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CONVENTION ON BIOLOGICAL DIVERSITY



THE 5TH NATIONAL REPORT OF MONGOLIA

Ulaanbaatar, Mongolia. 2014

CONVENTION ON BIOLOGICAL DIVERSITY THE 5TH NATIONAL REPORT OF MONGOLIA



CONVENTION ON BIOLOGICAL DIVERSITY

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FINANCED BY:

MINISTRY OF ENVIRONMENT AND GREEN DEVELOPMENT
CONVENTION ON BIOLOGICAL DIVERSITY-MONGOLIA
GLOBAL ENVIRONMENT FACILITY
UNITED NATIONS ENVIRONMENTAL PROGRAM



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MONGOLICA PUBLISHING
WORLD WIDE FUND
WILDLIFE CONSERVATION SOCIETY
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ABBREVIATIONS

ALAGAC- Administration of Land Affairs, Geodesy and Cartography
CBD- Convention on Biological Diversity
FAO- Food and Agriculture Organization
GEF- Global Environmental Facility
GIZ- Deutsche Gesellschaft für Internationale Zusammenarbeit
IUCN- International Union for Conservation of Nature
LPA- Local Protected Area
MAS- Mongolian Academy of Science
MCST- Ministry of Culture, Sport and Tourism
MCC- Millennium Challenge Corporation
MDG- Millennium Development Goals
MEGD- Ministry of Environment and Green Development
MEDS- Ministry of Education and Sciences
MNET- Ministry of Natural Environment and Tourism (former)
MOS- Mongolian Ornithological Society
MSUE- Mongolian State University of Education
NAMEM- National Agency of Meteorology and Environment Monitoring
NPA- National Protected Area
NBAP- National Biodiversity Action Plan
NBSAP- National Biodiversity Strategic Action Plan
NGO- Non-Government Organization
NUM- National University of Mongolia
SDC- Swiss Agency for Development and Cooperation
TNC- The Nature Conservancy
US- United States
UNDP- United Nations Development Programme
UNEP- United Nations Environmental Programme
UNFAO- United Nations Food and Agriculture Organization
WCS- Wildlife Conservation Society
WSCC- Wildlife Science and Conservation Centre
WWF- World Wide Fund for Nature
ZSL- Zoological Society of London



FOREWORD

Conserving our natural world, which forms the basis for human health, well-being and development, is the responsibility of every individual, organisation and nation on the planet. The Convention on Biological Diversity, which aims to facilitate this, was opened for signature at the United Nations conference on Environment and Development in Rio de Janeiro in 1992, many countries have since joined the convention and are cooperating in numerous ways to conserve the world's biodiversity. Mongolia became a signatory in 1993, and subsequently the Mongolian Government introduced the National Biodiversity Action Plan in 1996.



To appreciate biodiversity one needs to have an understanding beyond species level, to be able to see the natural world in a broader context which involves genetic diversity, habitats, invasive species, environmental factors and natural dynamics and systems.

In the frame of the National Biodiversity Action Plan, Mongolia has been taking measures and implementing various activities to study and conserve biodiversity and to ensure the sustainable use of it for human well-being. Today, 18 years since Mongolia released its first National Biodiversity Action Plan, we are planning to take on the responsibility to update and enrich it.

As Mongolia is a signed party to the Convention on Biological Diversity, ratified by UN Assembly, our responsibilities are to fulfil the provision of the convention, for which we present the Fifth National Report to the Convention and the wider public. The report includes the measures undertaken since 2009 towards the National Biodiversity Action Plan and the Aichi Targets and the progress, results, success and challenges of implementation. The report has been produced according to the guidelines of the Secretariat of the Convention and developed in cooperation with the Ministry of Environment and Green Development, international and national government and non-government organisations and researchers.



In the frame of implementing the Convention on Biological Diversity, I am pleased to see that the work to study, conserve and ensure the sustainable use of biodiversity has more success stories than failures. Despite all the good work that has been conducted, however, I would like to highlight that there is still a great deal of work to be done. It is important that we move forward to cooperate and increase our efforts regarding issues of desertification, pollution, invasive species, research and conservation of endangered wildlife, and the sustainable use of our species in order to lead us towards green development.

It is hoped those reading this National Report will be able to judge the rate of success which Mongolia has achieved in working towards its first National Biodiversity Action Plan and the Aichi 2012-2020 Biodiversity Targets.

I would like to thank the ministries, agencies, scientists, researchers and non-government organisations which provided valuable information and data for the report.

I believe that together we can continue our valued efforts towards the conservation of biodiversity, not just for the benefit of Mongolia but also for the world as a whole.

Parliament member,
Member of Mongolian Government,
Minister of Environment and Green Development
Dr. S.Oyun



EXECUTIVE SUMMARY

STRUCTURE OF THIS REPORT

Mongolia's 5th National Report follows the structure outlined by the guidelines of the CBD secretariat. The main body of information for the report comes from:

- written contributions from Mongolian taxonomic experts in the given fields in part one of the report
- Mongolia's current NBAP
- written contributions and reports from Mongolian government ministries
- written contributions from NGOs and NFP organisations conducting work in fields of biodiversity conservation and development in Mongolia.

The report is summarised using the questions asked in the guidelines and concise answers given following the report content.

Why is Biodiversity important for your country?

Mongolia is susceptible to climate change due to its location, vulnerable ecosystems and economic system that is highly dependent on seasonal climates.

There have been significant changes over the past 40 years in anthropogenic activities from population increases, changes in farming and herding, and human population distribution. Coupled with climate changes involving lower precipitation rates and the drying of many surface water sources these changes put Mongolia in a position where the buffering and recovery potential of a healthy ecosystem are more important than ever to curb the impacts of climate changes and stochastic environmental events.

What major changes have taken place in the status and trends of biodiversity in your country?

Positive trends in biodiversity are:

- Increase in the number of known species in Mongolia. Since the 4th national report the number of known fungi, lichen, plant, insect and bird species found in Mongolia has risen. This indicates there is a continuing need for baseline studies in order to determine exactly the status of taxonomic groups.
- Mongolia has conducted IUCN Red List assessments of its entire known vertebrate species. This is a vital step towards understanding conservation needs and developing successful conservation strategies.



Negative impacts are:

- Degradation of oasis systems in the Gobi and desert regions, which are used by herders and farmers; shrubs and willows which are vital to the oasis system were not found in the region during studies in 2006 and 2010.
- Distribution range of many fish has decreased. During the previous 13-14 years, the water level of lakes and rivers in the Gobi region has lowered to its minimum level. Many rivers, lakes and springs have dried up throughout the country, thus having a negative impact on the distribution and population of fishes.
- Decrease in distribution of Amphibians. The drying of surface water points has also led to reduced habitats for amphibians. For example the population of Siberian salamander in the Tuul river basin near Ulaanbaatar has declined, and the Mongolian toad has not been seen at all in recent years in this same region.

What are the main threats to biodiversity in your country?

Climate change: Annual average temperature in Mongolia increased by 2.14°C between 1940 and 2008. Against global averages for the period 1880-2012 of + 0.85°C. The area of glaciers decreased by 12.3% in 1940-1990, 9.8% in 1990-2000 and 11.7% in 2000-2010, totaling in 27.8% loss in the past 70 years with an accelerated loss noted in the past decade.

Habitat degradation: Due to the change in livestock herd composition, the goat population has increased rapidly to occupy 40% of herds and there is an excess of 32.5% or 16 million head of sheep over the advised national herd quota. This has significantly contributed to overgrazing and pasture land degradation. There have also been major alterations to the soil and vegetation across Mongolia due to unsustainable animal husbandry and agricultural practices. Forested areas have also seen a decline in size.

Desertification: The distribution of areas considered to suffer from severe and very severe desertification changed drastically, with new additions to the category of very severe. Over 90% of land in Mongolia is considered to be currently susceptible to the impacts of reduced precipitation, and ground water and overgrazing.

Pollution: Due to a growth in mining operations near large river beds, such as Orkhon and Selenge, pollution has become a significant problem. The breeding migration route of the Omul fish has been shortened because of pollution caused by mining operations. As a result, spawn deaths have increased. Following a study in the area, experts estimated that the breeding migration of Omul fish only continues for 5 kilometers from Sukhbaatar city.



Experts concluded that Orkhon River is no longer valuable to the breeding migration of Omul fish. Additionally the development of infrastructure following mining and exploration activities is fueling the threats to the natural landscape.

What are the impacts of the changes in biodiversity for ecosystem services and the socio-economic and cultural implications of these impacts?

Ecosystem services associated with healthy grasslands, arboreal forest and semi-arid saxaul forests are likely to be reduced by changes in Mongolia's biodiversity. Although all services have not been quantified the most important are likely to include gas exchange Carbon storage, services having a noticeable impact are those associated with desertification – water storage, soil structure and composition, nutrient storage and cycling.

What are the biodiversity targets set by your country?

Mongolia's NBAP consists of 21 overall targets with a total of 87 activities, 96% of which have been carried out. Mongolia is in the process of renewing its targets in a new NBSAP to coincide with the Aichi 2011-2020 targets.

How has your national biodiversity strategy and action plan been updated to incorporate these targets and to serve as an effective instrument to mainstream biodiversity?

The updates to the national targets are ongoing however the implementation of Mongolia's NBAP was subject to two reviews in 2002 and 2010 respectively. The actions as a result of this included the establishment of an implementation committee to oversee steps towards targets. A fund was also established to aid this process.

What actions has your country taken to implement the Convention since the fourth report and what have been the outcomes of these actions?

Major contributions to Mongolia's efforts have included increased land under Special Protected Area status to 17.4% of total land area; engagement with the public and increased mainstreaming of biodiversity into education and policy with the broadening of the role the Ministry of Environment and Green Development across sectors.

How effectively has biodiversity been mainstreamed into relevant sectoral and cross-sectoral strategies, plans and programmes?

Additions to the national curriculum at all levels have been introduced, a number of publications and government outreach has been implemented, government structural changes to allow MEGD to work cross-sectorally to review planning and industrial practices



and additions to the law have had implications towards the mainstreaming of biodiversity throughout the public and into the national decision making processes. Infrastructure Mongolia became one of thirty countries to aim towards a green economy in 2020 following the Green Economy Initiative and the UN's PAGE programme.

How fully has your national biodiversity strategy and action plan been implemented?

Of the 87 actions detailed in Mongolia's 1996 NBAP over 96% are complete or near complete. Mongolia is now at a juncture between its NBAP and the development of new objectives in line with the Aichi 2011-2020 targets in the new NBSAP.

What progress has been made by your country towards the implementation of the strategic plan for biodiversity 2011-2020 and its Aichi Targets?

Mongolia is developing a new NBSAP with targets to be in line with the Aichi 2011-2020 targets, thus many of the objectives being worked towards until this point have been part of the NBAP produced in 1996. However a number of the actions do fit with early stages of work needed towards the Aichi targets. Therefore Mongolia has made reasonable early stage progress towards most of the Aichi targets however there is still considerable work to do in shaping the new NBSAP to the Aichi targets and increasing the effectiveness of national outputs towards the Aichi targets.

What has been the contribution of actions to implement the convention towards the achievement of the relevant 2015 targets of the Millennium Development Goals in your country?

A number of programmes have been implemented to reduce biodiversity loss (MDG 7.B) and integrate principles of sustainable development (MDG 7. A) under Target 4 – Sustainable consumption and production, actions such as the reduction in land under natural resource extraction from 25.2% in 2009 to 12.9% in 2013, forest and steppe fires were reduced through the implementation of fire management systems adopted in 2013. In addition to this pastureland thresholds were assessed during 2010-2011 and common National Methodology of Pasture Health legislation was approved in 2011.



CHAPTER 1:
STATUS, TRENDS
AND THREATS OF
BIODIVERSITY, AND
ITS IMPACT ON THE
WELL-BEING OF
HUMAN LIVES



CHAPTER 1.

**STATUS, TREND AND THREATS OF BIODIVERSITY,
AND ITS IMPACT ON THE WELL-BEING OF
HUMAN LIVES****CLIMATE CHANGE**

Mongolia is susceptible to climate change due to its location, vulnerable ecosystem and an economic system that is dependent on the seasonal climates. In the past 40 years, climate change and other anthropogenic activities have had a significant impact on the Mongolian ecosystem, resulting in desertification, increased occurrences of drought, water source depletion, and a decrease in biological diversity as well as affecting the well-being of local communities.

The annual average temperature in Mongolia increased by 2.14°C between 1940 and 2008. When comparing this to the global annual average temperature, which raised 0.85 °C during 1880-2012, climate change is occurring rapidly in Mongolia, melting glaciers and permafrost. The area under ice cap on Kharkhiraa, Turgen, Munkhkhairkhan, Tsambagaraw and the Sair mountains has decreased by 30 percent from 1992 to 2002. The total area of glaciers was approximately 535 km in 1940, 490 km in 1990, 438 km in 2000,

and 386 km in 2010. The area of glaciers has decreased by 12.3% in 1940-1990, a further 9.8% in 1990-2000 and 11.7% in 2000-2010, totaling in 27.8% loss in the past 70 years. The melting of glaciers has intensified in the last decade.

The evaporation of surface water has increased by 118.1 mm since 1961, while precipitation has decreased by 33 mm, resulting in aridity and becoming the main cause of desertification. The spring runoff occurs a month sooner, lengthening the period during which vegetation is without snow cover. This has resulted in an increase in soil degradation, thus the number of dust storms per day in the countryside has increased by 3-4 times since the 1960's.

In 2006, the total emission of greenhouse gases in Mongolia reached 18,868 (thousand tons of CO₂ equivalent). The net output after taking out absorbents (greenhouse gases, dust particles and other pro greenhouse gas elements that enter the atmosphere) is 15,628 (thousand tons of CO₂ equivalent). Out of the whole greenhouse gas emission, 54.2% are from energy deposition, 34.2%



from agriculture and rest from private land use, decreased forest areas, industry and anthropogenic waste.

Furthermore, the occurrences of water and climate related dangers and other natural disasters in 2011-2012 had grown in number since previous years. In 2011, there were a total of 70 reported dangerous weather warnings, of which 16 were heavy rain, 15 were floods, and 11 were heavy storms. These numbers multiplied in 2012, with 140 reported weather warnings mostly made up of heavy rain, 35 floods, 19 thunder and lightning, 16 gusty winds, 13 storms such as blizzards and sandstorms. Due to dangerous weather there were 13 reported human deaths, 1,100 livestock

deaths, 2.8 billion tugrugs worth of damages were reported in 2011, while in 2012, 19 human deaths, 8,444 livestock deaths, and 17 billion 132 million tugrugs worth of damages were inflicted.

According to forecasts, the annual average temperature in Mongolia is expected to increase by 2.1 – 3.0°C by 2050 and 3.1 – 5.0°C by the end of the century. Precipitation will increase by 6-15% by 2030, 7-15% by 2050 in the winter, and by 50% after that.

WATER SHORTAGE

Based on the report from a water census conducted across Mongolia in 2011, out of 6,646 counted rivers 6,095 were running while 551 rivers were dry. Out





of 3,613 lakes, 3,130 had standing water while 483 had dried. Out of 10,557 springs and wells, 8,970 had water whereas 1,587 were dry. Throughout Mongolia, there are 34,313 wells, of which 26,208 belong to mining operations, and 1,595 are broken.

There was shortage in precipitation in Mongolia until 2011, which resulted in the drying of many rivers and lakes including Orog, Taatsiin Tsagaan, Adgiin Tsagaan, Khaya, Ulaan nuur lakes in the Gobi and Ulaan tsutgalan waterfall in Arkhangai. However, precipitation became abundant from 2012, and Taatsiin Tsagaan, Adgiin Tsagaan, Ulaan and Orog lakes have restored to full capacity.

The permanence of flow in Mongolian rivers was 82% in 2011, with minimal water runoff, while in 2012, permanence of flow was 44% with average run off and many rivers, springs and wells had restored water levels. Although the flow of surface water is increasing, the level of underground water is continuing to decline. For example, based on a nationwide study at water holes conducted from 2000 to 2012, the underground water level decreased by 0.63 meters at Murun soum of Khuvsgul province, 2.3 meters at Arvaikheer, and 0.36 meters at Ekhiin river of Bayankhongor province.

Due to an increase in mining operations in Mongolia, water use, especially underground water use is likely to increase. In 2011-2012, 188 entities reported water use. Of those entities,

123 held licenses for gold and placer operations.

LAND USE

As of 2012, 73.7% of land is being used for agriculture, farming, and grazing, 0.44% for urbanized cities and settlements, 0.27% for infrastructure, 9.11% forested, 0.43% for water bodies, and 16% for strictly national government purposes.

Out of this, land use for mining purposes is drawing attention. Although mining is beneficial to a country's development, it is one of the main causes of land degradation. Exploration projects, preparation of building materials, road construction, geological studies, construction of buildings and structures are impacting the landscape by stripping the soil, building up dirt piles and digging trenches, causing technical soil degradation. Along with this, large heavy machinery making branch roads alongside tarmacked roads in the countryside, raising dust and polluting the surrounding environment. There is a lack of restoration projects for these activities as well.

As of today, of the 9,856.3 ha of land that has been degraded, 699.4 ha were caused by geological exploration activities, 8,028.6 ha were caused by mineral exploitation, 205 ha were caused by activities for defense purposes, 125.5 ha by construction, engineering grids and lines and 797.2 ha were caused by infrastructure developments.



Based on national statistics on damages to pasture land, 7.8 million ha of pasture land of vegetation cover were damaged in 2012, which makes up 95.6% of damages inflicted on land. If we breakdown the types of damages caused to pasture land, 2.3 million ha were over grazed, 8.6 thousand ha were caused by wind and water erosions, 384.1 thousand ha were inflicted by sand movements, 2.2 million ha were degraded by rodents and insects, 2.7 million ha were affected by desertification, and 124.5 thousand ha were degraded by mining activities. There were also 218.7 thousand ha that were damaged by wildfires, 63.2 thousand ha damaged by pests, 147.8 thousand ha of damaged forest, bushes and saxaul forests, 43 ha of area damaged by mineral resource exploration and 3.5 thousand hectares damage by other factors.

DESERTIFICATION

Calculations based on the methods outlined in the UN's Convention to Combat Desertification (CCD) showed that approximately 90 percent of pasture land in Mongolia lies within a vulnerable region that is susceptible to desertification and land degradation. A report produced by scientists in 2010 showed that 77.8% of Mongolian landscape has been degraded on some level. Of this, 35.3% was considered to be lightly affected, 25.9% was medium, 6.7% was severe and 9.9% was very severe in terms of the level of desertification.

The areas where severe desertification occurred were: Myangad and Durgun soums of Khovd province; Umnugobi soum of Uvs province; Santmargats soum of Zavkhan province; Khaliun soum of Gobi-Altai, Galuut and Erdenetsogt soums of Bayankhongor; Bayandelger soum of Tuv province; Darkhan and Bayankhutag soums of Khentii province; Matad, Chuluunkhoroot, Gurvanzagal and Khalkh gol soums of Dornod; Erdentsagaan, Sukhbaatar and Tuwshinshiree soums of Sukhbaatar province; Khatanbulag and Zamiin Uud soums of Dornogobi province; Khanbogd, Tsot tsetsii and Manlai soums of Umnugobi province; Gobi-Ugtaal, Bayanjargalan, Gurvansaikhan and Undurshil soums of Dundgobi province; Sumber soum of Gobisumder province.

Areas bordering very severe desertification are classified as severe desertification areas. These consist of: Nomgon, Mandal-Ovoo and Tsogt-Ovoo soums of Umnugobi; Baruun Bayan Ulaan and Burd soums of Uvurkhangai; Bayan-Ovoo, Bumbugur and Bogd soums of Bayankhongor province; Tugrugs soum of Gobi-Altai.

Comparing the 2006 study report to the 2010 report, the distribution of severe and very severe desertification areas changed drastically, with new additions to the very severe category. For example, the northern area of Bayankhongor, Orkhon valley and Dornod steppe were notable additions. However, very severe desertification areas such as Great Lakes



Valley and some of Uvurkhangai, Dundgobi province's deserted area classification was downgraded from very severe to severe, and the distributions of these areas are likely to reduce.

There was no occurrence of desertification in 10.4% of Mongolia's total land. However, 39% of total land had been deserted due to anthropogenic and secondary impacts, while 50.6% was deserted due to mainly natural impacts. Based on this, we can calculate that 56% of very severe and severe desertification areas were impacted by natural causes while 44% was impacted by human activities.

Besides the precipitation level, the general summer rain shower characteristics have changed. Not only has rain stopped covering a wide range, the duration of rain has shortened. Based on a number of studies, aridity has increased by 3.2-10% in steppe and Gobi regions, and 10-15

percent in forest and high mountain areas. In warm seasons, atmospheric climate rapidly rises, which is due to the aridity level we see today.

Overgrazing has become the main source of desertification and land degradation in Mongolia. This is in part due to the lack of pastureland use management and policies. Livestock numbers continue to rise steadily in Mongolia. And based on reports on land relation, geodesy and cartography, the grazing capacity has been exceeded by 32.5% or 16 million head of sheep. Due to the change in livestock herds, the population of goat has increased rapidly to occupy 40% of herds. This has significantly contributed to overgrazing.

Since the 1970's, the Gobi region cut down a large amount of saxaul forest for fuel purposes. Due to this, 125,000 ha of saxaul was deforested, and 370,000 ha of saxaul have lost the ability to naturally replenish and grow, thus becoming a driving force for desertification.



PLANT





STATUS, TRENDS, AND THREATS

FLORA

VASCULAR PLANTS

In recent years, 292 species belonging to 20 genera, under 1 family of vascular higher plants were recorded in Mongolia. As of today, there are 3,014 species belonging to 676 genera, 112 families, 39 orders, 14 classes of 5 phyla (Urgamal *et al.*, 2013). The number of species shows that it has increased in recent years (table 1).

Some of the largest Mongolian plant families include: Asteraceae (451 species), Fabaceae (349 species), Poaceae (257 species), Rosacea (156 species), and Brassicaceae (149 species), while the largest genera are: Astragalus (128 species), Artemisia (105 species), Oxytropis (97 species), Carex (92 species) and Potentilla (69 species) (Urgamal *et al.*, 2013) (table 2).

Table 1. Historical records of the number of

species of vascular plants in Mongolia

Taxon	1955	1982	1989	1996	2005	2009	2010	2013
Family	97	103	122	128	130	134	132	112
Genus	555	599	625	662	666	~ 680	~ 680	676
Species	1,897	2,239	2,443	2,823	2,930	2,946	2,950	3,014

Table 2. Largest plant families in Mongolian flora

Family	Number of genus	Number of Species	Percent
Asteraceae	84	451	14.95
Fabaceae	27	349	11.57
Poaceae	62	257	8.52
Rosaceae	28	156	5.17
Brassicaceae	58	149	4.94
Cyperaceae	13	132	4.37
Ranunculaceae	21	131	4.34
Lamiaceae	24	101	3.34
Amaranthaceae	28	99	3.28
Caryophyllaceae	21	91	3.01



The families that gained the most new species of vascular higher plants were (table 3): Asteraceae (49 species), Fabaceae (42 species), Poaceae (19 species), Brassicaceae (19 species) and Rosaceae (17 species), while the geographical regions with most species recorded were: Mongol Altai (117 species), Khentii (67 species), Mongol Daguur (58 species), Zuungariin Gobi (40 species) and Khuvs gul (24 species).

The "Mongolian Plant Family" (20 books) series will continue to be published, assisting further detailed theoretical study of plants as well as contributing to the development of botany in Mongolia.

Large publications such as 'Moss Flora of Mongolia' and 'Flora of Northern Mongolia' were published in Russia in 2010. These publications featured species of southern Mongolia as well as 9 variety species of 4 subspecies, 456 species, and

Table 3. Number of new species of vascular higher plants which were recorded in Mongolia /total 292/

Family	Number of Species	Family	Number of Species	Family	Number of Species
Amaranthaceae	8	Euphorbiaceae	1	Orobanchaceae	6
Amaryllidaceae	4	Fabaceae	42	Papaveraceae	4
Apiaceae	5	Gentianaceae	2	Pinaceae	1
Asparagaceae	3	Geraniaceae	1	Plantaginaceae	3
Asteraceae	49	Iridaceae	7	Poaceae	19
Boraginaceae	14	Juncaceae	1	Primulaceae	2
Brassicaceae	19	Lamiaceae	12	Ranunculaceae	14
Caprifoliaceae	2	Liliaceae	3	Rhamnaceae	1
Caryophyllaceae	8	Lythraceae	2	Rosaceae	17
Cyperaceae	8	Nitrariaceae	1	Thymelaeaceae	1
Cyclopteridaceae	1	Onagraceae	1	Violaceae	8
Dryopteridaceae	1	Onocleaceae	2	Таримал	12
Ericaceae	5	Orchidaceae	1		

The publications of 'Mongolian Plant Family' series of field books, which are based on years of research studies, have begun. These books are valuable to not only Mongolia, but global botany research. Currently series 10 and 17 have been published. These books feature overviews of 204 species of plants, which include taxonomy, identification keys, detailed information of the species, vegetation period, habitat and distribution within Mongolia.

41 families of moss found throughout Mongolia. The mosses were also reclassified in accordance with the new classification being used around the world today. The book contains distribution maps of 444 species of moss, with identification keys and illustrations.

In the frame of evaluation of plant conservation status outlined in section 2 of objective 16 of the Global Strategy of Plant Conservation, The Mongolian Red List of Plants and Conservation Action Plans were published in 2012.



Major publications on Mongolian plants



Mongolian and international experts and researchers determined the status of over 150 species of plants classified as Endangered in the Mongolian law on flora and Mongolian Red List. The 30 experts used IUCN’s Regional Red List categories and criteria to determine the status of plants.

There were no records of extinction due to climate change and natural causes. However, there were a few species, whose distribution area has decreased due to habitat loss, and the vegetation period skipped a season which resulted in a shortage of resources.

Mongolian plant conservation has always been a focus of government agencies as well as the public. This is mainly because Mongolian flora is considered a “model” setting to view the plant origin and ecological development of plants growing in southern Siberian, Central Asian and Eastern Asia (especially the Manchuria). Furthermore, the flora of Mongolia is comprised of many rare and endemic species; therefore, the conservation measures for these species must consider the ecology, distribution and biological attributes as a whole. It is important to identify the status of rare species and determine the conservation plans to ensure the well-being of the Mongolian ecosystem and the nature as a whole.

During the Mongolian fourth national biodiversity database forum held in October of 2011, over 150 species were classified using the IUCN’s Red List criteria. Mongolian botanists have set a goal to classify the conservation status of all reported plant species in Mongolia. The realization of this goal will be vital for determining an accurate conservation policy for plants.



In the scope of the Supplementary Forest Resource Atlas (distribution, resource, evaluation) published in 2011, the distribution-resource of vital forest components such as Siberian Pine, 9 species of fruits, 7 species of mushrooms were identified and evaluated by bio-ecological factors. The publication aims to manage forest resource usage activities as well as set a quote for logging. The publication will set the foundation for this sector’s database.

DATABASE ON HERBARIUM AND COLLECTION

Currently, there are information sheets for 2,844 species of 681 genera of 134 families available on the Database Herbarium in Mongolia. The photographic database contains 2,821 photographs of 1,245 species of plants in nature, including 356 photographs of flowers, 137 photographs of leaves and 93 photographs of fruits. Point distribution maps of 335 species are also available on the database system.

The Vascular higher plant collection database contains 2,600 pages of herbarium data of 120 species of 80 genera of 12 families (Apiaceae, Crassulaceae,

Ericaceae, Paeoniaceae, Papaveraceae, Ranunculaceae, Fumariaceae, Grossulariaceae, Saxifragaceae, Grossulariaceae, Pyrolaceae, and Vacciniaceae). Also, 2,500 species of 600 genera, 119 families of 5 phyla have been converted to digital editions.

At the moment, there are about 124,000 collections at the Herbarium of Institute of Botany, including: 83,000 collections of vascular plants, 18,700 mosses, 15,000 lichen, 4,000 algae, 3,500 collections of mushroom and 20 high tip plants and 6,000 collections from foreign countries.

About 61,645 collections of 2,800 species of 600 genera of 111 families have been converted to digital versions.

LICHEN

There are approximately 26,000 lichens reported across the globe. In Mongolia, there are 1,050 species of 63 family, 12 orders of 4 classes. In comparison to the report from 2010, 19 new species were reported, increasing the recorded species richness of lichens in Mongolia. The new species include:





Artthonia mediella, *Basidia circumspect*, *Blastenia furfuracea*, *Calicium viride*, *Caloplaca chlorine*, *Cyphelium karelicum*, *Lecanora allophana*, *L.boligera*, *L.cadubriae*, *L.subintricata*, *Lepraria ecorticata*, *L.rigidula*, *Leptogium subtile*, *Ochrolechias zatalanensis*, *O.turneri*, *Placynthiella dasaea*, *Rinodina freyi*, *R.septentrionalis*, *R.trevisanii* (table 4).

Table 4. Largest lichen families (number of species and genera)

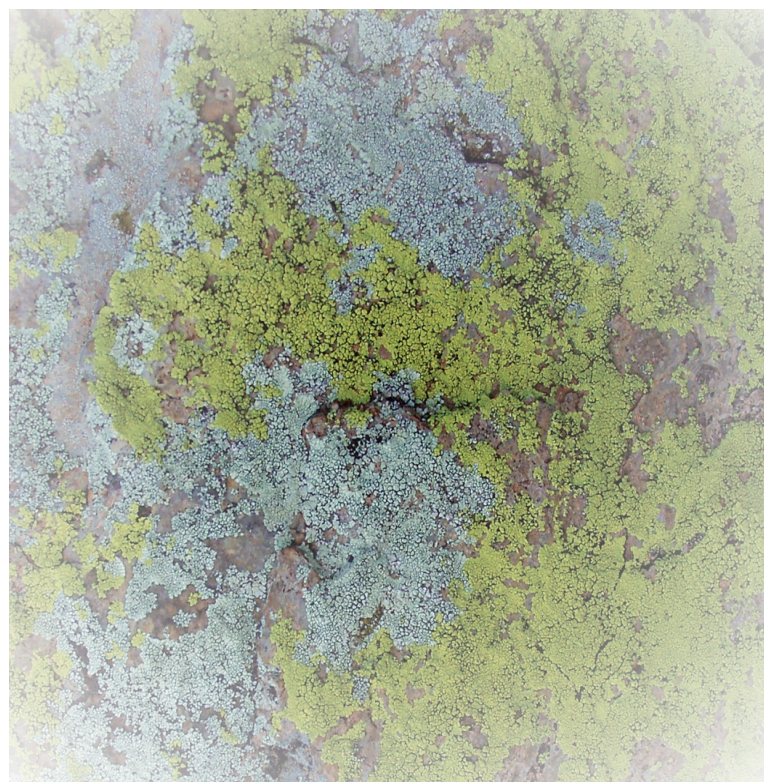
Family	Number of Genus	Number of Species
Acarosporaceae	4	51
Bacidiaceae	6	21
Cladoniaceae	2	65
Collemaaceae	2	32
Hymeneliaceae	4	58
Lecanoraceae	9	73
Parmeliaceae	33	147
Physciaceae	10	94
Rhizocarpaceae	2	19
Umbilicariaceae	2	36
Lichenaceae	12	23
Peltigeraceae	3	31
Pertusareaceae	2	18
Teloschictaceae	4	47
Verrucariaceae	11	63
Total	104	778

The 778 species of lichens featured on the chart make up 74% of the lichens in Mongolia.

The lichens growing in Mongolia are unique in that they contain characteristics of lichen families growing in Holarctic, Mediterranean Sea and eastern Asia. Lichen families with strong characteristics of Holarctic lichens such as Physciaceae,

Cladoniaceae, Peltigeraceae and Parmeliaceae are distributed in the southern parts of Mongolia. Lichens which have characteristics of ancient Mediterranean species are Lecanoraceae, Acarosporaceae, Collemaaceae, Verrucariaceae and Teloschictaceae, which grow in the western part of Mongolia.

Currently, there are 58 interdemetic and 4 native species of lichens recorded in Mongolia. In 2013, *Aspicilia hedinii* (H. Magn.) Oksner, *Cladonia mongolica* Ach., *Peltula zabolotnoji* (Elenkin) N.S. Golubk. were recorded as new species, while the distribution of *Aspicilia changaica* (Klem.) N.S. Golubk., *Lobaria retigera* (Bory.) Trevis, *Rhizoplaca baranowii* (Poelt) Goluk., *Squamarina pamirica* N.S. Golubk., *Aspicilia esculenta* (Pall.) Flagey., *Cetraria alverensis* (Wahlenb.) Vain., *Nephromopsis komarovii* (Elenkin.) J. C.Wei, *Cetraria potaninii* Oksner., *Cetraria*





steppae (Savicz) Cogt, *Cladonia kanewskii* Oksner, *Caloplaca lenae* Sochting et Figueras, *Tonina gobica* Golub, and sections of their distribution areas were taken under state protection.

MOSS

Studies on moss have been conducted at Darkhad valley in northern Khuvsgul for the past few years. So far, 6 varieties of 286 species from 130 genera and 50 families have been recorded in the study area. Out of these species, 49 were reported new in the Khuvsgul region, and 2 genera *Gollania*, *Bryobrittonia* and 5 species of *Encalypta procera*, *Bryobrittonia longipes*, *Didymodon leskoides*, *Racomitrium panschii*, *Gollania turgens* of moss was reported as a new species in Mongolia (Tsegmed *et al.*, 2007, Ignatov *et al.*, 2009).

There is 117 species of 75 genera of 32 families reported for the Shariin Gol area.

Further classification studies will assist in understanding the species richness of the region as well as contribute to the moss database of Mongolia.

FUNGUS

There are 217 species of mushroom in Mongolia that belong to 73 genera, 22 families of 3 orders (Kherlenchimeg, 2013). In western Khentii province, there are 14 species of 6 genera that belong in the family *Lycoperdon* (Burenbaatar, 2013).

From 1998 to 2012, there were 5 new species recorded at Khentii Region, 13 species at Khangai region, 13 species at Daurian Region, 3 species in Eastern Mongol Region, and 1 new species recorded at Great Lakes Depression, Mongol Altai and Khovd Region, respectively.

Of the 217 species of mushroom recorded in Mongolia, 26 are saprophytic or coprolitic mushrooms growing in steppe regions (mostly species of *Melanoleuca*, *Agaricus*, *Conocybe*, *Agrocybe* and *Makrolepiota*), 212 species grow in forest regions, where 152 species live with other plants in mycorrhiza association (some species of *Hygrophorus*, *Russula*, *Lactarius*, *Tricholoma*, *Boletus*, *Suillus*, *Gomphidius*), 41 species are saprophytes (some species of *Marasmius*, *Collybia*, *Mycena*, *Clitocybe*, *Leucopaxillus*, *Lepiota*), 19 are lignophytes (some species of *Coprinus*, *Stropharia*).

In 2013, the species *Boletinus asiaticus* Sing., *Leccinum aurantiacum* (Bull.) S.F.Gray., *Agaricus tabularis* Pers., *Chlorophyllum agaricoides* (Czern.) Vellinga, *Lepista caespitosa* (Bres.) Sing., *Leucopaxillus giganteus* (Sibthorp: Fr.) Sing., *Tricholoma mongolicum* Imai, *Fomitopsis officinalis* (Vill.) Bond. et Sing., *Ganoderma lucidum* (Leyss ex Fr.) Karst., *Inonotus obliquus* (Pers.; Fr.) Pilat, *Calvatia gigantea* (Batsch) Lloyd, *Lycoperdon molle* Pers. were added to the Mongolian red list, and sections of its distribution area was taken under protection.



There are about 700 samples of 282 species of 102 genera, 39 family and 2 classes at the Botany Institute’s Mushroom Herbarium. The most samples belong to Cortinarius (16), Clitocybe (13), Russula (13), Tricholoma (10), while one sample of Crepidotia, Anellaria, Cotilidia, Crepidotia, Antrodia, Auricularia, Agrocybe, Spathularia, Tyromyces, Xeromphalina, and Xerocomus are present.

There have been extensive studies on obtaining culture, creating and breeding mycelium from edible and medicinal mushrooms.

Studies included identifying basic parameters of oyster mushroom’s (*Pleurotus ostreatus*) polmycel 107 seeding technology (Gantulga, 2010). Also the impact of Oyster mushroom (Munkhzaya, 2010) and Chaga mushroom (Kherlenchimeg, 2010) on tumors has been studied, we found these mushrooms suppressed tumor growth. Therefore, further studies must be conducted on possibilities of deriving antineoplastic preparations from oyster and chaga mushrooms, and applying those to tumor treatments (Kherlenchimeg *et al.*, 2011) (table 5).

Table 5. Edible mushroom production resource by regions /tonn/

The region estimated resources/ Species Name	Khentii	Tarvagatai	Bulnai	Khangai	Khuvsgul
<i>Clitocybe gibba</i>	1.2	1.5	1.6	2-3	2.5
<i>Lactarius torminosus</i>	-	1.5-1.8	-	2.5	3.5
<i>Laetiporus sulphureus</i>	8	-	-	8	30
<i>Russula emetica</i>	0.5	-	-	0.4	1
<i>Suillus grevillei</i>	4.5	-	-	5.1	1.5
<i>Tricholoma mongolicum</i>	-	-	-	-	-
<i>Agaricus campestris</i>	-	0.6	-	1.5-2	1.8-2



FAUNA

INSECT AND OTHER INVERTEBRATES





STATUS, TRENDS, AND THREATS

FAUNA

INSECT

Insect species of Mongolia are spread throughout forest steppe (cool temperate forests, alpine mountains, meadows, high mountain steppe, cool coniferous forests and mixed forests), steppe (arid steppe, semi-arid steppe, meadows, desert steppe) and desert ecosystems as well as wetlands, lakes, rivers, spring and other habitats that are found in those regions. Due to this wide distribution, research at ecosystem level was used to create a foundation database for insect habitats.

There are many different species in Mongolia that are vital to the status, fertilization and reproduction of plants. These include insect species from Lepidoptera, Hymenoptera, Coleoptera and Diptera.

Based on a nationwide research study conducted at regions such as northern forest areas of Khentii mountain range, coniferous forests along the western bank of Khuvsgul lake, and boreal forests of Mongol Altai and Khangai mountain ranges, there were approximately 300 species of 20 families of butterflies (Muehlenberg *et al.*, 2011; Enkhbayar, 2013). A detailed study on forest insects conducted at the north of Khentii mountain range, which helped

determine the distribution of *Carabus canaliculatus* Ad., *Carabus arcensis* Herb., *Pterostichus (Metallophilus) interruptus* Dej., *Pterostichus dauricus* Geb., *Pterostichus (Euryperis) eximius* Mor., *Cicindela gracilis* Pal., *Carabus (Carabus) billbergi* Man., *Carabus (Morphocarabus) hummeli* F-W., (Carabidae, Coleoptera), as well as *Xylotrechus rusticus* Lin., *Monochamus urussovi* F-W., *Saperda scalaris* Lin., *Xylotrechus ibex* Geb. and *Xylotrechus hircus* Geb. (Cerambycidae, Coleoptera) (Gantigmaa *et al.*, 2012; Buyanjargal, 2010). During the research of insects in different habitats of Khentii mountain range, a total of 362 species of 265 genera of 109 families belonging to 13 orders were recorded near Onon river valley. Out of the 362 species, 13 were new for Mongolia (Puntsagdulam, 2011). New species include: Blue Dragonfly (*Aeshna juncea mongolica*), Apollo (*Parnassius apollo*), Machaon (*Papilio machaon*), Narrow-bordered Bee Hawk-moth (*Hemaris tityus*) as well as *Bombus sporadicus*. Out of these species, the Blue Dragonfly has an important role in the food cycle of its ecosystem.

The larva of the dragonfly mostly preys on larva of amphibians as well as minnows. As an adult it mainly preys on flies, mosquitoes and gnats etc. They themselves fall prey to spiders, flies,



moths and birds (Mongolian Red Book, 1997). Apollos, Machaon and Bee Hawk-moth are all vital to their ecosystem as pollinators.

There are 151 species of 97 genera of 34 families in 7 orders who feed on parts of bushes and parts of other species of plants (Puntsagdulam, 2011). These include: distribution of Siberian Silk Moth and Gypsy Moth in the forests of Tsenkhermandal, Umnudelger, Binder and Dadal soums (Badamjargal, 2010). Also, Orkhon soum's Khurel Bulag passage, Suudriin Khavtgai, Khutag-Undur soum's Tsagaan Passage, Saikhan tree clearing in Bulgan province as well as Agtiin mountain range in Bayanagt soum are in the distribution area of Siberian Silk Moth (*Dendrolimus sibiricus* Lin.), and Khuvs gul

province's Chandmani-Undur, Tsagaan-Uur, Erdenebulag forests and Eg-Uur river valley contain Gypsy moth (*Dendrolimus sibiricus* Lin.), while Khentii province's Umnudelger soum is home to Jacobson's spanworm butterfly (*Erannis jacobsoni* Djak.). Based on the report that these species' populations are increasing, the government took actions to fight against these species in over 22,980 hectares area (Ministry of Nature and Environment, 2012).

Another action was taken against the Rusty Tussock moth population growth in Bayankhongor soum's Erdenetsogt soum Tsagaan Maanit river valley's boreal forests, and was able to detain the population growth (Ministry of Nature, Environment, and Tourism, 2011)



Papilio machaon- Machaon

Photograph: Ch.Gantigmaa



During a study of Gobi insects and invertebrates, species such as *Bryodema gebleri* F-W., *Bryodema mongolicum* Zub., *Calliptamus barbarus* Costa., *Compsorhipis bryodemoides* Bei-Bienko., *Compsorhipis davidiana* Saus., *Gryllus desertus* Pall., *Leptopternis gracilis* Evers., *Mongolotmethis kozlovi* Bey-Bienko., *Zichya baranovi* Bei-Bienko., *Zichya* sp. were reported abundant. Out of these species, *Compsorhipis bryodemoides* Bei-Bienko., *Mongolotmethis kozlovi* Bey-Bienko., and *Zichya baranovi* Bei-Bienko are endemic to Mongolia. The study also recorded occurrences of *Dericorys annulata roseipennis* which had not been observed in recent years. Some interesting data was collected about Trichoptera at water points in the Gobi region. Based on studies at over 40 springs and water holes, the distribution of *Apatania mongolica*

Martynov, and *Limnephilus primoryensis* Nimmo were very limited. Besides limited distribution area, *Apatania mongolica* Martynov is endemic to Mongolia and *Limnephilus primoryensis* Nimmo was recognized fairly recently in 1995, and this occurrence is the first recorded in Mongolia. We will focus our future studies on the biology and ecology of these two species.

Studies aimed at arachnids (Arachnida), crustaceans (Branchiopoda), annelid worms (Clitellata), rotifers (Eurotatoria), gastropods (Gastropoda) and leeches (Hirudinea) in Mongolia resulted in the cataloguing 30 species of 9 class. These studies were conducted at Umnugobi province's Khanbogd Mountain in Khanbogd soum, Galbiin Gobi, Undain river bed and Nariin Sukhait valley and





Nemetgei mountain range in Gurvantes soum (Gantigmaa *et al.*, 2012).

There were 3 species of Ostracods (*Brachionus plicatilis longicornis*, *B. variabilis*, *Trichocera brachyura*) that were reported abundant in many water reservoirs. Also, there were many abundance of cladoceran such as *Ceriodaphnia pulchella* Sars, *Daphnia (Daphnia) galeata* Sars. *Daphnia (Ctenodaphnia) triquetra* Sars. *Daphnia (Ctenodaphnia) carinata* King., *Moina brachiata* Jurine at many springs, especially Bulansukhait Spring in Khanbogd soum of Umnugobi province. Arachnid studies were conducted near Dayan Nuur of Bayan-Ulgii province. Researchers identified 53 species from 22 genera of 11 families of which 9 species were new species to Mongolia (Azjargal, 2013). New species include: *Larinioides cornutus* Clerck (Araneidae), *Phrurolithus festivus* Koch (Corinnidae), *Acantholycosa altaiensis* Marusik, Azarkina & Koponen.,



Dendrolimus sibiricus- Siberian Moth

Alopecosa pictilis Emerton., *Pardosa albomaculata* Emerton., *Pardosa palustris* Lin., *Pardosa tesquorumoides* Song & Yu., *Pardosa uintana* Gertsch (Lycosidae) and *Xysticus obscurus* Collett (Thomisidae).

STATUS, TREND AND POSSIBLE THREATS OF SPECIES

The development of infrastructure following mining and exploration activities is fueling the threats to the natural landscape. There have been major alterations to the soil and vegetation across Mongolia due to animal husbandry and agriculture. Due to anthropogenic threats feather-grass steppe near soum centers and water wells have been degraded. The oasis systems in the Gobi and desert regions, which are used by herders and farmers, are degrading, and the shrubs and willows which are vital to the oasis system are becoming extinct (Dash *et al.*, 2003). In recent years, there has been overcrowding of livestock at oases in Zahui, Ekhiin Rivers, Zuunmod and Naranbulag, resulting in salt accumulation and dryness in the area. Due to the shortage in underground water of oases, several species of plants have been degraded, causing a significant change in the habitat's ecosystem. For example, during research studies at Khanbogd soum of Umnugobi province, researchers found 7 out of 20 springs had dried. Species such as *Paracorixa*



spp., *Callicorixa* sp. and *Sigara* sp., *Sigara lateralis* (Corixidae, Hemiptera), *Gerris sahlbergi* (Gerridae, Hemiptera), *Ishnura elegans* (Coenagrionidae, Odonata) (*Helophorus* sp., Helophoridae), and *Hygrotus* (*Coelambus*) had been recorded in the springs previously. As for crustaceans, *Branchinecta ferox* M.Milne-Edwards, *Branchinecta minuta* Smirnov, *Branchinecta orientalis* Sars, *Ceriodaphnia pulchella* Sars, *Daphnia carinata* King and *Moina brachiata* Jur had been identified previously (Gantigmaa *et al.*, 2012). Further studies are needed to be conducted among species living in aquatic environments, whose sources are being threatened by livestock and human activities, and a set of conservation action plans must be set. For example, *Apatania mongolica* Martynov and *Limnephilus primoryensis* Nimmo as well as other invertebrate habitats in the Nariin Sukhait valley of Umnugobi's Gurvantes soum are limited by the two springs located adjacently. However, due to climate change and mining operations, the two springs are in danger of drying.

INSECT USE

Due to cultural aspect of Mongolians, there is very little direct use of insects. However, ecological services (honey, medicinal plants, other products derived from animals) provided by insects and invertebrates are used widely. For

example, the Darkling Beetle (*Blaps* sp., Tenebrionidae) secretes a bio lipid for self-protection. This secretion is used for traditional medicines and treatments (Gunbilig *et al.*, 2009; Aldarmaa *et al.*, 2010). Also, for respiratory illnesses, medicinal treatments derived from *Bryodema*, *Angaracris*, and *Caliptamus* species of grasshoppers are used for cures (Ganbold, 1993). There has not been any detailed study on the population trend, ecosystem niche of the above species, therefore, is difficult to identify threats as well as its value to the well-being of humans. Hence, we must register insect species that are valuable to the ecosystem as well as humans, and conduct a thorough study on those species.

INSECT CONSERVATION

In 2012, a study on the distribution on rare and endangered insect and invertebrate species was conducted within the framework of the Ministry of Environment and Green Development's action plans. The database of species richness as "rare" in the Mongolian Red List as well as other rare and endangered species were updated. Although, there aren't enough data on insect biodiversity and population trends, studies on insects and invertebrates of certain ecosystems within the last 4 years has provided fundamental data for the biodiversity of these species. For example, "Oyu Tolgoi"



and “South Gobi Sands” companies have implemented several projects regarding environmental observation and identifying current status of the Gobi ecosystem. Through these projects, we hope to identify species that have not been observed in previous years as well as monitor and determine the status of currently known species. Species such as Similis Grasshopper (*Eclipophleps similis* Mishch.), Pale Grasshopper (*Eclipophleps lucida* Mishch), Gobi Grasshopper (*Rhinotmethis beybienkoi* Chog.),

(*Bryodema nigripennis* Mishch), Andrea Grasshopper (*Andrea gorochovi* Mishch), Rattle Grasshopper (*Psophus stridulus* Lin.), one species of Gobi Grasshopper (*Beybienkia lithophila* Gorochov & Mishchenko), and Mistshenkoi’s Green Grasshopper (*Mongolotettix mistshenkoi* Chog.) have not been recorded in the last 30 years. We will need to implement further studies on the habitat, biology, ecology of the insects and invertebrates listed in the Mongolian Red List. It is important to evaluate the population trend to determine best conservation actions.



FISH





FISH

CAUSES FOR DECREASE IN FISH SPECIES IN MONGOLIA: Many rivers, lakes and springs have dried to climate change and global warming, thus having a negative impact on the distribution and population of fishes. As stated in the Environmental Trend Report (2006-2007), during the surface water census in 2007, about 852 rivers, 2,277 springs and 1,181 lakes were reported as dry. Gobi lakes, especially larger lakes such as Taatsiin Tsagaan, Adgiin Tsagaan and Ulaan Nuur were completely dry, whereas Orog Lake and Tuin rivers had no source rivers. This resulted in the decrease in distribution and population of several native species of fish living in the Central Asian Inland Basin.

During the previous 13-14 years, the water level of lakes and rivers in the Gobi region has lowered to its minimum level. The report submitted by the National Meteorology and Environment Monitoring Agency (2010), the annual average water level of Khar-Us lake had decreased by 32 cm since 2001, Terkhiin Tsagaan lake by 42

cm since 2000, Ugii lake by 114 cm since 2004, Buir lake by 183 cm since 1999, Khyargas lake by 281 cm since 1998, and Buuntsagaan Lake water level decreased by 603 cm since 1998. Steadily decrease in the water level of such reservoirs impact the balance of the ecosystem, threatening the fish and other species dwelling in the area.

In the framework of "Water ecosystem ecology and bioproductivity", a team of 140 scientists worked in the field to collect over 50 herbariums of zooplankton, 35 of benthonic species and 30 of higher plants from Borsog, Dalbaa, Sevсуul, Noyon, Shagnuul, Turag rivers east of Khuvsgul lake, Orkhon-Selenge valley (Yuruu, Selenge, Eg), Ust, Ugii, Targan, Dood, Tugrug and Kharmai from Darkhad Depression and some springs and oases within Great Gobi Strictly Protected Area, part A. The herbarium collected, which was not mentioned in the fourth report of the organization, enriched the academic databases.

Based on the research, Ugii lake had the highest numbers of benthonic species



Brachymystax lenok-Lenok



(35 species). This shows that the lake is being polluted by human activities, and the fish stock is decreasing.

Kharmai and Dood lakes of Darkhad Depression have a quota of 5-10 tons of fish per year. At Targan Lake, the breeding period of some species starts at the beginning of November until end of December. There are instances of hunting whitefish during breeding season at Naiman lake, Ulaagchnii Khar and Darkhad Tsagaan lake, thus negatively impacting the fish stock. There are about 1,258 whitefish at Naiman nuur of Uvurkhangai aimag. A disperse analysis and comparison was applied to the biometric evaluations of the fish, which showed that the ecological status of the fish was safe, and the body size of an adult fish was steadily growing. Therefore, we need a new legislative document to prevent hunting and fishing during breeding seasons.

There have been instances of overfishing and illegal fishing over the years. These human activities are having negative impacts on the fish community, resulting in endangerment and extinction. In the past 20 years, fishing operations have been present at Great Lakes Depression, Khar-Uus, Khar, and Durgun lakes.

At Ugii lake of the Arctic Ocean Basin, commercial fishing has been popular for quite some time. From 1960-1983, up to 900 fish were caught per season. However from 1983-1993, commercial fishing

declined to only 320 caught per year. Lack of integrated database on the fishing in the past 15 years makes it difficult to conduct an accurate assessment of this situation. During this period the water level of Ugii Lake reduced noticeably. This will continue to have an adverse impact on the breeding season of species living in the lake.

Due to a growth in mining operation near large river beds, such as Orkhon and Selenge, pollution has become a large problem, mainly for disturbing the habitat of fish. The breeding migration route of the omul fish has been shortened because of pollution caused by mining operations. As a result, spawn deaths have increased. Following a study in the area, experts estimated that the breeding migration of Omul fish only continues for 5 kilometers from Sukhbaatar city. Experts concluded that Orkhon river is no longer valuable to the breeding migration of Omul fish (Dgebauzde *et al.*, 2009).

Due to mining and industrial operations, Tuul river near Zaamar has been polluted, and 70 cm of slime and mud have settled on the bottom, slowing the flow. This has resulted in the extinction of rhyofite insects such as Plecoptera and Ephemeropter in the river. There are also fewer observations of Ephemerella, Baetis insects. Such changes to the Tuul River are affecting the breeding habits of Taimen, Grayling and Lenok. During a monitoring study at Zaamar, not a single fish from the species mentioned above were caught.



Fishing is not a large aspect of Mongolian tradition therefore it was not a common practice. However, it has become more popular in recent years among amateurs. Fishing near towns and cities has decreased the stock of Taimen, Lenok, Grayling and Whitefish. There is a lack of monitoring the implementation of law on illegal fishing therefore it is difficult to evaluate the damages accurately.

The tourism sector is developing rapidly in Mongolia. One of the main popular tourist packages are fishing. Today, tourists from all over the globe are coming to fish in Mongolia, and the

number of tour operators offering such packages has increased. Just in Egiin gol basin, there are 70 tour camps and agents offering fishing tours.

FISH CONSERVATION AND TREND: The Mongolian Law on Animals listed Amur Sturgeon (*Acipenser schrenckii*), Tench (*Tinca tinca*) as very rare and Eastern Brook Lamprey (*Lethenteron reissneri*), Taimen (*Hucho taimen*) as rare (in accordance with government decree number 7, appendix 1 passed in 2012). Species such as Eastern Brook Lamprey, Siberian Sturgeon, Amur Sturgeon, Taimen, Omul, Tench, and Haitej Sculpin have been listed in the Mongolian

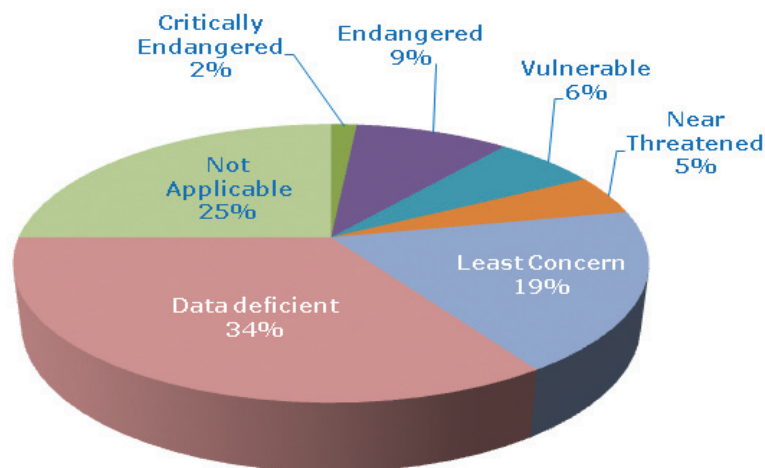
Barbatula toni- Siberian Stone Loach





Fish Red List. The red list category of 64 species as evaluated by the IUCN is shown below (Ocock *et al.*, 2006) (graph 1).

Graph 1. Status of fish in Mongolia



RARITY STATUS OF MONGOLIAN FISH: Based on the evaluations, one species is listed as Critically Endangered (Siberian Sturgeon), 6 species listed as Endangered (Gobi Loach, Dzundarian Dace, Pidschian, Amur Grayling, Khuvsgul Grayling, Taimen), 4 species listed as Vulnerable (Potanin’s Osman, Small Osman, Mongolian Grayling, Lenok), and 3 species listed as Least Concern (Amur Bitterling, Ide, Arctic Grayling).

There are 22 species listed as data unavailable and 12 species listed as least concern. Based on the evaluations, almost 80% of fishes in Mongolia are endangered in some way or have insufficient data.

Therefore, it’s important to take conservation measures in a timely manner to protect the population and evaluate the status of habitats suitable for fishes.

Studying the distribution, biology, ecology, population dynamics, stock and hunting status of fishes and setting up a monitoring system will ensure the conservation of the biodiversity of this group.

The Mongolian Pisciculture Center was established under the decree of the government to conserve the fish stock and increase population. The center has established a pisciculture laboratory at Dood Tsagaan lake of Khuvsgul province’s

Tumurbulag and Tsagaannuur soums. Some of the large artificial tanks are studying biosynthesis transformation, and implementing projects to breed and manage fish stocks. These projects will ensure the sustainability of the population of fishes in Mongolia.

Mongolia is set to prohibit fishing Omul from August 30th to October 30th, white coregonid from September 15th to January 30th through applicable laws. This will ensure the sustainable growth of the populations. A new cycle has been set up at Ulaagchnii Khar lake, which did not have any previous stocks, and a new swarm of fish species was established. This set the foundation for a new stock of food source.

AMPHIBIAN





AMPHIBIAN

Currently, there are 6 species of 4 families of 2 orders of amphibians in Mongolia (table 5).

Table 5. Species composition of amphibians

Order	Family	Species
Caudata	Hynobiidae	Siberian Salamander (<i>Salamandrella keyserlingii</i>)
Anura	Bufonidae	Mongolian Toad (<i>Bufo raddei</i>) Pewzow's Toad (<i>Bufo pewzovi</i>)
	Hylidae	Far Eastern Tree Frog (<i>Hyla japonica</i>)
	Ranidae	Siberian Wood Frog (<i>Rana amurensis</i>) Asiatic Grass Frog (<i>Rana chensinensis</i>)

The lack of amphibian species in Mongolia is due in part to the geographical location and continental climate of this country. These few species of amphibians are distributed throughout the Mongolian landscape. For example, in Khangai-Khentii mountainous region and Eastern Mongolian Plain, where surface water is plenty, amphibians are widely distributed. However, in the arid Gobi regions or the cool Altai mountain region, there are very few amphibian species (table 6).

Table 6. Distribution of amphibians in Mongolian geographical regions

Species Name	Altai Mountain Range			Khangai-Khentii Mountain Range			Eastern Mongolian Plain			Gobi Region		
	1	2	3	4	5	6	7	8	9	10	11	12
<i>Salamandrella keyserlingii</i>	-	-	-	+	+	+	-	-	-	+	-	-
<i>Bufo raddei</i>	-	+	-	+	+	+	+	+	+	+	+	-
<i>Bufo pewzovi</i>	+	-	-	-	-	-	-	-	-	-	+	-
<i>Hyla japonica</i>	-	-	-	+	+	-	-	-	+	-	-	-
<i>Rana amurensis</i>	-	-	-	+	+	-	-	+	+	-	-	-
<i>Rana chensinensis</i>	-	-	-	-	-	-	+	-	+	-	-	-

Reference: 1. Mongol-Altai region: 2. Gobi-Altai region: 3. Siilkhem-Kharkhiraa region: 4. Khangai region: 5. Khentii region: 6. Khuvsgul region: 7. Khalkha and Dariganga steppe region: 8. Dornod steppe: 9. Khyangan hills: 10. Altai -Northern Gobi region: 11. Altai southern Gobi region: 12. Southern Gobi region:

+ Occurs in the region: - Does not occur in the region



Rana amurensis -Siberian Wood Frog

THREATS AND NEGATIVE IMPACTS AFFECTING AMPHIBIANS

Climate change, global warming and human activities such as urbanization are drying out many rivers, lakes and springs. This is affecting the population and distribution of amphibians in Mongolia. The population of Siberian salamander in the Tuul River basin near Ulaanbaatar has declined, and the Mongolian Toad has not been recorded in recent years. At Buurug in the Ukhert river basin, there are over 30 small glacial lakes. However, more than half of them have dried out, causing a disruption in the population of Siberian Salamander.

The drying of large Gobi lakes such as Taatsiin Tsagaan, Ulaan and Adgiin Tsagaan has caused declines in the population and distribution of the Mongolian Toad. In recent years, due to disruption in the flow of Tuin River, Orog Lake's water level has declined, which is likely to affect the population of Mongolian Toad.

The same negative situation was noted at Orkhon-Selenge basin, where almost 66.6 percent of the amphibians

in Mongolia inhabit. Researchers of a Mongolian-Russian joint biological expedition studied two water reservoirs near Shaamar, where many amphibians are found, from 1983-1984. The population of the 4 species at these water reservoirs was 880 per 1,000 m² area for 1+ year, and the juvenile population was 10,800 (Borkin *et al.*, 1988). However, 24 years later, in 2008, a repeat study at the site showed that the first group of lakes had dried, therefore no signs of amphibians inhabiting the area were found. There were amphibians inhabiting the second group of lakes. However, the population and distribution was limited (Cuzman, 2009).

The research showed that rare species such as Siberian Salamander and the far eastern Tree Frog had been extinct from these lakes. The reason for amphibian population decline and distribution area decrease at Orkhon-Selenge basin is mainly anthropogenic. The vegetation of the surrounding areas has been stripped, and majority of the land has been cultivated for fruit and vegetable crops. Also, the water in the surrounding reservoirs is being used for crop irrigation, thus amphibian habitats have shrunk affecting their population.

There are also impacts of water pollutants. An albino species was found amongst the Siberian Wood Frog population at Shatan river which pours into Kharaa lake at Batsumber soum of Tuv aimag (Munkhbaatar, 2008). Also, there were many oligodactyl tadpoles



among Mongolian Toad population at Kherlen and Balj river basins (Borkin et al, 2011). Studies recorded several species with missing hind legs within a population of Mongolian Toad tadpoles undergoing metamorphosis. For example, almost 40 percent of the population's juvenile species had a deformity. The pH level of the marshes these species are inhabiting is 8.3. However, there weren't any deformed species within the adjacent populations. The same situation was observed at Mankhaadai Lake in Dadal soum of Khentii aimag (Munkhbaatar and Terbish, 2008). Researchers estimated that 35 percent of species were deformed and they believe it is due to pollutants in the water.

CONSERVATION AND TRENDS OF AMPHIBIANS

Four species of two amphibians (*Salamandrella keyserlingii*, *Bufo pewzovi*, *Hyla japonica*, *Rana chensinensis*) were listed in the Mongolian Red List and the Mongolian rare species list (Government resolution number 7, appendix 1 passed in), which is 66.6% of the amphibians. When the amphibians' status was evaluated using the IUCN criteria (Terbish et al., 2006), these four species were classified as Vulnerable [A3c, A1ab (iii), D2]. These populations are at the edge of their distribution areas. Therefore it is important to study the distribution trends, population fluctuations, and threats of these species and establish a management system to ensure their conservation.



Bufo raddei -Mongolian Toad

REPTILE





REPTILE

SPECIES COMPOSITION: Based on research studies (Ananyeva, 1998; Terbish *et al.*, 2013) there are 22 species of 1 genus, 6 families of 2 sub-order reptiles in Mongolia (table 7).

Table 7. Species composition of reptiles in Mongolia

Suborder	Family	Species
Lizard (Lacertilia)	Geckos (Gekkonidae)	1. <i>Alsophylax pipiens</i> 2. <i>Cyrtopodion elongatus</i> 3. <i>Teratoscincus przewalskii</i>
	Agamids (Agamidae)	4. <i>Phrynocephalus helioscopus</i> 5. <i>Phrynocephalus versicolor</i> 6. <i>Paralaudakia stoliczkana</i>
	True lizards (Lacertidae)	7. <i>Eremias argus</i> 8. <i>Eremias arguta</i> 9. <i>Eremias multiocellata</i> 10. <i>Eremias przewalskii</i> 11. <i>Eremias vermiculata</i> 12. <i>Zootoca vivipara</i> 13. <i>Lacerta agilis</i>
Snakes (Serpentes)	Nonvenomous snakes (Boidae)	14. <i>Eryx tataricus</i>
	Black Snakes (Colubridae)	15. <i>Coluber spinalis</i> 16. <i>Elaphe dione</i> 17. <i>Elaphe schrenckii</i> 18. <i>Natrix natrix</i> 19. <i>Psammophis lineolatus</i>
	Pit vipers (Crotalidae)	20. <i>Gloydus halys</i>
	Venomous Snakes (Viperidae)	21. <i>Vipera berus</i> 22. <i>Vipera ursini</i>

True lizards (Lacertidae) and snakes (Colubridae) make up 55 percent of reptile species in Mongolia.

Reptiles in Mongolia are mainly distributed in the Gobi region, with warmer and arid climate.





True lizards (Lacertidae) and snakes (Colubridae) make up 55 percent of reptile species in Mongolia. Reptiles in Mongolia are mainly distributed in the Gobi region, with warmer and arid climate (table 8).

Table 8. Distribution of reptiles by geographical regions

Species Name	Altai Mountain Range			Khangai-Khentii Mountain Range			Eastern Mongolian Plain			Gobi Region		
	1	2	3	4	5	6	7	8	9	10	11	12
<i>Alsophylax pipiens</i>	+	+	-	-	-	-	-	-	-	+	+	+
<i>Cyrtopodion elongatus</i>	-	-	-	-	-	-	-	-	-	-	+	-
<i>Teratoscincus przewalskii</i>	-	-	-	-	-	-	-	-	-	-	+	-
<i>Phrynocephalus helioscopus</i>	-	-	-	-	-	-	-	-	-	-	+	-
<i>Phrynocephalus versicolor</i>	+	+	-	-	-	-	+	+	-	+	+	+
<i>Paralaudakia stoliczkana</i>	+	+	-	-	-	-	-	-	-	+	+	-
<i>Eremias argus</i>	-	-	-	+	-	-	+	+	+	+	-	+
<i>Eremias arguta</i>	-	-	-	-	-	-	-	-	-	-	+	-
<i>Eremias multiocellata</i>	+	+	-	-	-	-	-	-	-	+	+	+
<i>Eremias przewalskii</i>	-	-	-	-	-	-	-	-	-	+	+	+
<i>Eremias vermiculata</i>	-	-	-	-	-	-	-	-	-	+	+	-
<i>Zootoca vivipara</i>	+	-	-	-	+	+	-	-	+	-	-	-
<i>Lacerta agilis</i>	+	-	-	-	-	-	-	-	-	-	-	-
<i>Eryx tataricus</i>	-	-	-	-	-	-	-	-	-	-	+	+
<i>Coluber spinalis</i>	-	-	-	-	-	-	+	-	-	+	-	+
<i>Elaphe dione</i>	+	+	+	+	+	+	+	+	+	+	+	+
<i>Elaphe schrenckii</i>	-	-	-	-	-	-	-	-	+	-	-	-
<i>Natrix natrix</i>	+	-	-	+	+	-	-	-	-	-	-	-
<i>Psammophis lineolatus</i>	+	+	-	-	-	-	-	-	-	+	+	-
<i>Gloydus halys</i>	+	+	+	+	+	+	+	+	+	+	+	+
<i>Vipera berus</i>	+	-	-	-	+	+	-	-	-	-	-	-
<i>Vipera ursini</i>	+	-	-	-	-	-	-	-	-	-	-	-
Total	12	7	2	4	5	4	5	4	5	11	14	9

Description: 1. Mongol Altai region: 2. Gobi Altai region: 3. Siilkhem-Kharkhira region: 4. Khangai region: 5. Khentii region: 6. Khuvs gul region: 7. Khalkh and Dariganga steppe region: 8. Dornod steppe: 9. Khyangan hills: 10. Altai northern Gobi region: 11. Altai southern Gobi region: 12. Southern Gobi region:

+ Occurs in the region: - Does not occur in the region +*Reintroduced regions

Elaphe dione -
Steppe's Rat Snake



Based on a detailed survey on the classification of Mongolian Agama (Laudakia) by K.J. Bair (2012), a new species called Paralaudakia was discovered, and the group distributed within the Mongolian territory is classified as Agama. Therefore, Agamas which had been *Laudakia stoliczkana* is referred to as *Paralaudakia stoliczkana* in this report.

A taxonomical study resulted in the addition of the following sub-species: *Eremias przewalskii tuvensis* Szczerbak, 1970 (Szczerbak, 1970), *Eremias multiocellata bannikowi* Szczerbak, 1973 (Szczerbak, 1973), *Eremias multiocellata tsaganbogdensis* Munkhbayar et Borkin, 2010 (Munkhbayar and Borkin, 2010), *Paralaudakia stoliczkana altaica*, Munkhbayar, 1971 (Munkhbayar, 1971).

But the study on sub-species of reptiles is not yet complete. Especially Tuva Toad-headed Agama, Multi-ocellated Racerunner, Gobi Racerunner, Halys Pit Viper needs detailed study on classification.

THREATS AND NEGATIVE IMPACTS ON REPTILES

There are almost no instances of using reptiles for food, medicine, commercial or trade purposes in Mongolia. Therefore, there is very little direct anthropogenic threat to reptiles. However, there is threat to the habitat, distribution and population of reptiles caused by human activities.

Pasture land degradation due to overgrazing, desertification, wildfires, pesticides against pests and rodents, exploration for natural resources, land erosion and degradation are main threats.



Although, there is very little information on how these threats are affecting the reptiles.

REPTILE CONSERVATION AND TRENDS: There are 6 species of reptiles (*Cyrtopodion elongatus*, *Phrynocephalus helioscopus*, *Eremias arguta*, *Eryx tataricus*, *Coluber spinalis*, *Vipera berus*) listed in the Mongolian rare species list (Government decree number 7, appendix 1, 2012) as well as the Mongolian red list.

These species make up 27.2% of the total reptiles in Mongolia. The species status was evaluated using the IUCN red list criteria, Gobi Naked-toad Gecko (D2) and Adder (D2) were listed as Vulnerable (Terbish *et al.*, 2006).

Przewalski's Wonder Gecko, Mongolian Agama, Tatory Sand Boa, Slender Racer and European Grass Snake were listed as Near Threatened. However, due to insufficient information, Stepperunner, Sand Lizard and Amur Rat Snake were listed as Data Deficient.

A detailed study on the distribution, biology, ecology, population dynamics of reptiles in Mongolia and implementing a monitoring system is vital to the conservation of reptile species in this country. Also, protection of places such as Altain Gobi Nogoos Tsav and Numrug, which contain rare and endangered species, is needed. This was also suggested in the fourth national report.



Phrynocephalus versicolor -
Toad-headed Agama

BIRD

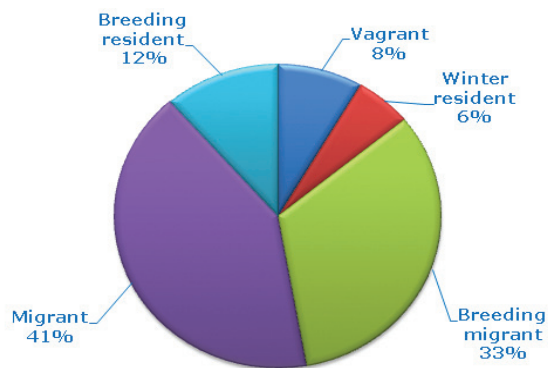




BIRD

STATUS OF BIRDS IN MONGOLIA: There are 476 species of birds in Mongolia (Gombobaatar *et al.*, 2011). Out of those species, 45 are winter residents (6% of all species), 67 species are vagrants (8% of all species), 91 species are breeding and non-migrants (12%), 263 species are breeding visitors and breeders (33%) and 329 species are migrants (41%). One species can be breeding visitors and migrants at the same time, therefore, the species number adds up to more than 446 species (graph 2).

Graph 2. Bird status in Mongolia



The recorded number of of Mongolian birds increased by 10 species in 2013. The data for evaluation are being reviewed by the Mongolian Bird Taxonomy and Rarity Committee composed of national ornithologists, bird researchers and conservationists.

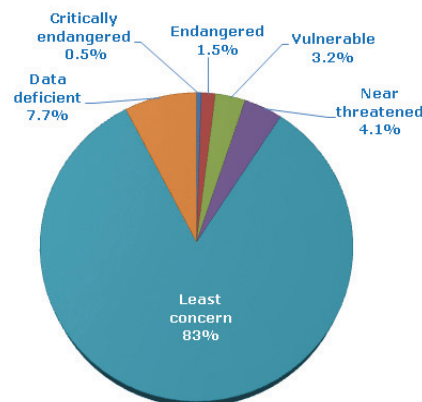
Evaluation of bird habitats, rarity and impacts were completed in 2009 and the evaluation was applied to a select number

of species. The National Bird Red List Workshop was organized in 2009, where many issues facing bird species found in Mongolia were discussed. National and international researchers and experts evaluated every bird species using the IUCN red list criteria. Based on the evaluations, 9.3% of species are categorized under endangered criteria. This also includes species that are near threatened.

Currently, 0.5% of birds in Mongolia are Critically Endangered, 1.5% are Endangered, 3.2% are Vulnerable, and 4.1% are Near Threatened. Out of all the species, 7.7% are Data Deficient, and 83% are Least Concern, while 18.3% are Not applicable by IUCN red list criteria (graph 3).

A total of 36 species are endangered in Mongolia. Out of these, 2 species are regionally extinct, 6 species are Endangered, and 12 species are Vulnerable, while 16 species are Near threatened (graph 3 and table 9).

Graph 3. Threatened category of birds



The chart below shows species that are endangered nationally as well



as globally. Species include: Dalmatian Pelican, Greater White-fronted Goose, Swan Goose, White-headed Duck, Baikal Teal, Greater Spotted Eagle, Pallas's Fish-eagle, Eastern Imperial Eagle, Saker Falcon, Siberian Crane, White-naped Crane, Hooded Crane, Great Bustard, Houbara Bustard, Relict Gull, White-throated Bushchat, and Yellow-breasted Bunting.

DISTRIBUTION AND SPECIES RICHNESS: The distribution of threatened bird species in Mongolia vary depending on the landscapes, regions and protected areas. Dornod Mongol and Great Lakes Valley strictly protected areas are vital areas for rare birds (map 1).

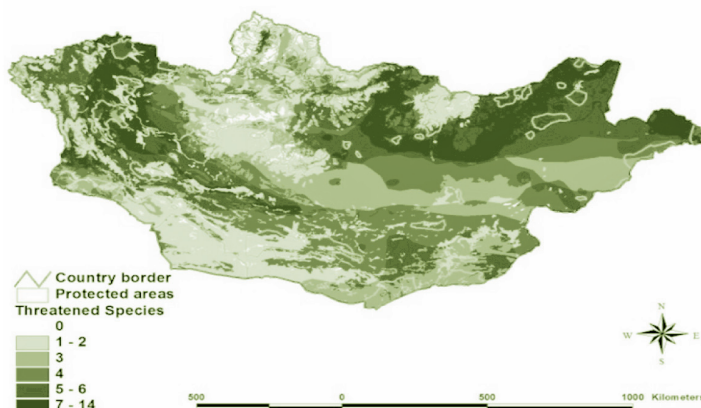
About 70% of the endangered species in Mongolia are threatened throughout the globe. Mongolia is home to many of the world's endangered species. Mongolian cultures have worshipped and conserved birds since ancient times, and is a relatively safe place for birds migrating, breeding and wintering. Sparrows are the

largest group of birds in Mongolia, but are the least threatened, therefore, are not vulnerable to environmental impacts and is able to adapt to changes.

The species richness of Mongolian birds varies depending on the regions and habitats. Landscapes such as Mongol Daguur, Dornod Mongol steppe's Buir Lake, Ikh Khyangan, Khangai, Great Lakes Depression and Khuvsgul Darkhad valley have high species richness; whereas Gobi districts and desert steppe landscapes are low species richness. Species richness is high in most parts of Mongolia because it is on the junction of Central, Western and Eastern Asian flyways (map 2).

Special Protected in Areas such as Numrug, Altan els, Mongol Daguur, Onon-Balj, Khugnu Khaan, Otgontenger, Uvs, Khar-Us lake, Tsambagarav, Toson Khulstai, Khar Yamaat and Ikh Nart are high in species richness, and conservation efforts must be implemented at these sites (Gombobaatar *et al.*, 2011).

Map 1. Species richness of threatened birds and protected areas





It must be noted that there are 30 species categorized as data deficient, and detailed studies on these species are needed.

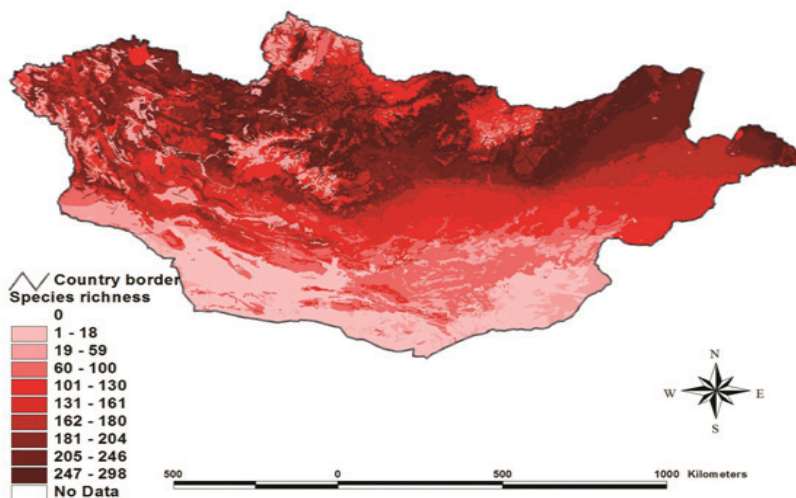
Table 9. Threatened bird species of Mongolia

Устаж байгаа (CR)	Ховордож байгаа (EN)	Эмзэг (VU)	Ховордож болзошгүй (NT)
Dalmatian Pelican <i>Pelecanus crispus</i>	White-headed Duck <i>Oxyura leucocephala</i>	Lesser White-fronted Goose <i>Anser erythropus</i>	Great Bittern <i>Botaurus stellaris</i>
Siberian Crane <i>Grus leucogeranus</i>	Relict Gull <i>Larus relictus</i>	Baikal Teal <i>Anas formosa</i>	Little Bittern <i>Ixobrychus minutus</i>
	Greater Spotted Eagle <i>Aquila clanga</i>	Ferruginous Duck <i>Aythya nyroca</i>	Purple Heron <i>Ardea purpurea</i>
	Pallas's Fish-eagle <i>Haliaeetus leucoryphus</i>	Lammergeier <i>Gypaetus barbatus</i>	Greater White-fronted Goose <i>Anser albifrons</i>
	Short-toed Snake-eagle <i>Circaetus gallicus</i>	Eastern Imperial Eagle <i>Aquila heliaca</i>	Swan Goose <i>Anser cygnoides</i>
	Reed Parrotbill <i>Paradoxornis heudei</i>	Saker Falcon <i>Falco cherrug</i>	Mute Swan <i>Cygnus olor</i>
		White-naped Crane <i>Grus vipio</i>	Falcated Duck <i>Anas falcata</i>
		Hooded Crane <i>Grus monacha</i>	White-tailed Eagle <i>Haliaeetus albicilla</i>
		Asian Dowitcher <i>Limnodromus semipalmatus</i>	Altai Snowcock <i>Tetraogallus altaicus</i>
		Great Bustard <i>Otis tarda</i>	Common Pheasant <i>Phasianus colchicus</i>
		Houbara Bustard <i>Chlamydotis undulata</i>	Common Crane <i>Grus grus</i>
		Mongolian Ground-jay <i>Podoces hendersoni</i>	Tree Pipit <i>Anthus trivialis</i>
			White-throated Bushchat <i>Saxicola insignis</i>
			Saxaul Sparrow <i>Passer ammodendri</i>
			Yellow-breasted Bunting <i>Emberiza aureola</i>
			Ochre-rumped Bunting <i>Emberiza yessoensis</i>

Threats were evaluated using the IUCN red list threat criteria as well as conservation status criteria (IUCN2003, Lamoreux *et al.*, 2003). Based on the evaluation, the biggest



Map 2. Species richness of birds



threats to Mongolian birds were habitat loss and degradation at 38.1%, human disturbance at 13.6%, pollution at 11% and changes in native species dynamics at 10.7% (Gombobaatar *et al.*, 2011 & 2011a).

The largest threats to birds are habitat loss and degradation due to mining and infrastructure developments, establishment of tourist camps and spread of wild fires in the fall and autumn. These factors must be considered for the conservation actions.

Illegal hunting of birds is still a serious issue. Altai snowcock, kite and Mongolian Groundjay are being hunted for exhibit purposes as well as medicinal uses. Although, exhibiting hunted birds is diminishing, medicinal uses of bird species is still in demand.

National and international research has found that many birds are being

electrocuted due to the faulty construction of power lines and poles. To alleviate this threat, organizations such as the Mongolian Ornithological Society, Ministry of Environment and Green Development, National University of Mongolia, Academy of Sciences, Wildlife Consultancy UK and the Wildlife Science and Conservation Center of Mongolia are collaborating in producing action plans. The number of raptors being electrocuted on the new 15 KV lines is likely to increase in the fall and autumn seasons.

A second threat affecting waterfowl are nets as well as water and air pollution (caused by mining operation), predators, avian flu and other diseases.

The way these threats affect birds vary with each species. For example, species of Galliformes are being mostly threatened by illegal hunting, cranes and other waterfowls are being threatened by habitat loss due to human activities,

Haliaeetus albicilla - White-tailed Eagle



livestock grazing and aridity, while raptors' biggest threats are power lines and pesticides. These threats, and that of mining developments, are expected to increase in the future.

Since 1994, Saker falcons have been exported to Arabian countries for scientific and commercial purposes. The Ministry of Culture, Sport and Tourism together with scientists from Mongolian Ornithological Society and National University of Mongolia petitioned to proclaim the falcon as the national bird of Mongolia in 2012. Based on a national public survey, Saker falcon received the most votes and was chosen as the national bird. The government accepted the Ministry of Environment and Green Development's motion to prohibit Saker falcon trading for 5 years starting in 2013.

Professor S. Gombobaatar's 'Mongolian Saker Falcon' book, which details the life of this species, was published in 2013.

Research on Mongolian migrating birds was conducted by national and international scientists. As a result, migrating routes of species such as Swan Goose, Bar-headed Goose, Whooper Swan, Saker Falcon, Cinereous Vulture, Amur Falcon, White-naped Crane and Northern Lapwing, and their threats has been identified.

Oyu Tolgoi, one of the largest mining companies in Mongolia, are funding the monitoring of species inhabiting the surrounding sites. National and international experts are studying and monitoring the status of species such as



Saker Falcon, Houbara Bustard and Short-toed Snake Eagle.

Not all mining companies are conducting similar studies.

Due to a chemical toxin, Bromadiolon, created as a rodenticide for Brandt's Vole, many raptors are dying out. Government and non-government organizations have reached an agreement to cease using this preparation. However, it is still being used in some parts of several soums.

The population trends of birds were evaluated from 2000-2011 using the

Birdlife International methods (2011). Based on the comparisons of each year, out of 476 species, 64.9% have stable populations, 4% of species' population is likely to decline and 0.1% of the species' population is declining while 31% of species' population trend is indeterminate (Gombobaatar *et al.*, 2011&2011a).

Based on this general evaluation, the majority of the bird population is stable, while a small amount of the population is declining due to human activities and changes in natural circumstances.

Falco cherrug - Saker Falcon





It must be noted that 31% of the population's trend cannot be evaluated.

A further study on the population is needed as well as an evaluation of the bird red list in 2017.

Changes in the bird population have little immediate effect on Mongolians' livelihood. However, there is dispute

between the herders and protected areas management over pastureland and water resource.

The development of special interest tourism, sustainable and responsible forms of tourism will need the collaboration of the local communities. Ecotourism and community based tourism will ensure the conservation of birds and their habitats while providing a steady income for herders.



Buteo hemilasius - Upland Buzzard

MAMMAL



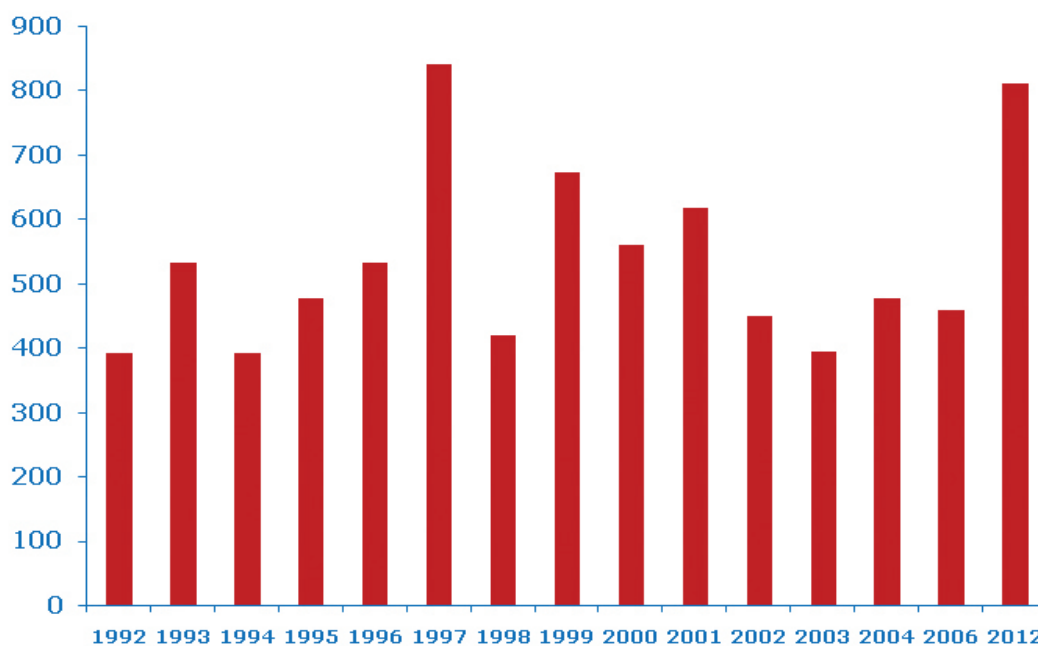


MAMMAL

Of the 128 species of mammals in Mongolia 16% are regionally threatened, 2% are Critically Endangered and Regionally Extinct (Gobi Bear, Przewalski's Horse and Red Deer), and 11% are Endangered (Mongolian Marmot, Eurasian Beaver, Alashan Ground Squirrel, Small Five-toad Jerboa, Mongolian Three-toad Jerboa and others) while 3% are Vulnerable (Long-eared Jerboa, Sable, Black-tailed Gazelle).

Almost 6% of the population is categorized as near threatened. The Asiatic wild dog is regionally extinct (Clark *et al.*, 2006).

POPULATION STATUS AND TREND OF MAMMAL SPECIES: Studies of the population trend of Bactrian Camel (*Camelus bactrianus ferus*), conducted in 2012, indicated a steady increase (graph 4).



Graph 4. Bactrian Camel population dynamic and trend

Sources: Dovchindorj *et al.*, 2006. Jirnov, Gunin, Yad, Adiya, 2011.

POPULATION STATUS AND TREND OF GOBI BEAR: When comparing previous years' population studies to that of recent studies on the Gobi bear, there were no significant changes and the population is still sparse. But the small population of this species in the Gobi desert has drawn the attention of government and non-government agencies, and there have been deliberate attempts at conservation as well as other population and classification studies (table 10).

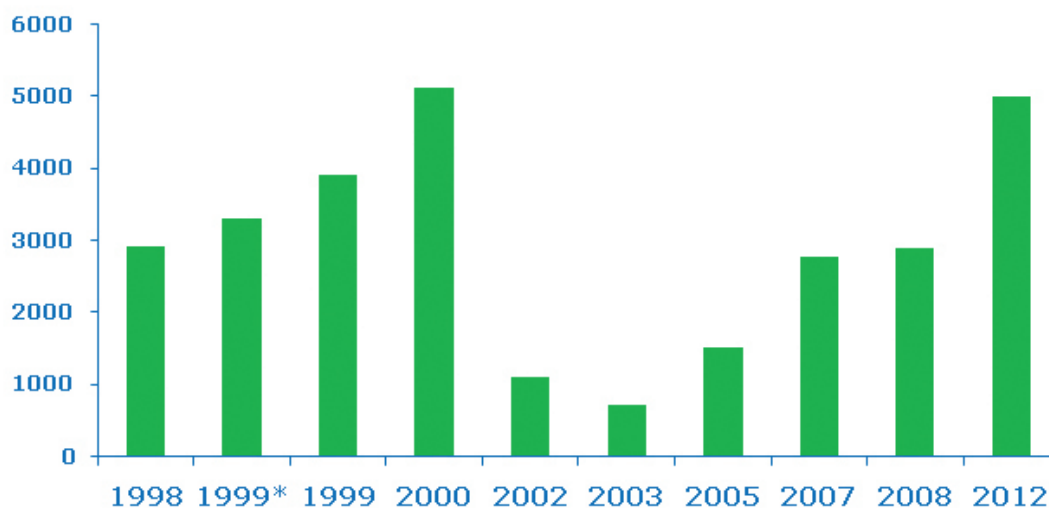


Table 10. Population size of Gobi Bear

Years when population studies were conducted	Population	Sources
1960	15-20	Bold, 1967
1970	20<	Bold and Dulamtseren, 1981
1980	20-25	Dash and Tumur, 1983; Bugaev and Tumur, 1985
1985	25-30	Jirnov and Il'inskii, 1985
1990	20<	Shaller <i>et al.</i> , 1993; McCarthy, 2000
1995	30-35	Tulgat, 1995
2004	20<	Batsaikhan <i>et al.</i> , 2004; Amgalan <i>et al.</i> , 2005
2011	22-31	Odbayar <i>et al.</i> , 2011
2013	30<	Mijiddorj, 2013

Sources: Mijiddorj, 2013

POPULATION STATUS AND TREND OF SAIGA ANTELOPE: Studies on the population status and trend of Saiga antelope was conducted by scientists from Academy of Sciences and WWF Mongolia. The result showed that since 2009, the Saiga Antelope’s distribution has widened, the population is stable with the possibility of increasing (graph 5).

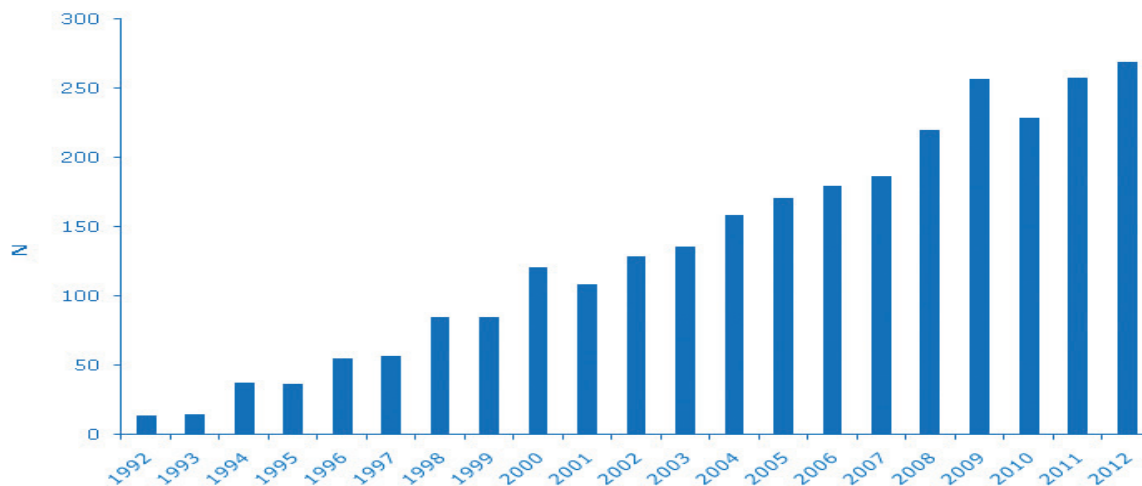


Graph 5. Saiga Antelope population status and trend

Source: Amgalan, Buuveibaatar, Chimeddorj *et al.*, 2008.



POPULATION STATUS AND TREND OF PRZEWALSKI’S HORSE: The reintroduction of the Przewalski’s horse, is considered relatively successful. The population of Przewalski's horse is likely to steadily grow as seen in the reintroduced population at Khustai Nuruu National Park (graph 6).



Graph 6. Population dynamic of Przewalski’s horses at Khustai Nuruu National Park

Sources: Usukhjargal and Bandi, 2013.

POPULATION STATUS AND TREND OF FOREST UNGULATES

The status of the population of forest ungulates in Mongolia has been charted. Based on recent studies, populations of Elk, Red Deer and Siberian Musk Deer are likely to reduce while populations of Wild Boar and Roe Deer are increasing.

POPULATION STATUS AND TREND OF OTHER RARE MAMMALS

There haven’t been any significant changes to mammal populations since 2009 (fourth National Report) as reported by scientists. For example, based on the results of the 2010 mammal population evaluation study conducted across Mongolia, the population of Ibex was 35,300, Mongolian Gazelle was 5,700,000, Black-tailed Gazelle was 11,900, while Asiatic Wild Ass population was 14,000 (Assessment of Steppe Ungulates, 2010).

Changes to the natural landscape and condition are negatively affecting the wild mammals. Especially for species

Spermophilus undulatus-
Long-tailed
Ground Squirrel



Ovis ammon - Argali Sheep

inhabiting the Gobi, such as Gobi Bear, Bactrian Camel, Saiga Antelope, Black-tailed Gazelle and Asiatic Wild Ass, water shortage and habitat loss are impacts of climate change.

The Mongolian government and other non-government organizations are working together to alleviate these threats. For example, a generator was installed at the Great Gobi Strictly Protected Area A in 2013 to induce precipitation and improve the habitat of the Gobi bear.

Natural threats such as desertification, water shortage and land degradation are affecting the landscape of the species habitat, which is changing year to year. Drying out of oases in the Gobi has changed the seasonal position of species such as Bactrian Camel, Asiatic Wild Ass and Black-tailed Gazelle.

The pressure on the habitats of these species has threatened 16% of mammals to be Regionally Extinct, 2% of mammals to be Critically Endangered, 11% to be Endangered and 3% to be Vulnerable.

It is common for mammals to migrate across the border and the grazing potential of this side of the border is deteriorating. Threats of logging and wild fires are increasing.

As stated in the constitution, the wildlife is state property and the proper use and conservation of these species is regulated by the constitution, Law on Environment Protection (1995), Law on Wildlife (2012) and other applicable rules and regulations.

Hunting of wild animals is also regulated by applicable laws.

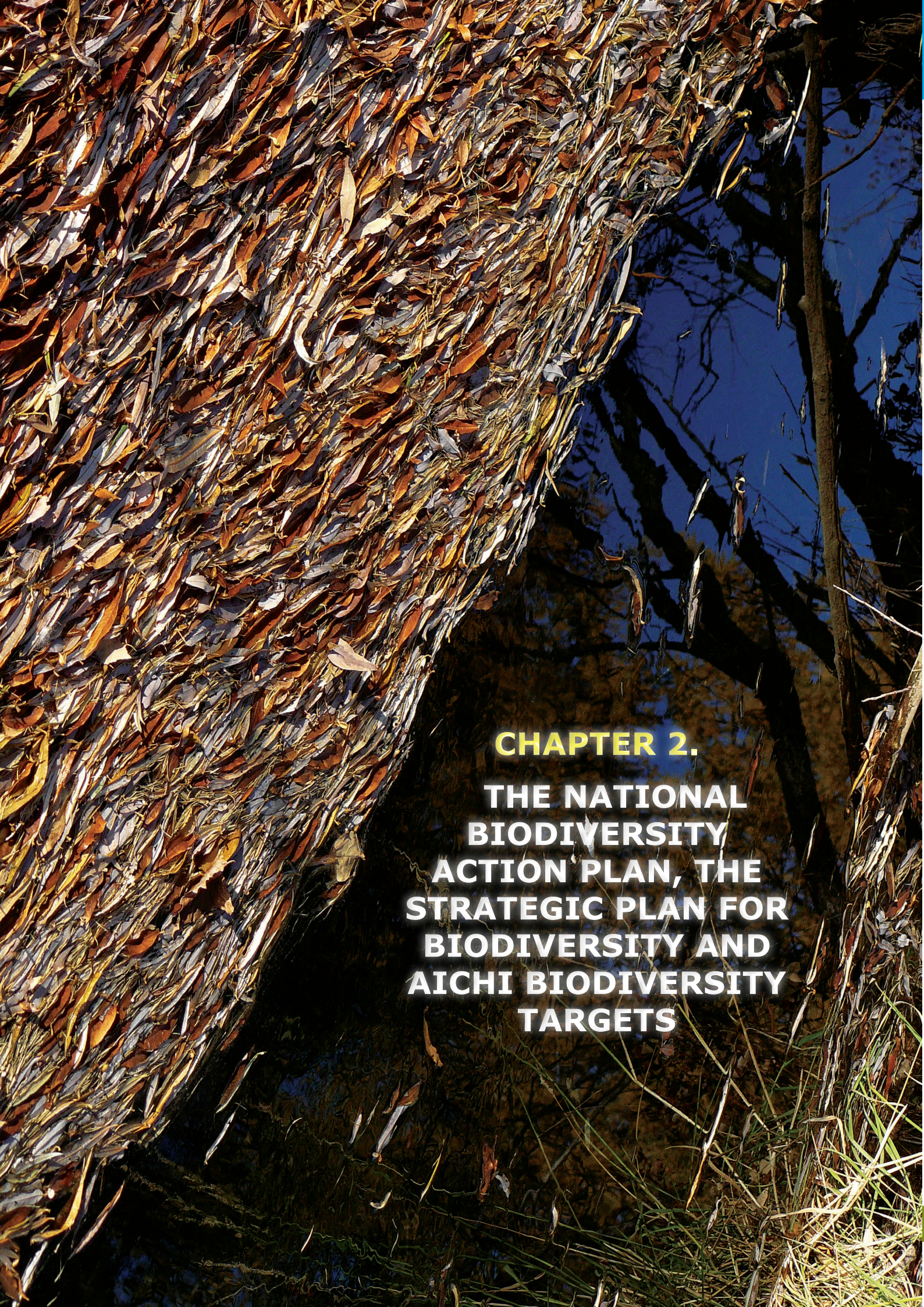


The conservation and sustainable use of Mongolian fauna is vital to the subsistence of herders and the national economy. For example, fees from hunting regulations bring in concentrations of funds to the state budget. Also, animals are a large part of the Mongolian diet.

In 2011, the Mongolian government updated the ecological-economical value of animals, animal resource use fee, and hunting permit fees. However, the development of the mining sector and land use has degraded the habitat of wildlife and the hunting stock is decreasing.



Marmota sibirica-
Mongolian Marmot



CHAPTER 2.
**THE NATIONAL
BIODIVERSITY
ACTION PLAN, THE
STRATEGIC PLAN FOR
BIODIVERSITY AND
AICHI BIODIVERSITY
TARGETS**



CHAPTER 2.

THE NATIONAL BIODIVERSITY ACTION PLAN, THE STRATEGIC PLAN FOR BIODIVERSITY AND AICHI BIODIVERSITY TARGETS

It should be noted that Mongolia has reviewed its initial NBAP, which was produced in 1996, twice – in 2000 by Mr. Batbold Dorjgurkhem and Dr. Laurie Andrew (Batbold and Laurie, 2002,) and in 2009 by a team of Mongolian experts led by Dr. Adiya Yansanjav (Adiya, Enkhbileg and Ariunbayar, 2010).

The first review in 2000 indicated that the NBAP was only partially filling its objectives due to there being issues with project implementation; a lack of coordination, monitoring and management meant there was a lack of detailed awareness of overall implementation of projects. Although there were holes in overall coordination a significant number of actions were being implemented. This review highlighted the lesson that in order to improve the efficiency of output to ensure greater NBAP targets are met, improved implementation of the plans should be exercised.

As a result of this a committee was established to oversee the implementation of the NBAP and a trust fund provided funding for some of the actions with support from the GEF/UNDP Biodiversity project.

Seven years after the first review was published by the Ministry of Nature Environment and Tourism (MNET) Mongolia reviewed the NBAP again in 2009 with the

support of the UNDP 'Community based conservation of biodiversity in the Mountain landscape of Mongolia's Altai Sayan Eco-region' project.

The main result of the evaluations show that the NBAP fulfilled its main objectives and it made its potential contribution to protect biodiversity in Mongolia. According to the evaluation, 46 activities were 90-100 per cent complete, 39 activities 70-80 per cent complete and 3 activities (0-20 per cent completed) were ongoing or had just started being implemented. This indicated that 96.5 per cent of the NBAP had been achieved. Collectively the reviews generally reported positively on the fulfilment of Mongolia's original NBAP.

The subsequent stage led to the recruitment of Mr. D. Enkhbileg as project manager, who produced a draft of the revised NBSAP for Mongolia before an Inception Workshop in June 2012. The project manager has developed a draft of the content after organizing various discussions with many participants of the previous Biodiversity Action Plan development process. In addition, the Australian NBSAP was used as a model for reasons of similarities between the two countries: vast area, low human density, traditional knowledge of nomadic herders and local groups living traditionally off the land.

Until the revised NBSAP has been completed the original NBAP will be referred to along with the 2011-2020 Aichi targets. Here we indicate the overarching CBD strategic goal and the related CBD targets with the Mongolian national objectives that correspond followed by the actions taken towards those objectives, targets and goals.



STRATEGIC GOAL A: ADDRESS THE UNDERLYING CAUSES OF BIODIVERSITY LOSS BY MAINSTREAMING BIODIVERSITY ACROSS GOVERNMENT AND SOCIETY

TARGET 1: BY 2020, AT THE LATEST, PEOPLE ARE AWARE OF THE VALUES OF BIODIVERSITY AND THE STEPS THEY CAN TAKE TO CONSERVE AND USE IT SUSTAINABLY.

NBAP OBJECTIVE 6: ESTABLISH NATIONAL EDUCATION AND TRAINING PROGRAMMES FOR BIODIVERSITY CONSERVATION.

Seven actions have been listed in Mongolia's NBAP involving the establishment of a degree programme in ecology, training teachers and higher level officials in ecological issues, assist schools throughout the country in obtaining appropriate training materials and establish national quizzes in schools as part of institutionalised courses in the curriculum. The establishment of a conservation training centre to provide high level training to staff of the Ministry of Environment and Green Development as well as a library at MEGD for related materials.

- The Mongolian general secondary school curriculum was amended to include wildlife species protection under the broader topics of Human Environment, Biology and Civic Education for grades 1-12 (6-18 years old).

- Teaching materials and training for teachers including a methodology handbook was provided to support amendments to the curriculum.

- The National University of Mongolia developed a curriculum on 'Assessment and Monitoring Biodiversity' for PhD level students.

- 10 credits for environment protection have been applied to the curriculum of Bachelor teaching degrees at Mongolian State University of Education (MSUE) and 8 credits for a Master's degree in teaching subjects.

- The Government of Mongolia announced 2013 as the "Year of Environment education".

- The Ministry of Education and Sciences organised the distribution of books and posters covering themes of environment protection throughout secondary schools.



- The Ministry of Education and Sciences in partnership with the Swiss Development Cooperation produced a handbook designed to implement the Civic Education course into the curriculum for grades 1-3. Training materials including a DVD and book were published and 500 copies distributed to schools. Additionally teacher training sessions were held for this subject.

- Formal and informal training and interactive public outreach TV programmes and online distance learning were conducted on environment protection.

- MOS and NUM organised 'Shore birds of Mongolia', a field course for students university in 2012 and 2013. Field guides and training materials were also produced for students of these courses.

- MCST, MOS, NUM and the Ecology Education Centre of NUM organised training on biodiversity and sustainable tourism for special interest sites in 2013 for the private sector, government organizations and NGOs.

- The Ministry of Environment and Green Development, the Ministry of Education, the Swiss Development Cooperation's Coping with Desertification Project, Environment Information Training Centre and the Mongolian Environment Consortium piloted the 'Eco School Programme' in schools during 2007, since then 77 schools of 11 provinces were registered in the programme involving 3500 teachers and 6000 students.

- In 2012-2013 WSCC organised public lectures and presentations for school children and ecology clubs on their project involving artificial nests for raptors. Training materials were distributed throughout two eastern provinces with funds from International Wildlife Consultants.

- About 6 million tugrugs were given by the Nature Conservation Fund to support the Ecology Education Centre of NUM for organizing and updating education materials.

- Within the project 'Strengthening Environmental Governance in Mongolia', an environment journalism module for the Bachelor degree at Mongolia's Press Institute was introduced.

- The Steppe Forward Programme of NUM, Zoological Society of London and with support from MOS continue to organise annual summer field courses on biodiversity and monitoring for Mongolian and international university students.





- Amendments to the law on environmental impact assessment in 2012, includes participation of the public, especially local residents, in the review process.

NBAP, OBJECTIVE 7: ESTABLISH A PUBLIC INFORMATION PROGRAMME TO IMPROVE PEOPLE'S KNOWLEDGE OF BIODIVERSITY AND THE IMPORTANCE OF CONSERVING IT.

Five actions are listed involving monitoring public perceptions of biodiversity and its importance along with increased media coverage of environmental issues and the publication of magazines and production TV and radio programmes on issues of the environment. Public awareness was raised through arts competitions, the promotion of local museums and history clubs as well as publication by MEGD of periodic fact sheets and newsletters to raise awareness at various levels throughout society.

- Environment and Society Protection and the Green Quest Journal were published with financial help from the Environment Protection Fund.

- The Ministry of Environment and Green Development has committed to producing a report on the condition of the environment every two years.

- In frame of building a biodiversity database, government and non-government organizations such as MEGD, NUM, MAS, ZSL, and the Mongolian Ornithological Society developed the Mongolian Red List of Birds and Summary Conservation Action Plans for Mongolian Birds and the Mongolian Red List of Plants and Summary Conservation Action Plans during 2011 to 2012. The rare plant species Conservation Action Plan was also produced.

- In 2013, MEGD published an updated version of the Mongolian Red Book.





- The Ministry of Environment and Green Development and Eagle Broadcasting jointly organised the Green Mongolia project in October, 2013. The project aims to understand the impact of mining on ecological balance and investigate approaches to mitigate impacts and disseminate this information and study through media outlets.

- The Saker falcon was declared the national bird of Mongolia by the government in 2012. In the frame of this work, various activities including national student competitions, the issuing of a national bird postage stamp, souvenirs, the 'Khaan Falcon' photography prize with categories covering sustainable tourism, green development, nature conservation, history and tradition was organised by MCST, MOS, NUM and MEGD

- Events were organised such as environment training to generally improve students' knowledge and awareness. For example, academic contests involving environment essay competitions, eco-friendly school contests, and gardening

and green development competitions were conducted.

- The journal *Ornis Mongolica* was launched which is a summary of studies and conservation work on birds. The journal was initiated by MOS and produced by scientists of NUM and MAS. This work will contribute to the study and dissemination of biodiversity in Mongolia.

- A series of handbooks and field guides of biological diversity and Special Protected Areas have been developed through cooperation between NUM, MOS, MEGD, Oyu Tolgoi and NGOs. These works are an important contribution to publish up-to-date, accurate information on studies of biodiversity and conservation in Mongolia. Publications include: -The Dictionary of Vertebrate Animals of Mongolia (Gombobaatar, 2009); A Field Guide to the Mammals of Mongolia (Batsaikhan, Samiya, Shar, Sarah King, 2010); A photographic guide to the birds of Mongolia (Gombobaatar, 2010); Field Guide to the Common Birds of Mongolia (Tsevenmyadag, Nyambayar, Munkhzul, 2010); Birds of Khurh-Khuiten Valley





(Gombobaatar and Jargalsaikhan, 2011); A Field Guide to the Birds of Hustai (Gombobaatar and Usukhjargal, 2011); Red List Summary of Vertebrate Animals of Mongolia (Gombobaatar *et al.*, 2011), Birds of Khan Bogd (Purevsuren, 2013); Photographic Guide to Mongolian Birds (Boldbaatar and Tugsbayar, 2013); A Field Guide to the Amphibians and Reptiles of Mongolia (Terbish, Bunkhbayar, Munkhbaatar, 2013); A Field Guide to the Flora and Fauna of Gun Galuutai.

- MOS organised the international conference on Asian raptors with the Asian Raptor Research and Conservation Network in 2010. More than 200 participants from 23 countries attended.

- A consultation meeting with the topic 'making electricity pylons safer for birds' was organised between MEGD, Ministry of Energy, NUM and MOS with funds from MEGD in 2013. This resulted in a prevention model to retro fit on pylons and instalment manual being published.

- International training on Shore birds was organised by MOS, MEGD and other partners in Ulaanbaatar and Tsagaan Nuur in Bulgan province in 2012 to 2013.

- MOS facilitated 'World Migratory Bird Day' in Mongolia, Ulaanbaatar in May

2012 and 2013. MEGD, Mongolian Council of Convention on Biological Diversity and school children from Binder, Khurkh, Bayan-Adraga and Dadal soums of Khentii province participated in the event.

- The Mongol Post Company and MOS produced a limited edition postage stamp collection in December 2012, titled 'Beautiful Birds'. A photo exhibition of the birds of Mongolia took place in Ulaanbaatar and a joint exhibition 'Raptors of Mongolia' took place in France in 2012.

- Biobeers event by the Steppe Forward Programme and supported by WCS continues to take place to publicise biodiversity studies and conservation activities in Mongolia to members of MEGD and across various research and conservation departments.

- For the project 'Ecosystem Based Adaptation Approach to Maintaining Water Security in Critical Water Catchments in Mongolia' (MON/12/301): handbook produced, advertising material for public, students have had interactive lectures about climate change and eco-system adaptations, broadcasting TV and radio programmes, publishing 'eco-corner' in a national newspaper every 2 weeks.





- Representatives from MEGD, NUM, MAS and NGOs participated in the TV programme Biodiversity of Mongolia.

- The UNDP cooperated with the project to implement adaptation measures in rivers basins (MON/12/301). Student essay competition titled 'what can we do to prevent and adapt to climate change?' was announced among university students in April 2013 in order to improve knowledge about climate change, highlight the importance on reducing it.

- A short-animation contest was organised covering the topic of 'climate change and its adaptation'. The Environment department of the Dornogobi province's local governance office with the education department had announced an essay competition named 'protecting nature' among general education high school students in order to highlight issues regarding nature's resources and increase awareness.

- The Directory of Important Bird Areas (IBAs) in Mongolia was published by MAS and WSCC with funding from the Consultant-Trust Fund of Japan.

- For the first time in Mongolia eco-camp training was held within the international Eco School programme. This training was organised jointly by the Environment Information Training Centre, DuDu private education fund, and students from the School of Natural Sciences of Switzerland. This was backed by support from MEGD, SDC, Nature Conservation Centre, and UBS channel.

- TNC established an information centre to organise training and provide information to children in eastern Mongolia to protect and see the benefits of their land and nature in Toson Hulstai PA.

- The Leopard Protection Fund has been organising an eco-tour summer camp training since 2013 which will continue to be organised each year among the children of Gurvantes soum, Umnugobi province. In 2013, 20 children overall attended the course. The training has its own curriculum and student and book.

- MCST, MOS, NUM, government and non-government organisations organised various events and activities such as 'Mongolian bird watching day' and 'National bird day'.





TARGET 2: BY 2020, AT THE LATEST, BIODIVERSITY VALUES HAVE BEEN INTEGRATED INTO NATIONAL AND LOCAL DEVELOPMENT AND POVERTY REDUCTION STRATEGIES AND PLANNING PROCESSES AND ARE BEING INCORPORATED INTO NATIONAL ACCOUNTING, AS APPROPRIATE, AND REPORTING SYSTEMS.

ALTHOUGH THE ORIGINAL NBAP DOES NOT CONTAIN OBJECTIVES THAT DIRECTLY RELATE TO TARGET 2, MONGOLIA HAS CARRIED OUT A NUMBER OF ACTIONS THAT INCORPORATE BOTH POVERTY REDUCTION AND ISSUES OF BIODIVERSITY AND ENVIRONMENT MANAGEMENT.

• Although the economy is evolving the disparity in wealth is increasing and about 30% of the population is still living in poverty and acute social problems are increasing. The government has paid attention to this matter and has established MEGD to implement a “Green Economy” in order to broaden the potential for income for those not directly involved in extraction industries. Farming schemes and cooperatives and advances in eco-tourism are examples of this.

• In 2012, the discussion on lowering gas emissions, and sustainable development were set during the Rio+20 the UN 3rd conference on sustainable development in Rio de Janeiro. For this matter MEGD and the UNDP are producing Mongolia’s National Strategy for Green Development.

• According to the Green Economy Initiative and the UN Environment’s PAGE (Partnership for Action for Green Development) Programme, Mongolia has become one of the 30 signatories to aim for a green economy in 2020.

• The Ministry of Environment and Green Development has been given the power to evaluate national projects and programmes to be implemented with regard to its 2012-2016 programmes, vetting and influencing large scale industrial and logistical projects in line with priorities to maintain and protect biodiversity.





- The new government, and MEGD in particular, has focused on policies to introduce eco-friendly technology and to renew the appropriate management and legal conditions to facilitate progress that is based on the green concept, intensifying actions for broadening cross-sectoral cooperation and to support foreign and domestic investments in these areas.



TARGET 3. BY 2020, AT THE LATEST, INCENTIVES, INCLUDING SUBSIDIES, HARMFUL TO BIODIVERSITY ARE ELIMINATED, PHASED OUT OR REFORMED IN ORDER TO MINIMISE OR AVOID NEGATIVE IMPACTS, AND POSITIVE INCENTIVES FOR THE CONSERVATION AND SUSTAINABLE USE OF BIODIVERSITY ARE DEVELOPED AND APPLIED, CONSISTENT AND IN HARMONY WITH THE CONVENTION AND OTHER RELEVANT INTERNATIONAL OBLIGATIONS, TAKING INTO ACCOUNT NATIONAL SOCIO ECONOMIC CONDITIONS.

- Mongolia has been renewing the legal framework on environment protection and introduced a new package of environmental law. These laws included





the law on development at river basins in 2009, and laws on soil protection and preventing desertification (2012) were developed as well as laws on forestry, water, fauna, environmental impact assessments, waste removal and treatment have all been amended and the Law on Environmental Protection has been amended with some additions.

- There are several points for encouraging public involvement or participation in biodiversity conservation and to help reduce impact in biodiversity with incentives in the following laws:

-Article 45 of the Law on Environment Protection included considerations for community participation on natural resource management and economic incentives for nature conservation in article 54.

-In article 10 of Law on Soil Protection, incentives were introduced for soil protection, preventing desertification.

-In the article 39 of the Forestry Law, economic incentives for forest conservation were introduced.

- Tenure processes for forest patches planted with own investment (article 4, 4.2.) was introduced. The statement A-96 / 71 on afforestation planning, managing and financing the forest industry, estimating, purchasing

and owning cultivated forest was enacted by the Minister of Environment and Green Development and Minister of Finance in March 29, 2013. One aim of the statement is to encourage citizens to plant forest on their own land with their own investment to improve stewardship.

- The aims behind such policy changes are to provide a good environment for green development involving tax exemptions on income from more efficient, environmentally friendly equipment, support sustainable use of natural resources and reduce environmental pollution and waste. The law on income tax (article 18, 18.1.8, article 19, 19.11) provides a list of 41 instruments which are approved by the government meeting in June 2012.

- A decision by Parliament in June, 2013 ensured that afforestation, forest industry and wooden goods from import shall be exempt from custom tax and VAT until December, 2017. The government acknowledges that this decision will support afforestation and increase the amount of imported wooden goods, and hopefully decrease illegal logging and improve forest conservation.



TARGET 4. BY 2020, AT THE LATEST, GOVERNMENTS, BUSINESS AND STAKEHOLDERS AT ALL LEVELS HAVE TAKEN STEPS TO ACHIEVE OR HAVE IMPLEMENTED PLANS FOR SUSTAINABLE PRODUCTION AND CONSUMPTION AND HAVE KEPT THE IMPACTS OF USE OF NATURAL RESOURCES WELL WITHIN SAFE ECOLOGICAL LIMITS.

NBAP, OBJECTIVE 3: IMPLEMENT AN EFFECTIVE ENVIRONMENTAL IMPACT ASSESSMENT PROGRAMME TO UNDERSTAND THE EFFECTS OF PROPOSED ACTIONS ON BIODIVERSITY

ONE OF THE 4 PRIMARY FIELDS OF MONGOLIA'S MID-TERM STRATEGY PLAN ON SOCIAL ECONOMIC DEVELOPMENT IS THE "GREEN ECONOMY" ACCORDING TO THE 2012-2016 ACTION PLANS. THE GOVERNMENT STRATEGY PLAN FOR THE ENVIRONMENT 2012-2016 IS AIMED AT CONSERVING AND RESTORING BIODIVERSITY AND PROMOTING ITS SUSTAINABLE USE.

- In 2012, the Law on Environmental Impact Assessment has been applied under the revised law. The law consists of strategic environmental assessment, environmental impact assessment and cumulative impact assessments.

- The requirements for offset methods to be included in planning were included in the Law on Environmental Impact Assessments.

- The Nature Conservancy with MEGD developed the handbook of offset methodology. Professional training for governmental and non-governmental workers has also been conducted in this work.

- Environmental auditing procedures were approved in 2013 and made a legal requirement for entities which are operating in the extraction and use of natural resources.

NBAP, OBJECTIVE 10: PREVENT PASTURE DETERIORATION THROUGH OVERGRAZING

KEY ISSUES WERE HIGHLIGHTED IN THE ORIGINAL NBAP, AND THE NEED TO DETERMINE THE HEALTH OF MONGOLIA'S PASTURE LAND, ESTABLISH GRAZING CAPACITIES AND ESTABLISH PROCEDURES TO ENSURE THAT NUMBERS AND SPECIES ARE WITHIN GRAZING CAPACITY OF A GIVEN PASTURE LAND AND THAT THE BEST TRADITIONAL AND MODERN GRAZING MANAGEMENT SYSTEMS ARE USED.

- A national methodology to determine pasture health was approved in 2011. This methodology is based on those piloted over the last 5 years by the Environment Monitoring Department under SDC's Green Gold project. The methodology training has been conducted throughout the country and monitoring is organised in over 300 soums.



- The Institute of Water, Climate, Nature and Environment has determined pasture capability and has given carrying capacity information to the government. In 2010-2011 65% of the pasture was sufficiently healthy to support its current livestock and in 2011-2012 80% of the pasture was sufficient because of the abundant precipitation. However the remaining 20% exceeded its carrying capacity by 2-5 times the stated amount.

- A programme to support livestock breeding has been implemented between 2003 and 2015. Therefore cow, pig and chicken farmers were supported by the State Government with subsidies and loans.

- A pilot model of collective pasture management has been implemented in Toson Hulstai Natural Reserve by The Nature Conservancy.

- The Suburban Pasture Project by the Millennium Challenge Corporation by the US government has been implemented involving 300 herder groups to developed intensive and half-intensive milk farms near Ulaanbaatar, Darkhan and Erdenet from 2008 to 2013. The aim is to improve a culture of sustainable land use by the settled farmers and improve their earning potential.

- The organised activities are in experimental stages. The legal framework is lacking in the development of intensive farming.

NBAP, OBJECTIVE 11: ESTABLISH EFFECTIVE LAND-USE PLANNING CONTROL AND TRANSPORTATION POLICY

ACTION 3: REGULATING THE TRANSPORTATION FIELD PLANNING TO REDUCE THE EFFECT ON THE BIOLOGICAL SPECIES. THE MAIN GOAL OF THE PLANNING IS TO REDUCE THE AMOUNT OF BRANCHED ROADS.

- In 2011 Mongolia had 49,250 km of road, of which 2,629.8 km are asphalted, 1,483.6 km are gravel paved roads, 1,126.3 km improved earth roads and 7,373.3 km simple earth. In 2013 3,321.4 km of road was planned to be asphalted and 2,984 m of iron and concrete bridges were planned. However 1,700 km roads were asphalted and 924 m of bridge were built. These roads and bridges connected 6 provinces with Ulaanbaatar and all provinces are planned to be connected with Ulaanbaatar.

- Now there are 1,905 km of railway in Mongolia and the government railway policy was approved in 2010. A total of 5,600 km railway was planned to be built in the east, west and south-east regions of Mongolia. The goal of railway development is to produce transport that is economically effective and ecologically sound, connecting infrastructure and populations in the mining sectors. The South and Easterly railway will be 1,800 km long and being built between 2013 and 2016. East railway is in technical and logistical development stages however the



South railway is under construction. The environmental impact of unmade roads on the route of the South railway between Tavan Tolgoi and Gashuun Sukhait is estimated at 50.5 billion tugrugs (29 million USD) in environmental damage.

- The south railway will be built with 132 tunnels to allow passing livestock. The East railway has 102 tunnels for livestock and 32 tunnels specifically designed for wild animals.

NBAP, OBJECTIVE 12: DEVELOP STRONG REGULATIONS TO PROTECT BIODIVERSITY FROM THE EFFECTS OF MINING

IN ACCORDANCE WITH MONGOLIA'S ECOLOGICALLY SOUND ECONOMIC DEVELOPMENT GUIDELINES MINIMIZATION OF ENVIRONMENTAL IMPACT IN MINING PRODUCTION THROUGH APPROPRIATE TECHNOLOGY IS REQUIRED. ACTIONS OUTLINED UNDER THIS OBJECTIVE INVOLVE STRINGENT ENVIRONMENT PROTECTION AND RESTORATION, OR OFFSETS, ARE TO BE UNDERTAKEN BY THE EXTRACTION COMPANIES DURING AND AFTER OPERATIONS HAVE CEASED. ENVIRONMENT IMPACT ASSESSMENTS ARE TO BE CONDUCTED FOR NOT ONLY THE MINING SITES THEMSELVES BUT ALSO OF NEW SETTLEMENTS AND OTHER DEVELOPMENTS THAT RESULT FROM THE MINES. ADDITIONALLY REGULATIONS SHOULD BE DEVELOPED TO DEAL WITH MINING WASTE PRODUCTS WHICH ARE TO BE REMOVED, STORED OR DISPOSED OF.

- In a total area of 20.2 million ha there are 3,540 licences relating to mining, of which 2,303 licences over 19.3 million ha are for mining exploration and

1,237 over 880,600 ha have been granted for mining proper. The land under license covered 25.2% of all land by the end of 2009, but in the start of 2013 this had reduced to 12.9%.

- The Environment Impact Assessment Law (article 9.10) states that companies should submit an environmental management plan with a budget for its implementation for a given project. In order to let the project commence, the company must submit 50% of the cost within that budget to MEGD.

- The national standard (MNS 6200: 2010) for restoration of land which has been subject to crude oil exploration and extraction was introduced.

- The law to prohibit mineral exploration and mining operations at headwaters of rivers, water protection zones and forested areas (known as the 'long name law') was approved resulting in the revoking of some mining licences.

- In the Environment Protection Law projects relating to natural resource extraction are to be audited every 2 years during operation, conclusions from the audit regarding offsets are to be implemented by organisation or project.

- The Nature Conservancy along with the government is testing the "Development by Design" approach, which is to equally combine mining development with the necessity to protect livestock, wildlife and habitats.



NBAP, OBJECTIVE 14: ENSURE THAT AGRICULTURE AND FORESTRY ARE CARRIED OUT IN WAYS COMPATIBLE WITH BIODIVERSITY CONSERVATION

THE NBAP ACKNOWLEDGES THAT UNSOUND PRACTICES HAVE CAUSED DECREASES IN FORESTS AND GRASSLANDS, REDUCING PRODUCTIVITY AND BIODIVERSITY. ACTIONS ARE FOCUSED ON ADOPTING NEW FORESTRY PRACTICES THAT ENSURE SUSTAINABILITY AND HELP TO CONSERVE MONGOLIA'S BIODIVERSITY. A NUMBER OF BANS ON CUTTING ANY REMAINING PRIMARY FOREST AND CLEAR-CUTTING AS WELL AS SUPPORT FOR SOLAR AND WIND ENERGY TO REMOVE PRESSURE FOR FIREWOOD ARE ADDRESSED. SIMILARLY SUPPORTS FOR ECOLOGICALLY SOUND AGRICULTURAL PRACTICES ARE HIGHLIGHTED. THESE INVOLVE LAND USE AND SOIL EVALUATIONS BEFORE CULTIVATION OF VIRGIN SOIL OR MAJOR CHANGES IN CROPS, IMPROVED WATER MANAGEMENT SYSTEMS, NO-TILL AGRICULTURE IN ORDER TO PROTECT THE SOIL FROM WATER AND WIND EROSION, THE USE OF GREEN MANURE AND OTHER FORMS OF ORGANIC MATERIALS IN ADDITION TO CROP ROTATIONS TO ENABLE NUTRIENT BALANCE IN THE SOIL AND MINIMISE THE USE OF CHEMICAL FERTILIZERS. ALSO THE USE OF PLANTS AND ANIMALS THAT ARE ADAPTED TO ENVIRONMENTAL CONDITIONS IN MONGOLIA IS ADDRESSED SO THERE ARE FEWER REQUIREMENTS FOR SUPPLEMENT NUTRIENTS AND GREATER YIELD RELATIVE TO INPUT COST.

ACTION 2: INTRODUCE AND SUPPORT ECOLOGICAL AGRICULTURAL PRACTICES

- Agricultural regulations were developed to provide tax incentives on the use of registered efficient and environmentally sound equipment and technologies.

- Polytunnels and greenhouses collectively covering 50,170 m² and

81,740 m² were delivered in 2011 and 2012 respectively to 21 provinces along with training and a 50% government subsidy to fund local growing projects.

- Within the 'Coping with Desertification' project of Swiss Development Cooperation, improved methods were introduced such as natural windbreaks and plastic mulching to decrease water loss and soil erosion. Over 643 ha land, 70% of the surface is protected from soil erosion as a result.

NBAP, OBJECTIVE 16: DEVELOP RENEWABLE, CLEAN ENERGY SOURCES AND ENSURE ENVIRONMENTALLY SAFE TRANSPORT OF FOSSIL FUELS

- Since 2009, The National Centre for Renewable Energy is operating its activities under state-owned factories. Amendments to the Renewable Energy Law in 2007 are currently running.

- Revising and approving work of the National Programme on Renewable Energy began in 2005.

- In Mongolia the green energy development strategy is run by the Global Green Growth Institute and the Ministry of Energy, implemented on January 1, 2013.





This project aims to help Mongolian policy makers by giving them recommendations based on estimates and conclusions of different forms of energy supply to meet energy demands while minimizing the impacts on the environment. Within the project, 4 scenarios have been developed which show how energy supply and usage will increase until 2035. To enter environmentally friendly, modern technologies in the energy sector and to use renewable energy source in a broad extent, the following activities have been conducted:

- Project Durgun water power station was built during 2008 to 2011. Taishir water power station from 2008 – 2011, Salkhit – wind power station began in 2013, and a wind farm project in Choir from 2011. The project to use waste gas to produce energy has been implemented in Darkhan city.

- Heating technologies were implemented using ground source heat in schools, kindergartens and hospitals in Tuv province.

- Solar heating trials were conducted in Ulaanbaatar households and buildings. Solar energy lighting has been widely used in streets.

- Solar energy is used to mechanise 10 deep wells in Tuv, Dundgobi, Uvurkhangai, Arkhangai and Sukhbaatar provinces. Research is being developed to consider the building a solar power plant.

- Work to build a 5-30 mVt solar wind power station is planned.

STRATEGIC GOAL B: REDUCE THE DIRECT PRESSURES ON BIODIVERSITY AND PROMOTE SUSTAINABLE USE

TARGET 5. BY 2020, THE RATE OF LOSS OF ALL NATURAL HABITATS, INCLUDING FORESTS, IS AT LEAST HALVED AND WHERE FEASIBLE BROUGHT CLOSE TO ZERO, AND DEGRADATION AND FRAGMENTATION IS SIGNIFICANTLY REDUCED.

NBAP, OBJECTIVE 15: IDENTIFY AND RESTORE DAMAGED LANDS

ACTIONS OUTLINE THE NEED TO ASSESS TOTAL DAMAGED LANDS TO DETERMINE AREAS, DISTRIBUTION AND REASONS FOR DEGRADATION. PRIORITIES FOR RESTORATION SHOULD THEN BE ESTABLISHED. RESTORATION METHODS SHOULD BE DEFINED AND TAILORED RELATIVE TO EACH INDIVIDUAL CASE. IN ALL CASES THE CAUSE OF DEGRADATION MUST BE STOPPED PRIOR TO RESTORATION.

- A surface and underground water monitoring program was approved in 2011. Amendments to the water pollution payment law, methods to determine the economic value of clean water services and waste water removal services were approved. Moreover, mineral water exploitation and protection



procedure, mineral water exploitation license amendments, and mineral water exploitation registration instructions are now mandatory.

- The nature conservancy made determinations on the eco-system of the steppe region lakes and marshy places in the scale of the valuation. This became the significant information in natural resource management.

- Methods for conducting technical and biological restoration in areas degraded by mining activities were adopted in 2009 and methods for calculating the cost of conducting restoration in areas degraded by mining activities and assessing environment damage costs and calculating offsets were adopted in 2010.

- The damaged soil database was established in January 2012 and open to the public. The database includes reports on causes of damage and location of the damaged or polluted soil. The database information is designed to be simple and quick to use and is open to improve local community control.

- From 2009 to 2011, the areas damaged by mining activity which have not been restored were inventoried in 20 provinces revealing 4,256 hectares of damaged land which is in need of restoration.

- The Environmental Information Centre cooperated with MAS and the Geo-Ecology Institute, funded by SDC, to produce desertification and land degradation assessments and mapping.

NBAP, OBJECTIVE 14: ENSURE THAT AGRICULTURE AND FORESTRY ARE CARRIED OUT IN WAYS COMPATIBLE WITH BIODIVERSITY CONSERVATION.

ACTION 1. ADOPT FORESTRY PRACTICES THAT ENSURE SUSTAINABLE FORESTS AND CONSERVE BIODIVERSITY.

- The Green belt project is being implemented in 3 stages between 2005-2035. Implementation involved tree plantation: 16 provinces with 253 ha in 2010, 365 ha over 15 provinces in 2011, 256 ha over 15 provinces in 2012 and 106 ha across 14 provinces in 2013.

- The National Forest Programme was developed and implemented between 2001 and 2015.

- Mongolia became a partner of UNREDD+ and renewed the action plan for national REDD+ development integrating with Green development in 2011. The assessment of the financial value of Mongolia's forest sector and its key financial constraints was made in 2013.

- In cooperation with UNFAO and GIZ, preparations are underway to conduct a national forest inventory in 2014 with methods consistent with international standards.

- Custom payment law amendments and VAT amendments were approved to ensure wood products imported are not



subject to tax and have full exemption from import duties. Reforestation activities are also exempt from VAT.

- Forest and steppe fires have been reduced by implementing fire management activities in 2013. A forest and steppe fire protection system was established involving revisions to estimation of losses caused by wild fire, producing a list of mandatory tools and skills for fire fighters and establishing the board of fire prevention and protection in 9 provinces. In these provinces regular patrols were established in accordance with the level of fire hazard, and protocols for when wild fire breaks out we set.

- A forest fire map has been developed with hotspot information and related environment information included in a database for the map.

- Under the Forest Tenure System 1,062 partnerships consisting of 21,000 members performing stewardship activities now own roughly 2.34 million ha of forest area.

- Forest pest research has been completed over 1.3 million ha from a total 2.2 million ha planned and pest control has been conducted over 53,000 ha of a total of 121,000 ha planned.

- The scientists of Institute of Botany established field stations to ensure the robust practice and facilitate expansion in international cooperation.

- The Institute of Geo-ecology have begun a project on changes of the forest ecosystem in North-west Khentii in order to mitigate against changes and improve the techniques and technology to mechanise the work of planting seedlings to restore. The Food and Agriculture Organization of the UN has implemented a national forest support programme, and taken measurements against harmful forest pests, such as Siberian Silk Moths, and supporting the development of forestry management. In addition GIZ, has successfully implemented a nature protection and natural resource management project.



• The Mongolian-Korean Green Belt project, initiated in 2007, is set to continue to 2016. 200 ha forest were planted in 2008; 105 ha of new forest was planted and 113 ha re-planted in 2009; 110 ha forest planted, 115 ha re-planted in 2010; 110 ha of forest planted, 37 ha forest affected by fire was re-planted and saxaul forest protection in 10 ha was conducted in 2011; and 100 ha forest planted, 30 ha re-planted and 60 ha forest affected by fire was re-planted and 10 ha saxaul forest were planted in 2012. Also in 2013, a total of 100 ha of forest were planted in Lun soum of Tuv province and Dalanzadgad of Umnugobi province. Afforestation with 96,000 saplings in 200 ha in Bayanzag in Bulgan soum of Umnugobi province was carried out. In 2014, the preparation work for afforestation was conducted (digging, setting up a fence, electricity resource, and creating wells etc) as well as more than 1 million seedlings including 15 species have been nurtured.

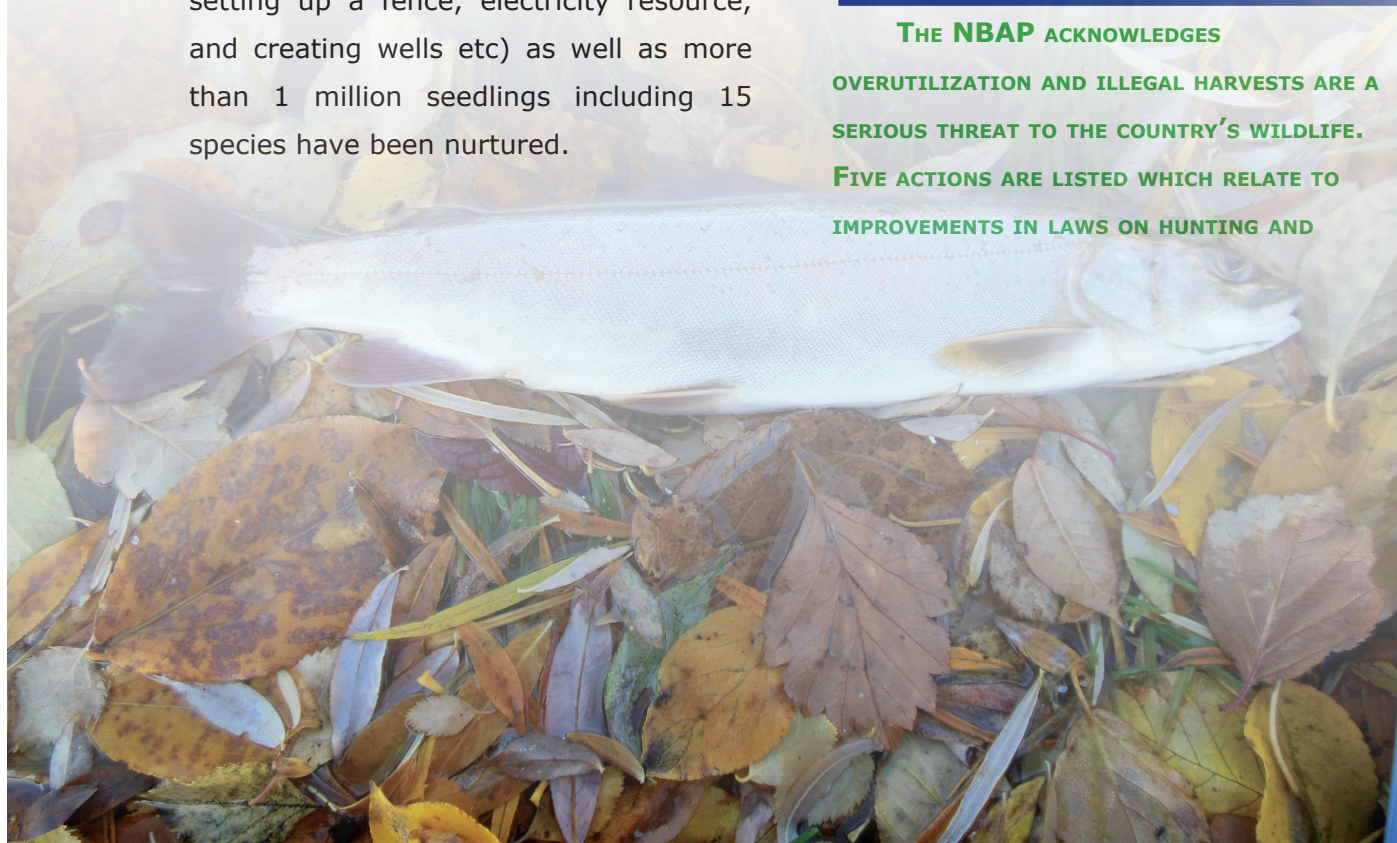
TARGET 6. BY 2020 ALL FISH AND INVERTEBRATE STOCKS AND AQUATIC PLANTS ARE MANAGED AND HARVESTED SUSTAINABLY, LEGALLY AND APPLYING ECOSYSTEM BASED APPROACHES, SO THAT OVERFISHING IS AVOIDED, RECOVERY PLANS AND MEASURES ARE IN PLACE FOR ALL DEPLETED SPECIES, FISHERIES HAVE NO SIGNIFICANT ADVERSE IMPACTS ON THREATENED SPECIES AND VULNERABLE ECOSYSTEMS AND THE IMPACTS OF FISHERIES ON STOCKS, SPECIES AND ECOSYSTEMS ARE WITHIN SAFE ECOLOGICAL LIMITS.

NBAP, OBJECTIVE 9: CONTROL HUNTING AND FISHING

THE NBAP ACKNOWLEDGES

OVERUTILIZATION AND ILLEGAL HARVESTS ARE A SERIOUS THREAT TO THE COUNTRY'S WILDLIFE.

FIVE ACTIONS ARE LISTED WHICH RELATE TO IMPROVEMENTS IN LAWS ON HUNTING AND





FISHING AS WELL AS PROVIDING TRAINING FOR LAW ENFORCERS. PUBLIC INFORMATION WILL ALSO ADDRESS ISSUES RELATING TO THE NEED FOR NATURAL STOCKS TO REPLENISH AND THE RESPONSIBILITY OF LOCAL PEOPLE TO PREVENT ILLEGAL FISHING. WHERE HARVEST QUOTAS ARE APPLIED ENSURE THEY ARE BASED ON SOUND SCIENTIFIC KNOWLEDGE FOLLOWING THE PRECAUTIONARY PRINCIPLE ENSURING THAT QUOTAS ARE KNOWN TO BE SUSTAINABLE. ALONG WITH ENSURING ADEQUATE QUOTAS ARE IN PLACE THE NBAP STATES REVIEWS OF THE LAW MAY BE NECESSARY REGARDING WILDLIFE EXPLOITATION, FISHING SEASONS, PERMITS AND METHODS OF TAKING.

- During 2007-2012 the Taimen national protection programme was established. During 2008-2015 fish protection and breeding programmes are being implemented.

- A fish breeding and research centre was established under the auspices of MAS in September 2009.

- The centre and the Taimen Conservation Fund established fish breeding sites in Olon Gol Belcher in Tumurbulag soum, Khuvsgul province and Dood Tsagaan Lake in Tsagaan Nuur soum.

- Since 2011, the Institute of Biology of MAS has been conducting studies on ecology, age, growth and reproduction of Mongolian grayling in Taishir hydropower station at Gegee Lake in Gobi-Altai province and ecology, animal species,

changes in the biodiversity in Naiman Lake in Uvurkhangai province.

- WWF and the Geo-Ecology Institute of have cooperated on fish distribution and resource surveys in lakes Khyargas and Buir.

- Fish breeding ponds have been established in Erdene sum of Tuv province for breeding Lenok and Carp which reproduce in spring and summer in this pond. Also conserving the species of fish by implementing breeding technologies in Mongolia.

- The hunting laws introduced in 2000 have been assimilated into the new wildlife law of 2012. The law on the use of natural resources was revised in 2012.

- In 2011, the regulation on the costing of use of wildlife resources was introduced. In 2013 two regulations were introduced on the working procedures of hunting organisations and the issuing of special licenses to hunt or trap rare animals were adopted.

TARGET 7. BY 2020 AREAS UNDER AGRICULTURE, AQUACULTURE AND FORESTRY ARE MANAGED SUSTAINABLY, ENSURING CONSERVATION OF BIODIVERSITY.

NBAP, OBJECTIVE 2: ESTABLISH EFFECTIVE POPULATION CONTROL MEASURES TO LIMIT HUMAN IMPACT ON THE NATION'S BIODIVERSITY



ACTION 1. DETERMINE THE COUNTRY'S CARRYING CAPACITY BASED ON THE AVAILABILITY OF RENEWABLE NATURAL RESOURCES (SOIL, WATER, FOREST, GRASSLAND, RENEWABLE ENERGY ETC.), AND THE REQUIREMENT TO PROTECT THE ENVIRONMENT AND CONSERVE BIODIVERSITY, ACHIEVING A QUALITY STANDARD OF LIVING FOR ITS CITIZENS WHILE MAINTAINING THE COUNTRY'S MOST IMPORTANT CULTURAL TRADITIONS.

- Between 2007-2012 the project "Strengthening Integrated Water Resource Management in Mongolia" was conducted with aims to support implementation of integrated water resource management at national and river basin levels by developing and improving capacity at selected institutes and agencies.

- The plan of Integrated Water Resource Management during 2014-2021 was approved in 2013, in accordance with the Mongolia state law on water.

- Ecosystem Based Adaptation Approach to Maintaining Water Security in Critical Water Catchments in Mongolia (MON/12/301) project 2012-2015 funded by adaptation fund The Baikal Basin Trans boundary Ecosystem Project (IWC 78317) funded by UNDP and GEF was set up in 2012 and is due to run operations until 2015.

NBAP, OBJECTIVE 10: PREVENT PASTURE DETERIORATION THROUGH OVERGRAZING

AT THE TIME THE NBAP WAS PUBLISHED PASTURELAND ACCOUNTED FOR 80% OF MONGOLIA'S LAND, ALTHOUGH IT STATES ESTIMATES ARE KNOWN TO VARY, IT DOES ACKNOWLEDGE A SIGNIFICANT AMOUNT IS OVERGRAZED AND DAMAGED AS A RESULT OF CAUSES OTHER THAN GRAZING. ACTIONS STATE THAT MINISTRIES RESPONSIBLE SHOULD MEET TO ESTABLISH PLANS FOR A NATIONAL ASSESSMENT OF MONGOLIA'S PASTURE LAND USING THE FULL EXTENT OF AVAILABLE KNOWLEDGE AND EXISTING INFORMATION.

- National method for assessing pastoral health was approved in 2011 and training and monitoring was conducted over 300 soums and it was designed as part of SDC's Green Gold project with the National Agency of Meteorology and Environment Monitoring.

- Intensified husbandry development support programme has been implemented and government supports to farmers by giving subsidised loan in 2003-2015.

- The Peri-urban Rangeland Project of the U.S Millennium Challenge Corporation is focused on supporting land-use schemes to encourage investment and improve sustainable management of pastureland around Ulaanbaatar, Darhan and Erdenet cities.

- Institute of Meteorology, Hydrology and Environment identifies the capacity of stocking and gives information to government every year.



NBAP, OBJECTIVE 14: ENSURE THAT AGRICULTURE AND FORESTRY ARE CARRIED OUT IN WAYS COMPATIBLE WITH BIODIVERSITY CONSERVATION.

ACTION 1. ADOPT FORESTRY PRACTICES THAT ENSURE SUSTAINABLE FORESTS AND CONSERVE BIODIVERSITY.

(see Aichi target 4, NBAP Objective 14)

TARGET 8. BY 2020, POLLUTION, INCLUDING FROM EXCESS NUTRIENTS, HAS BEEN BROUGHT TO LEVELS THAT ARE NOT DETRIMENTAL TO ECOSYSTEM FUNCTION AND BIODIVERSITY.

NBAP, OBJECTIVE 8. CONTROL POLLUTION OF AIR, WATER AND SOIL.

THE NBAP STATES POLLUTION AS BEING A SERIOUS PROBLEM WHICH IS INCREASING AND THEREFORE REQUIRES SIGNIFICANT ACTION. FOUR ACTIONS ARE DESCRIBED TO ESTABLISH CLEAR STANDARDS FOR ACCEPTABLE LEVELS OF TOXIC AND BACTERIAL SUBSTANCES IN THE AIR, WATER AND SOIL. THE ACTIONS ADVISE STRICTER OR HIGHER STANDARDS IN PROTECTED AREAS. IMPROVEMENTS IN MONITORING OF POLLUTANTS AND SUPPLYING THE NECESSARY EQUIPMENT AND TRAINING TO DO SO ARE ADVISED. IT IS STATED THAT ENVIRONMENT IMPACT ASSESSMENT RESULTS SHOULD BE USED IN THE DECISION ON GRANTING PERMITS FOR DEVELOPMENT PROJECTS AND STRONGER REGULATIONS SHOULD BE ENFORCED ON GRANTING PERMITS.

- Third stage of actions to develop the field of meteorology and environmental monitoring is ongoing until 2015.

- The national meteorological and environmental monitoring network in Mongolia consists of 130 stations,





186 control points, 128 water analysis points, 1 glaciations study station, 2 lake study stations, 21 environmental monitoring laboratories, 36 aerial stations (7 stations to observe the top layers of the atmosphere, 15 solar radiation stations, 2 stations of agro-meteorology, 11 sandstorm stations, 1 permanent radar). The Institute of Meteorology and Environment, Environmental Information Centre, Central Laboratory of Environment and Metrology, Aviation Metrology Centre, Khuriin Shim Centre, Professional Agency of Air Quality and numerous agencies of meteorology and environmental monitoring.

- In the frame of technology reform in meteorology and environmental monitoring, currently 31.2% of climate stations, 40% of solar radiation stations, 14.3% of air quality stations and 43% of all measurement work on pasture soil moisture, data is collected automatically.

- In 2009, air quality was defined by just two different parameters in 4 stations. This was improved from 2010 with funding support from the French government; five air quality monitoring stations, a mobile station and 4 new monitoring points were established in capital city. Under this activity, air quality is continuously monitored at 15 points by 3 to 8 parameters (sulphur dioxide, nitrogen dioxide, carbon monoxide, ozone level, content of big particles etc.) near Ulaanbaatar.

- Under the National meteorological and environmental monitoring network, there are 119 river and 16 lake monitoring stations, totally 135 water research stations are working. Ground water level and temperature measured in 28 water holes and wells and headwaters studied in 14 springs. Samples of water planktons and benthic substances analysed at 79 stations and chemical analysis of water samples conducted at 140 stations. Five hydrology stations provided by equipment to measure water levels and temperature.

- During 2011-2012 as part of the national programme for combating desertification the National Agency of Meteorology and Environmental Monitoring conducted research on soil quality in Mongolia; 1,500 monitoring posts were established to assess land degradation, soil quality, and flora.

- The following new standards were formulated and approved those associated by contamination of air, water and soil from 2009. Water quality: Maximum level of pollutant substances in underground water; Air quality: Maximum amount of chemicals from burnt matter, maximum amount of pesticides remaining in an air and ground; organic insecticide introduced. Soil quality: Methodology to determine content of organochlorine pesticides and polychlorinated biphenyl by gas chromatography using electronic detector - MNS ISO 10382:2012; Insulating liquid: Methodology to determine polychlorinated



biphenyls pollution by gas chromatography using capillary column - MNS CEI EN 61619:2011.

NBAP, OBJECTIVE 12: DEVELOP STRONG REGULATIONS TO PROTECT BIODIVERSITY FROM THE EFFECTS OF MINING

ACTION 3. DEVELOP REGULATIONS TO REMOVE AND STORE MINING WASTE AND ESTABLISH A SYSTEM FOR ITS DISPOSAL.

- In 2012, the law on waste was renewed and 11 regulations and acts approved relating to that law.
- In 2013 Mongolia signed up to the Minamata Convention on Mercury.
- The accumulated Mercury cyanide waste of Selenge, Umnugobi, Bayankhongor, Uvurkhongai and Gobi-Altai province was neutralised then buried in 2009 under government regulations relating to contaminated earth. In

dedicated waste banks 38,836m³ of contaminated earth was neutralised and buried. Additionally contaminated earth from illegal gold mining from Selenge, Umnugobi, Bayankhongor, Uvurkhongai, Gobi-Altai, and Tuv provinces was neutralised.

- Proposals submitted relating to the proper management of mercury delivered to the UNIDO and submitted to Global Environmental Fund.

- The programme on slow demountable organic pollutants is to be carried out during 2006-2020.

- Nine chemicals included in the appendix of the Stockholm Convention on Persistent Organic Pollutants (POP) were added to the list of toxic and hazardous chemicals prohibited for use in Mongolia. Import and usage of these chemicals been banned.

- Arrangements on the approval of harmful chemicals were amended, approval procedure for the use of harmful chemicals, and protocols for the safe disposal of harmful chemicals have also been amended in order to minimise the presence of slow degrading organic pollutants derived from a variety of burning processes, such as those outlined in annex 'C' of the Stockholm Convention.

- During a cross ministerial meeting held in 2007 in Thailand, UNIDO initiated a forum to support best practice and





technology to decrease dioxin and furan formation and their accumulation in the environment. Action plan for 2007 to 2011 was approved.

- Research was instigated in order to produce standardised protocols to clean areas contaminated by petrol production activities. These protocols were delivered to the Development Agency of Czech Republic and approved.

TARGET 9. BY 2020, INVASIVE ALIEN SPECIES AND PATHWAYS ARE IDENTIFIED AND PRIORITISED, PRIORITY SPECIES ARE CONTROLLED OR ERADICATED, AND MEASURES ARE IN PLACE TO MANAGE PATHWAYS TO PREVENT THEIR INTRODUCTION AND ESTABLISHMENT.

While updates have been made in legislation and law, Mongolia's current NBAP does not list objectives or actions specifically relating to the control of invasive species or measures to manage pathways to prevent their introduction and establishment in the wild. This could be a consideration for the revised NBSAP.

- The Fauna Law was introduced in 2012. Also In 2010, amendments were made to the Law on Wild Flora which was initially introduced in 1995. Articles on invasive animals and plants were included in these laws.

- Governmental and non-governmental organizations such as MEGD, NUM, MAS and MOS planned to define and study invasive alien species composition and to organise a national meeting although funding is still needed.

TARGET 10. BY 2015, THE MULTIPLE ANTHROPOGENIC PRESSURES ON CORAL REEFS, AND OTHER VULNERABLE ECOSYSTEMS IMPACTED BY CLIMATE CHANGE OR OCEAN ACIDIFICATION ARE MINIMISED, SO AS TO MAINTAIN THEIR INTEGRITY AND FUNCTIONING.

NBAP, OBJECTIVE 4: ESTABLISH A RESEARCH PROGRAMME THAT IMPROVES KNOWLEDGE OF BIODIVERSITY AND RELEVANT THREATS

ACTION 1 OF THIS OBJECTIVE IS RELEVANT TO TARGET 10, THIS ACTION IS TO INITIATE A RESEARCH PROGRAMME TO IMPROVE UNDERSTANDING OF THE FUNCTIONING OF MONGOLIA'S ECOSYSTEMS AND THE PROCESSES AFFECTING THEIR HEALTH. THIS ACTION SETS OUT TO DETERMINE WHICH ANTHROPOGENIC ACTIVITIES ARE SUSTAINABLE AND WHICH ARE NOT. PRIORITY WAS GIVEN TO UNDERSTANDING THE CARRYING CAPACITY OF THE IMPORTANT GRASSLAND ECOSYSTEM.

- In the frame of the Project 'Strengthening Integrated Water Resource



Management in Mongolia' Integrated water management national assessment report was conducted by MEGD and Government of The Kingdom of Netherlands.

- The Nature Conservancy identified conservation priorities and threats in the grasslands and Gobi regions and are continuing this work in Khangai with funding from the Mongolian government.

- In the frame of the Ramsar Convention and the East Asian and Australasian Flyway Partnership wetlands are protected in a number of projects such projects on the 'Sustainable Management and Conservation of Migratory Birds in the Wetlands of Bayannuur, Dashinchilen and Tsagaan nuur' have been working to establish a research centre for monitoring shore birds, and to cover Bayannuur of Bulgan aimag into Local Protected Area as a base for research and conservation

of migratory birds. This work requires further policy and financial support for its continuation.

- A project to improve water supply and availability in Bayannuur sum of Bulgan aimag P2010-00140-2 was implemented by KOICA in 2010-2012.

NBAP, OBJECTIVE 10: PREVENT PASTURE DETERIORATION THROUGH OVERGRAZING.

MONGOLIA'S GRASSLANDS ACCOUNT FOR THE MAJORITY OF LAND COVER AND THE NBAP ACKNOWLEDGES THAT A SIGNIFICANT PORTION OF IT IS AT RISK OF DESERTIFICATION AS A RESULT OF CLIMATE CHANGE AND OVERGRAZING OR OTHER POOR LAND-USE PRACTICES. THE INTEGRITY OF THOSE GRASSLANDS AND THEIR CAPACITY TO PRODUCE VALUABLE ANIMAL PRODUCTS AND PROVIDE OTHER ECOSYSTEM SERVICES SUCH AS





WATER PURIFICATION, CARBON STORAGE, AND NUTRIENT EXCHANGE DEPENDS UPON INTACT SOIL, STORES OF NUTRIENTS AND WATER, PLANT DIVERSITY AND VIABLE INTERNAL NUTRIENT CYCLES AND ENERGY FLOWS. **THE NBAP ADDRESSES THE POTENTIAL ANTHROPOGENIC IMPACTS ON MONGOLIA'S GRASSLANDS THROUGH MEASURES TO ESTABLISH GRAZING CAPACITIES AND TO ENSURE SOUND MANAGEMENT OF PASTURE LAND THROUGH A COMBINATION OF MODERN AND TRADITIONAL TECHNIQUES.**

(For additional information see Aichi target 4, NBAP objective 10).

NBAP, OBJECTIVE 11: ESTABLISH EFFECTIVE LAND-USE PLANNING AND TRANSPORTATION POLICY.

LAND USE IS DIVIDED INTO SEVEN LAND CLASSIFICATIONS INCLUDING AGRICULTURAL LAND, FOREST TERRITORY AND WATER TERRITORY. **WITHIN THESE RELEVANT CLASSIFICATIONS ACTIONS HAVE BEEN LISTED TO DEVELOP POLICY ON LAND USE TAKING INTO ACCOUNT BIOLOGICAL RESOURCES AND THEIR DISTRIBUTION. BASED UPON THIS POLICY**

SOUND ECOLOGICAL LAND-USE PLANS WERE TO BE DEVELOPED WITH ENFORCEABLE RULES TO PROTECT BIODIVERSITY.

(For additional information see Aichi target 4, NBAP objective 11).

NBAP, OBJECTIVE 14: ENSURE THAT AGRICULTURE AND FORESTRY ARE CARRIED OUT IN WAYS COMPATIBLE WITH BIODIVERSITY CONSERVATION.

ACTIONS OUTLINE A NEED TO ADOPT SUSTAINABLE FORESTRY PRACTICES WHICH HELP TO CONSERVE BIODIVERSITY. **SIMILARLY ECOLOGICALLY SOUND AGRICULTURAL PRACTICES WERE TO BE IMPLEMENTED WITH MEASURES TO PROTECT SOIL STRUCTURE AND INTEGRITY. IN TURN SOME EFFECTS OF THIS WILL BE HEALTHY GRASSLANDS LESS SUSCEPTIBLE TO DESERTIFICATION.**





ACTION 1. ADOPT FORESTRY PRACTICES THAT ENSURE SUSTAINABLE FORESTS AND CONSERVE BIODIVERSITY.

(For additional information see Aichi target 5, NBAP objective 14).

ACTION 2. INTRODUCE AND SUPPORT ECOLOGICAL AGRICULTURAL PRACTICES.

(For additional information see Aichi target 4, NBAP objective 14).

NBAP, OBJECTIVE 15: IDENTIFY AND RESTORE DAMAGED LANDS

A PROCESS OF ASSESSMENT OF DAMAGED LANDS AND A CLASSIFICATION OF VARYING DEGREES OF DAMAGE WAS TO BE DEVELOPED. FROM THIS, PRIORITY AREAS WERE TO BE HIGHLIGHTED FOR RESTORATION WITH TAILORED RESTORATION METHODS DESIGNED FOR EACH SITE TO ENSURE EFFECTIVE OUTCOMES.

(For additional information see Aichi target 5, NBAP objective 15)

STRATEGIC GOAL C: TO IMPROVE THE STATUS OF BIODIVERSITY BY SAFEGUARDING ECOSYSTEMS, SPECIES AND GENETIC DIVERSITY.

TARGET 11. BY 2020, AT LEAST 17 PER CENT OF TERRESTRIAL AND INLAND WATER, AND 10 PER CENT OF COASTAL AND MARINE AREAS, ESPECIALLY AREAS OF PARTICULAR IMPORTANCE FOR BIODIVERSITY AND ECOSYSTEM SERVICES, ARE CONSERVED THROUGH EFFECTIVELY AND EQUITABLY MANAGED, ECOLOGICALLY REPRESENTATIVE AND WELL CONNECTED SYSTEMS OF PROTECTED AREAS AND OTHER EFFECTIVE AREA-BASED CONSERVATION MEASURES, AND INTEGRATED INTO THE WIDER LANDSCAPES AND SEASCAPES.

NBAP, OBJECTIVE 1: ESTABLISH A COMPLETE PROTECTED AREA SYSTEM REPRESENTATIVE OF ALL ECOSYSTEMS AND PROTECTING ENDANGERED SPECIES, INCLUDING JOINT ACTIONS WITH THE RUSSIAN FEDERATION AND THE PEOPLE'S REPUBLIC OF CHINA.

MONGOLIA HAS OUTLINED SEVEN ACTIONS UNDER THIS OBJECTIVE. THESE ACTIONS OUTLINE PLANNING OF PA BOUNDARIES INVOLVING A TOTAL OF EIGHTY-FIVE SITES CONSISTING OF



NATIONAL CONSERVATION PARKS, STRICTLY PROTECTED AREAS, NATURE RESERVES AND NATURAL AND HISTORICAL MONUMENTS AS WELL AS EXTENSION TO PROTECTED AREA BOUNDARIES. PERCENT COVER OF PROTECTED AREA WAS ALSO A FOCAL POINT OF THIS OBJECTIVE AND WAS INTENDED TO INCREASE FROM EIGHT TO EIGHTEEN PERCENT UNDER THE 1996 NBAP. MONGOLIA HAS ALMOST REACHED THIS TARGET WITH 17.4% OF LAND UNDER PROTECTION. A FURTHER 9.6% IS CLASSIFIED AS LOCAL PROTECTED AREA. THE ULTIMATE AIM FOR ESTABLISHING 30% PROTECTED AREA COVERAGE IS STILL MAINTAINED AND REMAINS UNLESS THIS IS CHANGED AND STATED IN MONGOLIA'S FUTURE NBSAP. ACTIONS LISTED ALSO INDICATE A NEED TO ESTABLISH SOUND GUIDELINES FOR DELINEATING PROTECTED AREA ZONES. ALONG WITH AREA INCREASES, PUBLIC SUPPORT FOR PROTECTED AREAS IS OUTLINED AS AN IMPORTANT FACTOR IN THEIR INTEGRITY. PROCESSES OF CONSULTATION, JOINT PLANNING, PROPER DISSEMINATION OF INFORMATION, TRAINING OF LOCAL PEOPLE AND THE ESTABLISHMENT OF STANDARDISED MONITORING PROCEDURES ARE STATED AS ACTIONS UNDER OBJECTIVE 1 OF MONGOLIA'S NBAP. ADDITIONALLY TRADITIONAL LAND USE FORMS OF GRAZING AND UTILIZING OTHER BIOLOGICAL NATURAL RESOURCES IS PROMOTED WITH RECOMMENDATIONS FOR THEIR REVIVAL WHERE APPROPRIATE WAS ADVISED.

- In accordance to the National Programme on SPAs (Specially Protected Areas) at least 30% of the total territory of Mongolia is planned to be included in

the PA agenda. Currently with step-by-step development, a total area of 27.2 million hectares of land (or 99 SPAs) has been put under special protection by the state. Ninety nine SPAs occupy about 17.4% of the total territory of Mongolia. Out of the 99 SPAs, 20 of them are national reservations occupying about 12,402 ha of land (equal to 45.6% of the total area of the SPAs), 32 are parks occupying 11,888 ha of land (43.7%), 34 are natural reserves occupying 27,79 ha of land (10.2%), and 13 are natural landmarks occupying 129.6 ha of land (0.5%). In addition to this, by the decisions of the Citizens Delegation Council of the local soums and provinces, there are a total number of 911 Local Protected Areas (LPA) occupying about 16.31 million hectares of land. The LPAs cover about 10.3% of the total territory of Mongolia. However, since the registration procedures of LPAs are incomplete and the regimes to protect them are obscure the issue of including them in the list is unregulated. For this reason, LPAs have not been considered the same as SPAs. In spite of this, if the areas occupying the territories of both the LPAs and the SPAs are summed up together, the total territory of Mongolia under state protection reaches 27.7%.

- In 2013, 15 areas from 24 different soums (or from 9 different provinces) were planned to be put under state protection and thus surveys were initiated.

- At the moment preparations for talks are being made in Russia in which a



cross-border SPA named “Amarin Khel” is soon to be established in the Onon-Balj NP.

- Russia has already agreed to establish a cross-border SPA named “Uvs Lake Depression” with Mongolia.

- Research works conducted on a number of rare bird populations in Mongol Daguur Strictly Protected Area located around the borders of Mongolia, Russia and China. Mongolian Gazelle and large predators in Mongol Daguur SPA and Yakhi Nuur Nature reserve, fish studies in Khar-U, Durgun, Khyargas, Airag lakes and census of Argali Sheep in Khoridol Saridag SPA etc.

- There are currently 31 authorities responsible for the protection of SPAs; however there are some natural landmarks and reserves which are protected by the

local Environment and Tourism agencies. Under present conditions the issue of skilled personnel has been addressed. Currently there are 625 employees, and out of these 325 of them are forest rangers. By 2014 these rangers will be working according to specific norms. It is expected that the workforce has been built up of competent employees.

- SPA management councils and regional environmental councils have already been established, and are working on developing and implementing management plans. So far, 19 regional environment management plans have been developed based on established standardised method and best practice. Furthermore during 2012 and 2013, a management efficiency assessment was conducted in 13 SPA’s in order to evaluate the effectiveness of implementation.



THIS GRAVEL PIT POND IS A SUITABLE AREA FOR CREATING A BIRD WATCHING SITE



- Also changes were made in the laws related to SPAs and comments are currently being taken through public discussion on the first draft of the Law.

- A number of regulations were endorsed by the minister and took effect regulations on the following areas were introduced: -Area under Local Protected Area status; -Use of mineral water in SPA; -Temporary regulations on land use and issue in the SPA; -Control the number of wolves and feral dogs in the SPA; -Conducting research work in SPA; -Regulation on controlling the structure; -Collecting samples, taking measurements; -Conducting re-introductions; -Kill and catch wildlife to control the contagious diseases; -Running forestry activities in SPAs; -Regulation on calculating the ecological and economical impact of illegal activities in SPA.

- Standard of requirements of the accommodations and services of eco-tourism in SPA' developed and approved by MEGD in 2013.

- Due to the introduced regulation on collecting, allocating and reporting income from natural resource usage in 2014, it is mandatory to allocate 30% of income from the SPA to the protection and restoration of the SPA.

- Discussion held to renew the regulation for conducting research in SPAs adopted by the Minister of Environment in 1996, in accordance with present conditions.

- Research works studying the changes in ecology, the dynamics of biodiversity, the worth of SPAs and the capacity of tourism have been conducted and are being used to report and operate future activities. In 2012, out of a total number of 63 research





works conducted by the SPA authorities: 4 were related to rivers, its water flow and its compositions; 6 were related to forests and woodlands; 4 were related to soil and subsoils; another 6 were related to plants and plantations; 31 were related to mammals; 2 were related to insects and amphibians, 3 were related to birds; 4 were related to economy and society; and 3 were related to history, tourism and famous landmarks. As for 2013, with funding from the World Wildlife Fund the SPA authorities wrote a total number of 52 research papers: 11 were related to plants; 30 were related to endangered species of mammals; 3 were related to fish; another 3 were related to forests; 2 were related to preserving historical and cultural heritage; and another 3 were related to rivers and waters.

- Since 2011, a five year project called "Strengthening the Protected Area Network" was initiated with the support of the UNDP and the World Wildlife Fund.

- The Steppe Forward Programme of NUM used the Wildlife Picture Index involving the largest camera trap studies in Mongolia reaching important research and conservation outputs. Some of results of this work resulted in Myangan Ugalzat NP boundaries being changed.

- WSCC was involved the establishment of the Erdenesant LPA. It covers 35,000 ha and 8 species of raptors breed and 6 species of raptors crosses during their migration.

TARGET 12. BY 2020 THE EXTINCTION OF KNOWN THREATENED SPECIES HAS BEEN PREVENTED AND THEIR CONSERVATION STATUS, PARTICULARLY OF THOSE MOST IN DECLINE, HAS BEEN IMPROVED AND SUSTAINED.

NBAP, OBJECTIVE 4: ESTABLISH A RESEARCH PROGRAMME THAT IMPROVES KNOWLEDGE OF BIODIVERSITY AND RELEVANT THREATS.

ACTION 2 OF THIS OBJECTIVE IS TO DEVELOP POPULATION AND DISTRIBUTION INFORMATION ON MONGOLIA'S FLORA AND FAUNA WITH PRIORITY GIVEN TO THREATENED, ENDANGERED AND ENDEMIC SPECIES. THIS IS A FIRST STEP IN UNDERSTANDING THREATS AND HOW TO MITIGATE THEM FOR SPECIFIC SPECIES.

- A national programme on endangered and critically endangered species was approved by decision of the government in 2011. Within this programme, management plans on critically endangered animals are in development stages.

- The National Security Council developed recommendations and notes to take action on the conservation of wildlife and plants, which were subsequently delivered to the government. According to the recommendations, a national



programme on the conservation of flora was developed with summary action plans and comments on the national programme from ministries.

- The Institute of Biology, MAS had conducted research on Tengis and Shishged river basins for registering in the Ramsar Convention. Due to the work, habitat improvements for mammals such as Reindeer, River Otters and Brown Elk, with reducing populations and distribution, will be protected.

- The Nature Conservancy has conducted an ecological assessment of the grasslands of eastern Mongolian as well as the Gobi with government funding. The assessment has been continued in Khangai region,

- From 2008-2010 the Institute of Biology of MAS conducted a series of research on the ecology of Mongolian mammals and relevant conservation management. Between 2011-2013 research titled 'Ecology and Conservation of Key and Rare Mongolian Mammals and between 2012-2014 and Biodiversity in Mongolian Daurian steppe were conducted.

- In order to improve the habitat of the Gobi Bear and to accelerate research on the species, a working group was established which developed 7 objectives and 41 tasks for implementing the following: landscaping springs, establishing food supplements, and conducting population studies with camera traps.

- Zoological Society of London supported three EDGE fellows conducting research on the Long eared jerboa, Saiga antelope and wild Bactrian camel. Following on from this workshops were held in the region of Gobi 'A' to identify major threats to the wild Bactrian camel in 2010. Based on this work the Steppe Forward Programme and the Mongolian Academy of Science submitted the Wild Bactrian camel action plan to the MEGD in 2013.

- Ulaanbaatar city council, MEGD and NUM reintroduced the Eurasian Beaver to Tuul river basin successfully.

- Since 2008, the snow leopard has been part of a long-term study in which 19 snow individuals were monitored with electronic collars after being left in Umnugobi province's Gurvantesoum, near the Tost Mountain range. From preliminary results the female leopards have travelled 40-60 km into the mountains whilst the males have actively travelled as far as 450 km. There are also other ongoing projects of small mammals, birds and plants.

- In the frame of the Mongolian biodiversity database, international working group meetings of the Mongolian red list of birds in 2009 and Conservation Action Plans of birds in 2011 and the Mongolian red list of plants in 2012 took place respectively in cooperation between MEGD, ZSL, NUM, MAS, SFP, MOS and other governmental and non-governmental organizations. As a result of this work Mongolia became the



first country in Asia to complete the Red Lists of all vertebrate species.

- Hunting of Saker Falcon was banned for 5 years as a result of this species being announced as Mongolia's National Bird.
- The field study and training centres in Gobi, Khentii Nuruu and Khuvsgul lake established by NUM take place long term research and conservation on biodiversity.

NBAP, OBJECTIVE 5: ESTABLISH NATIONWIDE INFORMATION AND MONITORING SYSTEM FOR BIODIVERSITY CONSERVATION.

THE NBAP RECOGNISES THE NEED TO MONITOR SPECIES IN ORDER TO COLLECT ROBUST TREND DATA TO UNDERSTAND SPECIES BEHAVIOUR, RELATIONSHIPS, INTERACTIONS AND THREATS. THIS PROCESS FOLLOWS ON FROM THE INITIAL RESEARCH PROGRAMME LISTED ABOVE AND INVOLVES COLLECTING BIOLOGICAL INFORMATION ON SPECIES, ENVIRONMENTAL DATA AND SOCIO-ECONOMIC INFORMATION IN ORDER TO MAKE INFORMED DECISIONS REGARDING SPECIES PROTECTION AND EXTINCTION PREVENTION. **FOUR ACTIONS** ARE LISTED IN THE **NBAP** WHICH INVOLVE IMPROVED COORDINATION OF VARIOUS MONITORING NETWORKS IN ORDER TO COLLATE AND ANALYSE EXISTING DATA WHICH MAY NOT BE READILY AVAILABLE. **THE NBAP** INDICATES A NUMBER OF ORGANISATIONS COLLECT DATA ON WEATHER AND ECOLOGY BUT THE AVAILABILITY OF THIS DATA AND ITS COORDINATED USE WAS POOR AT THE TIME OF PUBLICATION. **IMPROVEMENTS** WERE ALSO REQUIRED IN THE AMOUNT OF

POPULATION DATA ACROSS ALL TAXONOMIC GROUPS WITH PRIORITY GIVEN TO ENDEMIC AND ENDANGERED SPECIES. UNDER THIS OBJECTIVE THERE WAS ALSO A REQUIREMENT TO IMPROVE DATA COLLECTION WITH THE USE OF NEW TECHNOLOGIES, SUCH AS REMOTE SENSING, AND PLACE AN EMPHASIS ON MONITORING AS A ROLE OF PROTECTED AREA STAFF.

ACTION 2. IMPROVE BIOLOGICAL INFORMATION, ESPECIALLY OCCURRENCE AND DISTRIBUTION DATA FOR ALL TAXA. PRESENTLY DISTRIBUTION AND POPULATION DATA FOR MANY SPECIES ARE POORLY KNOWN. PRIORITY SHOULD BE GIVEN TO ENDEMIC AND ENDANGERED SPECIES.

- State owned organisations such as NUM and MAS are continuing to develop the Mongolian biodiversity database according to IUCN methods by cooperation and funding from ZSL, MEGD, World Bank and the Netherlands; the programme began in 2006.

- Since 2000, MOS and NUM have been developing and maintaining a database of the migratory birds of Mongolia, database of migratory raptors, a photographic database of Mongolian birds with over 3000 individual photographs of 350 species making it Mongolia's largest photographic bird database.

- As a result the National photographic database of biodiversity has been established with the initiation of MEGD, MOS and NUM in 2013.

- The WWF and TNC conducted GAP analysis in the central and eastern steppes.



- From 2012, the Snow Leopard Trust set up a wildlife monitoring project involving local herders to define the major threats for Snow Leopards. Additionally MAS and WSCC are studying 6 individual White-naped Cranes relating to bird flu since 2014.

- NUM, SFP and ZSL are commencing a monitoring project to establish population, density, behaviour and reproduction of the Wild Bactrian Camel in 2014.

- MAS and WSCC are studying 6 individual white napped cranes relating to bird flu since 2014. Also database on reproduction of these species is being established.

NBAP, OBJECTIVE 17: IMPROVE EX-SITU MANAGEMENT FOR SPECIES CONSERVATION AND CONSERVING GENETIC RESOURCES.

ALTHOUGH THE NBAP RECOGNISES THE PREFERENCE OF CONSERVING SPECIES IN THEIR NATURAL HABITAT IT IS RECOGNISED THAT THESE AVENUES SHOULD ALSO BE EXPLORED. THE IMPORTANCE OF A THOROUGH UNDERSTANDING OF ALL ASPECTS OF BREEDING IN CAPTIVITY IS AN ESSENTIAL PRE REQUISITE TO ANY SUCH PROGRAMME. THE NBAP STATES THAT ALL EX-SITU CONSERVATION PROGRAMMES SHOULD BE LINKED TO IN-SITU PROGRAMMES WHICH CORRECT THE CAUSE OF THE NEED FOR EX-SITU CONSERVATION. ACTIONS ARE LISTED INVOLVING RIGOROUS ASSESSMENT OF THE NEED TO CONDUCT EX-SITU CONSERVATION AND THAT ANY SUCH PROGRAMME SHOULD INVOLVE ONLY

EXTINCT MONGOLIAN SPECIES OR THOSE WHOSE EXTINCTION IS IMMANENT. ALL PROGRAMMES SHOULD INVOLVE A COMMITMENT TO HABITAT RESTORATION AND PROTECTION OF THE WILD POPULATION AND A SUFFICIENT MONITORING PROGRAMME.

ACTION 1. ASSESS CAREFULLY THE NEEDS FOR CAPTIVE BREEDING IN MONGOLIA. LIMIT CAPTIVE BREEDING AND REINTRODUCTION PROGRAMS TO MONGOLIAN EXTANT SPECIES OR TO THOSE WHOSE EXTINCTION IS OTHERWISE IMMINENT. THERE MUST ALSO BE A COMMITMENT TO HABITAT RESTORATION AND PROTECTION OF THE WILD POPULATION.

- MEGD has set goals to breed endangered and rare animals in the wild and has developed feasibility studies to increase growth of populations of Mongolian Saiga in territories of Bayanhongor province. In order to improve the habitat of endangered animals:

- In order to increase water supply in the Great Gobi SPA a number of generators have been installed to encourage precipitation; training was organised for rangers during September 2013. Three generators and 108 fuel tanks were provided for the Great Gobi SPA also weather and environment monitoring equipment for Gobi-Altai province were provided. By activating the generator in areas of Tsagaan Bogd on September 21st, 2013 precipitation of 5 ml has fallen. At 2 pm of the same day, Segs Tsagaan Bogd and Ikh Bogd Mountains had snow cover on top halves.



- Five tonnes of additional food supplements for the Gobi Bear were placed in April and June of 2013. Great Gobi SPA administration placed additional supplements of 11.5 tonnes of feed in 15 different areas of Atas, Inges, Shar Hulst and Tsagaan Bogd Mountain which is the main location for Gobi bears after hibernation on March 15th of 2013. 10 tonnes of fodder and 1.5 tonnes of feed for dogs rich in proteins and high calories also turnips and carrots for experimental needs were placed in feed containers. New containers were placed in 10 additional areas. There are two containers each in Altan Tevsh and Shar Huls and container with 2 tonnes of feed near the security building of Alag Uneet and Shar Huls were placed.

- In October, 2013, solar energy powered wells were handed over to park administration in Baruun Sharge and Myangan Tooroi of Great Gobi SPA. Also, wells (khudag) of Myangan Tooroi provides 25/30L per hour whilst wells of Baruun Sharga provide 200/250L per hour.

• In 2010 the Mongolian musk deer protection association got approval to catch four Musk Deer in order to domesticate. To prevent from inbreeding in the Musk Deer research station of the Institute of Traditional Medicine, the organization approved to catch and introduce two Musk Deers. In total granting 6 Musk Deers to be removed from the wild population.

• In order to breed and domesticate Red Deer in territory of Batsumber sum Tuv province, in 2012 approval was granted to catch 5 female Red Deer.

• Reintroduction of Przewalski's Horse is continuing successfully in Khustai Nuruu and Takhiin Tal.

TARGET 13. BY 2020, THE GENETIC DIVERSITY OF CULTIVATED PLANTS AND FARMED AND DOMESTICATED ANIMALS AND OF WILD RELATIVES, INCLUDING OTHER SOCIO-ECONOMICALLY AS WELL AS CULTURALLY VALUABLE SPECIES, IS MAINTAINED, AND STRATEGIES HAVE BEEN DEVELOPED AND IMPLEMENTED FOR MINIMIZING GENETIC EROSION AND SAFEGUARDING THEIR GENETIC DIVERSITY.

NBAP, OBJECTIVE 4: ESTABLISH A RESEARCH PROGRAMME THAT IMPROVES KNOWLEDGE OF BIODIVERSITY AND RELEVANT THREATS.





ACTION 3: DEVELOP A GENETIC CONSERVATION RESEARCH PROGRAMME

Action 3 of this Objective relates to the development of a genetic conservation research programme.

- As stated in National Biosafety Action Plan, the law on Genetic Resources has been developing since 2010 and a concept paper of the law was approved by government in 2014.

- In 2012 a parliament decision was made for Mongolia to join the Nagoya Protocol that same year.

- Parliament also decided to join the Cartagena Protocol on Biosafety in 2012.

- Baseline studies on genetic resources of Mongolian livestock have been conducted by the Institute of Biology of MAS in 2011 to 2013.

- Research was conducted by MAS during 2008-2010 on the mitochondrial genomes of Mongolian livestock and some wildlife with phylogenetic relations with the livestock.

- Scientists of NUM conducted genome research of rare Mongolian wildlife successfully by support from the Foundation for Science and Technology; DNA of a number of rare species has been extracted.

- Plant Science and Agricultural Research Institute implemented successfully a project 'Establishment of the National information sharing mechanism on the implementation of the Global plan of action for the conservation and utilization of plant genetic resources





for food and agriculture in Mongolia' GCP/RAS/240/JPN with the fund from the Japanese government and UNFAO. Meta-analysis was conducted of all works including project results and literature on plant genetic resources and the combined information has been analysed. The importance of this project is to assess successes, gaps, weaknesses and possible conservation actions and highlight the use of genetic resources for agriculture.

NBAP, OBJECTIVE 17: IMPROVE EX-SITU MANAGEMENT FOR SPECIES CONSERVATION AND CONSERVING GENETIC RESOURCES.

ACTION 4. ESTABLISH A LIVESTOCK GENE BANK FOR TRADITIONAL MONGOLIAN BREEDS.

- The National livestock genetic resource centre was established in 2006 with a focus on genetic stock, adapting biotechnology and genetic engineering for breeding technology.

- A National Mongolian livestock programme was initiated in 2010 and National livestock genetic resource complex established in Darhan-Uul province.



STRATEGIC GOAL D: ENHANCE THE BENEFITS TO ALL FROM BIODIVERSITY AND ECOSYSTEM SERVICES.

TARGET 14. BY 2020, ECOSYSTEMS THAT PROVIDE ESSENTIAL SERVICES, INCLUDING SERVICES RELATED TO WATER, AND CONTRIBUTE TO HEALTH, LIVELIHOODS AND WELL-BEING, ARE RESTORED AND SAFEGUARDED, TAKING INTO ACCOUNT THE NEEDS OF WOMEN, INDIGENOUS AND LOCAL COMMUNITIES, AND THE POOR AND VULNERABLE.

NBAP, OBJECTIVE 1: ESTABLISH A COMPLETE PROTECTED AREA SYSTEM REPRESENTATIVE OF ALL ECOSYSTEMS AND PROTECTING ENDANGERED SPECIES, INCLUDING JOINT ACTIONS WITH THE RUSSIAN FEDERATION AND THE PEOPLE'S REPUBLIC OF CHINA.

THE ESTABLISHMENT OF PROTECTED AREAS WILL PROVIDE PROTECTION FOR ECOSYSTEM SERVICES IN THE PROTECTION OF FLORA, FAUNA AND MICROBIAL SPECIES WHICH LIE WITHIN PROTECTED AREA BOUNDARIES.

(For additional information see Aichi target 11, NBAP, Objective 1).



NBAP, OBJECTIVE 8: CONTROL POLLUTION OF AIR, WATER AND SOIL.

The actions listed under this national objective are designed, in part, to ensure healthy lakes and river systems.

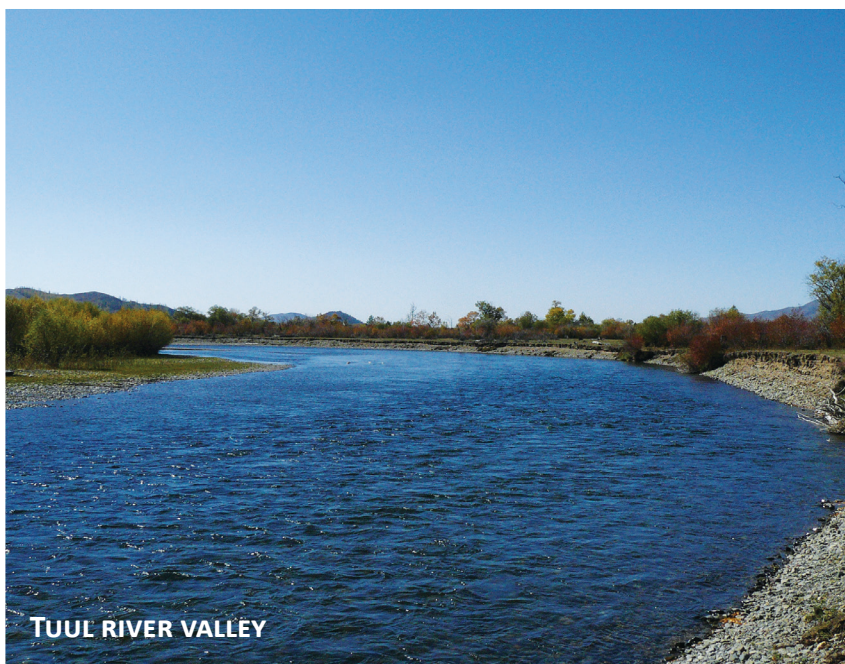
ACTION 4. CONTINUE POLLUTION MITIGATION MEASURES INITIATED IN THE TUUL RIVER UNDER THE TUUL

- The National Action Plan for water, 2010 to 2020 was introduced in 2010.
- River basin administration was established under MEGD. According to the Law on Water, Mongolian territory is divided into 29 river basins and there are administration units in each basin. Recently 25 river basin administration units were established and have developed their management plans. The responsibility of this authority includes; coordinating and implementing integrated water resource

management plans in order to prevent water shortage in the basin, and ensure the appropriate use of available resources to prevent pollution and implement restoration activities where needed.

- The Tuul River basin authority was established in 2012.
- The government has approved the “Khatan Tuul” programme and its implementation plan Phase 1 (2012-2016) to reduce river pollution and improve its protection management and establish cross-sectoral coordination.
- In 2014 the river basin authority implemented the Tuul River Improvement Project with support from the Poverty Reduction Fund of the Japanese Government.
- With support from the Asian Development Bank the Tuul River pollution evaluation project is in developmental stages at the time this report was written.

- The EcoAsia University research team conducted a survey on river ecology in 2010. The research work focused on the ecological balance of the river basin and its tributaries through studies examining the factors effecting ecosystem changes and the impact



TUUL RIVER VALLEY



intensity, river ecosystems assessment indicates the systems are currently facing environmental damage, based on the results of this work, the river ecosystem degradation and pollution reduction plans are being established.

- Restoration work has been carried out in the Tuul River basin by Mongol jodoo Co. during this work landscaping restoration was conducted, 9802 m³ of rubbish waste was collected and removed and 55ha of trees were planted before registering the area with National Park protected status.

NBAP, OBJECTIVE 10: PREVENT PASTURE DETERIORATION THROUGH OVERGRAZING

Pasturelands provide food, fuel, water storage, gas exchange and nutrient cycle services to humans and the three Actions listed under this national Objective will help to maintain the system in such a state that it can provide these services at a valuable level.

(For additional information see Aichi target 4, NBAP Objective 10).

NBAP, OBJECTIVE 14: ENSURE THAT AGRICULTURE AND FORESTRY ARE CARRIED OUT IN WAYS COMPATIBLE WITH BIODIVERSITY CONSERVATION

ACTION 1. ADOPT FORESTRY PRACTICES THAT ENSURE SUSTAINABLE FORESTS AND CONSERVE BIODIVERSITY

Planned actions are focused on ensuring conservation of forest resources and biodiversity.

(For additional information see Aichi target 5, NBAP Objective 14).

NBAP, OBJECTIVE 15: IDENTIFY AND RESTORE DAMAGED LAND

ACTION 2. ESTABLISH PRIORITIES FOR RESTORING DAMAGED LANDS AND ESTABLISH A TEN-YEAR TIMETABLE WITHIN WHICH TO ACCOMPLISH RESTORATION. DEFINE THE RESTORATION METHODS THAT SHOULD BE EMPLOYED IN EACH CASE. IN ALL CASES, THE CAUSE OF DEGRADATION HAS TO BE STOPPED BEFORE RESTORATION BEGINS.

(For additional information see Aichi target 5, NBAP Objective 15).

TARGET 15. BY 2020, ECOSYSTEM RESILIENCE AND THE CONTRIBUTION OF BIODIVERSITY TO CARBON STOCKS HAS BEEN ENHANCED, THROUGH CONSERVATION AND RESTORATION, INCLUDING RESTORATION OF AT LEAST 15 PER CENT OF DEGRADED ECOSYSTEMS, THEREBY CONTRIBUTING TO CLIMATE CHANGE MITIGATION AND ADAPTATION AND TO COMBATING DESERTIFICATION.



NBAP, OBJECTIVE 10: PREVENT PASTURE DETERIORATION THROUGH OVERGRAZING

NBAP, OBJECTIVE 14: ENSURE THAT AGRICULTURE AND FORESTRY ARE CARRIED OUT IN WAYS COMPATIBLE WITH BIODIVERSITY CONSERVATION

NBAP, OBJECTIVE 15: IDENTIFY AND RESTORE DAMAGED LANDS

(For additional information see Aichi target 5, NBAP, Objective 15).

By assessing the extent of damaged land along with the main causes, actions under these objectives were designed to lead to a classification of land according to the level of degradation and to new management to help restore and maintain those lands. Restored land will increase potential for providing ecosystem services in the form of carbon sequestration and also improve resilience to disturbances. Improved resilience will enable the system to recover from fire, flooding and pest outbreaks quicker than it would in a degraded state.

(For additional information see Aichi target 4, NBAP, Objectives 10, 14, Target 5, Objective 15).



SKELETON OF A DEAD CATTLE IN THE DESERT



- Within The United Nations Framework Convention on Climate Change and the Convention to Combat Desertification, The National Programme on Combating Desertification (2010-2020) and a law on Soil protection and preventing desertification and protection of soil were introduced in 2010 and 2012 respectively.

- Within the legal obligation on UN's base convention of Climate Changing, the Mongolian government produced The National Programme on Climate Change in 2000 and revised it in 2011. The revised programme is being implemented with two stages between 2011-2021. By the decision of the former Minister of the Ministry of Natural Environment and Tourism, a coordination department of climate change was established under the MEGD in 2011. By the decision of the minister of Ministry of environment and tourism, a climate change coordination office which includes Kyoto protocol's National Clean Development Agency in its structure was established beside the ministry in 2011. The Special envoy for Climate change appointed as Chairman of climate change coordination office. The National climate committee was established in 2012.

- The National Ozone Layer Protection Programme (1999-2030) approved and related activities continue to be organised.

- The Swiss Development Cooperation established the "Combating Desertification" project (2007-2013). The Netherlands government established the project 'Decreasing Desertification with Sustainable Land Management' (MON/08/301, 2008-2012), UNDP and The Adaptation fund Adaptation of main forest ecosystems to climate change" (2012-2017) implemented, respectively.

TARGET 16. BY 2015, THE NAGOYA PROTOCOL ON ACCESS TO GENETIC RESOURCES AND THE FAIR AND EQUITABLE SHARING OF BENEFITS ARISING FROM THEIR UTILIZATION IS IN FORCE AND OPERATIONAL, CONSISTENT WITH NATIONAL LEGISLATION.

In addition to the national objectives, the NBAP outlines legislation requirements to facilitate the implementation of the objectives.

Adopt legislation and policies to ensure the conservation of biological diversity that require the integration of conservation and environmental protection into sustainable development.

Under this legal objective, actions involve analysis of current laws, improvements in laws affecting biodiversity and the implementation of new legislation. There is no mention of the Nagoya Protocol in the NBAP due to the date it was published however Mongolia joined the Nagoya Protocol in 2012.



STRATEGIC GOAL E: ENHANCE IMPLEMENTATION THROUGH PARTICIPATORY PLANNING, KNOWLEDGE MANAGEMENT AND CAPACITY BUILDING

TARGET 17. BY 2015 EACH PARTY HAS DEVELOPED, ADOPTED AS A POLICY INSTRUMENT, AND HAS COMMENCED IMPLEMENTING AN EFFECTIVE, PARTICIPATORY AND UPDATED NATIONAL BIODIVERSITY STRATEGY AND ACTION PLAN.

As stated above Mongolia has begun the process of a draft framework for the development of a new NBSAP.

A working group and project leader for Mongolia's NBSAP development were installed, following a workshop in 2012 the frame of contents was established followed by a draft of programme content.

In April 2013 a working group was established with the Minister of Environment. The first meeting of the group defined member's responsibilities and developed an action plan to develop the NBSAP which was sent to the secretariat of the CBD. In order to combine the NBSAP with local programmes they analysed the development strategies of each province. A model was then designed to show potential biodiversity loss between 2012 and 2020.

TARGET 18. BY 2020, THE TRADITIONAL KNOWLEDGE, INNOVATIONS AND PRACTICES OF INDIGENOUS AND LOCAL COMMUNITIES RELEVANT FOR THE CONSERVATION AND SUSTAINABLE USE OF BIODIVERSITY, AND THEIR CUSTOMARY USE OF BIOLOGICAL RESOURCES, ARE RESPECTED, SUBJECT TO NATIONAL LEGISLATION AND RELEVANT INTERNATIONAL OBLIGATIONS, AND FULLY INTEGRATED AND REFLECTED IN THE IMPLEMENTATION OF THE CONVENTION WITH THE FULL AND EFFECTIVE PARTICIPATION OF INDIGENOUS AND LOCAL COMMUNITIES, AT ALL RELEVANT LEVELS.

NBSAP, OBJECTIVE 2: ESTABLISH EFFECTIVE POPULATION CONTROL MEASURES TO LIMIT HUMAN IMPACT ON THE NATION'S BIODIVERSITY.

ACTION 5. SPREAD INFORMATION AMONG THE PUBLIC ABOUT THE EFFECTS OF INCREASED POPULATION ON THE ENVIRONMENT AND LINK PROGRAMMES FOR ELIMINATION OF POVERTY AND REDUCTION OF UNEMPLOYMENT WITH PROTECTION OF BIODIVERSITY, AND DEVELOP INTERNATIONAL COOPERATION IN THIS FIELD.

- Poverty reduction by community-based natural resource management in Onon-Balj basin (JFPR9125 MON project, 2008-2013) was initiated and funded by Japan's Fund for Poverty Reduction.



- In the frame of community conservation of the snow leopard (2012-2015), funded by GEF, the following activities are ongoing.

1. Community based monitoring and data collection of the Snow Leopard in the Altai-Sayan eco-region,

2. Preventing revenge hunting of Snow Leopards by humans through appropriate insurance system for livestock which have been taken by Snow Leopards.

3. Support habitat and prey animals (including livestock) by implementing sustainable pasture management.

- In the frame of a project to conserve the Saiga Antelope (2011-2014), support at local and regional levels increased due to the implementation of appropriate training and awareness campaigns.

- The Snow Leopard enterprises programme by the Snow Leopard Trust is running to mitigate the conflict between Snow Leopards and human and to improve community based conservation by addressing needs to increase earning potential of local communities. Artisan products made by community groups with local materials from Uvs, Khovd, Bayan-Ulgiim, Gobi-Altai, Bayarkhongor and Uvurkhangai provinces for sale in US markets. 400 women are involved in this project. Also, 30 herder families insured their livestock through the insurance fund. If livestock are taken with a certain

time frame, compensation is granted; 40 percent of the insurance fund is provided by herders collectively they themselves set the livestock cost estimation.

TARGET 19. BY 2020, KNOWLEDGE, THE SCIENCE BASE AND TECHNOLOGIES RELATING TO BIODIVERSITY, ITS VALUES, FUNCTIONING, STATUS AND TRENDS, AND THE CONSEQUENCES OF ITS LOSS, ARE IMPROVED, WIDELY SHARED AND TRANSFERRED, AND APPLIED.

- National Plan on Biosafety was submitted to the Government in 2013. A strategy plan for 2020 was approved and the planned actions of National committee reflect this strategy plan.

- The management for the project 'capacity building for biosafety were trained during 14 workshops, trainings and consultation meetings to which 506 staff attended.





- GMO food registration, monitoring imports and public awareness is regulated by the law on food in Article 7, this law also prevents receiving GMO foods in aid and loan packages. GMO raw materials, product registration, risk assessment and control of domestic and imported products is reflected in the law on food security in Article 14.

- The national standards 'methods to determine genetically modified organisms and their derived products, Nucleic acid-based methods MNS ISO 21569: 2011' was approved. In the frame of work to adopt international and specifically European Union standards, 15 standards have been submitted to the National Standards Office.

- In order to detect and identify GMO, in partnership with the Institute of Biology, a testing laboratory was established to detect genetically modified organisms and a GMO risk assessment workshop was held in 2011.

- In 2013, a census and inventory of the area in which oilseed is sown was conducted. Also within the provinces which have agricultural industry, guidelines on conducting their own GMO inventories were submitted to the Ministry of Industry and Agriculture. Additionally guidelines to conduct GMO inventories for materials used in medical practice were submitted to the Ministry of Health.

NBAP, OBJECTIVE 5: ESTABLISH NATIONWIDE INFORMATION AND MONITORING SYSTEM FOR BIODIVERSITY CONSERVATION.

ACTION 1. IMPROVE THE COORDINATION AND USE OF VARIOUS INFORMATION AND MONITORING NETWORKS.

Action 1 under this objective is to improve the coordination and use of various information and monitoring networks. Much of this involves allowing greater access to information collected by various government institutions and societies so they can be cross referenced and analysed with other supporting data sets to improve the overall potential scientific output and knowledge.

In 2010 the Environmental Information Centre was developed further and since then there have been 19 sub-directories serving customers. Currently the following databases are available to the public: meta database, geo- database, administrative management of the National database, SPA database, toxic and hazardous chemical database, environmental Impact Assessment database, database of air pollution, environmental statistics, database on Forest management, Land destruction database, desertification database, environmental legal status, policy, projects database. These databases



are available to the public at the Ministry of Environment and Green Development's site, which can be accessed at this web address www.eic.mn

ACTION 3. IMPROVE MONITORING OF TRENDS THROUGH USE OF ADVANCED TECHNOLOGIES SUCH AS REMOTE SENSING.

- Developed forest fires map which is available on www.icc.mn, and fire hotspot information on www.geodata.mne-ngic.mn. MODIS data from Aqua satellite used to produce MYD13 NDVI data to produce vegetation map and MODIS data also been used to produce drought map. The vegetation and drought maps are available on www.icc.mn web site. Also drought monitoring, vegetation and biomass maps been produced. Also, drought monitoring maps and maps of vegetation and biomass are produced.

- By using Landsat TM, ETM + satellite data, the forest types were classified at Eruu sum of Selenge province, and mapped the Bogd Khan SPA forest cover change. NDVI data is used for rangeland monitoring, vegetation and forest mapping. MODIS NDVI data is used for monitoring the state of pastures and produced for each separate zone for each of the vegetation type. Forest fire risk has also been mapped using this data as has drought mapping. Desertification has also been mapped using remote sensing technologies. Forest cover maps, vegetation maps and land cover maps of 5 protected areas were made in each case.

- The Steppe forward programme and ZSL continue to implement the Wildlife Picture Index camera trap study which has been conducted across 5 provinces throughout Mongolia. The study results are significant to assess biodiversity trends in protected areas.

TARGET 20. BY 2020, AT THE LATEST, THE MOBILIZATION OF FINANCIAL RESOURCES FOR EFFECTIVELY IMPLEMENTING THE STRATEGIC PLAN FOR BIODIVERSITY 2011-2020 FROM ALL SOURCES, AND IN ACCORDANCE WITH THE CONSOLIDATED AND AGREED PROCESS IN THE STRATEGY FOR RESOURCE MOBILIZATION SHOULD INCREASE SUBSTANTIALLY FROM THE CURRENT LEVELS. THIS TARGET WILL BE SUBJECT TO CHANGES CONTINGENT TO RESOURCE NEEDS ASSESSMENTS TO BE DEVELOPED AND REPORTED BY PARTIES.

Funding needs assessments were not included in the original NBAP and may need to be worked into the revised NBSAP to be submitted in 2015.

- Within CITES, the Law on Environment Protection, Wildlife Law, Law on Specially Protected Areas, National Programmes to protect the Mongolian Saiga, Red Deer, Snow Leopard and Argali



Sheep, and the programme on protecting species diversity have been implemented. In 2011, the government of Mongolia approved the National Programme to protect endangered animals.

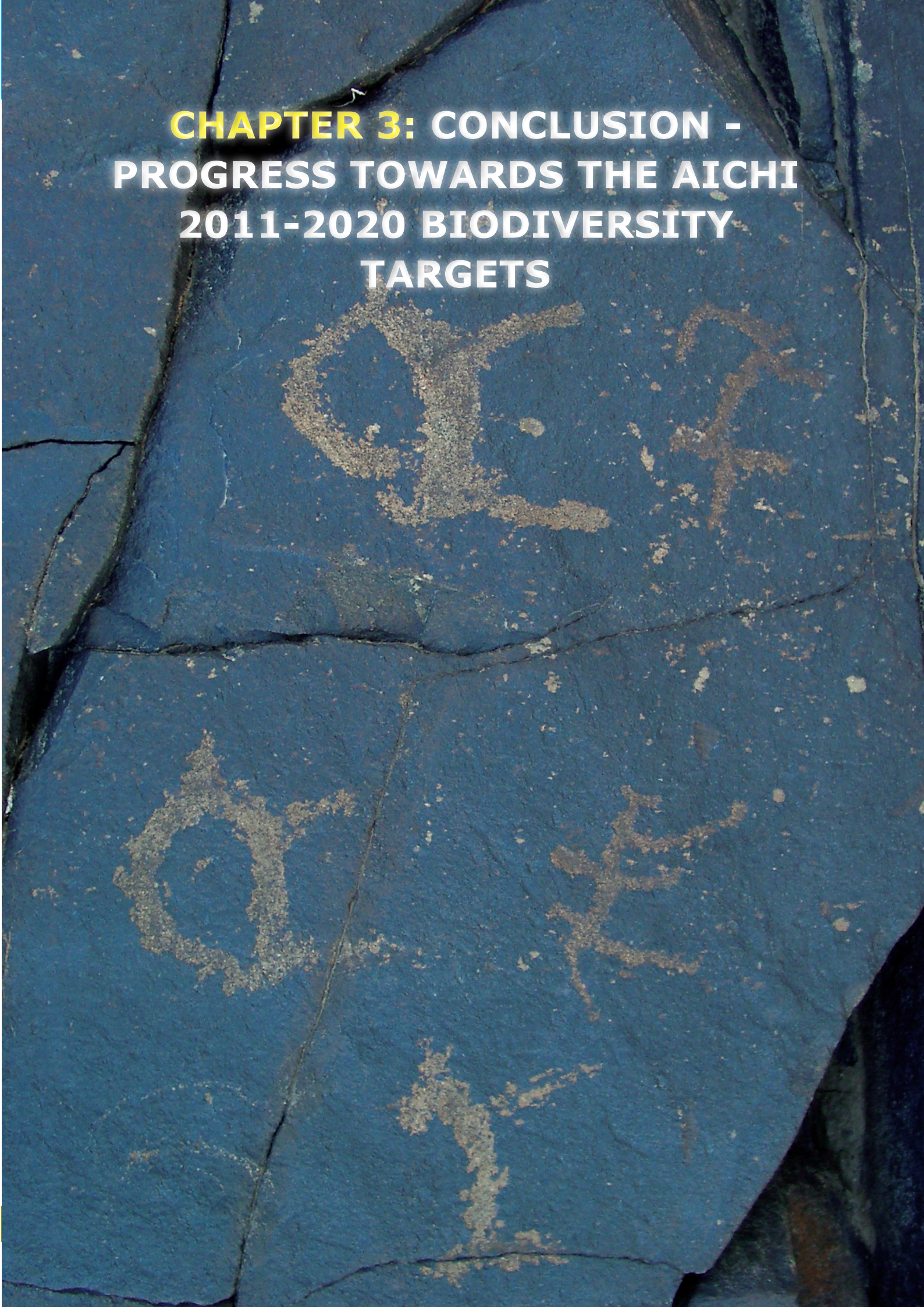
- Mongolia has implementing 27 national programmes in accordance with sustainable development: National water programme (2010-2021), Green Belt national programme (2005-2035), National forestry programme (2001-2015), National programme on specially protected lands (1998-2015), National programme on protecting the ozone layer (1999-2030), National programme to develop the survey of water, climate and environment until 2015, Programme on slowly-resoluble organic pollutant (2006-2020), Develop activates to artificially influence the weather, such as seeding

clouds (2007-2015), National programme on supporting quality and environment management (2002-2016), National programme on reducing the danger of earthquake (2008-2020), National programme on protecting the Mongolian Gobi Bear" (2013-2018), National programme on protecting Taimen (2007-2012), National programme on protection of game fish (2008-2015), National climate programme (2011-2021), National programme on preventing desertification (2010-2020).

- Mongolia added new sites to the Ramsar Wetlands Convention, and continued membership of CITES, CMS, Vienna Convention on the Protection of the Ozone Layer" "The UN framework Convention on climate change and the Kyoto Protocol, and Cartagena Protocol.



**CHAPTER 3: CONCLUSION -
PROGRESS TOWARDS THE AICHI
2011-2020 BIODIVERSITY
TARGETS**





CONCLUSION - PROGRESS TOWARDS THE AICHI 2011-2020 BIODIVERSITY TARGETS

Mongolia's NBAP is, up to now, the current standard reference point from which the National Reports have been written and so efforts towards the conservation of biodiversity have been aimed at the objectives and actions outlined in the NBAP published in 1996. Mongolia is currently renewing its NBSAP and so actions undertaken in previous years have not necessarily coincided with the current Aichi targets. Thus progress to the targets as a whole is mixed with significant achievements in some areas and limited progress in others. However Mongolia has worked well towards its NBAP, completing over 96% of all proposed actions, and in that process has carried out actions which are also in line with the current Aichi 2011-2020 targets. However, Mongolia must incorporate the Aichi 2011-2020 targets into its developing NBSAP in order to maximise the global value of national outputs.

Although Mongolia has some way to go in completing the new Aichi targets at this stage a number are progressing very well, such as protected area size and improving knowledge about biodiversity issues. The government is making numerous developments regarding the environment and is showing increasing regard in this area. Structural and name changes within the Ministry of Environment and Green Development (formerly Ministry of Nature, Environment and Tourism) allow the ministry to work as a generalist across sectors to review industrial and national logistical projects as well as continue to work in its own traditional sectors such as protected area management.

Here we synthesise the status and trend information from Part I and II of the report indicating Mongolia's overall progress towards the Aichi 2011-2020 Biodiversity Targets.

Chapter 2 describes the increase in Mongolia's protected area network and specifically the amount of land under Special Protected Area status. Currently 17.4% of Mongolia's land lies within a SPA. This number has been steadily increasing since 2008 when that figure was 11.1%. This is a great success story which Mongolia has been able to report consistently. Furthermore in addition to increasing area the current government is taking steps towards improved management and capacity of the Protected Areas with numerous projects launched aimed at improved local management and community support and engagement.

The importance of SPAs is highlighted in the increasing pressures and degradation of some of the habitats found outside of the SPA network. Most severely hit are Mongolia's grasslands which are under increasing grazing pressure and impacts of climate change.



With average increased temperatures of 2.14°C since 1940 and decreases in annual precipitation of 33ml since 1961, Mongolia's grasslands are beginning to suffer signs of aridity and desertification; 90% of pastureland in Mongolia is recognised as being vulnerable to further degradation. A report in 2010 showed that over 77% of Mongolian land has signs of degradation and an increasing amount since 2010 is considered to be very severely degraded.

A telling sign that reliable databases of Mongolia's species need to be developed and maintained are the number of species across several taxonomic groups which have been found new in their respective areas. Since 1955 the number of plant species discovered in Mongolia has steadily increased at every national survey point, since 2010 there have been 19 lichen species found new to Mongolia, 35 new species of fungus since 1998, and 10 new bird species were recorded in 2013.

ASSESSMENT OF MONGOLIA'S ACTION OUTCOMES TOWARDS THE AICHI 2011-2020 BIODIVERSITY TARGETS

Mongolia's original NBAP approved by ministers in 1996 consisted of 21 overarching objectives with 87 specific actions to be carried out in order to achieve those objectives. The status of the NBAP was reviewed in 2002 and in 2010. The first review concluded there was a lack of coordination in carrying out the actions and so there were significant gaps in progress. As a result of this a committee was established to oversee the implementation of the NBAP and a government fund set up to facilitate this. Following these changes the second review showed significant improvement in the implementation of actions. Just under half of all actions had been completed to 90-100% and just under half completed to between 70-90% the remaining 3 actions had been completed to 0-20%. Collectively Mongolia's original NBAP was 96.5% complete in 2010. This leaves Mongolia at an important juncture between its NBAP completion and the adoption of the new Aichi 2020 targets in its new NBSAP.

The table indicates Mongolia has made significant efforts and achievements in Goal A: Target 1, 2 and 4 where biodiversity and conservation have been integrated into the school curriculum at all levels and in the national university system as well as into teaching qualifications. Additionally environment journalism courses have been introduced in order to increase the quality in coverage of environmental topics. A number of government initiatives designed to draw attention to environment issues were launched, as were a number of outreach publications. Mongolia has also been strong in Goal C: with the continuation of efforts towards having 30% of land covered by SPA status and in becoming the first country in Asia to publish IUCN Red Lists and Summary Action Plans for all vertebrate species. An area Mongolia has shown to be less effective is Goal B, this indicates a difficulty in



reducing the direct threats to biodiversity and sustainable use. The causes of this may be a combination of land use and climate, both large factors which are difficult to mitigate in short periods of time and will require significant efforts to change. Issues relating to these broad-scale problems should be addressed in the coming NBSAP with considerations for all of the many social and economic factors that are likely to be linked to issues of land use.

Although significant efforts have been made to improve awareness of biodiversity and current technical knowledge, improvements will be required to provide long-term and consistent monitoring. This will enable tracking and feedback mechanisms to be developed adding tangible value to these efforts and enable re- focusing, where necessary, in the future.


Mongolia's efforts in the valuation of its species and biodiversity are an important step in making informed management decisions. Especially as some of the external factors such as climate change are likely to have long lasting implications for species and their habitats and thus, the people who are dependent upon them.

The table below provides a self-assessment of Mongolia's progress towards the Aichi 2020 targets, a reference to national objectives of a given work and to the relevant MDG targets, where applicable. It indicates in qualitative terms which indicators are showing a general upward trend, downward trend or those which are showing no significant changes.



CHAPTER 3: CONCLUSION - PROGRESS TOWARDS THE AICHI 2011-2020 BIODIVERSITY TARGETS

KEY TO INDICATOR ASSESSMENT

-  **Improving**
-  **No significant impact or change**
-  **Negative impact or no relevant activities**

PROGRESS INDICATOR

-  **Insufficient data**
-  **No significant progress or impact**
-  **Reasonable progress being made**
-  **Good progress made**



MDG targets














Aichi Targets












Mongolia's 1996 objectives










 MDG targets  Aichi Targets  Mongolia's 1996 objectives	Relevant headline indicator	Mongolia's achievements toward implementation	Progress	
STRATEGIC GOAL A: ADDRESS THE UNDERLYING CAUSES OF BIODIVERSITY LOSS BY MAINSTREAMING BIODIVERSITY ACROSS GOVERNMENT AND SOCIETY				
 	<p>TARGET 1- AWARENESS INCREASED</p> <p>6). Establish national education and training for biodiversity conservation 7). Establish a public information programme to improve people's knowledge of biodiversity and the importance of conserving it.</p>	<p>Awareness, attitudes and public engagement in support of biological diversity and ecosystem services has been promoted. </p> <p>Awareness and attitudes are consciously being integrated into project development. </p> <p>Public engagement with biodiversity has increased but still very limited in some areas.  / </p> <p>Efforts to change trends in communication programmes and actions promoting social corporate responsibility are being taken and promoted. </p>	<ul style="list-style-type: none"> • Introduction of biological conservation to the curriculum for 12-18 year olds. Also credits in wildlife conservation added to bachelor teaching qualification at the Pedagogy University of Mongolia. Additionally reference materials and 5000 DVDs were published for general education and awareness. • Environment Journalism course was included in the journalism bachelor degree at the Press Institute of Mongolia. • MEGD announced '2013 Year of Environment Protection'. • Quarterly journal launched 'Green Quest' launched by the Ministry of Nature and Green Development. • Biennial environment condition report to be published by the Ministry of Environment and Green Development. 	














 MDG targets  Aichi Targets  Mongolia's 1996 objectives	Relevant headline indicator	Mongolia's achievements toward implementation	Progress	
STRATEGIC GOAL A: ADDRESS THE UNDERLYING CAUSES OF BIODIVERSITY LOSS BY MAINSTREAMING BIODIVERSITY ACROSS GOVERNMENT AND SOCIETY				
	<p>TARGET 2: BIODIVERSITY VALUES INTEGRATED</p>	<p>Integration of biodiversity, ecosystem services and benefits sharing into planning, policy formulation and implementation and incentives. </p> <p>Guidelines and applications of economic appraisal tools have been updated in 2011. </p> <p>Integration of biodiversity and ecosystem service values has been taken into account across sectors as a matter of policy. </p> <p>Policies considering biodiversity and ecosystem service in environmental impact assessment have been implemented but some are still threatened by mining. </p>	<ul style="list-style-type: none"> • Mongolia became one of thirty countries to aim towards a green economy in 2020 following the Green Economy Initiative and the UN's PAGE programme. • MEGD has been granted powers to evaluate country projects across sectors with regards to environment impact. Thus mainstreaming environment issues into numerous sectors. • Internal Audit of ecological value of species conducted. • In 2011, the Mongolian government updated the ecological-economical value of animals, animal resource use fee, and hunting permit fees. 	










 MDG targets  Aichi Targets  Mongolia's 1996 objectives	Relevant headline indicator	Mongolia's achievements toward implementation	Progress
STRATEGIC GOAL A: ADDRESS THE UNDERLYING CAUSES OF BIODIVERSITY LOSS BY MAINSTREAMING BIODIVERSITY ACROSS GOVERNMENT AND SOCIETY			
	TARGET 3: INCENTIVES REFORMED.	Integration of biodiversity, ecosystem services and benefits sharing into planning, policy formulation and implementation and incentives. 	<ul style="list-style-type: none"> Renewed legal framework specifically the environment protection law has been amended. Tax incentives and land tenure programmes have been put in place. 
		Trends in establishment and strengthening of incentives that reward positive contribution to biodiversity and penalize adverse impacts. 	




















 MDG targets  Aichi Targets  Mongolia's 1996 objectives	Relevant headline indicator	Mongolia's achievements toward implementation	Progress
STRATEGIC GOAL A: ADDRESS THE UNDERLYING CAUSES OF BIODIVERSITY LOSS BY MAINSTREAMING BIODIVERSITY ACROSS GOVERNMENT AND SOCIETY			
<div style="display: flex; flex-direction: column; align-items: flex-start;"> <div style="margin-bottom: 10px;">  <p>TARGET 4: SUSTAINABLE CONSUMPTION AND PRODUCTION.</p> </div> <div style="margin-bottom: 10px;"> <p>3) Implement an effective environmental impact assessment programme.</p> </div> <div style="margin-bottom: 10px;"> <p>10) Prevent Pasture deterioration through overgrazing.</p> </div> <div style="margin-bottom: 10px;"> <p>11) Establish effective land-use planning and transportation policy.</p> </div> <div style="margin-bottom: 10px;"> <p>12) Develop strong regulations to protect biodiversity from the effects of mining.</p> </div> <div style="margin-bottom: 10px;"> <p>14) Agriculture and forestry compatible with biodiversity conservation.</p> </div> <div style="margin-bottom: 10px;"> <p>16) Develop renewable, clean energy sources.</p> </div> <div> <p>TARGET 7. A: INTEGRATE PRINCIPLES OF SUSTAINABLE DEVELOPMENT</p> </div> </div>	<p>Pressures from unsustainable agriculture, forestry, fisheries addressed. </p> <p>Ecological limits of grasslands assessed in terms of sustainable production and consumption. </p> <p>Pressures from habitat conversion, climate change, overexploitation have been difficult to curb with raising livestock numbers. </p> <p>Increase in sustainable energy use. </p> <p>Integration of biodiversity, ecosystem services and benefits sharing into planning, policy formulation and implementation and incentives. </p>	<ul style="list-style-type: none"> • Reduction in land under natural resource extraction from 25.2% in 2009 to 12.9% in 2013. • Polytunnels and greenhouses covering 50,170 m² and 81,740 m² were delivered in 2011 and 2012 respectively to 21 provinces with training and a 50% government subsidy to fund local growing projects. • Common National Method of Pasture Health legislation was approved in 2011. • In 2010-2011 pastureland thresholds were assessed. • 300 herder groups involved in MC Suburban Pasture Land tenure project to encourage sustainable land management. • A model for collective pasture management was introduced in Tolson Hulstai PA. • Between 2011-2013 1,700 km of dirt road were defined and asphalted and 924 m of iron bridges were built to prevent environmental damage from unregulated cross country industrial transportation. Six provinces were connected to Ulaanbaatar by this project. • In 2013, 1,800 km of railway began construction in the south and east of Mongolia. • On 235 km of new asphalt road between mining operations and communities in the South Gobi, 132 tunnels were established to allow the safe passing of wildlife and livestock. • During 2008-2013, 2 wind and 2 hydro-electric power stations were built. Also development are been made in solar and thermal springs. 	 
















 MDG targets  Aichi Targets  Mongolia's 1996 objectives	Relevant headline indicator	Mongolia's achievements toward implementation	Progress	
STRATEGIC GOAL B: REDUCE THE DIRECT PRESSURES ON BIODIVERSITY AND PROMOTE SUSTAINABLE USE				
  	<p>TARGET 5: HABITAT LOSS HALVED OR REDUCED</p> <p>1) Establish a complete protected area system representative of all ecosystems and protecting endangered species, including joint actions with the Russian Federation and the People's Republic of China.</p> <p>14) Agriculture and forestry compatible with biodiversity conservation.</p> <p>15) Identify and restore damaged lands.</p> <p>TARGET 7. A: INTEGRATE PRINCIPLES OF SUSTAINABLE DEVELOPMENT.</p>	<p>Condition and vulnerability of ecosystems showing declining trend with changes in climate and land use. ■</p> <p>Extinction risk trends of habitat dependent species in each major habitat type are likely to increase. ■</p> <p>Proportion of degraded/threatened habitats has increased in recent years healthy forest has declined and grasslands have shown degradation in general. ■</p> <p>Pressures from unsustainable agriculture, forestry, fishing. ■</p> <p>Proportion of land affected by desertification is increasing. ■</p> <p>Efforts to protect forests have increased with a number of programmes nationally established. +</p>	<ul style="list-style-type: none"> • Damaged soil database was established in 2012. Reports location, damage, causes, and is open to public. • Evaluation on damaged land by mining was conducted in 20 provinces between 2009-2011 and revealed 4256 ha of land designated restoration was still unrestored. • Greenwall reforestation project was established in an ongoing programme from 2005 – 2035. Between 2011-2013 706ha of land was under forest restoration. • Forest and steppe fires were reduced through the implementation of fire management systems adopted in 2013. Nine provinces adopted the strategies for fire control. • Forest map has been established with fire hotspot information installed to a nationwide database. • Nationwide, 540 partnerships with 8,000 members have signed up to land tenure programmes owning and stewarding 134 ha (1.34km²) of forest. • Of 2.2 million ha of forest 61% has been studied for pest outbreak. Of that 61%, 9% was said to need intervention. Of which 44% has received pest control intervention. 	











 MDG targets  Aichi Targets  Mongolia's 1996 objectives	Relevant headline indicator	Mongolia's achievements toward implementation	Progress
STRATEGIC GOAL B: REDUCE THE DIRECT PRESSURES ON BIODIVERSITY AND PROMOTE SUSTAINABLE USE			
 TARGET 6: SUSTAINABLE MANAGEMENT.  9) Control Hunting and fishing.  TARGET 7.B: REDUCE BIODIVERSITY LOSS	<p>Pressures from unsustainable agriculture, forestry, and fisheries are being addressed although impact still remains. </p> <p>Trends in extinction risk of target and by catch aquatic species is not defined. </p> <p>Trends in population of target and by catch aquatic species. </p>	<ul style="list-style-type: none"> • Between 2007 and 2012 the taimen protection national programme was incorporated and game fish protection and breeding programmes have been established in 2009. • Lenok and carp breeding ponds have been established in Tov province to restock rivers and lakes in the province which provides fish for Ulaanbaatar markets. • Hunting laws were revised and developed and the law on the use of natural resources was emended in 2012. • Green belt project planted 980 ha between 2010 and 2013. • Within Mongolian -Korean Green Belt project 775 ha forest was planted, 405 ha replanted and 110 ha Saxaul fores planted. 	 
 TARGET 7: SUSTAINABLE AGRICULTURE, AQUACULTURE AND FORESTRY 	<p>Trends in pressures from unsustainable agriculture. </p> <p>Area of forest, agricultural and aquaculture ecosystems under sustainable management. </p>	<ul style="list-style-type: none"> • A national monitoring of pastoral health was established in 2011 since which time training and monitoring has been conducted in over 300 towns. 	 












 MDG targets  Aichi Targets  Mongolia's 1996 objectives	Relevant headline indicator	Mongolia's achievements toward implementation	Progress	
STRATEGIC GOAL B: REDUCE THE DIRECT PRESSURES ON BIODIVERSITY AND PROMOTE SUSTAINABLE USE				
 	<p>TARGET 8: POLLUTION REDUCED.</p> <p>8) Control pollution of air, water and soil.</p> <p>12) Develop strong regulations to protect biodiversity from the effects of mining.</p>	<p>Cleanup operations from major polluting factors have been undertaken. </p> <p>Develop legal framework to consider negative mining impacts. </p>	<ul style="list-style-type: none"> • 38,836 m³ or 58,253 tonnes of subsoil polluted by mining operations was neutralized and buried. • Additionally 79,926 m² topsoil polluted by chemicals have been neutralized. • Major cross border waterway cleanup operations are being conducted with Russia. • Technical reforms have significantly increased automated data collection and storage in meteorology. • Stricter standards were adopted in terms of acceptable water, air and soil pollution. 	
	<p>TARGET 9: INVASIVE ALIEN SPECIES.</p>	<p>Trends in the impact of invasive alien species on extinction risk trends. </p> <p>Trends in number of invasive alien species. </p> <p>Trends in incidence of wildlife diseases caused by invasive alien species. </p>		










 MDG targets  Aichi Targets  Mongolia's 1996 objectives	Relevant headline indicator	Mongolia's achievements toward implementation	Progress
STRATEGIC GOAL B: REDUCE THE DIRECT PRESSURES ON BIODIVERSITY AND PROMOTE SUSTAINABLE USE			
<p>TARGET 10: PRESSURES ON VULNERABLE ECOSYSTEMS REDUCED</p> <p>4) Establish a research programme that improves knowledge of biodiversity and relevant threats</p> <p> 10) Prevent Pasture deterioration through overgrazing.</p> <p> 11) Establish effective land-use planning and transportation policy.</p> <p>14) Ensure that agriculture and forestry are carried out in ways compatible with biodiversity conservation.</p> <p>15) Identify and restore damaged lands</p>	<p>Trends in climate change impacts on extinction risk. </p> <p>Trend in monitoring and assessment of effects of climate change. </p> <p>Land restoration programmes in affect</p>	<ul style="list-style-type: none"> • National integrated water management plan developed. • Ecological threat assessments conducted in the Gobi, steppe and Khangai mountain region. • The climate change coordination office was established in 2011. • Mongolian assessment report on climate change produced in 2009. • Pasture health assessment conducted nationwide. • Biodiversity conservation has been incorporated into infrastructure developments in major road and railway projects. • Forests protection through policy and incentive schemes developed. • Degraded land database established. • Economic cost of degraded land has been assessed and a method to calculate restoration and off-set cost has been established. 	










 MDG targets  Aichi Targets  Mongolia's 1996 objectives	Relevant headline indicator	Mongolia's achievements toward implementation	Progress	
STRATEGIC GOAL C: TO IMPROVE THE STATUS OF BIODIVERSITY BY SAFEGUARDING ECOSYSTEMS, SPECIES AND GENETIC DIVERSITY				
 	<p>TARGET 11: PROTECTED AREAS.</p> <p>1) Establish a complete protected area system representative of all ecosystems and protecting endangered species, including joint actions with the Russian Federation and the People's Republic of China.</p>	<p>Coverage of protected areas has steadily increased over the last 5 years. </p> <p>Trends in protected area condition and/or management effectiveness is increasing with greater numbers of skilled staff and training. </p> <p>Trends in the connectivity of protected areas and other area based approaches integrated into landscapes and seascapes. </p>	<ul style="list-style-type: none"> • Since 2008 the amount of Specially Protected Area has increased from 14% to 17.4% of Mongolia's land cover in 2012. • The number of protected area staff has increased from 380 at the time of the 4th report to 625 currently. • In 2011 a five year project was initiated titled "Strengthening the Protected Area Network" which looks at changes in the ecology, dynamics, biodiversity and value of the SPAs. • The procedures for conducting research work in state protected areas adopted in 1996 have been renewed in accordance with current conditions. 	











 MDG targets  Aichi Targets  Mongolia's 1996 objectives	Relevant headline indicator	Mongolia's achievements toward implementation	Progress
STRATEGIC GOAL C: TO IMPROVE THE STATUS OF BIODIVERSITY BY SAFEGUARDING ECOSYSTEMS, SPECIES AND GENETIC DIVERSITY			
 <p>TARGET 12: EXTINCTION PREVENTED.</p> <p>4) Establish a research programme that improves knowledge of biodiversity and relevant threats.</p> <p>5) Establish a nationwide information and monitoring system for biodiversity conservation.</p> <p>17) Improve ex-situ management for species conservation and conserving genetic resources.</p>	<p>Trends in abundance, distribution and extinction risk of species have not significantly changed since the 4th report. </p> <hr/> <p>Develop research to understand threats and outline conservation actions. </p>	<ul style="list-style-type: none"> • Since to the 4th National Report in 2009 two new Ramsar sites have been added, bring the number to 13 in Mongolia providing protected sites for riparian species such as wild deer (CR). • Wild Bactrian camel (CR) Species Action Plan has been submitted to the MEGD. • Between 2009 and 2012 the first IUCN Red Lists and summary conservation action plans were produced for the following Mongolia taxonomic groups: <ul style="list-style-type: none"> -Mammals -Birds -Amphibians and reptiles -Fish -Plants • The publications detail threats, distribution and ecology of all of Mongolia's known bird species providing an important tool for future conservation works. • A summary IUCN Red List of all Mongolian vertebrate species was published. • The Red Book is used to list and categorise threatened species in Mongolia. 	














 MDG targets  Aichi Targets  Mongolia's 1996 objectives	Relevant headline indicator	Mongolia's achievements toward implementation	Progress	
STRATEGIC GOAL C: TO IMPROVE THE STATUS OF BIODIVERSITY BY SAFEGUARDING ECOSYSTEMS, SPECIES AND GENETIC DIVERSITY				
 	<p>TARGET 13: GENETIC DIVERSITY MAINTAINED.</p> <p>4) Establish a research programme that improves knowledge of biodiversity and relevant threats.</p> <p>17) Improve ex-situ management for species conservation and conserving genetic resources.</p>	<p>Trends in genetic diversity of cultivated plants, and farmed and domesticated animals and their wild relatives are being studied. </p>	<ul style="list-style-type: none"> Genetic labs have been established at the Institute of Biology and the National University of Mongolia and Agriculture. Genetic research has been conducted on a number of endangered species such as the Gobi Bear and wild Bactrian Camel. National livestock genetic resource complex established. State law development on genetic resources is ongoing. 	













 MDG targets  Aichi Targets  Mongolia's 1996 objectives	Relevant headline indicator	Mongolia's achievements toward implementation	Progress
STRATEGIC GOAL D: ENHANCE THE BENEFITS TO ALL FROM BIODIVERSITY AND ECOSYSTEM SERVICES			
 TARGET 14: ECOSYSTEMS AND ESSENTIAL SERVICES SAFEGUARDED. 1) Establish a complete protected area system representative of all ecosystems and protecting endangered species, including joint actions with the Russian Federation and the People's Republic of China. 8) Control pollution of air, water and soil. 10) Prevent Pasture deterioration through overgrazing. 15) Identify and restore damaged lands.	Trends in area of degraded ecosystems restored or being restored.  / 	<ul style="list-style-type: none"> • Tuul River basin authority was established in 2012 to coordinate water resource management plans. Under this a 4 year plan was implemented in 2012 to reduce river pollution and improve river protection with cross sectorial compliance. • The Tuul River improvement project was initiated in 2010 with continuing status surveys of the river. Based on the finding of this work environment degradation reduction plans will be made. • Increased activities such as forest restoration and legal ammendments regarding forests have been implemented by MEGD. 	 














 MDG targets  Aichi Targets  Mongolia's 1996 objectives	Relevant headline indicator	Mongolia's achievements toward implementation	Progress	
STRATEGIC GOAL D: ENHANCE THE BENEFITS TO ALL FROM BIODIVERSITY AND ECOSYSTEM SERVICES				
 	<p>TARGET 15: ECOSYSTEMS RESTORED AND ENHANCED.</p> <p>10) Prevent Pasture deterioration through overgrazing.</p> <p>14) Ensure that agriculture and forestry are carried out in ways compatible with biodiversity conservation.</p> <p>15) Identify and restore damaged land.</p>	<p>Status and trends in extent and condition of habitats that provide carbon storage. </p> <hr/> <p>Trends in coverage, condition, and effectiveness of protected areas have generally been positive. </p>	<ul style="list-style-type: none"> • Percent cover of land under forest has decreased from 8.59% in 2006 to 8.26% in 2010. • During 2010 and 2012, pastureland use Exceeded capacity by 2-5 times in 20-45% of the total pastureland. • Law on soil protection and desertification prevention established in 2012. • Area under SPA reached 17.4% and a further 10.3% under LPA was reached. 	
	<p>TARGET 16: NAGOYA PROTOCOL ENFORCED.</p>	<p>Include considerations relating to the Nagoya Protocol in Mongolia's new NBSAP. </p>	<ul style="list-style-type: none"> • The NBAP was produced in advance of the Nagoya Protocol and so no actions were outlined. May be a consideration for Mongolia's NBSAP. 	



 MDG targets  Aichi Targets  Mongolia's 1996 objectives	Relevant headline indicator	Mongolia's achievements toward implementation	Progress
STRATEGIC GOAL E: ENHANCE IMPLEMENTATION THROUGH PARTICIPATORY PLANNING, KNOWLEDGE MANAGEMENT AND CAPACITY-BUILDING			
	TARGET 17: NBSAPs ADOPTED.	Trends in national biodiversity strategies and action plans being implemented, including development, comprehensiveness, and adoption. 	
 	TARGET 18: TRADITIONAL KNOWLEDGE RESPECTED. 1) Establish a complete protected area system representative of all ecosystems and protecting endangered species, including joint actions with the Russian Federation and the People's Republic of China.	Trends in accessibility of scientific/technical/traditional knowledge and its application. 	<ul style="list-style-type: none"> • Community participation Snow Leopard conservation projects implemented with emphasis on sustainable and culturally appropriate methods. • National biodiversity strategy working group established and implementing planned activities. 



 MDG targets  Aichi Targets  Mongolia's 1996 objectives	Relevant headline indicator	Mongolia's achievements toward implementation	Progress	
STRATEGIC GOAL E: ENHANCE IMPLEMENTATION THROUGH PARTICIPATORY PLANNING, KNOWLEDGE MANAGEMENT AND CAPACITY-BUILDING				
 	<p>TARGET 19: KNOWLEDGE IMPROVED, SHARED AND APPLIED.</p> <p>5) Establish a nationwide information and monitoring system for biodiversity conservation.</p>	<p>Trends in accessibility of scientific/technical/traditional knowledge and its application. </p> <hr/> <p>Trends in related capacity-building and knowledge transfer, plus trends in uptake into policy. </p>	<ul style="list-style-type: none"> • 2010 launch of the Environment Information Centre. All databases are available to the public and include GIS data, administrative management, SPA, Environment statistics etc. Currently 12 such databases are publically available. • Mongolia is yet to adopt the internationally recognized IUCN Red List for directing species conservation efforts. 	
	<p>TARGET 20: FINANCIAL RESOURCES INCREASED.</p>	<p>Trends in mobilization of financial resources. </p>	<ul style="list-style-type: none"> • Since the 4th report MEGD is implementing 16 major funding project streams and has joined/increased involvement in a number of international conventions such as CBD, CMS, Ramsar and Montreal protocol. 	

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ANNEX AND APPENDIX





ANNEX 1. CASE STUDIES

CASE STUDY 1: RED LISTS AND SUMMARY CONSERVATION ACTION PLANS

Within the work to establish a national information and monitoring network relating to biodiversity conservation, national and international experts cooperated and evaluated 64 species of fish, 27 species of amphibians and reptiles, 487 species of birds, 128 species of mammals and 150 species of plants distributed throughout Mongolia.

The output of this collaborative work was the production of the IUCN Red Lists of all known Mongolian vertebrate species. Mongolia became the first country to complete such Red Lists of vertebrate species in Asia.

“Summary conservation action plans” of Mongolian fish, amphibians, reptiles, birds, mammals and some plants were produced. These publications include population status, current conservation actions and future needs of the endangered and critically endangered species.

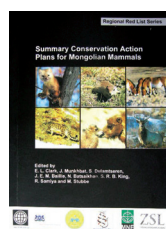
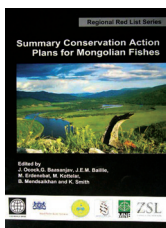
CASE STUDY 2: COMMUNITY-BASED CONSERVATION OF BIODIVERSITY IN THE MOUNTAIN LANDSCAPE OF MONGOLIA’S ALTAI SAYAN ECO-REGION

This project was implemented in 20 sums in Bayan-Ulgii, Khovd and Uvs province between 2005-2011. One of the main achievements of the project was to improve herder community regulation on conservation, use and possession of certain types of natural resources (known as the Herder Community Regulation). Through consultations with herder groups, government organisations and partner organisations working on community projects, between May and December 2009, the Regulation was revised in July 2010. The revisions to the Regulation include: (1) increasing the maximum contract duration for community managed areas from five to ten years; (2) decreasing the minimum number of community members from 20-30 to ten; (3) communities are now allowed to nominate a volunteer ranger from their members; (4) membership is limited to the area of residence; and (5) local authorities now have formal duties to assist communities in their formation. Before the Project few community groups existed in the region, but now community-based conservation is a common concept. The Project officially registered 116 herder community groups managing 1.3 million ha.

During the project period local environmental units were set up in the Altai Sayan region to strengthen community conservation, improve coordination of local government office, improve coordination between environmental protection and local social and economic development policies, ensure the implementation of integrated management, and to provide advice to herders. These units proved to be an effective mechanism for coordinating synergy between local government and herders and so MEGD promoted the structure of the Local Environmental Unit in town centres throughout Mongolia.



Summary conservation action plan for threatened species





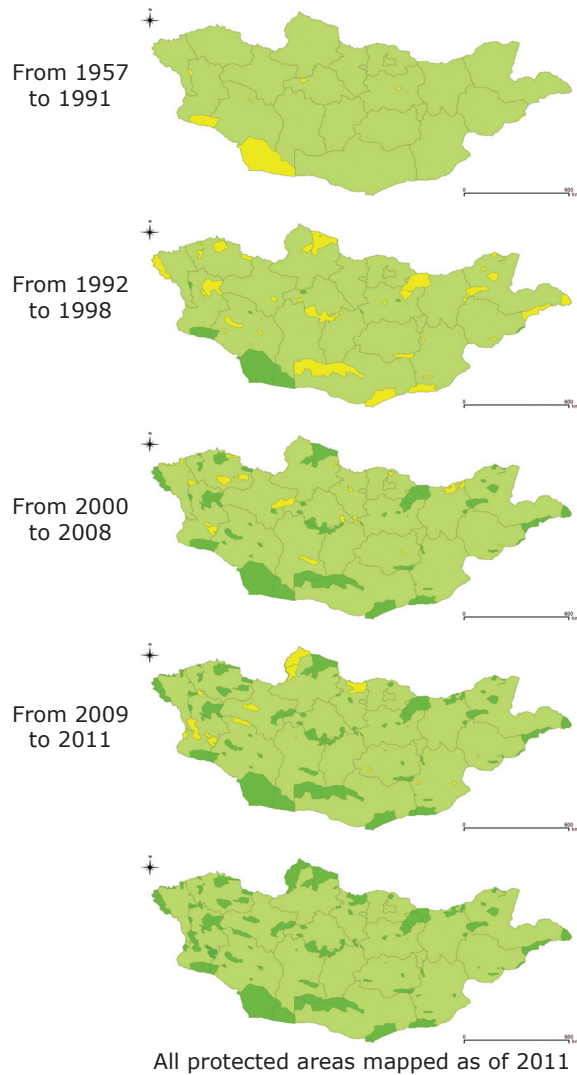
CASE STUDY 3: INCREASING MONGOLIA'S PROTECTED AREAS

Mongolia's protected area network can be considered a success story of the work carried out since the original NBAP. By the end of 1996 there were a total of 33 protected areas in Mongolia covering 15, 305.4 ha, or 9.8% of the total land cover. The government set the goal to protect 30% of Mongolia's land as either, Strictly Protected Area, National Park, Natural Reserve or Historical Monument.

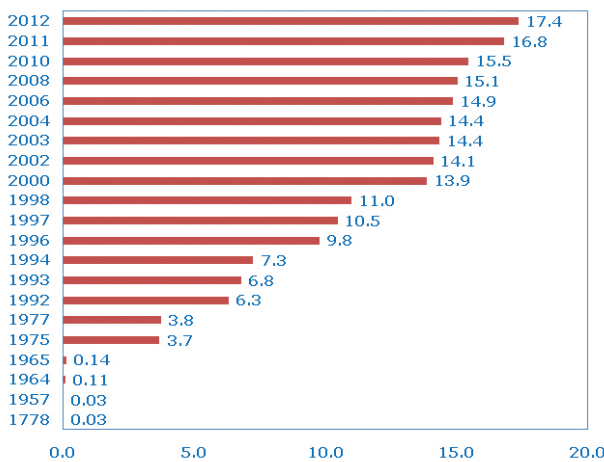
The objective under that particular NBAP was to increase the land under protection to 18%. As the NBAP is due to be superseded by the new NBSAP Mongolia has achieved protected area coverage of 17.4% in total over 99 sites and 27,199 ha. This gives a growth rate of 3% per year since 1996 and so Mongolia, if this rate is maintained, could achieve completion of this goal by 2030; however this rate could be impeded by the amount of land under mining licence.

The figures show the new protected areas over time, supported by the graph data showing the total percent area of Mongolia under protection as it has gradually increased over subsequent years.

Figures showing protected areas increasing in number across Mongolia over time with date periods given for each map



Graph showing per cent land cover of protected areas in Mongolia over time



CASE STUDY 4: TREE PLANTING DAY

As of the 14th of April 2010, "Tree Planting Day" occurs on Saturdays of the second week of May and October each year. The event involves statesmen planting trees to encourage the public to do the same as well as large numbers of people planting trees ceremonially. In its first year 7,637 organisations and 226,000 people were involved in the national event planting a total of 1.7 million trees and bushes. The following year in 2011, 4,669 organisations and 156,000 people were involved in planting 1.5 million trees and in 2012, 1.7 million trees were planted throughout Mongolia.



APPENDIX 1. PREPARATION OF THE FIFTH NATIONAL REPORT

The development of the Fifth National Report was conducted by the Steppe Forward Programme according to the contract between the SFP and MEGD. Scientists and researchers from the National University of Mongolia, the Mongolian Academy of Science, and the Institute of Biology, Meteorology and Hydrology have contributed to Chapter 1 of the report "An update biodiversity status, trends and threats and implications for human well-being". Consultation meetings were organised with taxonomic experts of plants, insects, fish, reptiles, amphibians, birds and mammals and related experts were appointed to contribute to the report.

In Chapter II, "The national biodiversity strategy and action plan, its implementation and the mainstreaming of biodiversity", according to the NBAP objectives and actions, the information on implemented activities in Mongolia was gathered from the relevant organisations. A summary of the actions relating to the NBAP objectives and outputs which are in line with the Aichi biodiversity targets was produced. In the process to collect relevant information for the report a headed letter requesting project outlines was sent to government and non-government NGOs. Related ministries and organisations sent their information and reports via letter and emails. Meetings had been held with some organisations in order to clarify project details where necessary (see Appendix 2 for parties involved). A draft version of the report was sent to the main contributors for amendments were then used in the final edit of the report.

The fifth report includes information from the annual reports of MEGD and summaries of ongoing projects of the National Programmes which were approved by the decision of Parliament; additionally internationally funded projects which were also implemented by MEGD in the first half of 2013 are included.

During stages of the report which involved collection of information and input from other external organisations the team noted difficulties in receiving timely responses from potential contributors. We advise that it may be useful in the future for CBD to provide a standard headed letter outlining the scope of CBD and the benefits an NGO or research institute may gain from being mentioned in the National Report. For example, who reads the reports, how often they are accessed online and by whom? This information in a short CBD headed letter may provide operational teams with a greater opportunity to collect the required information as needed.



APPENDIX 2. FURTHER SOURCE OF INFORMATION

<i>Source</i>	<i>Websites</i>
ENVIRONMENTAL GEO-DATABASE	http://geodata.mne-ngic.mn/
ENVIRONMENTAL INFORMATION CENTER	http://www.icc.mn/
INSTITUTE OF BIOLOGY, MAS	http://www.biology.mas.ac.mn/index.php/2013-01-17-11-48-26
MEGD	http://mne.mn/v3/
MEGD, INFORMATION ON POLICY, PROJECTS AND PROJECTS	http://www.eic.mn/policy/index.php?id=5&page=2
MONGOLIAN LAWS	http://www.legalinfo.mn/law
MONGOLIAN ORNITHOLOGICAL SOCIETY	http://www.mos.mn
NATIONAL DATA OF MONITORING OF IMPLEMENTATION OF GLOBAL PLAN ON PROTECTING GENETIC RESOURCES OF PLANTS OF FOOD AND AGRICULTURE (GPA-PGRFA)	http://www.pgrfa.org/gpa/mng/mngwelcome.html
SDC, COPING WITH DESERTIFICATION PROJECT	http://www.swisscooperation.admin.ch/mongolia/en/Home/Completed_Projects_2001_2013/Coping_with_Desertification http://www.greenmongolia.mn/mn/about-codep.html
SDC, ECO-SCHOOL PROJECT	http://www.swiss-cooperation.admin.ch/mongolia/en/Home/Completed_Projects_2001_2013/Ecological_Education
UNDP, MDG	http://www.mn.undp.org/content/mongolia/en/home/mdgoverview/
UNDP, PROGRAM	http://www.mn.undp.org/content/mongolia/en/home/our-work/overview.html

LIST OF REPORTS:

- Annual Report of MNET in 2010.
- Annual Report of MNET in 2011.
- Annual Report of MEGD in 2012.
- Assessment report on climate change 2009. Mongolia. MNET. Ulaanbaatar 2010.
- List of Rare Animals confirmed by Government Decree in 2012, document number 7, Appendix 1. Ulaanbaatar.
- Millennium Development Goals Implementation. 2011. The Fourth National Report. Government of Mongolia. Ulaanbaatar.
- Mongolian Government Action Plan (2012-2016). 2012. Mongolian Government. Ulaanbaatar.
- Summary of ongoing National programmes implemented by MEGD by the decision of the Mongolian Parliament (first half of 2013).



- Summary report of ongoing projects with international grants in green development (first half of 2013).
- National Report on The convention on Migratory Species. 2011. Ulaanbaatar.
- National report on the convention on migratory species. 2012. Ulaanbaatar.
- Priorities of Mongolian Social and Economical development. (2012-2016). 2012. Mongolian Government. Ulaanbaatar.
- Program to develop the Meteorology, Hydrology and Environment research up to 2015.
- Report of The National Committee of Biosafety in 2010-2013.

LIST OF PARTIES:

- ADMINISTRATION OF LAND AFFAIRS, GEODESY AND CARTOGRAPHY
- NATIONAL REMOTE SENSING CENTER
- ECOLOGICAL EDUCATION CENTER
- FOREST RESEARCH AND DEVELOPMENT CENTER
- INSTITUTE OF BIOLOGY, MONGOLIAN ACADEMY OF SCIENCES
- INSTITUTE OF METEOROLOGY AND HYDROLOGY
- MINISTRY OF EDUCATION AND SCIENCE
- MINISTRY OF ENVIRONMENT AND GREEN DEVELOPMENT
- MINISTRY OF FOOD AND AGRICULTURE
- MINISTRY OF MINING
- MINISTRY OF SPORT, CULTURE AND TOURISM
- MINISTRY OF TRANSPORT
- MONGOLICA PUBLISHING
- MONGOLIAN ORNITHOLOGICAL SOCIETY
- NATIONAL LIVESTOCK GENETIC RESOURCE CENTER
- NATIONAL RENEWABLE ENERGY CENTER
- NATIONAL UNIVERSITY OF MONGOLIA
- SNOW LEOPARD CONSERVATION FUND
- STEPPE FORWARD PROGRAMME
- THE MONGOLIAN SOCIETY FOR RANGELAND MANAGEMENT
- THE NATURE CONSERVANCY
- WILDLIFE CONSERVATION SOCIETY
- WILDLIFE SCIENCE AND CONSERVATION CENTRE
- WORLD WILD FUND FOR NATURE
- ZOOLOGICAL SOCIETY OF LONDON