks of mercury occurred in 1956 and several t of it remains in the river to this day. Recent extensive field investigations revealed existence of hotspots of mercury pollution in Sumber, Bayangol and Bornuur *soums* of the Boroo basin and suggested that the problem is more widespread. Seventy-six % of the households in three studied *soum*-centers are hard-rock gold miners ('ninjas') using mercury for gold recovery, and between them, the 3 *soum* centers currently consume about 500kg of mercury each year, or 2.4 t over the last 5 years. Of this, 56% goes to the atmosphere and 44% to the soil. Of the mercury waste, 83.3% of miners dump it in the open air in their fenced-off yards. Household yards soils have peak mercury content 230 times the permitted amount. Vegetable farmland near to the Boroo River has twice the permitted maximum of mercury. Two to three t of mercury have accumulated in the bottom sediments on 40 km of the Boroo and Kharaa rivers. Individuals pan the bed and banks of both rivers for mercury to sell it to the hard-rock gold "ninjas". This recovered mercury is insufficient to satisfy the rapidly rising demand and more than a ton a year is imported illegally from China and sold in villages by traders and gold shops.

The technology of mining, crushing, milling, sluicing and amalgamating vary but final mineral processing is not done at the mine-sites but in the *soum* centers, and hence each *soum* center is now a mercury hotspot. All "ninja-households" in turn are severe mercury hotspots within the broader *soum* hotspot. Most illegal mining remains primitive and is within 20-50 km of home, but several "ninja" groups in the study area commenced in 2004 to truck mined quartz gold ore from the South Gobi Protected Area to the north for processing using mercury. Ecological damage to the Gobi by illegal mining and to the Selenge watershed by mercury are therefore linked.

Sources: Grayson et al. (2003), Tumenbayar et al (2001), Tumenbayar (2003b)

## Urban Environmental Management

49. The 2001 CEA described the broad pattern of urbanization in Mongolia, including the resumption of the pre-1990 urbanization trend, fast growth of Ulaanbaatar, and the expansion of suburban habitats.

### Solid and Hazardous Waste Disposal

50. The assessment made in 2001 requires few modifications: Despite some improvements in the regularity of service in recent years in Ulaanbaatar, incomplete and sometimes haphazard disposal of household and industrial wastes, absence of any provisions for separating hazardous and toxic wastes, underfinancing, and insufficient cost-recovery continue to mark the service in the capital. On a smaller scale, the situation is similar in other towns. Transport of solid wastes, including sewage sludge in some cases, from urban areas to dumping sites and the conditions of these sites are in general unsatisfactory. Management of coal ash in large cities, open low-temperature burning of wastes, increasing proportion of non-degradable wastes in the waste streams, and littering are ubiquitous problems. No inventory and overview of industrial and hazardous waste has been attempted in Mongolia so far<sup>40</sup>.

<sup>40</sup> Before 1990, Mongolia imported more than 1,000 different chemicals (or 3,000, if medicines are included). That number increased to about 7,300 by 1994 and is probably much higher now. About 1,300 different companies and organization use chemicals. According to Wingard (2001), some 600 t of chemicals p.a. were indiscriminately dumped in mid-1990s, some 70 t discharged into the air, and 800 t ended up in surface waters (if not groundwater). Mongolia has received requests from other countries to establish hazardous and toxic waste landfills in the Gobi desert.

51. Donor assistance to solid waste management has been relatively modest possibly reflecting the view that trucks apart, improvements in this domain depend as much on political will as on equipment or special technical expertise. ADB's 1997 Provincial Towns Basic Urban Services, World Bank's similar 1997 loan [Ulaanbaatar Urban Service Project (1997)] and anticipated 2004 loan [Second Ulaanbaatar Urban Services Improvement Project] target mainly water, even if the second-mentioned project contained two subprojects of interest, i.e. waste collection in *gher* areas and a study on the establishment of a new sanitary landfill. Dutch and Japanese governments, through equipment provision, have been responsible for some improvements during the most recent period. Waste management in *gher* areas has been repeatedly mentioned as a high priority of the Ulaanbaatar City Government.

52. Re-cycling of waste was slow in coming but has now arrived. The 2001 CEA mentioned only the Blue Bag Campaign run by the Mongolian Women's Federation that supports sorting out of waste into blue bags, and sending it off for commercial re-cycling. Thanks to recent WHO-commissioned work [Eggerth and Diaz (2002)] a much more favorable picture emerges for it turns out that a substantial and relatively well organized re-cycling of metals, paper, plastic and animal bones takes place<sup>41</sup>, supported in some cases by strong demand from China. Some 5-7,000 people were employed in materials recycling in 2000.

#### **Box 4: Organization of Solid and Hazardous Waste Management in the Capital**

The responsibility for waste management is decentralized to districts. Within the City Government, there is a Working Group on Waste Management. Under the Group, the City Reconstruction Company (CRC) and 9 District Construction and Service Companies (DCSC) (of which 6 in the city area) are responsible for waste management, street cleaning, public construction, parks, etc. as well as three central dumpsites managed by a separate entity NUUTS<sup>1</sup>. Despite their name<sup>1</sup>, the "Companies" operate entirely on the city government budget. The DCSCs collect fees for waste disposal from private households, communal entities and institutions. The fees are set by the Government. The rates, set in 1997, are Tg 50 per person per month in apartment blocks, and Tg 400-500 per family per month in *gher* areas. A general disposal fee of Tg 50 per m<sup>3</sup> of the waste of all categories is charged by DCSCs but contracts can be negotiated individually with industrial and commercial entities.

53. The Law on Protection from Toxic Chemicals was adopted in 1995 assigning varying responsibilities to MNE and local governments. The Law provides for permits for use and disposal of toxic substances and for compensation for any harm caused by the use or disposal of the toxic substance. No systematic survey of existing practices has been made but anecdotal evidence suggests that they lag significantly behind legislative developments. Ministry of Health is increasingly concerned about non-existence of a specialized facility to treat hospital waste.

#### **Air Pollution in Mongolia's Urban Areas**

54. Air pollution in Mongolia's towns, especially Ulaanbaatar, is considered to be a serious problem, especially in winter. The 2001 CEA provides a summary of the situation at the time. This remains valid to this day and only minor updating of the main measurements is required.

55. In all major cities (Ulaanbaatar, Erdenet, Darkhan and Choibalsan), the broad pattern of air emissions has been similar: The air pollution has a strong seasonal pattern, the SO<sub>2</sub> and dust concentrations in winter being a multiple of those in the summer (in Ulaanbaatar at the turn of the last decade, 0.20-0.30 mg daily averages of SO<sub>2</sub>/m<sup>3</sup> in winter against 0.02-0.06 mg/m<sup>3</sup> in

<sup>41</sup> The emergence of markets for scrap has improved the economics of truck utilization in some cases.

the summer, and 0.150-0.250 mg of dust/m<sup>3</sup> in winter against 0.050-0.150 mg/m<sup>3</sup> in the summer). Improvements in the emission performance of the power sector (especially in Ulaanbaatar) have been partly offset by increased emissions by the expanding *gher* areas, and by continuing land degradation in the vicinity of the cities contributing to dust formation<sup>42</sup>.

**Box 5: Ulaanbaatar: Some Statistics**

The UB municipality of 1360 sq km is divided into 9 districts and 119 *khoroos*. The capital's population has increased from the official 787,000 in 2000 to about 900,000 today. The planned population of (only) 1 million by 2010 looks increasingly untenable in the face of continuing population inflow. Of the total, about half of the population live in apartment blocks some 80 % of supplied by central heating and hot water from three CHPs, 7 % by heating boilers (275 of them in the city, majority connected to centralized heating network) and 13 % by individual stoves. The rest of the population live in individual dwellings in "*gher* areas" on the outskirts of the city where coal and fuelwood are used for heating. The three CHP plants consume about 3 million t of coal p.a., the individual boilers about 1 million t, and households in the *gher* area another 300-400,000 t (in addition to fuelwood). The high coal consumption and energy inefficiency of individual stoves are behind relatively high air pollution in the city during winter. Adoption of CNG has been promoted by the private sector in the last two years.

56. In all main towns, but in Ulaanbaatar in particular, NO<sub>2</sub> emissions have been going up as a result of increased number of vehicles (from 36,723 vehicles of all kinds in 1998 to 60,768 in 2003<sup>43</sup>). Ulaanbaatar now accounts for almost 60 % of the country's vehicle registrations. This translates in an increasingly complex mix of public and private transport and emerging traffic congestion in the capital. Eighty per cent of vehicles are believed not to meet anti-pollution requirements. Very little has been said in Mongolia so far about the scope that may exist for making vehicle excise and registration fees as an indirect tool of environmental management. Gasoline used in Mongolia is of the leaded kind. There is insufficient awareness of the health risks posed and no strategy on the lead phase-out.

**Table 6 : Motor Vehicle Registrations, Mongolia, 1990-2002**

	1990	1997	1999	2000	2001	2002	Ulaan baatar
Passenger Cars (incl. jeeps)	7,962	35,578	39,921	44,051	53,198	63,224	42,509
Trucks	24,400	26,473	25,049	24,671	24,747	24,610	8,663
Buses	2,591	3,982	6,012	8,548	10,187	10,841	6,956
Road Tankers (inc. fuel)	4,754	1,868	1,615	1,683	1,613	1,709	993
Special Purpose Vehicles	4,085	2,187	2,243	2,740	3,326	3,421	1,547
<b>TOTAL</b>	<b>43,792</b>	<b>70,088</b>	<b>74,840</b>	<b>81,693</b>	<b>93,071</b>	<b>103,805</b>	<b>60,768</b>

Source: Mongolian Statistical Yearbooks for 1997 and 2002

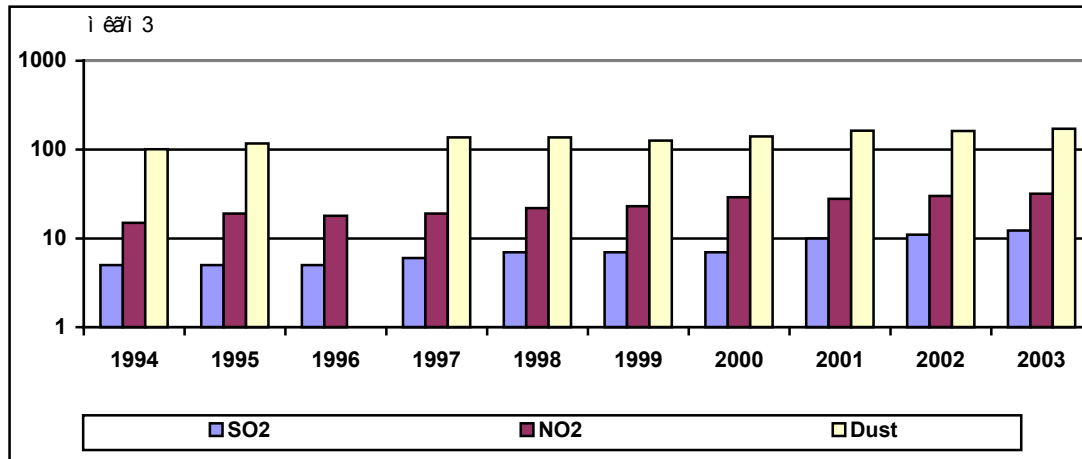
Note: Motorcycles are not included

57. The pattern of air pollution in Ulaanbaatar is summarized in Figures 2 and 3 and Table 7.

<sup>42</sup> The frequent instances of disruption of air traffic on account of dust at Ulaanbaatar airport is a good illustration of one category of the economic cost of the city's air pollution.

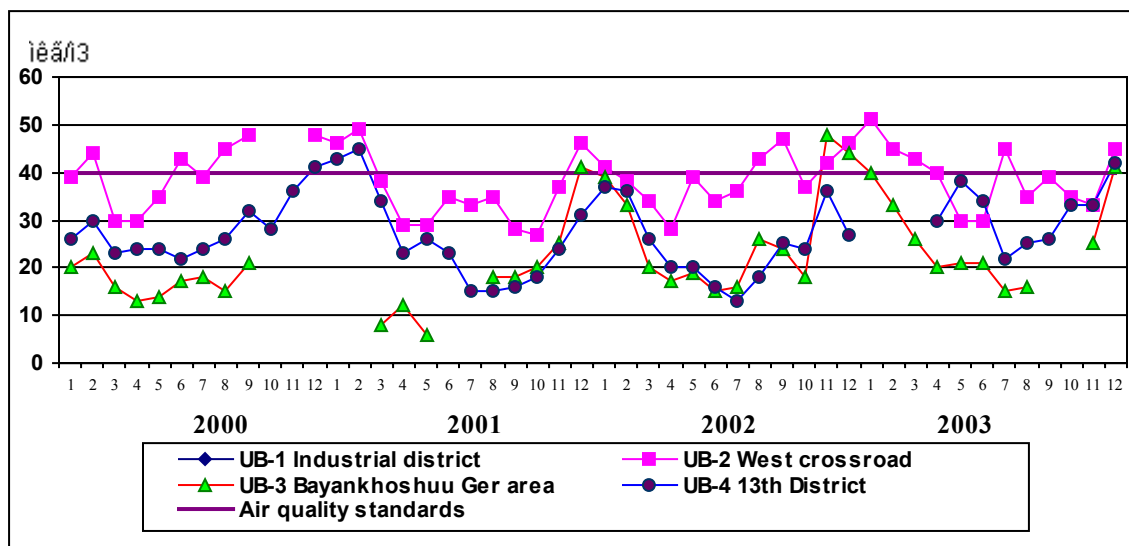
<sup>43</sup> Registrations of *private* cars in Mongolia rose from 7,962 in 1990 to 63,224 in 2002 (see Table 6).

**Figure 2: Annual Average Concentrations of Selected Air Pollutants in Ulaanbaatar (ug/m<sup>3</sup>)**



Source: MNE, State of the Environment 2003

**Figure 3: Monthly Fluctuation in SO2 Concentrations, Selected Areas of Ulaanbaatar (ug/m<sup>3</sup>)**



Source:

MNE: State of the Environment, 2003

**Table 7: Annual Variations in the Concentration of Selected Air Pollutants, Ulaanbaatar, 2000**

	Summer daily averages		Winter daily averages	
	max (ug/m <sup>3</sup> )	Min	max	min
SO2	10	0	41	10
NO2	64	15	60	14



These figures compare with the existing air quality standards that are as follows:

**Table 8: Air Quality Ambient Standards, Mongolia, 2000**

Parameter	Once-upon maximum (ug/m <sup>3</sup> )	Daily mean (ug/m <sup>3</sup> )
CO	3000.0	1000.0
SO <sub>2</sub>	500.0	50.0
NO	600.0	60.0
NO <sub>2</sub>	85.0	40.0
Dust	500.0	150.0

The figures indicate that the concentrations of pollutants exceed the national standards during winter. Both SO<sub>2</sub> and NO<sub>2</sub> concentrations have been gradually increasing. Although the figures do not justify the frequent blanket assertion of persistent excess of pollutant concentrations over the national standards they are not reassuring. A much improved 2003 State of the Environment report [MNE (2003)] provides further details on the pattern of air pollution in Mongolia.

58. Research by the Ministry of Health [Bulanchimeg (2003)] has used new (2001-2002) survey data of the incidence of respiratory diseases and correlated them with air pollution levels in different parts of Ulaanbaatar. This correlation is not particularly pronounced. Nevertheless respiratory problems remain the principal cause of morbidity (but not mortality) in the capital city. To echo the sentiment expressed in 2001: "While perhaps the problem is not as serious as previously assumed, it would be wrong to minimize the potential risks posed. This is so mainly in view of the population and land-use dynamics of Ulaanbaatar and a likely further growth of the number of vehicles in the capital. Everything suggests that the rapid growth of Ulaanbaatar will continue, and that most of this growth will take place on the city fringes. It also seems likely that in the absence of vigorous countermeasures, the process of land degradation in the capital's vicinity will continue unabated, adding to the pollution problem".

59. Recent initiatives to introduce improved stoves into the *gher* areas of Ulaanbaatar are important for them, and improvement of small-scale heating stations, are probably the two areas that have a well defined physical focus and offer tangible and fast-accruing benefits<sup>44</sup>. The promotion of more efficient stoves is now well advanced in Ulaanbaatar but has yet to start in other cities and towns. The approach to air pollution continues to suffer from insufficient coordination that would make it possible to sequence available pollution-reducing options (such as coal beneficiation, briquetting, re-location of polluting facilities, buildings' insulation etc.) in the most cost-efficient manner. Substantial amount of work along these lines carried out under ADB- and GEF-funded projects on climate change have yet to be fully utilized.

### Water Supply and Water Quality

60. Despite low precipitation in the south in particular, Mongolia's water supplies are in principle adequate to supply most of its 2.5 million people even if serious problems of groundwater quality (high natural mineral content presence of arsenic) and local shortages are found in most of the Gobi area and the eastern steppes [Bolormaa et al. (2003)]<sup>45</sup>.

<sup>44</sup> All indications are nevertheless that the economic profitability of improving household stoves is well above that of improving small-scale heating stations.

<sup>45</sup> To a significant degree, existing patterns of population distribution in traditional (pastoral) societies are responses to natural endowment with water availability among the key determinants. In the fragile environment of the Gobi region, people are few and management of groundwater resources is particularly demanding. The expected growth of mining, especially water-demanding gold mining, in this area raises serious concerns about sustainable water management.

61. A revised Water Law was approved in April 2004. It clarifies the institutional division of responsibilities MNE, MOI and MOH in the sector, and it introduces the principle of water basin management and its broad management structure. It sets out broad principles of charging different classes of water users. It institutionalizes water conservation policies and calls for EIAs for specified classes of water use projects. For now, the revised Water Law co-exists with the Water Use Taxation Law of 1996. All in all, the Water Law is a distinct improvement and an invitation to Mongolia's development partners to match its intent [See UN ESCAP and NWC (2002)]. That intent, judging by the National Water Program, is almost as far-reaching as that of the Regional Policy and no less in need of a thorough policy review. Like the Regional Policy also, much of the hard work needed to convert the general principles into a functioning reality is yet to come. The broad direction of the policy is to increase the use of surface water vis-à-vis groundwater and reduce "wasted" outflow from the Mongolian territory, implicitly calling for an expansion of water storage infrastructure. 2004 has been declared by the Government "The Year of the Water".

### Urban Water Supply

62. The central challenge facing the authorities is (1) to ensure that water supplies last well into the future; and (2) to safeguard the quality of both surface and groundwater. As to the former, some improvement of the rapidly deteriorating water supply infrastructure in Ulaanbaatar has been achieved with foreign assistance (JICA, France) but the problem has not been truly solved, not least in terms of sustainable financing. Water is effectively under- and mis-priced and significant waste occurs throughout the system. In Ulaanbaatar, the apartment building dwellers (who account for about half of the capital's population) using un-metered supplies, consume the bulk of the available supplies (see Box 6 and Table 9 below). Apartment dwellers' average daily consumption of around 0.4 m<sup>3</sup> per capita (almost double that of the U.S. or Germany) contrasts with the *gher* district dwellers' figure of less than 10 liters per capita per day<sup>46</sup>. The situation is similar in other Mongolian towns. Whatever doubts existed about the scale of the difference in 2001 have disappeared by now. The extent of the cost recovery shortfall has not been adequately documented but nobody questions its existence.

#### Box 6: Water Supply and Wastewater Physical Infrastructure in Ulaanbaatar

One hundred and sixty boreholes and four surface water sources supply Ulaanbaatar. Four transmission stations, more than 300 km of water km water distribution network, and over 200 km of wastewater wastewater collection piping exists in the capital. Rainwater drainage and flood protection facilities are in disrepair. Some 155,000 m<sup>3</sup> of water is supplied to the centralized network and 1,500 m<sup>3</sup> for *gher* area needs. A central wastewater treatment plant was built in 1963, expanded in 1979 and 1986 with a capacity 230,000 m<sup>3</sup> per day. UB as a whole has other 14 WWT plants, most of which work in part or not at all. About 50 % of the water supply network has been rehabilitated with donors' assistance. The CWWT plant is being upgraded with Spanish technical and financial assistance. World Bank, Danish and other donor assistance has been directed at improving water supply to *gher* areas. In 2003, over 90 % of *gher* dwelling had electricity connection but hardly any were connected to central water supply.

<sup>46</sup> Apartment dwellers are connected to a centralized supply network while residents of *gher* areas purchase water from "water kiosks", to which water is supplied by trucks.

**Table 9: Water Consumption, Tariffs and Total Revenue, Ulaanbaatar, 2000**

Water consumers	Water volume consumed (2000)		Waste water		Fresh water	
	000 m <sup>3</sup>	(%)	Tariff (Tg/m <sup>3*</sup> )	Revenue* * (Tg mil)	Tariff (Tg/m <sup>3*</sup> )	Revenue* * (Tg mil)
Apartments	47,888.0	79.7	110	5,268	186***	8,907
State organizations	4,588.2	7.6	115	528	200	9,189
Private organizations	4,403.6	7.3	115	506	200	881
Factories	2,715.7	4.5	115	312	200	543
<i>Gher</i> areas	454.3	0.8	0	0	400	182
Total	60,049.8	100.0		6,614	190****	11,431
Others/ Losses	2,013.5					
<b>Grand total</b>	<b>62,063.3</b>					

Source: MNE

\* The tariffs are those valid in 2001

\*\* Presumptive revenue, incompletely collected. Figures of actual revenue are crucial but difficult to obtain.

\*\*\* Corresponds to about \$0.17/m<sup>3</sup>. This compares with the 1996 range of residential water tariffs in PRC ranging from 0.20 to 3.0 yuan/m<sup>3</sup> (average 0.68 yuan or about \$0.10) and industrial water tariffs averaging 1.03 yuan (about \$0.13 at the time), or \$1.0-1.8/m<sup>3</sup> in France. The Ulaanbaatar wastewater tariff corresponding to \$0.10/m<sup>3</sup> is well above the rates prevalent in PRC even if even this level is no more than about 50 % of the full unit cost of operating a modern CWWT plant. Rather than mainly low levels of tariffs, it is mainly at the level of collection that under-pricing of water and wastewater treatment occurs.

\*\*\*\* Weighted average

63. The 2001 CEA discussed the experience of the National Water, Sanitation and Hygiene Education Program (“WASH-21”) that addressed decentralized clean water provision and the sanitation needs of families in low-income *soums* and peri-urban areas in eight *aimags* in the Gobi region. The absence, until now, of water end-users in the decision-making regarding the management and pricing of water resources emerged as one of the obstacles to sustainable water supply and sanitation practices in Mongolia’s settlements. The willingness of local communities to take charge of their water and sanitation needs was found weak. WASH-21 was instrumental in the establishment of the National Water Committee, a multi-agency body that has helped in part to overcome the fragmentation of responsibilities for water and sanitation in Mongolia. Its work and major changes in the government policy on water that have taken place in the last two years are discussed in para. 61 below.

### **Wastewater Treatment**

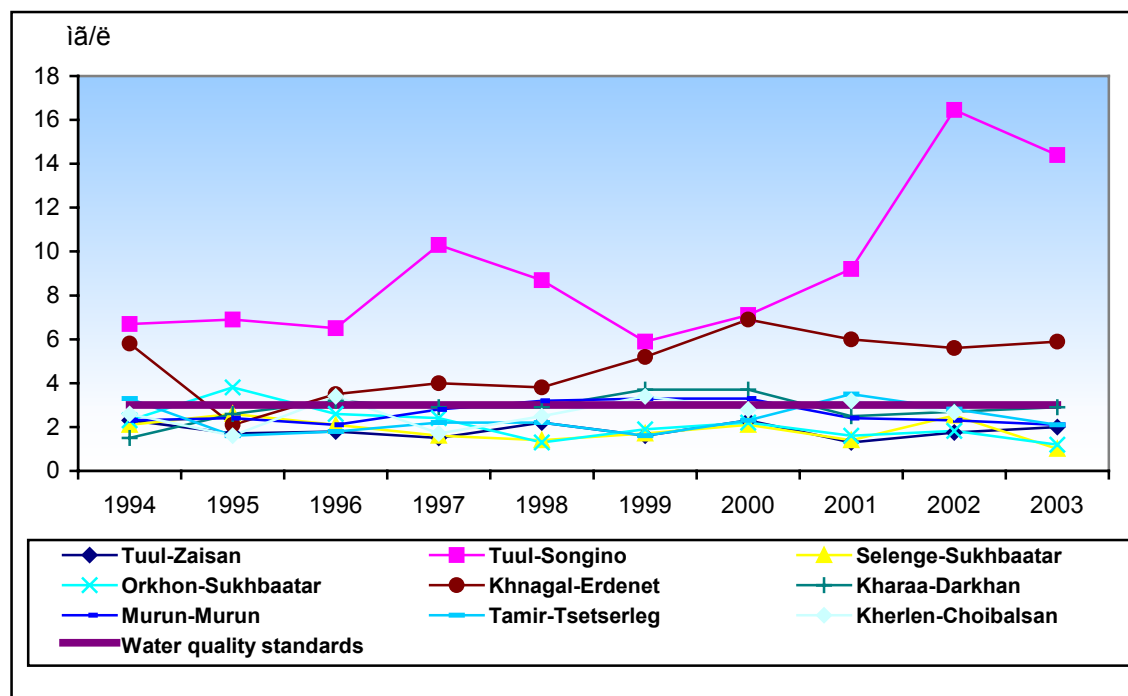
64. Only limited progress has been made since 2001 in restoring (or replacing) some of the 120 poorly functioning or non-functioning WWT plants and their more modest variants in Mongolia’s urban centers. With the expansion of Ulaanbaatar and future growth of other urban centers likely to occur on the city fringes, the problem of connections and sewage treatment is likely to become more, not less, serious. Until now, the issue has received relatively low priority. A 1997 study of wastewater pollution of the Tuul River explored the feasibility of introducing wastewater pollution charges but it appears that some of the prerequisites of applying such a mechanism (reliable monitoring of discharges, for instance) are still not in place. Work since then conducted under Dutch-financed Tuul-21 Project has generated a more complete picture of the situation [See Fig. 4 below] besides linking the wastewater issue to the broader area of clean production.

### Box 7: Tanneries In and Around Ulaanbaatar

There has been an increase in the number of tanneries in Ulaanbaatar following the industry's virtual collapse in the 1990s. Some tanneries are located in the Leather Association Industrial Park (centered around Khargia Co.), most of the rest in the Tolgoit area of the city. The latter group is unconnected to any pre-treatment facility discharging either directly into the central WWT plant, causing its serious malfunctioning, or dumping the waste, causing serious soil and groundwater contamination. Almost none of the tanneries satisfy CWWTP inflow standards (concentrations 5-20 times the permitted norm are not unusual, e.g. 50 mg/l of chromium against 2.5-5.0 permitted). Unsafe storage of chemicals and use of outdated Chinese technology are common and enforcement of EIA provisions has been ineffective. The pre-treatment plant of the Khargia Company is fast becoming inoperable. The processing of animal skins in central Ulaanbaatar is in violation of current sanitary restrictions on the movement of animal products into the city.

65. A draft Wastewater Discharge Fee Law, based on the experience of 25 case studies under Tuul 21 Project, is now ready for submission to the Standing Committee of the *Ikh Khural*. It establishes the principle of payment for the quantity of discharges by different classes of users even if, for now, at least, it skirts the issue of tariff changes.

**Figure 4: BOD in Selected Mongolian Rivers, Annual Averages (mg/l)**



Source:

MNE (2004)

### Waterwells in Rural Areas

66. In rural areas, the key issue for some time now has been how to deal with large-scale abandonment of engineered and deep-water wells in the wake of *negdel* dismemberment. About two thirds of all engineered wells ceased to operate between 1990 and 2000 (see Table 10). In 2000, at least 60 % of the 35,000 or so of such wells constructed before 1990 to supply the needs of *negdels* were out of operation. Since then, major efforts have been underway under several donor-funded project to restore the wells and create sustainable management regimes involving herder groups and *soum* authorities. The process is intertwined with broader

efforts to institute new sustainable pasture management regimes. In 2003, a total of 307 wells were rehabilitated and in 2003, a total of 468 wells. These are modest achievements but the pace of work is accelerating and the policy is finally beginning to move in the right direction.

**Table 10: Number of functioning wells in Mongolia, 1990-2000  
(000 units, unless otherwise stated)**

Type of well	1990	2000
A. Number of wells and troughs		
Engineered wells	24.6	8.2
Simple sunk wells	17.0	22.7
Total	41.6	30.9
Watering troughs	4.1	1.0
B. Capacity (000 m <sup>3</sup> )	39.4	14.9
C. Distribution of wells:		
Wells on pastureland	38.3	21.7
Unused wells	1.1	5.8
Wells in areas other than pastureland	2.2	2.5

Source: Mongolian Statistical Yearbook 2000

### Energy, Non-renewable and Renewable

67. Energy deregulation and reforms associated with it have been underway in Mongolia since the enactment of the 2001 Energy Law and enough has been said about it [Rizer and Vollans (2002), Teleki (2003)] to repeat it here. On the technical side, the state of the existing coal-using power sector was extensively studied by various consultant teams in the late 1990s as were individual facilities, their performance, and the system's losses. Substantial experience has been gained with heat transmission in Ulaanbaatar and obstacles to increasing its efficiency under a slowly disbursing ADB Loan No. 1548. Mongolia's position at the top of per capita consumption of commercial energy among ADB's DMCs is well known. Through its technical assistance (Capacity Building in Energy Planning), ADB has driven the formulation of Mongolia Sustainable Energy Sector Strategy, formulated in 2001 but since then overshadowed by the demands of energy sector de-regulation. The managerial, financial and political difficulties of that process, especially the continued non-sustainability of decentralized electricity provision are well known [see MOI (2001)]. Slow progress has affected the donors' willingness to consider new initiatives. The extensive work on energy undertaken within the UNFCCC framework (some with ADB's own funding) remains poorly co-ordinated with, and integrated into, the planning and policy activities of MOI. Further work on energy efficiency under UNFCCC is being adversely affected by hesitations of Government of Mongolia to ratify the Kyoto Protocol.

68. Among other things, the 2001 CEA mentioned the impact of continuing growth of the *gher* areas relative to apartment housing: more households unconnected to the CHP network increases air pollution by these areas in winter. Although these areas consume less than 10 % of the total coal used by CHPs and HOBs in the city, they contribute disproportionately to the capital's air pollution because of low stove efficiency and the areas' "wrong" location in relation to prevailing winds. Apart from mainstream recommendations for dealing with air pollution in Ulaanbaatar (e.g. to shift attention to the *gher* areas, develop emission standards for power plants, adapt market-based approaches to compliance) the 2001 report also notes the absence from the policy debate the possibility of exploiting the differences in coal quality and its polluting characteristics as a way of possibly minimizing the cost of environmental compliance by the coal users.

69. The 2001 CEA paid more attention to renewable energy and its environmental aspects the importance of which had traditionally been overshadowed by the life-threatening crisis of the thermal energy subsector. By now, the case for renewable energy, especially the kind that fits the needs of Mongolia's highly mobile population, is well established and remains a Government priority. The solid physical basis for pursuing the solar and wind power options is also an important factor.

70. The principal technical considerations relating to renewable energy are summarized in the 2001 CEA. The new elements are (i) the growing volume of work on renewable options (in which ADB plays a part through technical assistance); and (ii) continued absence of any systematic attention to fuelwood as a potential source of renewable energy. This may reflect deforestation concerns but it does fly in the face of reality in which fuelwood is a major energy source (between 1 and 2 million m<sup>3</sup> used annually) in Mongolia. Forestry and energy policy have been discussed in complete isolation from one another and they should not be.

71. The recommendation of the 2001 CEA for Mongolia to learn from regional experience on technical and management aspects of renewable energy sources remains topical. The large and growing renewable energy experience of PRC, in particular, offers a number of lessons and opportunities, provided they are not adopted slavishly.

## **GOVERNMENT POLICIES**

### **Formulation of Priorities and Policies**

72. During the relatively short period of political and economic transition, successive Mongolian governments have easily assimilated the global mainstream environmental agenda and adapted it to Mongolia's conditions. The process has combined own perception of development needs and Mongolia's embrace of the principal international environmental conventions and the mixture of obligations and grant funding associated with these conventions. The 2001 CEA lists the documents developed during the 1990s to deal with key areas of environmental management. To recapitulate, they include the National Environmental Action Plan (NEAP) of 1996, the State Environmental Policy<sup>47</sup> of 1997, the National Plan of Action to Combat Desertification (NPACD), the Biodiversity Conservation Action Plan, and the National Plan of Action for Protected Areas, all developed under MNE auspices, and Mongolian Action Program for the 21<sup>st</sup> Century (MAP-21), with subordinated *aimag* development plans, developed by the National Council for Sustainable Development (NCSD). NEAP was updated in 2000, National Action Plan for Climate Change added in the same year and several program documents<sup>48</sup> (e.g. National Water Program, National Forestry Program, Program of Protection of Air, Environmental Education, Special protected Areas, Protection of Ozone Layer) were also completed at the turn of the decade. Other guidance documents with important environmental repercussions were developed under MID's, MFA's and MoH's auspices, for instance the Road Master Plan, Power Sector Master Plan, Tourism Master Plan, and Renewable Energy Master Plan. Documents such as the annual Human Development Reports have often incorporated environmental aspects. Plans developed by Ulaanbaatar Municipal Government for the future development of the capital, though not primarily environment-related, inevitably target municipal infrastructure.

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<sup>47</sup> Referred to as State Ecological Policy, a hang-over from the pre-transition days, the difference between "ecology" (no people) and "environment" (people also) still lost on many.

<sup>48</sup> None of these has the status of a legal document.

73. Taken together, these represent a substantial amount of preparatory work that embodies domestic environmental priorities, perhaps imperfectly in those cases where the documents have been substantially donor-driven (e.g. NAPCC). There would be little point in separately discussing the prioritization process itself since most of it is already reflected in the preceding sections<sup>49</sup>. The more important topic, taken up further on, is the nature and quality of these documents, in particular their policy content (as opposed to a mere listing of what needs to be done), and justification of the proposed actions rather than something else. In terms of sequencing, the planning and programmatic documents of each ministry, anchored to a development philosophy statement (Good Government for Human Security<sup>50</sup>), have been translated into a formal Government Plan of Action coinciding with the term of each government, the present one being 2000-2004.

### **Legislative and Regulatory Development**

74. The legislative activities in support of environmental management in Mongolia up to the end of the last decade were comprehensively surveyed by Wingard and Ogderel in 2001. Here we summarize only the essentials and mention the most important of the post-2001 developments.

75. The hierarchy of environmental legislation in Mongolia has five layers, namely (i) the Constitution, (ii) international treaties (CITES, RAMSAR, etc.), (iii) general environmental law (Law on Environmental Protection 1995), (iv) Law on EIA 1998, (v) laws relating to natural resources (Water, Forest, Air, Land, Fauna, Hunting, SPA, Natural Plants, Buffer Zone, Underground resources, Petroleum, Mining); and (vi) Fees-related laws (Water fees, Hunting fees, Forest use fees, Natural plants fees, Law on reinvestment of natural resource use fee for conservation and restoration of natural resources). Most laws are supplemented by more detailed orders, regulations, requirements or standards. All in all, there is a total of 29 laws relating to environmental management in Mongolia (see Annex 7)<sup>51</sup> and some 150 associated regulatory documents (in excess of 40 in the case of forests, 20 for water etc.). The total increases further if legislation with indirect environmental impact (e.g. trade, public health and sanitation etc.) is taken into account.

76. Government actions since 2001 have been partly in line with the direction recommended in the 2001 CEA, namely to restrain the pace of new legislation and concentrate instead on removing areas of ambiguity through amendments, and to draft clearer implementation guidelines. Strengthening the legal basis of natural resource management and attention to land legislation has been the overall direction of recent legislative activities. Two key natural resource laws (Land, Water) have been recently amended (2002, 2004, respectively). An important land privatization law was enacted in 2003. Also, a new law on solid waste management was adopted in 2003. All in all, the Government estimates that no fewer than 755 of laws have been modified or prepared for modifications since 2001.

77. As for the rest, the direction of further development recommended in the 2001 CEA

<sup>49</sup> Each year, ministries submit lists of candidate projects to Donors' Conference. A review of these lists is another way of confirming existing priorities.

<sup>50</sup> To recall, GGfHS contains three broad environmental objectives, i.e. No.7: To implement environmental policy aimed at providing sustainable development by harmonizing protection of biodiversity with regional socio-economic development, No.8: To intensify land reform, and No.9: To improve the living environment of citizens by reducing air, water and soil pollution in urban areas, and re-cycling waste materials.

<sup>51</sup> There are other laws, not discussed here, that have an indirect bearing on environmental management. For instance, trade law affects the trade in hunting trophies, export of wildlife etc.

continues to hold: (1) to better disseminate regulatory details to local administrative levels and the donor community (with that community's much better internal co-ordination) and prepare compendia summarizing existing provisions by each thematic grouping/resource. (2) to ensure better grasp of existing legislative and regulatory provisions in donor funded projects through closer contacts of donors with local authorities and all those expected to be in charge of implementation (3) to favor demand-driven and implementor-driven, not top-down, approaches to regulatory modifications.

78. Little is said here about the role of courts as a tool of environmental policy as comprehensive assessment of this topic is being undertaken right now by the World Bank. Suffice it to say that despite an impressive body of environmental legislation Mongolia has no tradition of, and arguably limited disposition for, settling contentious environmental issues through courts.

### **EIA and Environmental Standards**

79. There are some 150 environmental standards in Mongolia, about two thirds of them adopted before 1989 and the rest added since. The majority of them define, provide general requirements or specify the method of measurement. Only 8 standards are ambient or discharge standards. Ambient standards exist for air, drinking water, surface water, and soils. Discharge standards exist for selected air pollutants and the wastewater entering centralized treatment plants.

80. The ambient surface water quality standards specify 18 parameters (BOD, SS, pH, etc.) and have values similar to those used by other countries for non-drinking water. Drinking water standards specify 25 parameters. The standards for industrial wastewater discharges into sewers, too, are not very different from those used, for instance, in PRC [BOD: 400 mg/l, COD: 500 mg/l, oil: 25mg/l etc.]. Unlike in OECD countries, the Mongolian standards have a legal status. New standards may be adopted by the National Standards Organization based on a submission by the relevant technical ministry. Rapid growth in industrial gold mining in the 1990s, for instance, led to an adoption in 2000 of six standards prescribing certain mining procedures (e.g. handling of the overburden) and, in particular, remediation measures (land reclamation, re-vegetation, etc.). Elsewhere, especially in Ulaanbaatar, the critical regulatory tool is zoning. With the adoption of Land Privatization Law in 2002, zoning provisions and procedures have acquired added importance as an environmental safeguard. The zoning decisions of the municipal government, however, remain opaque. The approach to pollution control is being energized under a World Bank-sponsored technical support to MNE for development of EIA sectoral and management guidelines. Early indications point to a massive improvement in the level of sophistication and relevance. [Dick and Greyson (2004)].

81. ADB's assistance to bring Mongolia's EIA practices in line with international practices has been described and evaluated [ADB (2001) and the 2001 CEA]. The essence of the Law on EIA of 1998 is also known as is the role of outside licensed EIA consulting organizations in the conduct of EIAs from 1995 onwards. The pace of EIA activities since mid-1990s is given in Table 11 below. The challenges to the EIA process are those identified in 2001 (growth of SMEs and facilities such as petrol stations for long exempted from the EIA because of their rarity) as well as new, hard-to-regulate, activities such as small-scale mining.



**Table 11: Number of EIAs by Category, 1995-2003**

<b>Project type</b>	<b>1995</b>	<b>1997</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>Total 1995-2003</b>
Gold mining	39	34	29	64	32	827
Coal mining	4	4	27	57	32	473
Other minerals	6	13				
Tourism	4	72	47	85	57	700
Industrial	17	46	77	136	39	812
Gas stations*			103	178	39	320
Others	8	17	100	285	187	874
<b>Total</b>	<b>78</b>	<b>186</b>	<b>383</b>	<b>805</b>	<b>347</b>	<b>4011</b>

Source: MNE

Notes: The totals are inclusive of "re-EIAs"

\*Activity started in 2001

82. Other issues surrounding the EIA practice in Mongolia relate to (i) uneven performance of licensed EIA providers, (ii) insufficient integration of EIA provisions with other existing environmental laws and regulations (such as urban zoning, or land use decisions); and the "eternal favorite", i.e. (iii) Insufficient enforcement of EIA requirements not backed by meaningful financial deterrents and in some cases undermined by a conflict with local governments' search for revenue. Some of the causes of poor enforcement are discussed in para. 92.

### **Pricing of Natural Resources and Incentive-Based Approaches to Environmental Management**

83. Mongolian law provides by now for pricing of natural resource use. The Law on Environmental Protection specifically mentions the Polluter-Pays-Principle and calls for natural resource assessments as a basis for fee setting (although no specific guidance is given other than the intention to counter adverse environmental impacts and cover the cost of direct damage). The Law also establishes the Environmental Protection Fund to collect revenues from pollution fines, hunting and tourism permits and donations. All revenue from natural resource use is to accrue to local governments unless otherwise specified in law. The fees for the use of individual resources are also specified in law<sup>52</sup>. Common to all these laws are fee schedules varying according to the type of resource, purpose and the type of use.

84. The assessment of the fee structure ventured in 2001 CEA continues to hold:

"The laws establish an important principle but their details leave much to be desired. First, in far too many cases, the fees established represent a fraction of the true value of the resource. This is seen most clearly in all those cases where the fees can be compared with values established by well functioning markets.<sup>53</sup> Elsewhere, the extent to which resources may be under-priced is harder to determine because of absence on any systematic work in Mongolia so far on resource valuation. Thus it is difficult to say, off hand, whether hunting licenses priced, in most cases, at Tg2-4 per kilo of live weight (and fees for the animals actually caught of between Tg 20-40 per kilo or between 10 and 20% of administratively established assessment value) are economically sound or not<sup>54</sup>. Third, in all cases where the resources are priced as a percentage of the administratively assessed value, the method of establishing that value is not transparent.

<sup>52</sup> This is a drawback since any change in the fee structure requires legislative endorsement.

<sup>53</sup> In an example given in Wingard (2001), one argali sheep (*Ovis ammon*) is valued at Tg 35,000 (about \$32) while its value in the international trophy hunting market is reckoned to be between \$30,000 and \$60,000. This gap is partly made up through special fees on foreign hunters (\$18,000 each).

<sup>54</sup> In general, the fees are more closely related to the true values of the resource in cases involving either use by foreigners or the resource's exportation.

Fourth, the majority of the fees are specified in tugrig, in nominal terms, a situation that has led to a massive erosion of the fees' real value since they were adopted (mostly in 1995 or 1996).<sup>55</sup> The absence of inflation-indexing throughout Mongolian resource and pollution-related legislation is a striking omission that would justify immediate amendment efforts. Fifth, a number of inconsistencies and gaps are found in the fee schedules.”

85. In addition to resource use fee legislation, the 2000 Law on Reinvestment of Natural Resource Use Fees for Conservation (LRF) provides for re-cycling of specified percentages of natural resource fees into environmental rehabilitation. The percentages are given in Table 12 below. Notable is the omission of mining revenue from the schedule and some inconsistencies with the provisions of the Hunting Law<sup>56</sup>.

**Table 12: Conservation reinvestment percentages under LRF**

Type of NR fee revenue	Percentage
Natural plants	30
Hunting	50
Land fees	30
Timber and fuelwood	85
Water	35

86. Looking at the pricing of pollution, there is, at present, no system of pollution charges (i.e. a form of payment for the use of environmental "sinks") in Mongolia. The main method of pricing is a very indirect one, i.e. fines for infraction of EIA regulations and excessive dumping of waste in the small number of circumstances where allowable limits have been established and can be monitored. In general, the level of administrative fines is well below the probable damage caused, in some instances by a vast margin (for instance, the infraction of EIA protection or monitoring plans is punished by a fine of Tg 250,000, i.e. about \$220 today). A complex schedule of fines for a variety of hunting offences exists under the Hunting Law, in most cases providing for fines in the range of Tg 2,000-5,000, hardly a deterrent even during economically depressed times. What was said earlier about the erosion of real values applies with the same force to all fines that, too, are specified in nominal terms.

87. If there are few incentive-based mechanisms of environmental management in use, it is not because they are not known. Some mechanisms such as pollution charges have been discussed for almost a decade. Recent (2004) draft of the wastewater management law (see para. 65) does envisage the introduction of quasi-wastewater discharge fees. Others instruments, such as differentiated taxes on pastureland, have surfaced more recently. The interesting exception that has made it into law is the performance guarantee bond, mentioned earlier. Under the Minerals Law, mining and exploration companies are obliged to deposit the equivalent of 50 % of the environmental protection budget, as estimated in the detailed EIA, in a bank account established by the local Governor. This CEA was unable to find out if the instrument has worked as intended.

### **Institutional Aspects**

88. The Ministry of Nature and Environment was re-organized in 2003. Its present structure

<sup>55</sup> In the case of pastureland, the fees are specified as the product of the administratively assessed value and the number of animals grazing the land, expressed in SEU.

<sup>56</sup> For instance, under the Hunting Law, proceeds of fines for exceeding permit levels are divided between local government and the centre 1:9 without any mention of reinvestment by either tier of the government..

is as follows (number of staff given in brackets):

First tier:

1. Minister
2. Deputy Minister
3. State Secretary

Second tier:

1. State Administration and Monitoring Dept (7)
2. Strategic Planning Dept (4)
3. Policy Implementation and Coordination Dept (5, mainly responsible for biodiversity)
4. Sustainable Development and Environment Dept (6, mainly responsible for EIA)
5. Finance and Budget Division (4)
6. International Cooperation Division (10)
7. Protected Area Division (5, link to various agencies at the local level)

Third tier: Own Agencies, i.e.

1. Water, Forest and Natural Resource Agency (20, plus 365 staff at *soums*)
2. National Agency for Meteorology, Hydrology and Environmental Monitoring (NAMHEM) (70, plus staff at local monitoring facilities)

89. Other ministries and agencies with environment-related activities include:

1. Agency of Land Affairs, Geodesy and Cartography (ALAGaC)
2. State Inspection Agency (SIA, 700 environmental inspectors)
3. Ministries of Infrastructure, Industry and Trade, Food and Agriculture, Justice and Internal Affairs, Health, MFE
4. Other agencies/authorities in these ministries (e.g. Coal Agency, Tourism Agency in Mol, Mineral Resource, Petroleum in MIT, State Reserve Agency in MFA), also State Border Patrol, Police Department under MJIA,, State Customs Agency (MFE)

90. The principal changes since 2001 thus include the disappearance from MNE of the Land Resources Authority and Environment Protection Agency, the former now absorbed into the new Agency of Land Affairs, Geodesy and Cartography (ALAGaC, see para. 40), the latter's functions taken over by the State Inspection Agency (see para. 91) ALAGaC unites the functions of surveying and mapping, land administration and registration of immovable property. The unification of these three functions in a single agency is agreed by most to be a significant institutional improvement.

91. In 2001, Wingard and Ogderel counted 92 rights and responsibilities delegated to MNE by the environmental laws [(2001)]. This number may have been reduced somewhat after the latest reorganization but it remains formidable. The task of MNE's adequate liaison with linked government agencies, in particular, poses a major administrative challenge.

### **Enforcement and Monitoring**

92. Among other important recent institutional developments has been the separation of environmental compliance monitoring from other EIA responsibilities. The first-mentioned, formerly performed by MNE, has since 2002 become the exclusive domain of the State Inspection Agency (SIA), under the Prime Minister. The latter (EIA documentation etc.) remains the responsibility of MNE. The State Inspection Agency now combines all inspection functions in

Mongolia (environmental but also sanitary etc.). This has made it possible to substantially reduce the number of inspection visits of individual facilities, a much needed simplification and stimulus to private sector functioning. While the separation of compliance monitoring from EIA administration is a sound governance feature its effectiveness is undermined by the lack of transparency in SIA's decisions. Also, the SIA powers within the protected realm (the responsibility for which has been assigned in its entirety to MNE) remain poorly delineated.

93. The actual implementation of the environmental law and regulations takes place at the *aimag* and *soum* level. Wingard and Ogderel (2001) list no less than 271 duties that environmental legislation places on local governments. Following the transfer of former MNE's EPA duties to SIA, the bulk of field staff (i.e. former environmental inspectors, normally 5 per *aimag* and one to two in each *soum*) are now employees of SIA, integrated into the *aimag*- and *soum*-level Inspection Office. They total about 700. Most rangers (formerly three per *soum*) remain employees of MNE and have been increasingly assigned to protected areas. This is sensible for -within an under-funded overall picture-- it matches resources to the needs. That matching is rarely perfect, however, and there are locations outside the protected areas (e.g. utilization zone forests) where MNE supervision is woefully inadequate. For its part, the main complaint of SIA in the new situation is that once removed from the orbit of MNE, environmental inspection has disappeared from the radar screens of donor agencies.

94. The key institutional problem in Mongolia's environmental management today is no different from that identified in 2001, i.e. imbalance between the assignment of implementation responsibilities and the allocation of budget resources. Most of the former, and all work done at the (vast) field level with the exception of protected area management, has largely been put at the door of local governments. Yet the local government budgets and existing assignment of revenue sources mean that the implementation is seriously constrained unless local budget resources are supplemented by donor funding. In other words, the pattern of local environmental management continues to be unsustainable.

## **Financing of Environmental Management and Donor Assistance**

### **PSMFA**

95. The adoption of the Public Sector Management and Finance Law (PSMF) in 2003 confirmed --with only small modifications-- the assignment of tax revenues to the central and local governments. The Central Government receives the proceeds of the most lucrative taxes (corporate tax, customs duties and excises including vehicle fuel levies, VAT, fees and royalties for mineral resource use). The local governments retain the proceeds of other taxes including, among others, payments for the use of water, license fees for the extraction of widely occurring minerals other than metallic ores, real estate taxes, vehicle registration fees, hunting license fees, wood cutting permit fees and all payments relating to land use. The 2002 amendment to the 1997 Law on Mineral Resources changed the previous assignment of mining royalties to the local government and thus brought it in line with the provisions of the PSMFL. As far as the ability of local government to finance environment-related activities is concerned, the situation in 2004 is therefore not fundamentally different from that obtaining in 2001. The centralization of the most important taxes secures the Central Government's ability in principle to even out, through budget transfers, the widely varying revenue-raising potential of local governments. This in principle favors areas that cry out for environment/conservation expenditure yet lack locally raised finance (e.g. much of the Gobi desert even those sub-areas with large-scale mining). In any event, in the near-absence of earmarking of revenue for environment-related purposes at both the central and local level the authorities' ability to influence environmental

outcomes will depend on the composition of annual budgets and the success the environmental authorities at each level have in influencing this composition.

### MNE, Other Government Budgets and Magnitude of Donor Budgets

96. Following the passage of the new Public Finance Management and Finance Act (PSFMA) in 2002, a unified budget of MNE is approved, including amounts for MNE's local responsibilities (that coincide with protected areas and local hydrometeorological monitoring). Table 13 below gives the totals of the 2003 budget:

**Table 13 : MNE budget, 2003 (\$ equivalent)**

	<b>Tg bil</b>	<b>\$ mil equiv.</b>
MNE administration	1.40	1.22
Local hydrological and meteorological monitoring	2.00	1.74
Natural resource rehabilitation	0.52	0.45
Protected areas	0.32	0.28
Extra-budget resources (Environmental Protection Fund)	0.20 (on average)	0.17
<b>Total</b>	<b>4.42</b>	<b>3.86</b>

97. The expenditure for environmental inspection activities is now part of the budget of SIA. The total of that budget in 2003 was approximately Tg 2 billion (\$ 1.75 million). Pro-rating by the environmental inspectors' relative strength within SIA (700 staff out of a total of about 3,000), the environmental component of SIA's 2003 budget was therefore about 0.4 million.

98. The above is still only a portion of the funding directly or indirectly devoted to environmental management. A more complete picture is presented in Table 14 below:

**Table 14: Pattern of Overall Financing of Environmental Management in Mongolia, 2003**

	<b>Tg bil</b>	<b>\$ mil equiv.</b>
MNE budget	4.22	3.69
MNE extra-budget resources (EP Fund)	0.20	0.17
SIA total budget Tg. 2.0 bil		
Of this: for environmental purposes (Pro-rated by staff strength)	0.46	0.40
Local NGOs*	n.a.	n.a.
Sub-total domestic resources	4.88	4.26
Government donor/IFI-funded MNE projects		
Rolling annual average (see Annex 3)		15.00
Environmental Trust Fund **		0.00
Government donor/IFI-funded Mol, MFA and MOH projects		
10.00 with strong environmental linkages (see Annex 3)		10.00
International NGOs***		5.0
<b>Total available for "environment"</b>		<b>34.26, say \$35 million</b>

\* No estimates are available. Even though the most active local NGOs tend to receive funding from their international sponsors, some funding -probably less than 0.1 million-- is domestic.

\*\* The proposal to set up such a fund dates back to 1999. The arrangements had not been finalized by 2003 despite UNDP's initial commitment of \$1.0 million, and Government of Mongolia of \$0.05 million. GEF's contribution of \$2.0

million is expected at the close of the "Eastern Steppe" Project. The funds in theory available in perpetuity would be the annuity on the final capitalization of the Fund, perhaps \$0.2 million p.a.

\*\*\* Includes the likes of WWF and various foundations working with WWF (Messerli, Mava, Strahoff), ADRA, World Vision (with an annual Mongolia budget of about \$5.0 million part of which devoted to environmental projects), Save the Children Fund, and a number of others. The figure of \$5.0 million is own estimate, based on seriously incomplete information.

99. The point of the table is neither to claim total accuracy, especially in the case of ministries other than MNE, nor to praise the generosity of donors but to illustrate orders of magnitude and, based on those, draw conclusions. The principal ones are: (1) continuing dependence of Mongolia on donor financing in addressing its environmental priorities. Even if an adjustment were to be made for the high foreign-consultant content of the donor assistance (i.e. money that leaves Mongolia), donor and IFI funding continue to dominate the overall picture<sup>57</sup>. Because of this, (2) co-ordination of donor assistance to environmental management is a priority.

100. Most implementation takes place at the local level. Budget resources and donor funding reach the local level in several different ways. Budget transfers by the central government typically cover only about a part of estimated requirements. Financing of protected areas, in particular, heavily relies on donor funding. Without it, the total of \$280,000 equivalent p.a. in 2003 to manage a combined area almost the size of Great Britain would be patently inadequate. To put things in perspective, the totals of Table 13 compare with, for instance, the total 2003 Government budget of about \$500 million (equivalent), the total government wage bill of about \$90.0 million or the gross income from artisanal mining of about \$75 million.

101. The uneven scope of different local governments to supplement existing budget allocations by other sources such as locally levied (and retained) taxes, proceeds of fines, fees for the sale of natural resources, etc. is well known by now. Some *aimags* and *soums* are clearly better placed than others in this regard. These differences seem to be only imperfectly compensated for in the actual transfers<sup>58</sup>. The assignment of revenue is clearly important for environmental financing (see para. 95 above). Here, the fees for the use of natural resources (Table 15) are an important potential source of funding for local environmental activities. In principle they all accrue to the local government with the exception of the most lucrative one, i.e. mining royalties and trophy hunting where all revenues accrue to the central government. The proceeds of fines accrue largely (90 %) to the central budget. The total raised by natural resource fees in 2003 of Tg 24.2 billion, i.e. about \$21.1 million, amounted to about 2.5% of total

<sup>57</sup> In its admittedly ambitious projections of 2000, the National Environmental Action Plan anticipated that donors would pay for 90 % of the projected cost.

<sup>58</sup> The reader is referred to World Bank (2002) for a thorough treatment of the topic much of which is unaffected by the passage in 2003 of the PSMFL. Simplified, the Government policy has been to reverse the falling share of revenues raised locally observed during the 1990s. Local expenditures have consistently run ahead of local revenues in Mongolia. Much of it has been administered in a de-concentrated way (i.e. the center calls the tune, local level administers). Local government have had limited budget autonomy, but a right to shift resources across expenditure categories once they received their budget allocations from the center. Each level of government has had some authority to act in every sector, and it has been impossible to separate "delegated expenditure" from "own expenditure". The result has been unwieldy, unpredictable, and impossible-to-implement intergovernmental finance and high unit cost of local service provision. The reform of the intergovernmental finance needs to better match responsibilities to decision-making authority and increase the scope for raising local revenue to help finance the provision of services assigned to the local level. Taxes assigned to local government have generates a small percentage of the revenue raised until now and tax sharing formulas have been unstable making local financial planning difficult. Local government have had weak incentives to increase tax collection. In circumstances where it is the central government that is ultimately responsible for paying for the local services, the energies of local governments are directed toward securing budget transfers rather than developing own tax base.

government revenue in that year. "Environmental" revenue clearly exceeds domestic environmental expenditure (Table 13). Whether greater earmarking of environmental revenue for environment-related purposes would be justified remains a matter of considerable importance. Alas, informed debate about its merits and drawbacks has still not taken place.

**Table 15: Proceeds of Natural Resource Fees, 1996-2003**

Category of income	1996 (Tg mil)	2000 (Tg mil)	2003 (Tg mil)	2003 (\$'mil)	Per cent of total
Forest use	155.1	460.4	629.9	547.7	2.5
Water	123.1	200.8	3,150.4	2,739.4	13.0
Land use	493.9	3,224.3	6,077.2	5,284.5	25.1
Mineral resources	2,579.0	3,431.5	11,545.9	10,039.9	47.7
Hunting*	396.3	907.5	2,174.3	1,890.7	9.0
Other	26.4	1.6	636.8	553.7	2.7
Total	3,773.8	8,226.1	24,214.5	21,056.1	100.0

Source: MNE

\*Notes: the totals of the table under "hunting" should not be mistaken for the export value of fauna (meat, skins, antlers, live animals, etc.). That value is, first, much higher than the fees paid (e.g. the value of falcon exports alone in 2003 was \$1.8 million), and second, the true export value is almost certainly greater than official estimates, according to some local estimates several times greater.

### Evolution of Donor Assistance

102. The 2001 CEA painted a fairly extensive picture of UNDP's involvement in Mongolia describing the UN Development Assistance Framework and the 2001 Common Country Assessment. UNDP broad policy has policy remained unchanged since, focusing on basic social services, economic transition, good governance, and the environment and disaster management. In ENRM activities, UNDP's approach continues to be to balance upstream initiatives (policies, program management and capacity development) with downstream activities (grassroots participation, replicable pilot projects), strengthen Government of Mongolia's capacity for ENRM, support local community initiatives to both address and anticipate environmental problems, and leverage to the full own financing. The success UNDP had had in securing GEF resources for Mongolia was noted in 2001. Major GEF co-financing has been a feature of assistance since then (see Annex 3 for details of GEF-funded projects).

103. The Second Country Cooperation Framework for Mongolia 2002-2006 envisages application of UNDP-developed models such as Sustainable Development of the Eastern Steppe Region in Altai-Sayan and Gobi areas, and calls for refinement and expansions of community-based sustainable livestock management. It also calls for expanded support for conservation activities through Mongolian Environmental Trust Fund. The framework envisages some support for pollution and energy efficiency (especially in the building sector and in small-scale renewables), and in disaster management. The projected budget includes \$9 million of GEF resources and \$3 million worth of other trust funds to supplement UNDP regular resources of \$ 1 million.

104. WB recent assistance priorities have included (1) emergency credits in banking and macro areas such as enterprise restructuring, (2) transport, (3) services in UB, (4) computerization of government services (5) development credits, (6) energy (7) legal and judiciary reforms, (8) distance learning and (9) development of the PRSP.

105. The World Bank recent loans with environmental content include the Energy Project (with an emphasis on energy efficiency) and a yet-to-be-signed Second Ulaanbaatar Urban

Services Improvement Project targeting mainly the *gher* areas of the capital city. In rural development, the Bank's Household Livelihoods Support Program is helping tackle pastureland mismanagement and rural vulnerability. As before, World Bank has supported a variety of small but environmentally important technical assistance efforts (preparation of detailed EIA sectoral guidelines for MNE, assessment of mining activities, forest management). With GEF financing, World Bank continues to implement the household stoves project in Ulaanbaatar and several biodiversity-related projects.

106. Extensive program of German bilateral assistance is in place in Mongolia containing several projects that combine resource conservation with improved livelihoods, as well as projects in the renewable energy and forestry sectors, making GTZ the single most important source of grant finance for environment-related activities in Mongolia. The Dutch and Spanish Government continue to support projects tackling urban environmental problems (wastewater treatment, clean production). The U.S. Government has renewed its commitment to financing sustainable development of the Gobi area. Nordic financing has been vital to current environmental awareness building activities. Several other bilateral or multi-lateral sources (Japan, France, Korea, Canada, EU TACIS) have also played a role. A number of private foundations have been supporting specialized biodiversity conservation efforts as have several international NGOs. Other international NGOs have been active in reforestation (e.g. World Vision) and public health and sanitation. Annex 3 contains details of post 2000 donor assistance.

### Regional Activities

107. Mongolia has been an active participant in a number of regional activities that include several RETAs financed by ADB. This on top of many Asia-wide or even global-scale activities supported under international environmental conventions. The ADB-funded RETAs implemented during the 1990s are summarized in ADB (2002). The post-2001 ones include RETA 5969 (Strategic Study on Development Options for Economic Cooperation between the Xiangnan Prefecture (PRC) and the Eastern Region of Mongolia), RETA 5972 (Promotion of Renewable Energy, Energy Efficiency and GHG Abatement Projects) and RETA 6068 (Prevention and Control of Dust and Sandstorms in North-East Asia, see para. 29). Of these, RETA 5969 is the least "environmental" by design even if the recent adverse publicity (see para. 114) was a reminder of how important design considerations (or better communication) can be.

108. The 2001 CEA argued in favor of a possible new sub-regional initiative targeting conservation/watershed protection/livelihood improvement project in the Altai Mountains that would exploit unrealized room for co-ordinated initiatives between Mongolia (Bayan Olgyi and Khovd *aimags*), parts of Xinjiang province (PRC), the north-easternmost tip of Kazakhstan and possibly a part of Russia (not an ADB member yet) with the transboundary Irtysh River as one of the foci. The case for such a new initiative may have receded given the expansion of activities in the Altai Tavan Bogd National Park being implemented in the same area, and the somewhat sobering experience of RETA 5969. More important now may be to ensure that Mongolia does not become the "odd country out" in recent major land degradation partnerships in East and Central Asia, one of which is regional nature (CACILM)<sup>59</sup>. The regional dimension was also mentioned in the 2001CEA in the context of environmental management training where regional solutions could offer distinct advantages to Mongolia, handicapped by low population and high unit cost of local training activities.

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<sup>59</sup> The other one being the ADB/GEF Land Degradation Partnership in PRC.



## Environmental Public Awareness and the Role of NGOs

109. The 2001 CEA described the Dutch/UNDP-funded Environmental Public Awareness project (EPAP) as one of the most interesting and effective to be implemented in Mongolia. Apart from working with government agencies, it effectively mobilized a large number of environmental NGOs and through several dozens of small pilot projects (most of them costing less than \$5,000 each), implemented by NGOs between 1997 and 2001. Among other things, it demonstrated existence of opportunities to combine environmental improvement with income generation (e.g. the Blue Bag Campaign mentioned earlier, Soil Fertility Management in Small-scale Farming project, and several others).

110. The public awareness efforts are now centered on a new UNDP/ Netherlands/ Norway Environmental Education Media Project (2003-2004) that offers curricula on environment, sustainable development and public health via Mongolian TV under the auspices of the Ministry of Science, Technology, Education and Culture. The Project seeks to magnify its impact through a network of Project “multipliers” that include many environmental NGOs, academic and training establishments as well as government agencies. Extension of the Project is being sought.

111. While doubting the effectiveness of the flagship MAP-21 project *as a policy integration* vehicle, that project has been successful in developing public awareness throughout the country and ought to be perhaps viewed as a “mis-advertised” initiative. Most foreign-funded projects (notably the GTZ-funded projects in the Gobi, the GEF-funded Eastern Steppe Project, but others also) have public awareness components that take the environment-related messages to the grassroots. The Government has been able to link with these projects to project the general direction of its environmental policies and programs.

112. Dutiful in “distributing the pictures of protected species”, the Government has not been prepared yet to use public disclosure as a tool of policy. Details of environmental financing, EIA results but especially the results of environmental inspection activities undertaken (since 2003) by the State Inspection Agency reach the public unsystematically or not at all. Most officials continue to have little experience in communicating regularly with their constituents and other than periodic donor-sponsored conferences, few formal mechanisms and funding exist to seek feedback from them.

113. By 2004, the number of environmental NGOs has increased further to 125. Annex 10 contains the list of the most important among them. NGOs are represented in the National Council for Sustainable Development the effectiveness of that representation however uncertain. NGOs have bridged the information gaps only in part, and mostly in Ulaanbaatar only. Partly at ADB’s cost<sup>60</sup>, UNDP was instrumental in organizing the very first public hearing on the proposed Nomrog bridge and road alignment in the Dornod *aimag*.

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<sup>60</sup> See “Bridge to Nowhere”, The Economist, 31 January 2004. Nomrog Bridge. See also Letters to the Editor, The Economist, March 2004

## IMPROVING THE ENVIRONMENTAL MANAGEMENT IN MONGOLIA

### Improving Policy Formulation

114. The 2001 CEA referred to an element of planning fatigue in Mongolia following the hectic pace that marked the process in the second half of the 1990s (para. 115 is a reminder of what the principal outcomes were). The assessment noted repetitiveness and a major role of donor expectations in setting the planning agenda. It spoke of the dominance of sectoral (“one-agency”) -rather than cross-sectoral or problem-solving-approaches to action plan formulation and cautioned ADB against supporting the preparation of new action or master plans that have a narrow sectoral basis.

115. Now, three years later, time may be opportune to look at another aspect of the process, namely the policy content of various strategic and planning documents. The term “policy” is used here to mean reasoned advocacy of one set of actions rather than possible alternatives, based on a simultaneous or prior evaluation of these alternatives (preferably using the tools of economics, known to have certain advantages in this type of effort). “Policy” having been defined, notable in Mongolia’s approach to environmental management so far is its *paucity* or downright absence. This is most striking on the environmental side of things in the flagship MAP-21 report but it is equally noticeable in virtually all documents attempting to set the approach to natural resource use (forestry<sup>61</sup>, water but also land degradation). Long lists of the many things than need to be done is the usual content and dominant style of the vast majority of government strategic documents<sup>62</sup>.

#### Box 8: Policy development: From analysis to guidance (The case of rural development)

Translating policy analysis into a plan of action is not automatic or easy. An interesting and comprehensive policy analysis, backed by GTZ, World Bank and other donors, culminated in 2002 in Rural Development Strategy. (Among other things, the Strategy became an attachment to the latest Poverty Reduction Strategy of Government of Mongolia). The Strategy was then extensively discussed by the Government and most donors active in rural development. Some criticisms were offered and expectations raised. Several months later, the Government unveiled a new policy on food and agriculture (Resolution of State *Ikh Hural* #29 of 15 June 2003) and livestock (Resolution #160 of 24 June 2003) that bear only a tenuous relationship with the *Strategy*. The Resolutions contains something for everybody, leave unresolved some of the fundamental issues of the sector (i.e. direction of livestock sector development) and chart poorly explained paths (e.g. degrees of self-sufficiency in grain production). The presentation ranges from the rhetorical (“improve the technology of packing”) to the Soviet-style (“boost the sturdiness of Mongolian livestock”, “increase vegetable self-sufficiency to 7%” etc.). The experience suggests that existence of acceptable policy analysis, good donor-government exchange of views, and strong Government “ownership” may still be insufficient to produced guidance of hoped-for quality.

116. It is not that there are no individuals in Mongolia skilled in this type of analysis. Some of the work on rural development by the Centre of Policy Research (MSU), for instance, is an indication of the existing possibilities<sup>63</sup>. Rather, the problem is the weak link between work that can be considered analytical, policy-driven, and the final form of government documents. The

<sup>61</sup> To give the example of forestry, the two recent documents that fit that description are the 2001 National Program on Forestry, Attachment to Gov. Resolution No 248, and the 2003 Report on National Forest Policy of Mongolia, MNE.

<sup>62</sup> It can be argued that a plan, an embodiment of policy, need no longer contain reasoned justification and simply be a statement of what needs to be done. That would be so if that reasoned justification were available. The problem with many action plans in Mongolia is that it is not.

<sup>63</sup> Sustainable Development Centre of the Mongolian State University of Science and Technology also comes to mind.

causes seem to be multiple including poor policy and legislative drafting skills among existing staff or those asked to be involved, a need to act in circumstances where the policy brief is weak, and political considerations. The experience of rural development policy, an area of major environmental importance, is a convenient illustration (See Box 8).

117. The second area of concern is fatigue on the *donors'* side resulting in irregular, unstructured and generally insufficient feedback on the results of a limited number of ongoing analytical efforts. Absence of technical peer review is noticeable in most projects supporting global environmental concerns where Mongolian scientists and other specialists have responded enthusiastically, generating models and datasets, but these results have fallen on bureaucratic –rather than technical and policy—ears of the financial sponsors (GEF, UNDP). “Happily modeling along” is seriously incomplete as an approach to issues such as land degradation. There are a number of instances where a hard technical and policy review (and clamor for a clear policy statement and its justification where these elements were not present) by Mongolia’s development partners would have avoided belated and costly attempts to “turn a moving ship”. The Government’s regional policy (Medium Term Strategy on Regional Development 2001-2010, adopted in June 2003<sup>64</sup>) is probably the most significant among available illustrations [see PDP Australia (2004)]. In another example involving, once again, MAP-21 (and its evaluation by UNDP<sup>65</sup>), the failure of NCSD’s sponsors to clearly distinguish between MAP-21’s information and policy-setting roles has contributed to the present feeling of a missed opportunity.

118. Not everything is bleak on the policy side, however. Current efforts by MFA (the same ministry criticized in Box 8) to shape policy in a less visible but eminently sensible way, namely by unifying approaches to vital elements of rural development such as waterwell rehabilitation<sup>66</sup> -- for long marked by differences of approach by different donors--, is a strongly positive direction<sup>67</sup>.

119. The conclusions that suggest themselves are several: (1) Rather than saying more, the approach to managing Mongolia’s natural and environmental resources needs to be presented, and justified, differently. Greater concern with efficiency should be an integral part of such policy and planning statements. Water, forest and land degradation are the three areas where analysis, rather than long lists, are needed most. (2) A period of stock-taking and peer review is needed in GEF-funded activities, especially those relating to climate change and land degradation, i.e. those that have most heavily relied on modeling until now, (3) Calls for better policy formulation ought to continue, persistent but also humble, for, as the example of rural development shows, no single formula guarantees policy and planning success even if its elements may well be known.

### **Better Governance and Environmental Management Capacity**

120. The text has brought out several elements of improved environmental governance in Mongolia in the last three years. They include (1) the separation of policy making and implementation from compliance and enforcement (2) “tightening “ of environment-related legislation and filling of remaining gaps (3) clearer demarcation of implementation from other

<sup>64</sup> The policy is structured around the Millennium Road proposal and the creation of five economic and administrative regions (West, Khangai, Central, Eastern and Ulaanbaatar) and growth poles.

<sup>65</sup> See Enkhbat et al (2003)

<sup>66</sup> Water Point Rehabilitation Working Group (WPRWG)

<sup>67</sup> Whether there is something like “small harmonization” of policies (e.g. on waterwells) coexisting with “big dissonance” of donor views and positions of matters such as domestic self-sufficiency in grains cannot be excluded.

tasks within MNE.

121. Improved governance works best when accompanied by suitable distribution of available administrative and human resources. Here, the results are mixed. The creation of a unified SIA has led to major savings at a national level made possible by combined (rather than separate) inspections of facilities but it has also exposed the weakness of environmental presence in the field. Environmental inspectors alone are not enough to address the needs of environmental management at the local level outside SPAs. On the MNE's side, the local capacity to manage the environment continues to be weak the weakness hidden by the continuing flow of donor funding.

122. At the central level, the Government's decision in 2002 to make MNE the implementing agency for all GEF-funded projects has placed on MNE a substantial coordinating burden since many GEF-supported activities are crosscutting in nature. It is certainly possible to speak of an institutional overload at MNE. Ultimately the problem may well be one of sheer numbers: in a country of only 2.5 million people, adopting administrative patterns that demand separate attention to different technical problems (whether GEF or any other) may be simply too demanding. If there are "350 Mongolians per public agency" there are probably no more than 100 Mongolians per environmental concern. The administrative cost implications of that are huge.

123. On the legislative side, developments in the last three years have been a mixture of the positive and continuing weaknesses. On the positive side, several amendments (e.g. those of the Hunting Law that extend the Law's applicability from the field only to the market chain) are clearly "spot on". At the same time, as new legislation is adopted, occasional new conflicts have also arisen, for instance those among Land Law, Buffer Zone Law and Mineral Resources Law. Other weaknesses on the legislative side go back further in time<sup>68</sup>. They include poor drafting marked by absence of the statement of many laws' rationale and insufficient separation of details (e.g. tariff rates) from the text of the laws. As argued above (para 0) the disappointment with some final legislative products (e.g. in agriculture, livestock, regional development) may well be the result of drafting weaknesses that may in turn hide the flaws in the process itself (lawyers or administrators alone preparing the text instead of working jointly with technicians).<sup>69</sup> Important to remember, nevertheless, is that environmental law-making a continuous process. Things are never fully "in place" in most countries. Other, Mongolia-specific, factors include (1) legal training that remains inadequate. Among other things, there is no environmental law curriculum in Mongolia for the time being, and (2) the gulf between law making in Ulaanbaatar and laws' applicability in the field. Most local officials admit that they rarely refer to environmental laws considering them inapplicable within existing budget constraints.

### **Mainstreaming<sup>70</sup>**

124. Mongolia was among the first countries in Asia to officially attempt to integrate environmental concerns into the economic and political mainstream. The establishment of the National Council for Sustainable Development in 1996 pre-dates similar efforts only now starting, e.g. in parts of Central Asia. Mongolia is also interesting in its search for different

<sup>68</sup> J. Wingard, *personal communication*

<sup>69</sup> At the same time, it is important to acknowledge cases where documents have been of high quality. This is the case, for example, of the minerals or new water legislation. Elsewhere (e.g. artisanal mining), early drafts indicate substantial improvements

<sup>70</sup> By now, the terms "mainstreaming", "integration", and "cross-cutting" (approach) have become hard-to-escape clichés. In the text, we try to avoid being drawn into controversies concerning the differences among them.

mechanisms of integration. To review them briefly, they include

125. **National Council for Sustainable Development.** The Council of 34 people is chaired by the Prime Minister. The Ministers of Finance and Economy, Nature and Environment and Trade and Industry are deputy chairs. Heads of four crucial Parliamentary Standing Committees (Economic Policy, Budget, Social Policy and Environment and Rural Development) are represented as are other ministries and NGOs. A “dream team” of a sort. NCSD has local “branches” in each aimag and in Ulaanbaatar in the form of Economic, Social and Environmental Committees (ESECs), normally headed by the aimag governor. All ESECs have formulated their own Aimag Action Programs (AAP) within the spirit of the guiding MAP-21 document of NCSD. NCSD’s terms of reference are broad ranging from goal-setting and vertical and horizontal coordination of government activities to partnership facilitation and awareness creation. Impressive in scope and ambitions, NCSD has achieved mixed results: energizing local governments, bombarding government agencies with the sustainable development message but rarely able to defend a particular *version* of sustainable development (rather than its generalized and inoffensive variety)<sup>71</sup>.

126. **National Coordinating Committees or Local Program Advisory Committees** under each of international environmental conventions. Most of these deal with issues that are already cross-cutting (climate change, biodiversity etc.) and this normally guides the composition of the National Committees. The drawback in practice has been the tendency to put one or another sectoral minister in charge. This can -but need not--work against a genuine cross-sectoral agreement on policy and result in no more than a superficial consultation about who is doing what. A lingering feeling remains that for a more substantive development and harmonization of policies, a different mechanisms might be needed, perhaps placing the committees under the Prime Minister or revamping the NCSD to become a true policy visionary and coordinating body.

127. National Committees coordinating government activities involving key natural resources such as water and land use as well as other areas of environmental relevance such as public health. National Water Committee, for instance, was established in 1999, originally as a government-implementing unit (not attached to a ministry), more recently placed under the chairmanship of MNE.

128. **Ad hoc inter-agency committees** set up to guide and help co-ordinate specific cross-cutting initiatives (e.g. the National Steering Committee on Prevention of Dust and Sandstorms in support of ADB RETA 6068).

129. The work of all the committees listed above, usually set up by a ministerial decree, has been dominated by MNE and academic institutions. Similar one-ministry-on-top pattern characterizes other national committees active in areas such as public health (MOH leading) or land reform. What is “domination” to some may of course be “strong government ownership” to others. Safer to say is that most committees referred to above (including NCSD) have had insufficient representation by (or interaction with) the civil society and local population. For its part, the National Council for Sustainable Development, in theory a powerful integration mechanism, has turned out to be –almost literally-- a paper tiger: Its publications far outstrip its policy influence despite claims to the contrary and despite membership in NCSD by powerful

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<sup>71</sup> Interesting to note is that the institutional structure recommended for the implementation of the National Environmental Action Plan foresaw a National Steering Committee to which NCSD would be *sub-ordinated*. As for the National Environmental Action Plan itself, formulated in 1996 and revised in 2000, it has largely disappeared from the radar screen, some of its elements, scaled-down, incorporated into the current Government Work Program.

ministries<sup>72</sup>.

130. There have been other mechanisms in Mongolia:

(i) *Conferences and meetings* organized around specific environment-related topics. The meeting of the Asian Regional Thematic Program Network (TPN 5) under the UN Convention to Combat Desertification in June 2002, for instance, became a tool of cross-sectoral internal consultation and informal endorsement of certain policy directions [see Adyasuren (2002a)]

(ii) *Institutional re-alignment*. Although normally not considered a tool of integration, the merging of different inspection functions in a single SIA is an example the type of institutional change conducive to non-compartmentalized way of doing things.

131. The success in creating integration mechanisms has varied somewhat in Mongolia. While smooth, for instance, in the sphere of public health, the progress has been slower on energy efficiency or climate change. In the second-mentioned example, GEF-funded activities (and therefore those implemented by MNE) remain poorly linked to renewable energy activities funded under ADB's PREGA initiative, domiciled in the Energy Department of the Ministry of Infrastructure<sup>73</sup>.

132. The strongest support for mainstreaming of environmental concerns typically comes not from the environmental or environment-related ministries themselves but from outside, especially donor-outsiders. This does not necessarily mean that the advantages of an integrated approach to decision making have to be "spoon-fed" to reluctant governments; Instead, weak integration usually reflects fairly mundane reasons such as the structure of incentives or one or another variety of the "agent-principal problem"<sup>74</sup> Put simply, many in Mongolian government derive little benefit (in terms of budget allocations, career prospects etc.) from being "cross-sectoral soldiers" rather than good "ministry men". The perverse incentive not to integrate may be temporarily counteracted by an infusion of donor funds. In the short-run, both the "donor-mainstreamer" and the environmental agency are rewarded for doing the right thing but unless the donor incentive to mainstream is maintained or the assessment-reward structure changed, the perverse incentive will reassert itself. For mainstreaming to work and become the prevailing model, the performance assessment and reward structure need to be changed.

133. Few thoughts to conclude this brief section: First, cross-sectoral approach to environmental challenges and suitable institutional arrangements can contribute to better policy formulation and performance but cannot be a substitute for poorly conceived elements that demand integration. Second, the majority of cross-sectoral coordination mechanisms in existence in Mongolia lack the flexibility and freshness of a think tank and many existing components (existing policy and program draft, etc.) may not lend themselves to effective "upgrading" through the integration process. It seems that implementing agencies (typically, sectoral agencies) almost have to be given an integrated mandate/program rather than join a cross-sectoral body and hope that integration will somehow happen inside that body. Yet it is

<sup>72</sup> We hasten to add that NCSD and its activities have played a positive role that, however, turned out to be different from that possibly intended.

<sup>73</sup> As noted earlier, the slow pace of integration there has also delayed the designation of the implementation agency for the purposes of CDM under the Kyoto Protocol.

<sup>74</sup> Those theoretically minded may want to cast the difficulties of mainstreaming in terms of such a model, familiar to economists. [The principal is the "boss" and the agent is somebody the boss is trying to contract with to perform a task. A variety of situations --manager/employee, car owner/mechanic, client/attorney but also "king"/minister and minister/clerk--fit this setting. The difficulty arises because the principal's payoff --here, success in mainstreaming-- is determined by the initially unobservable level of effort of the agent (either the minister or the bureaucrat)].

not clear at present what the best incubator of cross-cutting policies and solutions in Mongolia may be. NCSD has been unable, for instance, to drive a tightly argued and formulated regional policy<sup>75</sup>. Whether donors could and should play this role is debatable.

### **Greater Efficiency of Donor Assistance**

134. The statements made at the 2003 Donor Consultative Group (CG) in Tokyo mention the familiar donor objectives for Mongolia, i.e. identification of shared priorities, policy cohesion, transparency and efficiency in information sharing, harmonization of procedures, and agreement on the allocation of scarce development cooperation resources. Some of the more specific calls made by the donors (“prioritize and establish key policies and programs and their costing to assess what areas can be credibly financed”, “develop informative, publicly available budget documents and a realistic Public Investment Plan”) can be applied with full force to environmental management.

135. Some of the other, more specific, priorities voiced by the CG do have significant environmental repercussions. The most important is more to involve city migrants in economic development, a call with far reaching infrastructural and urban environmental implications and one which is potentially at odds with the vision presented in the Government regional policy. Greater attention to demographic and economic trends is counseled, amounting to another element with an important if indirect environmental dimension whether it is via the growing importance of the urban service sector or changing pattern of rural economic activities led by small-scale mining.

136. Need for a more effective harmonization of donor policies has emerged as a clear priority<sup>76</sup>. This is not new. Ulaanbaatar practice of UN-sponsored donor theme groups as a tool of such harmonization goes back several years. Environmental management has not been the subject of the five theme groups set up. A proposal made in the aftermath of the CG Meeting to establish four donor working groups to improve effectiveness of donor assistance has also bypassed environmental management possibly indicating that the harmonization and consultation needs are greater elsewhere. Two of the proposed working groups are largely sectoral (infrastructure, health), two cross-cutting or “multi-task” (governance, private sector). Once more, environmental management has not been among the candidates. Nevertheless two recent events (the 2002 Rural Development Conference and the 2003 Joint Donor Consultation on Ulaanbaatar City Development) are a testimony to the donor community’s readiness to invest in the harmonization process. Interestingly, greater activism shown by donors has confronted them with the problem that often faces their local client, i.e. shortage of staff and time to attend to integration demands.

137. In Mongolia no less than elsewhere, there is a reasonable appreciation on the donors’ side of the need to reduce unnecessary administrative cost that poorly coordinated donor assistance imposes on the recipients. The list of such cost items includes things such as overloading local bureaucracies with a multitude of confusing and fragmented projects, proliferation of missions, complex review and reporting requirements, failure to widen the scope of programming to sectors or cross-sectoral concerns, insufficient delegation to country-based

<sup>75</sup> Eastern Region Sustainable Development Program is of doubtful value.

<sup>76</sup> In the priorities-setting questionnaire distributed to the participants of the 2002 Rural Development Conference [GOM/UNDP(2002), p.15], the highest-ranked priority items for inclusion in the rural development strategy in a list of 19 were No.1: To provide enabling environment for co-operatives to develop and operate (note: “cooperatives” understood as being different from the old ones), No.2: Need for inter-ministry coordination on rural development including mutual understanding of various departments; and No. 3: Need for donor co-ordination. .

staff for policy dialogue, etc. [OECD (2003)]. Despite improved donor coordination in recent years, more remains to be done.<sup>77</sup>

### **ADB APPROACH AND PROGRAM**

138. The analysis of this document builds on the assessment made in 2001 [ADB(2001)]. That material continues to be a reasonable anchor for ADB strategy-setting and assistance-structure purposes. Some modifications are necessary, however, as well as attention to new possibilities in ADB assistance.

139. This time, the CEA is formulated as it should, i.e. ahead of the CSP, rather than half-way through an existing Country Assistance Program. The outcome are fewer suggestions about how to “green” an existing portfolio (since that portfolio for the period 2005-2008 is yet to emerge) and more emphasis on what suitable new elements might be.

### **ADB’s and Others’ Experience in Mongolia’s Environmental Management**

140. In the course of 2002 CAPE, the total of ADB grant technical assistance to Mongolia with direct or indirect environmental content during the period 1992-2001 was estimated at \$14.4 million while the total amount of ADB loans (with direct or indirect environmental content) during the same period was put at \$217.6 million. The additions to these totals since then are given in Annex 3 of this document.

141. The assessment offered at the time is summarized in Annex 2 below. Very briefly, ADB played a timely and generally positive role in developing EIA procedures and improving awareness of certain regulatory tools (permitting). The Bank correctly identified land administration as an area of major developmental potential with important environmental repercussions but underestimated institutional obstacles to faster progress. In its agricultural lending, ADB did not cast -right from the beginning-- the reform of the crop-growing sector as also an environmental question (slashing the area inappropriately cropped) and as a result, reduction of the grain output came as something of an embarrassment. ADB correctly saw the pattern of livestock management as hugely important but did not succeed to translate its analysis into action fast enough. The emphasis on improvement of vital infrastructure in provincial capitals, uncontroversial and positive at the outset, has since become intertwined with unanswered questions about the best pattern of regional development (see para. 118).

142. UNDP conducted an assessment of own environmental performance a little earlier in 1999, and once more, its detailed content has been described [ADB (2001)]. The most telling was the observation that despite having (or believing to have) an ENRM mandate in Mongolia, UNDP did not quite succeed in clearly articulate and develop that role. UNDP appropriately attached importance to its information and co-ordination capacity, biodiversity and environmental awareness creation. Among the recommendations of the UNDP review was to use a think-tank approach to deal with a range of environmental issues, expand the GEF Small Grants Program support and to pursue the establishment of the Mongolian Environmental Trust Fund. The assessment was positive about the extent to which UNDP initiatives combined “upstream” with “downstream” activities but somewhat skeptical about the quality of community-based initiatives. UNDP’s efforts to develop frameworks, strategies, action plans etc. has been generally appreciated but accompanied by doubts about the will and resources to implement them.

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<sup>77</sup> This CEA, to give an example, is one of at least three (and possibly as many as six) being prepared for Mongolia by ADB, USAID, World Bank and others.



143. World Bank's experience has been partly captured in the Bank's *Environmental Monitors* (the 2002 and 2003 issues) as well the Bank-commissioned reviews of several technical issues such as forestry and biodiversity conservation. Land reform continues to be seen as crucial but complex, and effectiveness of resource conservation programs often blunted by human resource and financial constraints. Environmental financing continues to be poorly understood. World Bank's experience with urban infrastructure -the key area in the Bank's lending-- remains yet to be summarized.

144. ADB, its development partners and Mongolian authorities themselves have acquired substantial experience in several critical areas of environmental management. Thanks mainly to the GTZ-funded Nature Conservation and Bufferzone Development Project [see Schmidt et al (2003)]<sup>78</sup> and its successors, both the Government of Mongolia and the donor community finally have what appears to be a workable large-scale model that combines support for rural livelihoods with land/nature conservation and adds several institutional innovations (bufferzone councils, community conservation funds). The project has matured and by now it is somewhat less dependent on continued grant funding. The experience is important further to analyze and possibly use in designing projects combining the "GTZ content" with elements of infrastructural development less suitable for grant funding.

145. Similarly, thanks to the GEF/UNDP "Eastern Steppe Project" (Biodiversity Conservation and Sustainable Livelihood Options in Eastern Mongolia), a more realistic view is emerging of the best degree of reliance on local communities in conservation activities in the sparsely populated areas of Mongolia. It is clearer now that communities capable to manage *all* aspects of natural resource management are hard to be found and even molded. Improved mechanisms of hunting regulation, and hunting fee "re-cycling" are emerging as essential for sustainable conservation management. Here, too, elements pioneered under the GEF/UNDP project (establishment of a scientifically sound rangeland monitoring system, strengthening of the Protected Area legislation, improved land-use planning and monitoring activities, development of buffer zone management plans etc.) can be considered for mixed grant-loan packages of financial support.

## **ADB's Environmental Strategy in Mongolia**

### **Linking Poverty Alleviation to Environmental Concerns**

146. With poverty reduction claiming the ADB programming heights, CSP formulation will assign the place of pride to the link between CSP elements and the scope they offer for poverty reduction. This is not easy given that the relationship between poverty reduction and its arguably two principal determinants (economic growth and provision of social services) is complex and often indirect and lagged. Also, poverty reduction is much more than "simple" income growth and includes -or should include- factors contributing to better quality of life.

147. The role of environmental analysis is to contribute to CSP formulation in three ways: (1) To help identify opportunities that efficiently combine poverty alleviation with environmental improvement. (2) To help judge where in the spectrum of existing environmental problems remedial or mitigation action is most urgent --i.e. offers the highest social return-- initially regardless of the form of such return (flora conserved or fewer asthma attacks from air pollution) (3) help judge which of the opportunities identified under (1) and (2) are suitable for ADB's

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<sup>78</sup> The Project targeted the Gobi Gurvan Saikhan National Park and surrounding area totaling some 200,000 sq. km, i.e. about one fifteenth of Mongolia's total area.

involvement given the Bank's strategic focus, the nature of the relationship between expected outcomes and their effect on poverty, ADB's comparative advantage vis-à-vis other development partners, and a number of other factors. These considerations are separate from ADB's internal environmental compliance policy intended to ensure that no environmental harm is done as a result of ADB-financed activities, whether this is in the name promoting of economic growth or poverty alleviation.

148. The higher profile given to poverty reduction in selecting environmental components in a CSP was illustrated in the 2001 CEA in a table contrasting the design consequences of a shift from "growth mainly" approach to "poverty reduction-mainly approach". Although the differences between the two should not be overstated the 2001 gave a number of examples where the link between environmental improvement and poverty reduction is direct, unidirectional and the activities self-financing after an initial period of learning. Introduction of more fuel-efficient stoves to low-income households, commercial recycling of selected waste streams, rehabilitation of water wells and improved rules of pasture use belong to this category. Elsewhere, poverty reduction compatible with sustainability will demand separate environmental expenditure (e.g. environmental safeguards in informal mining, better wastewater treatment to support greater domestic agro-processing etc.).

149. This CEA does not analyze the latest data on poverty incidence in Mongolia and merely accepts the continuing seriousness of the situation despite some improvement of late in related variables (such as education)<sup>79</sup>. The 2001 CEA drew attention to three dimensions of poverty of relevance to environmental management in Mongolia. First, high incidence of poverty normally (but not necessarily) means low willingness to pay for things or services with high environmental content (water, power, urban environmental services). This may continue to affect the degree of success in ensuring cost recovery and sustainability. Second, the 2001 document underlined the relatively short history of poverty in modern Mongolia and the emergence of coping strategies that contributed to certain environmental problems. The example of "new" herdsman, less knowledgeable about the technical side of their tasks and sustainability demands, was given. This CEA provides another powerful example of the new coping strategies in describing (paras. 44 to 48) small-scale mining and its environmental repercussions. Third, poverty in Mongolia is a complex and dynamic mix of factors that includes disappearing jobs in the still moribund majority of *soums* and *aimags*, scaled-down social service provision, struggling livestock sector but also the traditional mobility and adaptability of much of the population that make migration in search of new opportunities an important option. The questions tentatively asked in the 2001 CEA, namely how poverty and environmental stress are correlated in space, and what its repercussions are, are still with us but it does appear that answers to poverty might increasingly lie in migration to more dynamic parts of the economy. If so, however, poverty may be reduced at the cost or environmental threats to receiving areas. And if so, the implication for the strategy would be to support migration as the most efficient approach to poverty alleviation and reserve assistance for mitigating the potentially adverse impacts of that migration.

### **Environmental Strategy for Mongolia**

150. The considerations of the previous sections can be brought together, simplified, in the form of an environmental strategy. Following the approach used in a number of other CEAs, the

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<sup>79</sup> The results of the latest (2003) LSMS/HIES surveys are not yet available. The last LSNS survey before that, on which most discussion about poverty in Mongolia is based, goes back to 1998.

environmental strategy for Mongolia will be a particular selection of priorities within the structure of ADB's current (2002) Environment Policy <sup>80</sup> (see Table 16).

151. The discussion in the first two sections of the CEA strongly argues in favor of retaining the broad approach to environmental management in Mongolia recommended in the 2001 CEA. That means -with very few exceptions-- preference for an integrated approach to environmental problems rather than stand-alone interventions. Given the importance of job creation as an essential element of poverty alleviation, the strategy also needs to raise the importance of environmental safeguards that need to accompany job and income creation. The recommended approach calls for attention to cross-sector coherence and greater use of existing national coordination mechanisms

**Table 16: Environmental Strategy for Mongolia**

<b>ADB Environmental Policy Elements and Areas of Concern to be Given Prominence</b>	<b>Justification of the Selection and Emphasis</b>	<b>Recommended Approach to Implementation</b>
<i>Element 1: Environment interventions for poverty reduction</i>	<i>Employment creation in both rural and urban areas key to poverty alleviation. Urban migration to be considered a valid alternative.</i>	<i>- Help ensure that job growth or changing structure of employment does not come at the cost of adverse environmental impacts. Examples: support environmental safeguards in small-scale mining, help ensure that influx of migrants into the cities does not further aggravate the environmental status.</i>
<i>Area 1: Protection, conservation and sustainable use of natural resources</i>	<i>Widely accepted priority supported (esp. the protected areas, biodiversity) by grant funding from a variety of sources.</i>	<i>- Continue to support sustainable livestock production, and more diversified agriculture - Extend involvement in mitigating land degradation beyond ASP-type loans. Formulate projects for co-financing with GEF, ensure Mongolia can learn from CACILM and similar experience. - Initiate a policy review of the new water-related legislation and programs. Depending on the outcome, consider technical assistance for a re-</i>

<sup>80</sup> To recall, the policy at its broadest has five principal *elements* shown in the first column of Table 15 below. Each of them is sub-divided into several *areas of concern*. The essence of a strategy is the narrowing down of this broad menu, reflecting the specifics of the existing country situation and its analysis.

The broad menu includes the following:

Element 1: Environment interventions for poverty reduction

Area 1: Protection, conservation and sustainable use of natural resources

Area 2: Environment quality improvement

Area 3: Reducing vulnerability to natural hazards and preventing disasters

Element 2: Mainstreaming environmental considerations in economic growth

Area 1: Policy integration

Area 2: Integrated economic and environment development planning

Area 3: Strengthening regulatory systems and environmental governance

Area 4: Market-based instruments and other policy instruments

Area 5: Promoting education and public awareness

Element 3: Maintaining global and regional life support systems

Area 1: Responding to multilateral environmental agreements

Area 2: Supporting regional and sub-regional cooperation on environment

Element 4: Building partnerships

Element 5: Integrating environmental considerations into ADB operations

Area 1: Country environmental analysis

Area 2: Appropriate classification of loans

Area 3: Public consultation and information disclosure.

Area 4: Implementation and monitoring and evaluation

Area 5: Environmentally responsible procurement

Area 6: Performance-based allocation of ADF resources

ADB Environmental Policy Elements and Areas of Concern to be Given Prominence	Justification of the Selection and Emphasis	Recommended Approach to Implementation
<p><i>Area 2: Environment quality improvement</i></p> <p><i>Area 3: Reducing vulnerability to natural hazards and preventing disasters</i></p>	<p><i>Deterioration of public health infrastructure (water supply, water quality peri-urban waste management, etc.) a major factor influencing livelihoods.</i></p> <p><i>Well known priority in Mongolia.</i></p>	<p><i>orientation of water management, investments for irrigation rehabilitation, or both.</i></p> <p><i>- Consider new loan assistance. The choice between more investment in aimags or even soums vs. possible infrastructure investment in or near Ulaanbaatar to be conditional on the outcome of policy dialogue on regional policy.</i></p> <p><i>- Support mainly creation of more resilient domestic pattern of production rather than emergency response.</i></p> <p><i>- Learn from the evolving experience of the livestock insurance component of the Household Livelihoods Support Program - Continue to monitor the changes in the functioning of the State Reserve Agency - Continue to press for attention to sustainability of rural energy supplies through further tariff reforms and reduction of technical and non-technical losses</i></p>
<p><i>Element 2: Mainstreaming env. considerations in economic growth</i></p> <p><i>Area 1: Policy integration</i></p> <p><i>Area 2: Integrated economic and environment development planning</i></p> <p><i>Area 3: Strengthening regulatory systems and environmental governance</i></p> <p><i>Area 4: Market-based instruments and other instruments</i></p>	<p><i>Honest attempts made in Mongolia to mainstream environment but some doubts about its ultimate results.</i></p> <p><i>At the national level, the regional policy and its environmental content need a feedback by Mongolia's development partners. At the local level, the true importance and effectiveness of local bodies remains unclear.</i></p> <p><i>Environmental financing, especially at the local level, is unclear, non-transparent and likely inefficient, even after the passage of PSFMA.</i></p> <p><i>Pricing of water, power, urban environmental services, land and natural resources demands more donor attention. It should not be overshadowed by possible attention to more "modern" MBIs</i></p>	<p><i>- Assist the process of making integration more substantive at the level of policy. Help improve policy analysis and formulation. Look for "think tanks", support technical peer reviews, find time to comment on evolving policies and programs before it is too late.</i></p> <p><i>- In the absence of other "volunteers", drive the dialogue between donors and the Government on regional policy. - Seek greater role for local bodies and citizenry in influencing environmental policy and investments.</i></p> <p><i>- Encourage visiting ADB staff's to travel to the field. Review the advisory against domestic air travel by precious foreigners.</i></p> <p><i>- Provide technical assistance for Improved financing of local environmental management as suggested in the 2001 CEA</i></p> <p><i>- Study the experience of new sectoral guidelines in improving the EIA process and environmental monitoring</i></p> <p><i>- Continue to demand up to date information on the degree of cost recovery in essential urban services, both in "ADB" provincial towns and in Ulaanbaatar.</i></p> <p><i>- Ensure good understanding of evolving policy and practice of wastewater-discharge pricing and make its further improvement a component of possible loan assistance.</i></p> <p><i>- Seek improvements in the pricing of natural resources and link this concern to that with local financing of environmental management (see Area 3)</i></p>

<b>ADB Environmental Policy Elements and Areas of Concern to be Given Prominence</b>	<b>Justification of the Selection and Emphasis</b>	<b>Recommended Approach to Implementation</b>
<p><i>Element 3: Maintaining global and regional life support systems</i></p> <p><i>Area 1: Responding to multilateral environmental agreements</i></p> <p><i>Area 2: Supporting regional and sub-regional cooperation on environment</i></p>	<p><i>Continued support is needed to bridge the gap between the obligations assumed by Government of Mongolia and capacity to meet them</i></p> <p><i>Because of its geo-political position, Mongolia needs a good balance of regional links and partnerships. Principal transboundary issues in Mongolia (Selenge and Irtysh rivers, desertification, illegal trade in fauna and flora) are real but not as central as, e.g., the management of surface waters in Central Asia.</i></p>	<p><i>- Consider, with Government of Mongolia and development partners, more cost-effective ways of matching support under international environmental conventions to conditions of low population density and high unit administrative cost. Question the need for distinct administrative structure for each global concern.</i></p> <p><i>--Begin actively to develop a possible portfolio of projects for GEF co-financing, drawing on recent experience in Mongolia (e.g. GTZ activities in the Gobi) and also PRC and Central Asia.</i></p> <p><i>- Keep Mongolia in mind whenever initiating new regional environmental initiatives involving PRC (and North-East Asia) and Central Asia.</i></p> <p><i>- Ensure Mongolia can learn from CACILM and similar experience (as under Area 1)</i></p> <p><i>- Remember that regional environmental cooperation must be driven by internal need.</i></p> <p><i>- Study the experience of RETA 5969.</i></p> <p><i>- Begin exploring possibilities that might arise if Russia were to join ADB (e.g. transboundary water management, phasing out of leaded gasoline, etc.)</i></p>
<p><i>Element 4: Building partnerships</i></p>	<p><i>As above</i></p>	<p><i>-Continue developing closer partnership with GEF for possible future co-financed activities in Mongolia under GEF's OP 12 and OP 15.</i></p> <p><i>-Begin to think about environment-related repercussions of possible membership of Russia in ADB</i></p>
<p><i>Element 5: Integrating environmental considerations into ADB operations</i></p> <p><i>Area 1: Country environmental analysis</i></p> <p><i>Area 4: Implementation and monitoring, and evaluation</i></p>	<p><i>CEA should be more than a periodic document. It should serve as a background to continuous dialogue between ADB, Government of Mongolia and the wider society.</i></p>	<p><i>- Regardless of its final form, consider CEA a working document, an invitation to keep exploring the issues presented.</i></p> <p><i>- CEA should not be the sole analytical effort in "environment". A separate assessment may be appropriate, for instance, for water management</i></p> <p><i>- Effective exchange of views is needed on substantive questions of water management and land degradation among ECAE, ECOC and RSAN (and possibly also RSES)</i></p> <p><i>- ECID more actively to link the work on climate change and CDM with activities of MOI and PREGA.</i></p>

## Future Assistance

152. The potential projects listed below supersede some (though not most) of the candidates suggested in 2001. In some cases this is because ADB has acted on the suggestions made in 2001 (renewable energy, environmental conditions in the peri-urban areas) even though the

manner of response may have departed from the concept submitted. Elsewhere, the suggestions made in 2001 are not re-submitted because similar activities have been started by GOVERNMENT OF MONGOLIA and other donors (forestry, to some extent). In the rest of the cases, the original proposals are reproduced alongside the updated ones in order to give the reader a more rounded description of the opportunities.

153. At this stage, the opportunities presented here have had the benefit of only informal consultations with government officials (as well as other individuals<sup>81</sup>) but not of formal discussions of future assistance possibilities. That process is yet to take place, ideally during the CSP exercise itself. No systematic discussion has taken place with concerned ADB divisions about the details of the entries but MNRM staff acted as interlocutor and guide.

*Advisory and Institutional Support (AOTA) Opportunities:*

- (i) Improved financing of local environmental management (largely unchanged from 2001).

Among key reasons for poor implementation of environmental laws in Mongolia are limited budgets of local environmental authorities. Establishing reliable values of environmental resources facilitates their appropriate pricing, an important condition for generating funds potentially available to local authorities for environmental management. At present, most natural resources and environmental sinks are underpriced or unpriced. There are a number of related specific concerns: Policies on eco-tourism and hunting are currently not supported by hard data about the revenues generated, subsequent use of the revenues and the economic costs and benefits of these activities. Choices involving grazing, mining, eco-tourism and hunting need to be better informed by appropriate economic valuation of each of these conflicting or complementary options. Here, Mongolia has yet to emulate work done in a number of other eco-tourism and hunting-dependent economies.

- (ii) Environmental, health and social safeguards in small-scale mining.

Use of mercury by a segment of the mushrooming informal small-scale gold mining sector in the last few years has created a major public health hazard (threat of the “Minamata disease”). Nevertheless, small-scale gold mining has become something of a savior of the rural economy and a poverty escape route recently. Its environmentally less damaging segment (placer mining) needs light-hand regulation and government support (e.g. delivery of social services closer to the mining areas). The environmentally damaging segment (hard-rock mining) should be phased out and the existing practitioners re-directed towards placer areas. This process is likely to be gradual and health monitoring is needed in all areas affected. Rules and mechanisms of co-existence between the small-scale miners and industrial operators are needed as is development of environmental safeguards to small-scale mining operations

- (iii) Strengthening of capacity for water management.

The new government water policy is structured around integrated river basin management. This management approach is new in Mongolia and little or no experience with its application exists. Development of policy details and regulations is needed as is training of government staff at both central and river basin level.

- (iii.i) Water management, both in cities and in rural areas. (from the 2001 CEA)

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<sup>81</sup> See Annex 5 for the composition of a first consultation meeting held in Mongolia to discuss the CEA.

Until the end of 1980s, Mongolia developed water resources with no consideration of scarcity. The continuing gross misallocation of water in Ulaanbaatar is disturbing. Large amount of useful work can be done starting with water pricing and including industrial and household water use audits, a variety of water efficiency improvements, registration and licensing of water supply wells and private septic systems, cost-benefit analysis of irrigated vegetable farming, water harvesting and other low cost water management options, and others.

- (iv) Use of CDN for national and international benefits (AOTA, GEF co-financing).

It would be possible to build on the substantial amount of work funded by ADB (ALGAS, PREGA) and others to develop proposals for financing energy efficiency activities in Mongolia under the Clean Development Mechanism. The work would have to be conditional on the ratification of the Kyoto Protocol by Mongolia and fulfillment of certain institutional prerequisites. Among other things, it would call for a more deliberate action on ADB's part to bridge the efforts made in Mongolia under UNFCCC and those of MOI.

- (v) Land use planning and management at the local level (from the 2001 CEA).

With land reform gathering speed and more leases or titles likely to be issued in the near future, an urgent need exists to impose a pattern of environmentally sensitive zoning at the local level in anticipation of future development of roads, other infrastructure, mining, etc. as well as to safeguard conservation objectives of the central and local governments. Maps need to move out of locked drawers and become a day-to-day tool in the demarcation of existing land uses and the limits to future uses. It is important to take the MAP-21 *aimag*-level environmental action plans at least one stage further and convert them into land-use plans for the *aimags* (and *soums*) concerned, especially those located in the environmentally fragile dry ecosystem zone.

#### *Project and Program Lending Opportunities*

- (i) Implementation of wastewater management strategy in Ulaanbaatar City.

Considerable amount of preparatory work on wastewater management along the Tuul (the recipient of all discharges from Ulaanbaatar) has been completed with bi-lateral funding. New wastewater discharge policy and legislation are being readied. Implementation has been slow and piecemeal. In the meantime, a major problem has arisen involving several dozens of small-scale tanneries in the city. These industries match Mongolia's comparative advantage yet they are among the most polluting anywhere. Offering the existing and prospective tanneries the option to relocate to an industrial estate equipped with a pre-treatment facility could dramatically improve the industry's prospects *and* the pattern of pollution in the Tuul river. ADB's assistance could demonstrate the effectiveness of combining incentive- with enforcement approaches to environmental management and drive "green" industry promotion policies. Opportunities exist to extend the scope of the project to municipal wastewater treatment, either in areas already connected to CWTP or in gher areas not yet connected to the centralized network.

- (ii) Solid and hazardous waste management in Ulaanbaatar

The unsatisfactory state of solid waste disposal in Mongolia's capital is well known as is the absence of any facilities for hazardous (e.g. hospital) waste treatment/disposal. Besides the day-to-day operations and the functioning of the truck fleet, the problem extends to unsafe, inappropriately located and inadequate principal disposal sites. New, environmentally safe,

disposal site(s) need to be created, together with a hazardous waste treatment facility. Construction of such facilities would be an opportunity for introducing improved mechanisms of waste disposal financing.

(iii) Environmental, health and social safeguards in small-scale mining.

See above. The assistance can be structured either as AOTA or PPTA plus loan with bilateral cofinancing and/or JFPR component. If structured for loan assistance, aspects such as improvement of social support to small-scale mining communities, expansion of environmentally safe mining by small-scale operators etc.

(iv) Irrigation and water conservation.

Attempts to rehabilitate portions of the old irrigation network were sporadic during the last decade and frustrated by the continuing uncertainty about the ownership structure of the former state farms. More recently, that structure has become clearer and the new land legislation has created conditions under which rehabilitation of parts of the former irrigation network could be viable. There is a greater willingness on the part of MFA to approach irrigation rehabilitation in a pragmatic manner and in a way that would divide the cost between the government and the water users. ADB assistance could spearhead this process.

(v) Dry Ecosystem Land Management

A generalized class of projects aimed at lessening of degradation or desertification pressures on pasturelands that border the globally important ecosystems enjoying some degree of protection status. (e.g. transboundary watersheds). Such projects would be prepared following the procedures and mechanisms developed under CACILM or the ADB/GEF Partnership in Land Degradation in PRC (Box 9 below). The projects can incorporate novel ways of managing peri-urban grasslands (as suggested in the 2001 CEA)

(vi) Air pollution in Ulaanbaatar and other major urban centers.

The main gap is the absence of an integrated approach, based on comparing a wide-enough range of abatement options and their relative cost. Although the scale of the problem may not be as serious as often claimed it is likely to become serious in the absence of concerted action. Vehicular pollution and policies that directly or indirectly contribute to it have been neglected so far and they should not be. New low-cost opportunities to improve winter air quality in urban and peri-urban areas (including indoor air quality) should be identified to supplement ongoing projects focusing on the upgrading of household stoves.

### **Linking ADB Program to Government and Other Donors' Environmental Activities**

154. The current ADB's Country Assistance Program (see Annex 2) indicates an annual lending level for Mongolia of between \$30 and 55 million (all of which from ADF) and an annual TA program of about \$4 million (the latter now depending on a performance-based allocation (PBA) of ADF resources). The 2001-2003 program has a deliberate focus on poverty reduction, not environmental improvement, and this is reflected in the absence of loans or technical assistance that are *directly* environmental. In any case, environment is not considered a sector for programming purposes.

155. ADB's TA resources, especially those available for direct support of environmental



objectives, are not particularly large compared to some of the bi-lateral sources<sup>82</sup>, or the combined UNDP-GEF pipeline. However, there is no reason to alter the 2001 opinion that in using its grant funds, ADB should remain involved close to the “policy-formation and implementation center” in Mongolia rather than carving out an environmental niche determined solely by the size of the funds available.

156. With little co-financing so far<sup>83</sup>, the question of whether and how best to utilize this mechanism for environment-related assistance in Mongolia demands attention. The 2001CEA looked at the possibilities of developing project-level partnership with GEF and concluded that .....”while ADB TA funds and GEF funds .... are not substitutes (that can be easily blended), little stands in the way of the two complementing each other, the ADB TA funds addressing acute domestic needs while GEF financing related activities generating external (global) benefits. Indeed, such complementary is highly desirable since projects conceived solely to generate global benefits will likely be flawed in the absence of domestic components that safeguard the delivery of the global benefits. Livelihood promoting activities in areas adjacent to globally important biodiversity sites is a type of mixed setting that lends itself to ADB-GEF complementary financing. Complementary financing gives coherence to project design”.

#### **Box 9: ADB-GEF co-financing to combat land degradation**

The ADB-GEF model favored in the 2001 CEA had emerged under the UN Convention to Combat Desertification (CCD), a subject of obvious importance to Mongolia. Under CCD, CCD’s “Global Mechanism” has been created as the Convention’s secretariat tasked with mobilizing resources for CCD implementation. ADB is one of the Global Mechanism’s partners alongside with GEF, UNDP, World Bank, IFAD, UNEP and FAO. By now, the Global Mechanism (via OP 12 of GEF) has become a conduit for complementary funding for ADB-implemented projects targeting land degradation /desertification where the objective of land degradation control overlaps with the core GEF concerns (biodiversity, climate change and international waters). The GEFco-financing has already materialized in PRC (ADB/GEF Partnership on Land Degradation in Dry Ecosystems in PRC) and is being prepared for Central Asia (as CACILM, of Central Asian Countries’ Initiative for Land Management).

157. Since 2001, GEF has further expanded its financing of Mongolia-based activities (see Annex 6). In the meantime, the opportunities for ADB-GEF co-financing had improved and continue to improve (See Box 9). In a country as environmentally fragile as Mongolia, there would seem to be a number of potential types of projects that might meet the joint objectives considered suitable for ADB-GEF co-financing. Two broad categories come to mind immediately: (1) activities tailored to lessen degradation pressures on pasturelands bordering the globally important ecosystems enjoying some degree of protection status. There are a number of such areas in Mongolia and several donors (especially GTZ) have recognized the importance of improved management of these buffer zones. (2) Activities designed to lessen land degradation pressures on the Mongolian side of transboundary watersheds (e.g. parts of the Selenge river basin, upper reaches of the Yenisei, etc.)

158. The principal recommendation in this CEA is for ADB to ensure that Mongolia’s land degradation concerns can benefit from ADB growing experience in partnership-based work in PRC and Central Asia (CACILM). Outside land degradation, promotion of renewable power among the dispersed and mobile rural population continues to fit in well with GEF’s Operational Program 6 (Promoting the adoption of renewable energy by removing barriers and reducing

<sup>82</sup> The combined amount of technical assistance one way or another related to environmental management in Mongolia since 1992 has reached about \$14.5 million. (See Annex 4)

<sup>83</sup> Mostly limited to regional technical assistance (ALGAS, PREGA projects)

implementation costs) and here too, coherence in project design favors a combination of domestic (“non-incremental cost”) components with those designed to deliver global benefits. In view of many herding families’ precarious existence, such a partnership could justifiably be described as jointly targeting poverty alleviation and climate change benefits.

159. Given several unresolved issues at the end of UNFCCC’s COP6, it is premature to be specific about eligibility of energy-related projects for financing under Clean Development Mechanism (CDM). The delays in Mongolia’s ratification of Kyoto Protocol and creation of the required institutional support for CDM implementation were mentioned earlier (para 67). Potentially, the number of suitable candidates is large [see Batima et al (2000)]<sup>84</sup>.

## CONCLUSIONS AND RECOMMENDATIONS

160. Mongolia’s economy in 2004 continues to change and some of these changes have important environmental repercussions. Trade and services have gained importance within the overall economy. Small-scale mining is having a major impact on rural employment and incomes. Restructuring of the livestock sector has been slow but rightly claims attention of both technical and environmental authorities. Internal migration continues to be driven by economic opportunities rather than design. The economic dominance of Ulaanbaatar and its infrastructural needs have further increased in contrast to the stagnation or decline of many smaller settlements. All of these developments take place in a country known to be environmentally fragile, where rapid economic change associated with economic liberalization has already tested the resilience of the natural systems (e.g. pasturelands, forests) and is likely to test it more. In the Mongolia of today, low population density in the countryside alone cannot be relied on to ensure sustainability in the use of natural resources.

161. The topic of regional development is emerging as a major development policy issue. Something that was unassailable only a few years ago, namely the recommendation for the Mongolian economy to move in the direction of economic diversification and a more even spatial pattern of development, seems less certain today with market forces exerting a strong push towards further urbanization (or UB-anization, to be more accurate) and a more opportunistic clustering of population around any new economic activities (such as mining). The strategic challenge for GOVERNMENT OF MONGOLIA and Mongolia’s development partners is to strike the right balance between assistance targeting mainly Ulaanbaatar’s urban infrastructure to accommodate migrants as opposed to attempts to reverse the population inflow by directing assistance to the rural areas. In retrospect it is clear that the government’s regional policy was ushered in without adequate analysis and feedback by a broad enough segment of the donor community. That feedback is only now beginning to materialize (not least under ADB’s own TA 3948 for Capacity Building for Integrated Regional Development) but much more is needed, in particular for the feedback to be coordinated.

<sup>84</sup> ADB-implemented and GEF-funded ALGAS Project contains a convenient list of GHG-reducing options with low policy barriers, applicable also to Mongolia:

<u>Options</u>	<u>Feasibility</u>	<u>GHG reduction potential</u>
1. Photovoltaics	High	Medium-low
2. Small wind generators	High	Medium-low
3. Mini-hydro	High-medium	High-medium
4. Industrial co-generation	Medium	Medium
5. Fuel consumption efficiency in transport	High	High-medium
6. Efficient household coal stoves	High	High-medium
7. Efficient lighting	High-medium	Medium-low
8. Building insulation improvements	High	High-medium

Options 6 and 8 have already attracted GEF funding in Mongolia (see Annex 6)

162. Without wishing to take anything from certain Government achievements in the environmental domain or from Mongolia's long-standing commitment to sustainable development it is doubtful that Goal 7 of MDGs ("to ensure environmental sustainability") is likely to be achieved. In any event, such or similar statements [ADB (2004)] are difficult to make in the absence of a proper performance assessment. The State of the Environment Report, much improved, still falls short of a thorough review of performance characterizing, for instance, the work of UN ECE in Eastern Europe and Central Asia or the OECD practice of environmental performance reviews of its member states. As to the assessment of CAPE, its principal target was ADB's performance, not that of the Mongolian Government.

163. The gap between environmental commitments of GOVERNMENT OF MONGOLIA and donor-funded "upstream" work, on the one hand, and effectiveness of work in the field, on the other hand, has not been bridged. Under-funding of environment-related field activities continues, and application and enforcement of legislation is weak. Considerable work on tightening of environment-related legislation has been a positive factor. The quality of new legal and policy documents has varied but in some cases fallen short of expectations. Several steps taken in the last three years have improved environmental governance.

164. ADB needs to continue to approach environmental management in Mongolia as a cross-cutting issue. This demands readiness to exploit the environmental potential of mainstream activities. In Mongolia, as much as in the majority of DMCs, many environmental goals can be achieved indirectly, through appropriate design of assistance. ADB has already acted on this conviction in several instances and it should continue.

165. A corollary of the above is that ADB should not *necessarily* create new environmental programs and projects, but improve the understanding of environmental repercussions of ongoing or proposed activities. Despite a variety of implementation problems, the existing loan and TA assistance for application of land use policies or agricultural development promise to have more far-reaching environmental repercussions than many possible alternatives more explicitly pursuing environmental goals.

166. ADB grant resources likely to be available for environmental management objectives in Mongolia are relatively modest compared with those of some of the bi-lateral agencies. The avenues for ADB to pursue are (1) to step up its technical and loan co-financing efforts involving bi-laterals but also GEF; (2) to shape the design of TAs and loan projects in ways that provides for a maximum overlap between the objectives of livelihood improvement and environment, such projects possibly formulated for GEF co-financing, and (3) continue to make a full use of the Mongolia Resident Mission, given the presence of an environmental economist on the MRM staff.

167. ADB should not finance any action or master plans related to the environment unless the preparation of such plans has a support of MFE (besides the relevant technical ministry) based on the expectation that the planning document in question would spell out the cost and revenue implications of the proposed course of action.

168. With the important exception of the issues surrounding local environmental financing (see para. 101), ADB is probably not the one best placed to provide direct assistance for further strengthening of the capacity of MNE that role better suiting the donors more closely associated with conservation activities and the protected realm. However, ADB should engage MNE (and MOI and MOH) in policy-related work involving natural resources, in particular in the area of

water management, emerging as an important priority.

169. ADB should consistently seek ways of making environmental policy formulation and execution in Mongolia more informed by economics. This does not necessarily mean a support for an MBI-type ADTA of which ADB has financed a large number in its DMCs with only mixed results. There are a large number of situations in Mongolia where planning and investment decisions would benefit from economic valuation of natural resource use.

170. 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 yet<sup>85</sup>. ADB should promote such debate, supported by the experience in other DMCs such as Thailand.

171. In para. 153, the text identified a number of assistance possibilities that fit the overall direction of ADB assistance while taking into account the various limitations and constraints inherent in the process.

172. In terms of regional priorities, the preference here is for support for regional activities under the aegis of UNCCD designed to address the problems of land degradation and desertification and effective contact of Mongolia with emerging regional initiatives such as CACILM. PREGA and PREGA-like work remains an important area for Mongolia and one deserves more active ADB involvement than it has received so far. ADB may wish to begin exploring the environmental repercussions and opportunities created by Russia's possible entry into ADB.

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<sup>85</sup> Very briefly, "ideal" environmental funds of theory are capitalized through virtuous environmental taxes rather than through budget transfers in order to lock in the desirable pattern of incentives (to pollute less). Many proponents of environmental funds in Mongolia ignore this distinction. Second, efficiency in the disbursement of environmental funds is a difficult task as the experience of former planned economies that have embraced the concept of environmental funds (Poland, Lithuania, and others) illustrates. The reader is referred to Appendix 5 of ADB's 2001 report *Promotion of Market-Based Instruments for Environmental Management in Thailand* for a discussion of these and related issues.

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Note: Only post-2000 sources only are listed [for earlier references, see ADB (2001)]. If the problem faced by a reviewer of Mongolia's environment management in 2001 was shortage of data and suitable reports, the situation in 2004 is almost the opposite. No pretence is made of the completeness of the list given below.

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[www.mininglife.com](http://www.mininglife.com)

[www.minerals.usgs.gov](http://www.minerals.usgs.gov) (contains an overview of Mongolia's mining sector)

[www.innerasiaresearch.org](http://www.innerasiaresearch.org) (website of the Mongolia and Inner Asia Studies Unit of the Dept. of Social Anthropology of the University of Cambridge, U.K.)

[www.iisnc.org](http://www.iisnc.org) (website for the UNESCO-supported International Institute for the Study of Nomadic Cultures, headquartered in Ulaanbaatar)

## Annex 1: Summary of the 2001 CEA

The Report contains a broad review of the current environmental status of Mongolia and the emerging trends as a basis for formulating recommendations for future ADB-Government of Mongolia co-operation in the environmental domain.

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

- Return to land and increasing pressure on the country's commons
- Temporary worsening of prospects for solutions to environmental problems that rely on cost recovery
- Reduced pollution discharges by industrial entities being offset by reduced treatment and deterioration of urban environmental services
- Enhanced prospects for eco-tourism, but also more illegal exports of wildlife products
- Steady flow of ODA, 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 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 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, 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 towards 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 peri-urban areas; this has exacerbated the already pressing issues of air pollution, water supply, municipal wastewater treatment, and others.

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 non-degradable waste, existing incineration practices, and littering behavior. No significant re-cycling 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.

Coal-using power sector continues to be environmentally backward despite some retrofitting that took place during the 1990s. Even with substantial donor assistance in recent years, there is a continued need to replace or improve *soum*- and *aimag*-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 available water supply. Water is mis-allocated and mis-priced and *de facto* under-priced. In rural areas, existing wells continue to fall into disrepair and are unlikely to be re-habilitated until new forms of co-operative 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.

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 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, the manner of assigning tax proceeds to different levels of the government, and the revenue raising potential of different administrative units.

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

There has been extensive and steady donor support for environment-related activities in Mongolia. UNDP has continued to perform the usual co-ordinating role, with some hiccups. Several projects in Mongolia have been financed or co-financed by the Global Environmental Facility (GEF). Major bi-lateral programs are in place in Mongolia. Among those with important environment-related components are those of GTZ, the Netherlands, JICA, USAID and EU.

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 both in rural and peri-urban areas, suggesting potential directions of assistance that simultaneously targets environmental improvement and better livelihood. Improving the efficiency of domestic stoves in peri-urban 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:

The Study makes the following recommendations:

a. General

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 full.

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 EIA in Mongolia.

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.

The effectiveness and "Government of Mongolia 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 an income-generating or revenue-generating potential.

ADB grant resources likely to be available for environmental management objectives in Mongolia are relatively modest compared with those of some of the bi-lateral agencies. ADB has never actively sought to match them, nor should it. Neither should ADB compete with UNDP and its co-ordination 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 (1) stepping up its technical and loan co-financing efforts involving bi-laterals but also GEF; (2) conscious efforts to shape the design of TAs and loan projects in ways that provides for a maximum overlap between the objectives of livelihood improvement and environment; and (3) maximizing impacts through a fuller use of the Mongolia Resident Mission.

ADB should not finance any action- or master plans related to the environment unless the preparation of such plans has a support of MFE, besides the relevant technical ministry.

While remaining supportive of MNE, ADB should not equate environmental management in Mongolia with MNE only. ADB should encourage MNE to work more effectively with MID than hitherto and shed some its reluctance to be a major player in areas such as water management and sanitation policy or industrial pollution control.

ADB should consistently seek ways of making 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. Second, 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.

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 yet. ADB should promote such debate, supported by the experience in other DMCs such as Thailand.

- b. Review of the terms of reference and influencing the design of several existing TA and loan candidates

If reluctant to change the composition of CAP 2001-2003, ADB should at least consider modifying the design of some of the TA and loan candidates in directions suggested by the nine environmental priorities listed above. Specifically, the following is proposed

#### Rural Finance (2001 loan)

- If still possible, consider a component for solar/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 ADTA)

- If still possible, give specific attention to sustainable farming (use of organic fertilizers, crop rotations, water harvesting, low or no-till practices, IPM, etc.).

#### NSO Capacity Building in Social Statistics (2001 TA)

- Strengthen the quality of public health data to support estimates of the health impact of pollution and contamination in Mongolia

#### Capacity Building for Aid Co-ordination (2001 ADTA)

- Ensure a prominent place is given to ADB-GEF partnership having prepared the ground for it beforehand.
- Include a sub-topic of closer coordination between MNE and MID (and possibly MFA) in implementing environment-oriented projects.

#### Provincial Towns Urban Services II (2001 PPTA and 2002 loan):

- The PPTA to consider the possibility of incorporating (1) a component for upgrading medium-sized boilers in selected *aimags* and *soums*, possibly with GEF co-financing; (2) a component for installation of hybrid solar/wind/diesel systems for selected communal facilities in *aimags* and *soums*, possibly with GEF co-financing.
- Make solid and THW management a significant component of the loan. Draw from the list of priority areas in the section above to strengthen the project design.

#### Integrated Management of Urban Development (2002 ADTA)

- Incorporate the consideration of topics identifies in the section above as an environmental priority (solid and THW disposal, water and air pollution, possibly even management of peri-urban grasslands and pollution permitting and charges).

#### Rural Sector Employment Generation (2002 PPTA)

- Prepare a component for ADB-GEF co-financing 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 in the section above to strengthen the project design (e.g. forestry, peri-urban grasslands, etc.).

#### Rural Sector Capacity Building (2003 ADTA)

- Consider modifying it in the direction of local land-use planning and zoning in line with the brief description in the above section
- Consider deliberate re-formulation of the entire TA as a PPTA for ADB-GEF co-financing with emphasis on improved management of buffer-zone resources of arid areas. Rename it as Dry Ecosystems Land Management.

#### c. Possible modifications of CAP: 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 ADTA expanding the theme (9) above of economic valuation of natural resources and environmental sinks as a tool of improved implementation of environmental laws and regulations].

d. Possible modifications of CAP: Part II: ADB-GEF 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 actively to seek such an association, however, has programming consequences. The existing CAP makes little room for it 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, namely (1) formulation of components for GEF funding to be included into projects already in CAP (as suggested in *Section 2* above), (2) suitable re-formulation of some of the existing pipeline projects (also mentioned in *Section 2* above) and (3) formulation of new stand-alone TA or loan projects for ADB-GEF co-financing. 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 FCCC. The experience of ALGAS project should be reviewed to assist possible search for attractive GHG-reducing options with low policy barriers applicable to Mongolia

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

e. Regional activities

ADB should continue to assist Mongolia in integrating itself into emerging regional groupings, especially those involving ADB's DMCs. 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 Mongolia, Kazakhstan, PRC and possibly Russia, and seek GEF or bi-lateral co-financing for it.

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



## **Annex 2 : Conclusions and Recommendations of the Case Study on Environment and Natural Resource Management (CAPE, 2002)**

Choice of ENRM priorities and strategy formulation:

- ADB's ENRM program in Mongolia was highly relevant. The Program was based more on the Bank'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 starting "on the right foot" in Mongolia (through TA on development of EIA procedures). The absence of country-specific environmental analysis until 2001 turned out not have had 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 which could (and were) supported by strategic (master, action-) plans, the cross-sectoral nature of environmental management embraced by ADB early on argued against an ENRM-specific blueprint that would guide the prioritization process.
- ADB initial environmental interventions (1992-1995) were formulated at a time when domestic priorities were articulated incompletely. Thereafter, ADB's program was well within Government of Mongolia's own statements of environmental priorities. Throughout the period, no strong pressure by Government of Mongolia was put in policy dialogues conducted on ADB to defend its strategic direction.
- The fragmentation of environmental insights within the Bank was among factors contributing the relatively low degree of strategic "informedness" by ADB throughout the decade.

Fit with the operational strategy and internal consistency:

- ENRM elements of ADB assistance conformed reasonably well to 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 de-industrialization, 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/stoves improvements, semi-intensive livestock management, and others. Opportunities to modify country assistance program exist, were made little use until the completion of CEA, but increasing willingness to consider such modification is evident now.
- ADB practices varied across sectors and projects/programs in Mongolia. The lack of consistency of approach did not have any particularly serious consequences for implementation effectiveness as far as ENRM management was concerned. Sector specifics often dictated the balance of approach and militated against excessive uniformity.

“Ownership” of ENRM projects:

- Government of Mongolia “ownership” of ADB-funded ENRM 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 ENRM conditionalities.
- Arguably, ADB’s environmental activities were not “sold” effectively outside Government of Mongolia. There was little involvement by the public and NGOs. “Ownership” of ADB activities was rather narrow. ADB was in part handicapped by received (and reinforced) notions in Mongolia that “environment” is only or mainly about nature conservation. ADB needs better to publicize the environment impacts of its mainstream activities such as urban environmental improvements.
- Capacity to program ENRM activities on Government of Mongolia’s side varied and has been particularly weak at the local level. This could adversely affect the degree of Government of Mongolia “ownership” under the latest COS that indirectly envisages some decentralization of development efforts.

Design and implementation:

- In Mongolia, effectiveness of ENRM assistance tends to suffer from insufficient integration across sectors (e.g. lack of cross-sectoral 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 multi-sector working groups) as well as a greater appreciation by ADB of its “contribution” to the local implementation overload.
- ADB’s assistance to ENRM (MNE capacity building, energy-efficiency projects) had a strong Ulaanbaatar bias. Weak local capacity reduced the effectiveness of some of the financed activities (e.g. use of EIA)
- Provisions for monitoring and evaluation of environmental impacts were consistently weak and largely excluded the civil society. Partly as a result of the balance of ADB program, the civil society also played no or 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 business-like than most bi-lateral donors 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 COS 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.

GEF:

- ADB did not make any use of GEF co-financing possibilities in shaping its ENRM program. The Bank should seek GEF co-financing for projects the design of which is improved if the delivery of global benefits (GEF responsibility) are strengthened by delivery of local benefits (ADB responsibility). Considering current financial situation of GEF 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 GHG reduction through renewable energy provision. ADB should pursue these possibilities more actively.

**Annex 3 : ADB Lending and TA Program in Mongolia, 2001-2003**

## A. Technical assistance

**Year 2001**

<b>Sector</b>	<b>Project name</b>	<b>Type and TA number</b>	<b>Amount (\$'000)</b>
Agriculture and Natural Resources	Crop Production	PP 3686	500.0
Social Infrastructure	1. Integrated Development of Basic Urban Services in Secondary Towns	PP 3685	700.0
Governance	2. Second Health Sector	PP 3750	600.0
	1. Improving Social Statistics	AO 3684	500.0
Other	2. Improving Aid Coordination and Management	AO 3811	300.0
	Strengthening Policy for Social Security Reform	AO 3709	600.0
<b>Total</b>			<b>3,200.0</b>

**Year 2002**

<b>Sector</b>	<b>Project name</b>	<b>Type and TA number</b>	<b>Amount (\$'000)</b>
Social Infrastructure	Capacity Building for Integrated Regional Development Planning	AO 3948	600.0
Governance	1. Capacity Building for Accounting and Auditing Professionals	AO 3913	500.0
	2. Strengthening Public Sector Administration and Financial management	AO 3920	650.0
	3. Retraining of Legal Professionals in a Market Economy (Phase II)	AO 4077	150.0
Finance, trade	1. Trade Policy Review	AO 3934	150.0
	2. 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	1. Civil Aviation Policy Development	AO 3938	300.0
	2. 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 Ger Areas on Mongolia's Cities	JFPR 9015	2,200.0
<b>Total</b>			<b>7,350.0</b>

## Year 2003

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

## B. Loans

## Year 2001

<b>Sector</b>	<b>Project name</b>	<b>Loan No.</b>	<b>Amount of loan (\$ mil)</b>
Social Infrastructure	Housing Finance (Sector)	1847	15.0
Transport	Roads Development	1364	25.0
Multisector	Social Security Sector Development Program	1836/ 1837	4.0 8.0
<b>Total</b>			<b>52.0</b>

## Year 2002

<b>Sector</b>	<b>Project name</b>	<b>Loan No.</b>	<b>Amount of loan (\$ mil)</b>
Social Infrastructure	1. Second Education Development Project	1908	14.0
	2. Integrated Development of Basic Urban Services	1907	20.1
<b>Total</b>			<b>34.1</b>

## Year 2003

<b>Sector</b>	<b>Project name</b>	<b>Loan No.</b>	<b>Amount of loan (\$ mil)</b>
Social Infrastructure	Second Health Sector Development Project	1998	14.0
Others	1. Governance Reform Program II	2010	13.5
	2. Capacity Building for Governance Reforms	2011	2.0
<b>Total</b>			<b>29.5</b>

## Annex 4 : ADB Technical Assistance and Lending Projects of Relevance to Mongolia's Environmental Management, 1992-2003

### A. Technical assistance

No.	Title	Type of TA	Amount (\$'000)	Year appr.
1647	Strengthening Environmental Assessment Procedures	A&O	370.0	1992
1653	Egiin Hydropower	PP	1,400.0	1992
1750	Energy Audit, Efficiency and Conservation Study	A&O	407.5	1992
2093	Power Rehabilitation	PP	100.0	1994
2095	Power Sector Master Plan Study	A&O	595.0	1994
2208	Strengthening the Env. Management Capability of MNE	A&O	574.0	1994
2350	Energy Conservation	PP	100.0	1995
2458	Strengthening Land Use Policies	A&O	580.0	1995
2582	Provincial Towns Basic Services	PP	600.0	1996
2602	Study of Extensive Livestock Production System	A&O	600.0	1996
2610	Ulaanbaatar Heat Rehabilitation	PP	450.0	1996
2819	Agriculture Sector development Program	PP	492.0	1997
2881	Capacity Building for the Provision of Urban Services in Provincial Towns	A&O	825.0	1997
2887	Egiin Hydropower BOT	PP	60.0	1997
3016	Energy Rehabilitation		900.0	1998
3029	Improving Energy Authority's Billing and Collection System	A&O	450.0	1998
3299	Capacity Building for Energy Planning	A&O	700.0	1999
3395	Capacity Building for Cadastral Survey and Land Registration	A&O	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	A&O	600.0	2002
3965	Renewable Energy Dev. in Small Towns and Rural Areas	A&O	400.0	2002
9015	Improving the Living Environment of the Poor in Ger Areas on Mongolia's Cities	JFPR	2,200.0	2002
	<b>Total</b>		<b>14,593.5</b>	

### B. Loans

Number	Title	Loan amount (\$'mil)	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
	<b>Total</b>	<b>187.7</b>	

### **Annex 5 : Mongolia CEA Consultation, 12 April 2004, List of Participants**

Mr. Erdenebulgan	International Cooperation Department, 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
Mr. K. Rutter	Team Leader, Agriculture Sector Development Program, MFA
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
Mr. J. Wingard	World Bank consultant
Mr. H. Hoffmann	Adviser, Community-based Natural Resource Management, GTZ
Dr. S. Schmidt	New Zealand Nature Institute - Initiative for People-Centered Conservation
Mr. H.-T. Moeller	GTZ
Ms. Elbegzya	Program Officer, UNDP
Mr. Batnasan	Program Coordinator, WWF
Prof. Dorjdagva	National Council for Sustainable Development
Mr. B. Erdene-Ochir	Mongolian Consortium for Environment and Nature
Mr. D. Teter	Mongolia Resident Mission, ADB
Mr. I. Ruzicka	ADB consultant

## Annex 6 : Post-2000 Foreign-aided Environment-related Projects in Mongolia

### A. Implemented by MNE

No.	Project name	Financial Source	Budget (\$'000, unless otherwise specified)	Time -frame
<b>A. Environmental policy formulation</b>				
1.	Development of Bio-safety National Action Plan	UNEP	160.0	2002-2004
		Sub-total	160.0	
<b>B. MNE Capacity strengthening</b>				
1.	Strengthening Environmental Management Capacity at National and Local Level	World Bank	300.0	2003-2004
		Sub-total	300.0	
<b>C. GEF-supported projects</b>				
I. Biodiversity				
1.	Nature Conservation Pilot Projects in Western Mongolia	GEF/WWF	Sfr 60.0 (\$ 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/UNDP	6,174.0	1998-2004
4.	Conservation of the Gobi Desert Using Bactrian Camels as an "Umbrella Species"	GEF/UNDP	979.0	2003-2007
5.	Conservation of Eg-Uur Watershed	GEF/World Bank	213.0	2003-2004
6.	Dynamics of Biodiversity Loss and Permafrost Melt in Lake Hovsgol National Park	GEF/World Bank	830.0	2001-2005
7.	Enabling Activities to Facilitate Early Action on the Implementation of the Stockholm Convention on Persistent Organic Pollutants (POPs)	GEF/UNIDO	492.0	2002-2005
II. Energy efficiency, climate change				
8.	Improved Household Stoves in Mongolian Urban Centers	GEF/World Bank	750.0	2001-2005
9.	Commercialization of Superinsulating Building Technology in Mongolia	GEF/UNDP	750.0	2003
10.	Technology Needs Assessment in Energy Sector	GEF/World Bank	98.0	1999-2001
11.	Provision of Energy Efficient Social Services	GEF/Norway/ UNDP	2,020.3	1997-2002
12.	Energy Efficient House	GEF/NLM/ NORD/ UNDP	1,750.0	2002-2005
III. Others				
11.	Strengthening of Montreal Protocol Implementation Structure	GEF/UNEP	66 .0	2000-2002
		Sub-total GEF	13,463.8	
<b>D. Biodiversity conservation, protected areas, buffer zones</b>				
1.	1. Nature Conservation and Buffer Zone Development, Phase II 2. Conservation and Sustainable Management of Natural Resources	Government of Germany /GTZ	DM 5,000.0 (\$ 2,970.0)	1998-2004
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/World Bank	195.0	2002- 2003
4.	Sustainable Management of Common Natural Resources in Mongolia Phase I	IDRC	30.0	2000-2001
5.	Sustainable Management of Common Natural	IDRC	n.a.	2002-2004



No.	Project name	Financial Source	Budget (\$'000, unless otherwise specified)	Time -frame
6.	Resources in Mongolia Phase II Pasture Management Improvement and Anti-Desertification Measures	GTZ	580.0	2000-2003
		Sub-total	6,975.0+	
<b>F. Forest resources</b>				
1.	Friendship Afforestation	Hyogo Pref., Japan and Kobe Steel	JPY1.0M (\$ 8.9)	2000
2.	Reforestation	Hyogo Prefecture, Japan	JPY2.0M (\$ 17.8)	2001
3.	Conservation and Sustainable Use of Forest Resources in the Western Region of the Khan Khentii Protected Area	GTZ	580.0	2000-2003
4.	Reforestation and Propagation of Trees	Netherlands /UNDP	100.0	2000-2001
5.	Community Based Natural Resource Management ( Phase II )	FAO	198.0	n.a.
6.	Emergency Measures to Fight Forest Pest	FAO	395.0	n.a.
		Sub-total	1,299.7	
<b>J. Others</b>				
1.	Support to the Government for Tourism Development	UNDP	50.0	2002 -2004
2.	Environmental Public Awareness	Sheikh of Kuwait	300.0	2000-2002
		Sub-total	2,687.5	
<b>K. Regional</b>				
1.	Transboundary Environmental Cooperation in Northeast Asia	ADB	350.0	2000-
2.	Combating Desertification in Asia	ADB/CCD	450.0	2000-
3.	Acid Rain Monitoring System	Japan, JICA	n.a.	1999-2001
4.	Preparation of a Strategic Action Programme (SAP) for the Tumen River Area, Its Coastal Regions and Related Northeast Asian Environs	Secretariat of the Tumen River Program GEF/UNDP	5,000.0 5,199.9	2000-2001 2001-2003
5.	Information System for Environment and Agriculture Monitoring	EU TACIS	800.0	1999-2001
6.	Promotion of Renewable Energy, Energy Efficiency and GHG Abatement Projects	ADB/ Netherlands	5,000.0	2001-
6.	Prevention and Control of Dust Storms in North-East Asia	ADB/RETA 6068		2003-
	Assessment of Impact and Adaptation to Climate Change in Multiple Regions and Sectors (AIACC) Programme	GEF/UNEP/STA RT/TWAS	n.a.	2002-2004
7.	Greenhouse Emission Reduction from Industrial Sources In Asia Pacific ( GERIAP)	SIDA	2,500.0	n.a.
<b>Total (without regional projects and with omissions)</b>			<b>42,042.2</b>	

**B. Implemented by MID**

No.	Project name	Financial Source	Financing	Budget (\$,000 unless otherwise stated)	Time frame
<b>Energy-related</b>					
1.	Baganuur, Shivee Owoo Coal Mine Project-1 1997.02.25/MON	Japan, JBIC	Soft loan	25,922.1	1997-2001
2.	Baganuur, Shivee Owoo Coal Mine Project-2 1997.02.25/MON	Japan, JBIC	Soft loan	19,120.0	1997-2001
3.	Energy Project	WB/ IDA	Soft loan	30,000.0	2001-2006
4.	Utilization of Renewable Energy in Rural Areas of Mongolia	GTZ	Grant	DM 3,000.0 Euro 3,000.0	1999-2007
5.	Research and Experimental Project on Photovoltaic Power Plant	NEDO (Japan)	Grant	n.a.	2002-2004
6.	Nomadic Electrification	JICA	Grant	2,500.0	2002
7.	Rehabilitation of Bogd River Hydropower Plant	GTZ	Grant	Euro 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/ Abu Dhabi/	Grant/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
<b>Urban environmental infrastructure /Water</b>					
1.	Provincial Towns Basic Urban Services (TA 2582 and Loan 1560)	ADB	TA grant Soft loan	600.0 6,800.0	1998-2001
2.	Second Ulaanbaatar Urban Services Improvement Project (under processing)	WB	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 UB Wastewater Treatment Plant Rehabilitation	Netherlands Spain	Grant Soft loan	n.a. n.a.	2000-2003 2003-2004

Note: \* Jointly implemented by MID and MNE

**C. Implemented by Government agencies other than MNE and MID**

No.	Project name	Financial Source	Financing	Budget (\$,000 unless otherwise stated)	Time -frame
1.	Strategy development Mongolian Action Program for the 21 <sup>st</sup> Century (MAP-21) Phase II	UNDP/ Capacity 21	Grant	n.a.	2001-2003
<b>Land reform</b>					
1.	Cadaster System Development	Sweden	Grant	470.0	2000-2002
2.	Cadastral Survey and Land Registration * (TA 3395 and Loan 1736)	ADB	TA grant Loan	990.0 9,900.0	2000-
<b>Rural development</b>					
1.	Gobi Regional Economic Growth Initiative Phase I Phase II (under preparation)	USAID	Grant	10,000.0 10,000.0	1999-2004 2004-2007
2.	Organized Rural Self Help*	GTZ	Grant	DM 6,000.0	1998-2007
3.	Privatization of Veterinary Services*	GTZ	Grant	DM 6,500.0	1999-2005
4.	Arhangai and Khovsgol Restocking Project	IFAD	Loan	5,000.0	1999-2003
5.	Integrated Crop and Livestock	EU-TACIS	Grant	????	2002-2004

No.	Project name	Financial Source	Financing	Budget (\$,000 unless otherwise stated)	Time -frame
6.	Household Livelihoods Support Program	World Bank	Loan/grant	12,000.0	2002-2009
7.	Rural Poverty Reduction Project	IFAD/ Government of Mongolia	Loan	17,400.0 2,300.0	2003-2010
8.	Sustainable Grassland Management	UNDP/ Netherlands	Grant	3,300.0	2002-2007
9.	Promotion of Organized Self-Help Groups in Rural Areas	GTZ	Grant	n.a.	1998-2004
10.	Study for Improvement of Livestock Farming in Rural Areas	JICA	Grant	190.0	2003-2004
11.	Pastoral Ecosystem Management Program (under preparation)	Swiss Dev. Corp.	Grant	n.a.	2004-
<b>Public health</b>					
1.	Healthy Settings and Environments Phase I, Phase II,	WHO	Grant	260.0 171.0	2002-2003 2004-2005
2.	Health Information and Evidence for Policy, Phase I: Phase II:	WHO	Grant	218.0 132.0	2002-2003, 2004-2005,

**Annex 7: Laws and Regulations Relating to Environmental Management in Mongolia**

Law	Year enacted	Number of related regulations, orders, etc. as of 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 EIA	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	n.a.
Law on Tourism	1998	n.a.
Law on Hydrometeorology	1997	n.a.
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: Wingard and Ogderel (2001), MNE

**Annex 8 : Special Protected Areas and National Parks in Mongolia, 2003**

No	Names and classification of PAs	Area (000ha)	Year established
1.	Great Gobi SPA	5,311.7	1975
2.	Khokh Serg	65.9	1977
3.	Bogdkhan Mountain SPA	41.6	1978
4.	Khasagt Khairkhan Mountain SPA	27.4	1965
5.	Khan Khentii Mountain SPA	122.7	1992
6.	Nomrog SPA	311.2	1992
7.	East Mongolia SPA	570.3	1992
8.	Mongolian Daguur SPA	103.0	1992
9.	Orgontenger Mountain SPA	95.5	1992
10.	Uvs Lake SPA	712.5	1993
11.	Small Gobi SPA	1,839.2	1996
12.	Khoridol Saridag SPA	188.6	1997
	Total SPAs	10,494.3	
1.	Khovsgol Lake NP	838.0	1992
2.	Khorgo-Terkh Tsagan Lake	77.3	1995
3.	Gobi Gurvan Saikhan NP	2,694.7	1993/2000
4.	Gorkhi-Terelj NP	293.2	1993
5.	Altai Tavan Bogd	636.1	1996
6.	Khangai Moutnain Range NP	888.5	1996
7.	Khar Us Lake NP	850.3	1997
8.	Noyon Khangai NP	59.1	1998
9.	Khustai Mountain NP	50.6	1993/1998
10.	Khan Lhokii-Kyarghas NP	553.3	2000
11.	Siilkhem Mountain Range NP	140.1	2000
12.	Tsambagarav Mountain NP	111.0	2000
13.	Tarvagatai Mountain Range NP	525.4	2000
14.	Onon-Balj NP	415.7	2000
15.	Tujiin Nars NP	60.0	2002
16.	Myangan Ugalzat Mountain NP	80.7	2002
	Total NPs	8,274.1	
	16 Nature Reserves	2,020.2	1957-2000
	6 Natural and Historical Monuments	79.3	1995-1996
	<b>GRAND TOTAL</b>	<b>20,867.9</b>	

**Annex 9 : List of Companies Licensed to Perform Detailed EIA In Mongolia, 2001**

<b>No</b>	<b>Name of the company</b>	<b>Director</b>	<b>Phone, fax, email</b>	<b>Location</b>
1	“Orchlon-Urtenz”	B. Bayasgalan	Phone: 327271 o, 329150h, 99190346 Fax: 976-11-329150	Institute of Water and Meteorology
2	“ENCO”	A. Namkhai Ph.D.	Phone: 312655 o, 322378h, 99192168 Fax: 312655	Agricultural Mapping Institute
3	“Ecology”	J. Garigkhuu Ph.D.	Phone: 99142221	New Capital Hotel
4	“Eco-trade”	D. Dorjsuren Ph.D.	Phone: 323569 o, 368980 h, 99190403 Fax: 323569	Baga-toiruu-2-35
5	“ECOS”	Ts.Sosorbaram Ph.D.	Phone: 328215 o, 311505h, 99115116 Fax: 328215	Institute of Geoecology
6	“Nature and Energy”	S. Jargalsaikhan	Phone: 322199 o, 329601h, 99116675 Fax: 322199	Institute of Water and Meteorology
7	“JEMR”	R. Oyun Ph.D.	Phone: 326489 o, 322230h, E-mail: jemr@magicnet.mn	Institute of Water and Meteorology
8	“SATU”	G. Tuvaansuren Ph.D.	Phone: 314170 o, 682397h	Construction Mapping Institute
9	“Mongol Khairkhan’	Oyuntsetseg	Phone: 451837 o, 329150h, 99295146	n.a.
10	“Eco-mon”	Dr K. Ulikpan	Phone: 311347 o	Cultural Center
11	“Agrar”	N. Otgonbayar Ph.D	Phone: 312771 o, 99191449	Institute of Geoecology
12	“Nemer international”	P. Khukhuu	Phone: 328592 o, 369695h, 99190346	Institute of Geoecology
13	“Mongeo-ecotech”	M. Myagmarjav	Phone: 350554	Inst. of Construction Research
14	“Min-tech”	S. Avirmed	Phone: 318317 o, 302216h, 991616885	Near Mothers Clinic II
15	“TC-Eco”	B. Tumendemberel	Phone: 99115397	Construction Mapping Institute
16	“Nature-Ecology”	B. Ikhbayar Ph.D	Phone: 355910 o, 99192565	Taxation Office, Bayanzurkh district
17	“JNEP”	J. Natsag	Phone: 365762 99163225	Institute of Geography
18	“Hydro-Eco”	Ts. Baldandorj	Phone: 322187 o, 325993h	Institute of Geoecology
19	“Ecos-OSM”	R. Mijiddorj	Phone: 315387 o, 96114212	Technical University of Mongolia
20	“TEKOL”	G. Tomortulga	Phone: 99197700	Cultural Center

21	“Gazar-Eco”	Ch. Gonchisumlaa	Phone: 99175720	National University of Mongolia, Building 2
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**Additional information**

No.	Name of the company	Date licensed	License extension date	Number of EIA reports completed	Emplo yees	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 Khaikhan’	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

## **Annex 10 : Principal Environment-related NGOs in Mongolia**

These are all Ulaanbaatar-based and include, by orientation:

### A. 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

### B. 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 Combatting Desertification  
 "Khustai" International Research Center  
 Mongolian Forest Forum  
 The Ochirbat Foundation

### C. 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: Mongolian NGO Directory, (Soros Foundation)  
 MNE et al (2003) Assessment of Biological Diversity Conservation Capacity of  
 Mongolia