SECOND REPORT ON THE IMPLEMENTATION OF THE UN CONVENTION TO COMBAT DESERTIFICATION IN MONGOLIA

CONTENTS

SUMMARY

Mongolia is a landlocked country located in the North-East of Asia. Isolated from sea and surrounded by high mountains, 1580m above sea level, Mongolia is a country with 1.566 million km^2 of land and population density only 1.5 persons per km^2. Mongolia is at the same time one of the most cold, dry countries on earth with harsh climate. The average January temperature in the capital city, Ulaanbaatar , is –18 C ^{o} and it receives only 290 mm of rainfall per year. As a result, in spite of extensive land resources, productivity remains low due to an extremely short growing season and the lack of water.

The Gobi desert ecosystem covers over 40 % of Mongolia. It is a vast territory with predominantly unfertile soil. During Mongolia history of development, the country has quite often faced drought and desertification. This clearly shows a negative impact on the social and economic life of the country. Agriculture is the main economic sector and provides 35% of the GDP, and accounts for 25% of all export products from Mongolia. As a result of drought and major winter disasters ("dzud" in Mongolian) over last the 2 years, local people have faced difficulties through the lack consumer products, a decreased raw material supply for national manufacture, a decline in export products as well as increased unemployment and poverty.

Examples of this are as follows:

- The value of the total number of dead livestock reached over 270
- Billion tugrug.
- Agricultural production was reduced by 16.8 %
- The annual growth of the GDP estimated to reach 6.0% was reduced to 1.1%

During this time over 10,000 families lost their animals/ livestock. This led to an increase in the number of unemployed people and further poverty.

Combating desertification is therefore an important task faced by the Mongolian government policy-makers and parliament. In 1992 issues surrounding desertification were raised and in 1996 Mongolia participated in the "United Nation Convention to Combat Desertification in those countries experiencing serious drought and desertification, particularly in Africa". The Mongolian Ministry of Nature and Environment (MNE) is responsible for the implementation of convention activities targeted to combat desertification with the support of the National Committee to Combat Desertification (UNCCD), which is working under the umbrella of the MNE.

The convention covers wide range of inter-related topics such as socio-economic and environmental issues. Complex decision-making on combating desertification requires coordination between the social, environmental and economic sectors. With compliance to the UNCCD, Mongolia reports about activities that have been undertaken within the framework of the implementation of the issues raised within the convention.

0.1. Priorities and main policies (national policies, legal environment) within the scope of sustainable development programs

In the convention the importance of conducting long-term policies were underlined. These long-term policies are aimed at protecting the sustainable use of natural resources, environmental restoration, the improvement of soil productivity and living standards of people based in desert regions.

Issues surrounding land degradation and the combating of desertification are reflected in the following:

- The Mongolian Government policy on Ecology 1996-2000
- The Sustainable Development Program for the 21st century
- The Water National Program
- The Forest National Program
- The National Program to Reduce Disasters
- The Government Action Program in 2000-2004

The above programs and a further 20 programs play an important role in the combating of desertification. In addition to this, the Mongolian Government aims at intensifying land renewal through the program on "Good Governance for Human Security". This includes the Government policy on Rural Development (1996), the National program "Green Revolution (1997), the Rehabilitation Program for the Agricultural Industry (1998), the National Program on the Protection of Livestock from Dzud and Drought (2001), the National Program on Food Supply, Security and Livelihood (2001), the National Program on Poverty Alleviation (1994), the National Program on The Support Family Life (2001). The programs are projected to finish between 2005 and 2010.

The primary activity for each of the countries that participated in the convention is to operate a National Action Program in order to combat desertification. The "National Action Program to Combat Desertification" (NAPCD) proposal was developed with assistance from international organizations from 1994 – 1996. The NPCD proposal was approved by the Mongolian Government in July, 1996 (Resolution number 169). Strategies, directions, phases and stages are determined in the National Action Program to Combat Desertification by evaluating current environmental and socio-economical circumstances, reasons for desertification, its causes and consequences. The basic principle of the National Action Program to Combat Desertification is to eliminate the factors that contribute to the development of desertification. In order to achieve sustainable results, environmental and socio-economical factors and organizational issues need to be taken into account. Long and short term activities outlined by the NAPCD include strengthening the national capacity to combat desertification, develop systems for the use and protection of natural resources, to develop the sustainable use of pasture-lands, to heighten public awareness, to support applied and joint research and to improve management structures.

0.2. Institutional measures taken to implement the Convention to Combat Desertification

The Mongolian Ministry of Nature and Environment is the national body responsible for coordinating the implementation of the Convention to Combat Desertification in Mongolia. The National Coordinator of the Convention was nominated by the Minister for Nature and Environment. In 1998 the National Committee to Combat Desertification was established, which is responsible for the implementation and coordination of the Convention. Members of the Committee appointed by the Minister include 11 representatives from different Ministries, NGO's and research organizations. There is a need in the near future for the Government to improve the legal status of the National Committee as well as providing

separate facilities, staff and an adequate budget. It is important to improve the capacity members of the Committee to increase the number of members and to improve coordination and cooperation between different sectors. The duties and obligations of the National Committee are based on and in accordance with the First Report on Implementing CCD in Mongolia previously submitted to the Secretariat of the Convention. The Committee provides activities to combat desertification, guidance and support for implementing projects in 21 aimags (provincial centers) via the Governors office. The establishment of the Land Management Agency under the Ministry of Nature and Environment in 1997 was an important step toward implementing Government policies on sustainable land use and restoration.

The State Emergency Commission, State Civil Defense Agency, and Red Cross Association carry out activities to combat natural disasters such as droughts and dzuds (heavy snowfall with extreme cold temperatures). Research institutions are providing different studies concerning the current situation of desertification, backgrounds and so forth.
The Institute of Meteorology and Hydrology monitors desertification and in 1998, the Center to Combat Desertification was established in the Institute of Geo-ecology.

0.3. Participatory approaches to combat desertification

In order to implement National Action Program to combat desertification, representatives from Parliament, Government, Universities, NGO's and the private sector as well as local people need be involved. It is important to work with stakeholders in all stages of policy development for the program and related projects.
Public awareness activities surrounding desertification and land degradation are being issued through mass media. Activities to combat desertification and the sustainable use of natural resource cannot be implemented without the active participation of local people.

Under the umbrella of the "Integrated Management to Combat Desertification" project implemented through financial assistance from the Federal Republic of Germany, 43 cooperatives have successfully been established. These cooperatives are spread through 12 project-site "soums" (provinces) in order to promote the participation of stakeholders. Generally, herders in all parts of the country prefer working collaboratively and have established a number of cooperatives, units and groups. They are keen to use pasturelands and water resources sustainably as well as to improve their livelihoods through the integrated management of natural resources. Local administrative bodies have also developed and implemented their own desertification programs and action plans within their areas.

The 1995, 1997 and 2001, National Seminars jointly organized with the Secretariat of the UN Convention to Combat Desertification and the resulting recommendations on a number of urgent questions have played a significant role in promoting public participation in combating desertification. The "Asia-African Conference to Combat Desertification" and the "Regional Meeting of the Asian Coordinators of the Convention to Combat Desertification" organized in Ulaanbaatar (June, 2001) were both important events. Each event promoted the Mongolian peoples' recognition on the significance of combating desertification and developing international co-operation with other of the countries.

Training and seminars on combating desertification and land degradation have been organized in several aimags and soums. Several handouts and pamphlets have also been published. Within the framework of the environmental public awareness project, a number of small projects have been successfully implemented through different children/ youth and women-based NGOs. Specific activities have been customized from the work plan in order to organize and celebrate the "International Day for Combating Desertification", held annually on June 17.

0.4. Drought/ desertification monitoring and assessment

Relevant institutions of the Academy of Science and Hydrometeorology and Environment Monitoring Agencies are organizing research on desertification. Research has been undertaken on flora, ecosystem characteristics, climate and the water supply of the Gobi and desert zones. More specifically these include climate change within the different ecological zones, biomass fluctuations in cultivated areas and in pastureland vegetation cover, eco-engineering models, pasture management, soil productivity, erosion and deterioration, sand movement, overgrazing, carrying capacity surveys etc., In 2000, State monitoring of the condition and quality of the land were carried out. Monitoring covered 1148.7 thousand hectares of cultivated land, 1766.6 thousand hectares of land used for haymaking and 05 thousand hectares of urban areas. Maps (1:1000000) and reports for each of the soums involved were developed.

The State Network of Hydrometeorology is engaged various kinds of hydrological, meteorological and agricultural observations and surveys in over 320 soums and smaller settlements. Within the Pasture Plant Monitoring Program, phenomenological observation surveys are undertaken on the main pasture-plants in relation to the natural and climatic conditions, plant diseases and the moisture content of soils. A natural disaster information system to inform the community/ public on droughts and dzud etc. has been established by information received from the hydrometeorological network and satellite databases. Long-term climate forecast methods have been developed and is now used. The National Climate Change Program was approved by the Mongolian Government in 1999. Measures to strengthen the capacity of the hydrometeorological and environmental monitoring personnel as well as improve the facilities of the observation stations are regularly undertaken. Mongolia actively participates in the activities of the Asian Disaster Reduction Center and work collaboratively on developing and using the information database. Geographical Information System (GIS) is developed using air and space images in order to assess the quality of the land for the land cadastre database.

In Mongolia, there is however, no specific research on desertification conditions and trends and its negative socio-economic negative impacts. There is poor cooperation between different scientific projects and disciplines coupled with a general lack of information. It is time to pay more attention to the control and monitoring of desertification. The current Government Action Program highlights the importance of expanding the level of research on desertification and implementing related scientific projects.

0.5. Measures for the restoration of degraded land

Practical measures to combat desertification, restoring degraded environments and introducing adequate techniques and methodologies are urgent tasks. Over the last 4 years, several projects have implemented to protect sites from the movement sand. These projects were implemented in the driest desert regions, namely in Zamiin Uud, Khoh Morit soum in Dornogobi aimag and in Gobi-Altai aimag. The Land Management Plan and 10 Year Programme to Combat Desertification of Zamiin Uud were developed on the basis of determining the root causes and impacts of sand movement. Assessment of the current condition of the soil and vegetation of the area surrounding Zamiin Uud is now underway in conjunction with the local administration.

Measures are being taken to extend the protection of vulnerable ecosystems in the Gobi and desert zones, including rare and endangered flora and fauna. Gobi Gurvan Saikhan National Park, Little Small Gobi Strictly Protected Area and several others at aimag and soum

level – all within the southern arid zones have already been established. Today 13 % (or 2.5 million hectares) of Mongolia belongs to the National Protected Area network.

Over the last 4 years, 4.3 thousand hectares have been re-forested at a cost of 870 million MNT (money provided by the state budget). In 2000, 9030 hectares of new forest were established throughout the country. Research on the spread of harmful insects over 300 thousand hectares of land were carried out and resulted in 8000 hectares of land being sterilized.

Statistics show that only approx. 30% of mined areas throughout Mongolia have been partially restored.

Within the framework of the implementation of the Mongolian Action Program on Water, a total 650 wells in 19 aimags (300 soums) were repaired over a 3-year period, funded by the central budget. Within the framework of the WATER-21 Project sponsored by the Dutch Government, a total of 250 thousand US dollars went toward the reparation mechanical wells. Other activities include the planting of perennial species in 300 hectares of agricultural land created from a former wasteland, the implementation of chemical and biological measures against rodents damaging pasture-land covering 326 thousand hectares in 5 aimags (16 soums).

0.6. Resource mobilization and coordination to implement CCD

The policy of the Mongolian Government is to developed cooperation with donor countries and international organizations in order to implement the Convention on Combating Desertification. Mongolia has actively participated on all stages of the development of the Convention on Combating Desertification. The Government also cooperates with the UNDP and UNEP Secretariat for Combating Desertification. The Mongolian Government has organized 8 Donor Country Meetings since 1990 and has received aid for environmental work.

From 1996-2000, the Ministry of Nature and Environment developed 20 projects to combat drought and desertification and presented these to international organizations. As a result of this, 14 projects were financed (totaling 24.6 million US dollars) and were implemented, some on a local level and others on a national level.

Mongolia is developing bilateral cooperation through agreements with the American, German, Japanese, Korean, and Hungarian Environmental Ministries and Authorities. There are a further 7 Inter-Governmental agreements with neighboring countries: China, Russia, Kazakhstan and Kygryzstan on environmental protection, including the protection of trans-boundary water resources, hydrometeorological and environmental monitoring.
Representatives from Mongolia are actively participating in international meetings, training courses and workshops relating to desertification.

In 2000, Bonn COP-4 made the decision to place Mongolia in charge of implementing “Mitigating the effects of drought, and capacity building for combating desertification” within the framework of CCD implementation in Asian countries.

(1) THE STRATEGIES AND PRIORITIES ESTABLISHED WITHIN THE FRAMEWORK OF SUSTAINABLE DEVELOPMENT PLANS AND\ OR POLICIES

Natural resource use is one of the main factors affecting the socio-economic development of Mongolia. Currently, along with the traditional livestock-raising nomadic

lifestyle, the fastest developing industry in Mongolia is mining. Renewable and nonrenewable resource use has increased over the last 30 years resulting in a negative impact on the environment.

Over a period of 30 years, 46.5% of agricultural area suffers from wind and water erosion, forest cover has been reduced by 1.4 million hectares and 70% of pasturelands have been overgrazed. Vegetation yields - especially in dry regions such as the desert steppe and steppe, have decreased 6 times. Areas covering 25% -50% of Mongolia have been affected by droughts occurring in recent years. Dust storm days have increased 4 times in comparison to 1960. These figures show that immediate measures need to be taken to combat desertification in Mongolia in order to create suitable conditions for the sustainable development of the country.

In the early 1990's, Mongolia moved from a centrally planned economy to a new market economy, at the same time building a democratic society. Over the last decade, Mongolia has improved structural, legislative and financial measures in the environmental sector. The Mongolian Government put forward a objectives of nature conservation, proper use of natural resources and environmental restoration as means toward improving socio-economic circumstances of the country. Nature conservation issues are not only a concern in the nature and environmental sector, but also to others involved such as the agricultural and social security sectors, and the mining industry. Combating desertification objectives and measures should be reflected in the policies of related sectors for the successful implementation of CCD at a national level.

1.1. Strategic documents related to combating desertification

Mongolian Action Program for the 21st Century – MAP 21

Mongolia has been in agreement with, and in support of the "World Sustainable Development Program" /Agenda 21/ and the "Environment and Development" Conference held at Rio-de-Janeiro in 1992. The Mongolian Action Program for the 21st century is based on the principles of the World Agenda 21. The National Council of Sustainable Development led by the Prime Minister was established in 1996 and is responsible for organizing and implementing policies and activities developed by the National Council. To guarantee the well being of citizens and to establish a sustainable economy, the Sustainable Development Program specifies measures for integrating nature, environmental and socio-economic issues. The Program comprises 4 main sections – the social sustainable development, economic sustainable development, the utilization of natural resources, environmental protection and 26 sub-sections. Sub-section 14 covers combating desertification and drought and based on the evaluation of desertification conditions, 4 basic objectives and 31 activities were defined.
Ulaanbaatar and the 21 aimags of Mongolia have developed their own sustainable development programs.

State policy on ecology

The Mongolian Parliament approved a long-term policy on ecology in 1998. The policy will continue until 2020 and includes objectives and actions for sustainable development. Objectives are:

- Minimum impact and with maximum efficiency natural resource use
- To support clean industry
- To restore overused environments
- To increase public awareness on conservation issues
- To prevent natural disasters

National Action Program to Combat desertification

The first version (draft) of the program was prepared with the support of UNEP, ESCAP and the International Project Center of the Russian Federation. The second version was prepared in 1994, with the support of UNEP and discussed in the National Forum on "Combating Desertification".

The final version of the NAP was prepared by Doctor P. Vit (Advisor to UNSO) jointly with Mongolian scientists and was approved by the Mongolian Government in 1996. Strategies, directions, phases and activity methodology are determined in the NAP of Mongolia to Combat Desertification by evaluating the current state of the environment, socio-economic situations, the desertification processes and consequences. The focus of the NAP is on preventative measures. The NAP also stresses importance of coordination and cooperation between the different sectors involved in the implementation of CCD (environmental, socio-economic, agricultural and others). Long and short term measures to strengthen the national capacity to combat desertification, to create a legal framework for the appropriate use and protection of natural resources, to establish sustainable pastureland use systems, to increase public awareness, to undertake research and to improve management systems are all included in the program. The implementation of the NAP is carried out in three phases.

1 The first phase focuses on strengthening the cooperation between local and Central Governments, NGOs and other stakeholders and the establishment of a legal basis for the decentralization of natural resource use.

2 The second phase focuses on strengthening the national capacity and improving the monitoring and assessment on desertification processes. Restoration activities will be implemented in the areas most severely affected by desertification in Mongolia.

3 In the final phase, goals and objectives of the National Program to Combat Desertification will be completed resulting in strengthened and national and local capacities and preventative measures for combating desertification firmly established.

"Environmental Action Program"

This program was approved in 1995 with the support of the World Bank and renewed in 2001. The program includes an evaluation of the current condition of and issues surrounding natural resource use as well as achievements and constraints in the environmental sector. An action plan for 2001-2005 was made after an assessment of the program. It is important to note that of the nature conservation 67 projects proposed, more than 10 were related to desertification and preventative measures, creating land use legislation and restoring overused land.

"Mongolian Government Action Program for 2001-2004"

This program defines activities and goals and covers a 4-year period. The program is in the process of implementation by the Government. There are 33 objectives and activities related to nature and the environment including: land reform, the restoration of degraded areas, and an increase in the amount of desertification research work. The program currently being implemented and receives annual funding from the State Budget.

"National Action Program on Climate Change"

From 1999-2000 the Dutch Government assisted in developing the program, which was approved by the Government in July 2000. Climate variation assessments were carried using data covering the last 50 years. Adaptation measures for climate change were reflected in the program and defined through using modern scientific methods.

"National Program to Reduce the Impact of Natural Disaster"

Over recent years, damages resulting from disasters have increased in scale. The most harmful are dzud, drought, snowstorms, strong winds, floods and dust storms. In 2000 a total of 56 natural disasters took place in Mongolia, of which 17 were classified as natural disasters. Damages from these large-scale disasters were estimated at 12.9 billion tugrug. The Government adopted the program in 1999 with the aim of preventing large-scale damages resulting from sudden droughts, dzud or other negative climatic occurrences. The program is in the process of implementation.

"National Forest Program"

Forest occupies an 8.1% of Mongolia and plays an important role in protecting water resources, preventing erosion, mitigating the effects of the harsh climate, protecting from ozone depletion, creating habitats for wildlife and so on. Logging over the last 50 years has had a major impact on wood resources. Forests have been further reduced through insect predation and fires. In 1998, the Government approved the National Forest Program. The policy based on the sustainable use of wood resources and on reforestation will continue until 2015.

"National Water Program"

Mongolia has a shortage of water resources especially in the remote regions of the Gobi where water use per capita is 10 times less than the world average. The program was initiated in 1997 with the aim of protecting water resources and establishing methods of sustainable use. The objective is to support sustainable socio-economic development through supplying herders with potable water, protecting water resources from pollution as well as carrying out restoration activities. The program will be implemented in 3 phases, continuing until 2010.

1.2 National Plans and Strategies available in other social and economic areas

"Good Governance for Human Security Program"

The program was approved by the Mongolian Government in 2001 and is to be implemented from 2001-2004. There are a total of 11 objectives, of which 3, cover land use and combating desertification and are currently being implemented. The Minister of Nature and Environment, U. Barsbold is the director of the "Sustainable Development of Nature and the Environment" section of the program.

"Social Program on the Development of Cooperatives"

The program was approved in 1998. The program objectives are to increase employment opportunities in the countryside, to support poverty alleviation actions, to supply herders with social services and to develop market economy policies. The program will continue until 2005.

"Green Revolution" National Program

The program was approved by the Government in 1997 (Resolution no. 199). Objectives of the program are to increase vegetable planting, expand the variety of plants, to increase citizens' incomes - realizing the proverb "If the citizen is rich then the State is rich" and increase nature protection.

"Program to Redevelop Land Cultivation"

The program was adopted by the 103rd resolution of the Government. Objectives are to provide flour and basic vegetables for domestic purposes, privatize the State share of land cultivation entities, improve legislation, provide seeds and improve cultivation techniques, prevent soil deterioration through erosion, maintain soil moisture levels and fertility and increase the yield per hectare through advanced technology. The program will continue until 2005.

"National Program on Protecting Livestock from Dzud and Drought"

The program was adopted by the 47th resolution of the Government in 2001. Objectives are to protect livestock from dzud and drought and to develop a system for the reimbursement of livestock, provide favorable policies, regulations and support directed toward the development of sustainable animal husbandry. The program continues from 2001-2005.

"National Program on Food Supply, Quality and Nutrition"

The program was adopted by the 242nd resolution of the Government in 2001. The program is directed toward providing the population with nutritious, high protein food on a continual basis and in sufficient quantities. Increases in nutrition will lead to improvements in health.

"National Household Livelihood Capacity Support Program"

Based on experience gained from the National Poverty Alleviation Program, the Mongolian Government is implementing the second phase of the program supporting the well being of families. The poverty reduction strategy will focus on limiting the spread of poverty and reducing its depth. The program was approved by Government resolution No.108 and began implementation in the second half of 2001. The ""National household livelihood capacity support Program" includes the World Bank funded "Sustainable Life Support" program, the ADB funded "Rural development support program" and the Swiss International Development Agency funded a study on poverty alleviation through creating employment opportunities.

"100000- solar Ger

The Mongolian Government has decided to implement the "100000- solar Ger" program as a policy to provide electricity for ger/house/ of herdsmen. The program covers the period of the years 2000 until 2010, having the main purpose to provide electricity to households in the rural areas from solar home systems. It means also to supply the required power demand of herdsmen, schools, hospitals, tourism culture and service centers together with individual households in the rural areas. Also individual or hybrid power generation systems of solar, wind, small hydropower and in combination with diesel generators will be developed.

1.3 Establishing a legal framework to combat desertification

The New Constitution adopted in 1992, established the right of citizens to live in a healthy and secure environment. It should be emphasized that based on the Constitution, a lot of work has so far been carried out to establish a legal framework in order to maintain an ecological balance through nature protection, sustainable natural resource use, and environmental restoration activities.

The Nature Protection Law was adopted in 1995, and defines the rights and obligations of the State and citizens as well as defining proper measures on environmental protection, the use of natural resource and restoration. Between 1995-2002, twenty-five laws were adopted concerning nature and the environment. Desertification issues are reflected in the following laws: the Land Law (1994), the Land Payment Law (1997), the Cadastrial Mapping and Land Cadaster Law (2000), the Mining Law (1997), the Water Law (1995), the Hydro-meteorological and Environmental Monitoring Law (1997), the Forest Law (1995) and the Plant Law (1995).
Within the framework of implementing these laws, approximately 200 regulations, methodologies and recommendations were developed and approved by the Ministry of Nature and Environment.

In 2000, Parliament adopted the Law on Percentages from Natural Resource Use Payment. Revenue from this is to go toward nature protection and environmental restoration activities. Under this law, a fixed percentage from 5 kinds of natural resource use payments such as payment for the use of natural vegetation and game resources, land use, logging for firewood, water and spring use. Local administrative bodies have already founded restoration fund in accordance with the law.

Within framework of land reforms, the Land Law has been redeveloped and submitted to Parliament. This draft law is directed at establishing a legal base for land management in compliance with the market economy, to expand the right of citizens to use and lease land, to establish an economic environment for proper land use.

Land reforms will also cover:

- Evaluations of the condition and existing status of land use and the establishment of a sustainable land management system in Mongolia
- The establishment of a land monitoring network in each ecological zone using GIS, remote sensing methods and satellite information to identify environmental changes i.e. desertification and land degradation
- The establishment of a "State Land Information Database" for developing local and regional level "Land Management Plans"
- Capacity building of central and local land authorities and public awareness raising on the proper use of land

(2) INSTITUTIONAL MEASURES TAKEN TO IMPLEMENT THE CONVENTION

2.1 Established and functional coordinating body (NCB)

The main responsibility and duty of the Mongolian Ministry of Nature and Environment is to protect and manage natural resources. The Mongolian Ministry of Nature and Environment thus plays a primary role in the implementation of the UNCCD. A National Committee on combating desertification was established includes ministries, NGOs and research organizations. The National Committee cooperates with international organizations and donor countries. The primary aim of the National Committee is to coordinate and plan activities on a national level involving different stakeholders to combat desertification as well as to carry out fund-raising activities to implement related projects.

Sums, bag and aimag Governors in rural areas are responsible for implementing Government policies on the reduction and prevention of desertification. The National Committee provides guidelines on developing local plans and programs on combating desertification. The National Committee cooperates with local authorities and communities in rural areas through training and raising public awareness on the impact of desertification.

The chairperson of the National Committee works as the UNCCD Focal Point is responsible for coordinating CCD implementation activities on a national level. Meetings are organized quarterly by the Committee where desertification-related issues including work plans are covered. The Committee also prepares an annual report, which is then submitted to the Ministry of Nature and Environment. The report is discussed in the Ministerial Council Meeting and recommendations made. The organizational structure of the National Committee needs to be improved along with its legal status. There is an urgent need to establish a National Committee office premises with adequate financial support from the Government. The National Committee on Combating Desertification runs its activities with the close cooperation of the National Committee of Sustainable Development headed by the Prime Minister.

The National Research Center for Combating Desertification was established within the framework of implementation of CCD and NAPCCD. The National Center is based in the Geo-ecology Institute at the Mongolian Academy of Science. The NRC conducts surveys on factors influencing desertification and provides citizens, decision-making authorities and stakeholders with science-based information and methodology on combating desertification.

2.2 Institutional Framework for Coherent and Functional Desertification Control

An important part of activities in Mongolian is to both combat and prevent further desertification through developing and implementing a sustainable land use policy. A Land Authority Agency was established in order to enforce land laws, carry out land quality assessments, land inventories and cadastre service, measures to prevent land degradation and the restoration of degraded land. The Agency plays an important role in land reforms.

The Land Authority Agency has branches in all 21 aimags and works closely with the local administrations in each region. The Agency provides regional capacity-building workshops and equipment such as vehicles, GPS and computers. Environmental Protection Authorities (based in each aimag) were established in 2000 by Government Resolution and the MNE. The Authorities are responsible for protecting nature, for the proper use of natural resources, the restoration of degraded land and the enforcement and compliance of the environmental laws. The MNE maintains close cooperation with these Authorities, assisting them for example, through providing necessary technical equipment, ranger training and general advice in all areas. Payment for the use of natural resources is an important source of revenue for the Environmental Protection Authorities. By law, each EPA's in each aimag are responsible for establishing these special funds, which go toward the implementation of conservation projects.

The National Hydrometerological Agency is responsible for early warning systems, drought, and the assessment and monitoring of desertification. Environment Protection Agency which is responsible for enforcement and compliance existing Land law and regulations was reestablished in 2000. /addition/

The implementation of the NAP requires a close coordination of various sector. However , there is weak coordination of sectoral actions, and responsibility are not clearly defined between sectors. Responsibility for NAP implementation are dispersed among several ministries and agencies such environment, agriculture, energy, local and provincial authorities. The decentralization of natural resource management is essential for rural development and combating desertification. The Ministry of Food and Agriculture is responsible for implementation of measures and projects to mitigate desertification process and proper management of arable farming, animal husbandry and water resources. Ministry of Infrastructure is responsible for improving the efficiency in the energy sector and maintenance of roads. Ministry of Industry and Trade is responsible for mining related issues.

Other government institutions, NGO-s, private enterprises, academic and educational institutions have been involving in NAP planning as well as in implementation activities.

(3) THE PARTICIPATORY PROCESS IN SUPPORT OF THE PREPARATION AND IMPLEMENTATION OF THE ACTION PROGRAM

3.1 Effective Participation of Actors Involved in Defining National Priorities

The Mongolian Government cooperates with the Mongolian Parliament, Government, NGOs, private organizations, universities and institutes, scientific and research organizations, local representatives and citizens on combating desertification. The main principle amongst stakeholders is participation, feedback and cooperation in both program and project development. Training and raising public awareness on land degradation through desertification has been organized using mass media as the means to improve level of education and general knowledge of people in this area.

National Seminars for Combating Desertification took place in 1995, 1997 and 2001 with assistance from the Secretariat of the CCD. Many issues were discussed with resulting publications in the form of pamphlets and handouts. This greatly encouraged public participation in projects surrounding combating desertification.

The following important meetings took place in Ulaanbaatar in June 2001:

- The National Forum on "Combating Desertification and Promoting the Synergistic Implementation of Inter-linked Multilateral Environmental Conventions"
- The Third Asian and African Forum to Combat Desertification
- The fourth Asian Focal Point Meeting on CCD Implementation

These meetings have played an important role in increasing public awareness, developing international cooperation, receiving financial support from donor countries and international organizations.

Training and seminars on land degradation and desertification took place in Zamiin Uud in the East Gobi province, Khukh Morit of the Gobi Altai province, and in the province of Bulgan. Within the framework of the environmental public awareness project, a number of small projects have been successfully implemented through different children/ youth and women-based NGOs. These include the Mongolian Women's Federation, Mongolian Nature Protection Association, Khugjil Orchin Center, Ochirbat Foundation and World Vision International. Meetings and seminars took place from 1998 – 2000 and books, newspapers and posters were distributed. Works were also organized for "Desertification Day".

There has been a long-term public awareness program through the mass media, supplying information and advice on the sustainable use of natural resources including steppe, forest, agricultural land and water. Research projects have also been implemented in these fields**.** The Ministry of Education and Science and Ministry for Nature and Environment (MNE) have implemented a program of ecological education and training within the framework of the formal and informal education systems. In 1998 the Government approved The program on Public Education on Ecology. This is the main policy document that states the importance of public awareness to combat desertification and environmental protection. The Ministry for Nature and Environment approved a national Action Program on Public awareness in 1999. This is a key document outlining the governments strategy on environmental public awareness creation and appoints a National Council to coordinate the implementation of the program.

NGOs play an active role in enhancing public awareness and ecological education of the public. More than 40 environmental NGO's have been established over the last few years. The MNE has also set up a Co-ordinating Committee to strengthen public involvement and participation in crucial environmental decision-making. The committee is responsible for coordinating activities of governmental and non-governmental organizations and to ensure that public opinion is taken into consideration. This kind of committee has also been established at local and regional levels.

An Environmental Public Awareness Programme (EPAP), supported by the Dutch Government, was implemented in Mongolia between 1997 and 1998. The goal of the EPAP was to identify and demonstrate effective community-based strategies that could, through dissemination of effective messages, reduce the threats to Mongolia's environment. Within the framework of this programme almost 100 projects on environmental public awareness were implemented by NGOs and governmental agencies in all 21 provinces. A lot of these were aimed at raising awareness among young people, with projects like "Protect the Black-tailed Gazelle", "Gobi bear among Nature and Children" and "How to plant a tree".
Foreign and internationally funded Projects all have components that encourage public participation in management of the environment. They also assist Mongolian environmental NGO's to work actively in this field and to strengthen their capacity. NGO's like the Scouts Association and the Mongolian Women's Federation have benefited as well as different youth and children's organizations .
Under the auspices of various internationally supported projects (WWF, GTZ, UNDP, US Aid) Environmental Information Centers have been set up in communities in the bufferzones of certain Protected Areas and National Parks.
An information unit has also been established in the MNE to raise environmental awareness the public: to help educate people on environmental legislation. Several environmental journals and periodicals now exist in Mongolia. Also an Environmental Journalists Club has been working at the Press Institute of Mongolia.
Included in the environmental public awareness projects implemented by the MNE are many activities such as children's painting and writing competitions, Ecological Olympics events for high school children. Some TV programmes have also been produced on combating desertification. A special website on the desertification is available for the public.

3.2 Results of National Consultation in Local Level

In 1997-1998, assistance from DANIDA resulted in the implementation of natural resource management and planning system projects in the East Gobi region and in the province of Arkhangai. Local authorities and herdsmen participated in policy coordination and other related activities including the organization of training and seminars, development of land distribution models, land use and planning.

With assistance from the UNDP Community Forestry Project (1997-1998), 8 communities to manage local forest resources were organized with the participation of residents from the Selenge, Arkhangai and Khentii provinces.

A Community-Based Natural Resource Management Project is being implemented in the Bayan Olgii, Tuv and Arkhangai provinces, with assistance from the Canadian International Development Survey Center. The objective of the project is to involve local stakeholders on the sustainable use of resources, in particular pasturelands.

A survey of factories to research the use of water was undertaken by the Tuul-21 project with assistance from the Dutch Government. The objective of the survey was to limit unnecessary water use as well as improving wastewater plant facilities. The aim of the

WASH-21 project (assisted by the UNDP), was to improvements the supply of water in rural areas with water shortages. Wells for human and livestock use were also established/ repaired. In order to increase the participation of local people and organizations in rural areas in the management of Protected Areas, bufferzone boundaries were established along with bufferzone councils. Territories of 110 soums are currently located in bufferzones and Protected Areas. Of these, 88 soums have a bufferzone council responsible for running activities in accordance to the existing "Law on the Bufferzones of Protected Areas".

There are a total of 49 small-scale projects currently being implemented with the assistance of foreign and international organizations in Khan Khentii, Great Gobi Strictly Protected Area, Gorkhi–Terelj National Park, Gobi Gurvan Saikhan National Park, Khar Us lake, Khuvsgul National Park, Khustai Nuruu Nature Reserve and in a further 19 soums within these regions. In the socio-economic interests of rural residents and with cooperation from local administrative bodies, a circulating fund for medicine /drugs, an information center, road and well repair projects were successfully developed and implemented. Training on economic alternatives and PRA was organized for Herdsmen Cooperation members, residents of Sevrei, Gurvantes, Khanhongor soums of East Gobi province, Altanbulag, Argalant, and Bayankhangai soums of the Central province. Through financial assistance from DAAD/GTZ (Germany), administrative and management projects are being implemented in 6 soums of the Bayankhongor, Uvurkhangai and Omnogobi aimags. Within the framework of these projects, seminars have taken place on Saxaul forest protection and issues surrounding wood use in the Gobi. Surveys on natural resource management were organized with the participation of local residents and an action plan for rural development covering 6 soums of the Bayankhongor, Uvurkhangai and Omnogobi aimags was created and currently in the process of implementation. There are also other smaller-scale projects underway to assist local people in improving their livelihoods. An annual "Awareness Day" takes place in order to expand peoples' participation in combating desertification.

(4) THE CONSULTATIVE PROCESS IN SUPPORT OF THE PREPARATION AND IMPLEMENTATION OF THE NATIONAL ACTION PROGRAM AND THE PARTNERSHIP AGREEMENT WITH PARTIES FROM DEVELOPED COUNTRIES AND OTHER INTERESTED GROUPS

4.1 Effective support from international parties for cooperation

Mongolia has limited possibilities to finance measures to combat desertification. Less than 1% of the GDP (Gross Domestic Product) has been allocated from the State budget for environmental protection activities.

Due to limited local financial resources, part of the income received from natural resource use must go toward socio-economic measures. Support from international donor organizations and foreign countries in order to implement the National Action Plan (NAP) to combat desertification is therefore extremely important.

The NAP was approved by the Mongolian Government in 1996. Strategies, directions, phases and activity methodology are determined in the NAP of Mongolia to Combat Desertification by evaluating the current state of the environment, socio-economic situations, the desertification processes and consequences. The NAP also stresses importance of international coordination and cooperation in the implementation of CCD and NAP. Long and short term measures to strengthen the national capacity to combat desertification, to

create a legal framework for the appropriate use and protection of natural resources, to establish sustainable pastureland use systems, to increase public awareness, to undertake research and to improve management systems are all need support from international parties.

Mongolia has organized several Donors Consulting Meetings since 1990, which have taken place in Mongolia and other countries. The 8th Donor Consulting Meeting for Mongolia, was organized with the support of the World Bank and took place in Paris, April 2000. Issues on socio-economic sustainable development and the Poverty Alleviation Strategy Document were discussed.

Project proposals addressing serious environmental issues including combating desertification were prepared by the Ministry of Nature and Environment and submitted to donors.

The National Forum on Combating Desertification was organized jointly with the Secretariat of Desertification on Combating and meeting took place in 1995, 1997, 1999 and 2001. Representatives of international organizations based in Mongolia as well as representatives from different Embassies were invited to the Forum and informed about the environmental issues currently affecting Mongolia. Within the framework of the "Human Security and Good Governance Program", two project proposals - "Land Reform" and "Combating Desertification" were prepared and presented by the Government of Mongolia for the UNDP and the Government of Japan.

The Government of Mongolia works effectively with international cooperation to combat desertification and promote the sustainable use of natural resources on regional and sub-regional levels. Mongolia is a signatory to nine international conventions for international cooperation involving the protection of the country's environmental and natural resources. The conventions include:

- The Convention on Biological Diversity (1993)
- The Convention on International Trade in Endangered Species of Wild Fauna and Flora (1996)
- The Convention on Climate Change (1996)
- The Convention on Wetlands of International Importance, especially as Waterfowl Habitat (1997)
- The Convention on Migratory Species of Wild Animals in (1999)

Various activities have been conducted aimed at implementing the obligations of these Conventions.

The MNE are cooperating with 20 international environmental organizations including UNDP, UNEP, WHO, APEC, ADB, EU, UNESCO, WWF, GEF and others.

4.2 Establishment of an informal consultation and harmonization process for actions between partner countries

At present, 7 Inter-Governmental agreements, including 30 bilateral cooperation agreements with foreign countries were established between 1990 and 2000. These agreements serve as vitally important consensus documents that have great significance for the nature protection within Mongolia, and particularly in border areas. With the view toward fostering regional cooperation and cooperation with neighboring countries, provisions on the joint sustainable use of land resources have been incorporated in several agreements such as the "Cooperation Agreement in the Environmental Sector between the Governments of Mongolia and the People's Republic of China" (1991), the "Cooperation Agreement in the Environmental Sector between the Governments of Mongolia and Kyrgyzstan" (1993), the "Cooperation Agreement in the Environmental Sector between the Governments of Mongolia and Russian Federation" (1994), the "Mongolia-China Inter-Governmental Agreement on the Protection of

Trans-boundary Waters" (1994) and the "Mongolia-Russia Inter-Governmental Agreement on the Protection of Trans-boundary Waters" (1995).

Mongolia actively participates in the Altai Sayan project funded by the GEF and WWF. This is a joint project between Mongolia, the Russian Federation, the People's Republic of China and Kazakhstan. Mongolia is also one of the five North Asian countries involved in the regional TumenNet River Project. The project period is from 1998 – 2002. In order to expand the partnership on combating desertification, Mongolia cooperates with international NGOs and business groups, sharing experience on the implementation small projects. Partnership agreements have been made with the Korean NGO "Forest Forum" the British NGO "Wild Camel Protection Foundation", and the Japanese Business the "IonGroup". The Korean NGO and the Japanese Business group are both involved in the implementation of reforestation activities in arid zones. The Mongolian Ministry of Nature and Environment, the National Committee on Combating Desertification and Convention coordinators provide information for the public and work jointly with local administrative organizations.

The GEF fund has provided a 7 million US dollar grant for implementing biological diversity projects like the Eastern Mongolian Biodiversity Conservation and Sustainable Livelihood Options Project.

With assistance from other countries and international organizations, activities promoting conservation and the sustainable use of natural resources, the management of specially protected areas as well as capacity building and public educational training programs were carried out.

The GTZ funded projects - "Nature Protection and Bufferzone Development" and "Integrated Desertification Prevention" have both been underway since 1999, and will continue for a total of 12 years. Projects involve 6 soums in 3 aimags. The aim of the GTZ projects is to improve livelihoods of local people through the sustainable use of natural resources. Forty-three cooperatives in 12 soums have been established as a part of the project with the aim of local involvement in measures to combat Desertification.

LIST OF IMPLEMENTED AND ONGOING FOREIGN AID PROJECTS RELATED TO COMBATTING DESRTIFICATION

No.	Project name	Financial Source	Currency	Budget, In thousand US$	Market exchange rate 1 US$-tugrug*	Time - frame
1.	National Action Program to Combat Desertification	UNEP	USD	40.0	473.6	1994-1995
2.	Land use and Land Cover Mapping	Sweden, SIDA		430.0		1994-1995
3	Nature Conservation and Buffer Zone Development phase II	Germany, GTZ	DM	5 mln		1998-2002
4.	Climate Change Studies	Netherlands		200.0		1998-2000
5.	Eastern Mongolian Biodiversity Conservation and Sustainable Livelihood Options MON/97/G/32	GEF	USD	5100.0		1998-2003

	MON/98/301					
6.	Community Based Forest Rehabilitation and Disaster Management	UNDP	USD	429.0	902.00	1996-1998
7.	Hustai Nuruu Mountain Steppe Reserve, Biodiversity Project, II phase	Netherlands		3200.0		1998-2003
8.	Friendship afforestation	Hyogo prefecture, Japan	Yen	32.0		1999-2000
9.	Environmental Public Awareness	Sheikh of Kuwait				2000-2002
10.	Integrated Desertification Prevention	Germany, GTZ	DM		1097.00	2000
11.	Improvement of Weather Observation and Forecasting Systems	Japan	Yen	1 billion yen		
12.	Desertification combating (Pilot project)	Secretarial office of Combating Desertification Convention	-	22		1998-1999
13.	Conservation and sustainable use of forest resources in the western region of the Khan Khentii protected area	GTZ	DM	3.5 mln Dm		2000-2003
14	Information system for Environment and Agriculture Monitoring	TASIC	USD	800		1999-2001
15.	Raising environmental awareness and developing environmental media in the NIS and Mongolia	TACIS		Regional		1998-2000
16.	Conservation and Sustainable Use of the Altai Sayan eco region of Mongolia	GEF	USD	612.500	1097.00	2000
17.	Natural Resources Management Planning Systems	DANIDA		1.1		1995-1997

* Source: Monthly statistical bulletin, bank of Mongolia. Market exchange rate, end of the particular period, 1US$ - tugrug.

PROJECTS IN AGRICULTURE SECTOR

1. ‘’Research on animal husbandry”

This project took place from 1996 -1997 and was funded by the ADB. The total funding for the project was 600.000 thousand US dollars. The project was jointly implemented by the Canadian company "Agroteam" and the Mongolian company "MCS". The objective of the project was to evaluate the present condition of Mongolian pasture use/husbandry in relation to the new market economy and within the context of regional ecology and climatic conditions. Recommendations on the future development in the animal husbandry sector were given to the Ministry of Food and Agriculture.

2. "Research on the development of agricultural cooperation"

Following the agreement between the Mongolian and Japanese Governments in 1995, the Research on the development of agricultural cooperation project was implemented with the assistance of "JICA" from 1996 - 1998. Research focused on the socio-economic framework within local provincial and national levels. A research criteria was established in order to select the most suitable cooperatives. Selections were made from 198 cooperatives, of which 157 (Bulgan, Hentii, Dornod, Uvs, Gobi-Altai, Zavkhan, Dundgobi and Dornod aimags) met the criteria established.

3. "Rural Poverty Alleviation"

The "Rural Poverty Alleviation" project has been underway since 1996 in both the Arkhangai and Khuvsgul aimags within the framework of the International Agricultural Development Fund Loan Scheme. The total funding for the project is 4.5 million US dollars.
Other project donors involved in supplying livestock to the herders who had suffered extreme animal losses resulting from natural disasters include: World Vision, "Sakei" Japanese newspaper, the "Livestock project" and a long-term loan from the World Bank. The project covers 79 soums in 10 aimags. A total of 156.6 thousand head of livestock have been donated to 3330 families living in the project regions.

4. "Donations of livestock to the herders who suffered livestock losses through natural disasters"

This project, covers 33 soums in all aimags mostly severely affected by the dzud was funded through the World Bank. The total financing of the project was 1.3 million US dollars. The project started in 2000. The main purpose of the project was to provide livestock to families had who lost either most or all of their livestock in the dzud during the winters of 1999 and 2000. The National Poverty Alleviation Program office is responsible for the implementation of the project. According to the information sources from the office, 103498 livestock was donated to 1592 families in 3 soums of 5 aimags.

5. MEASURES TAKEN OR PLANNED WITHIN THE FRAMEWORK OF THE NATIONAL ACTION PROGRAM, INCLUDING MESURES TO IMPROVE THE ECONOMIC EVIRONMENT, TO CONSERVE NATURAL RESOURCES, TO IMPROVE THE KNOWLEDGE OF DESERTIFICATION AND TO MONITOR AND ASSESS THE EFFECTS OF DROUGHT

The primary aim of the Mongolian Government is to find suitable methods and technology for practical measures directed toward reducing the increasing danger of sand movement and desertification. Research on the status of desertification in Mongolia and its consequences has been carried out by research institutes and scientific organizations over the last 40 years. The Mongolian-Russian and Mongolian-Turkmen joint expedition at the end of

1980 and beginning of 1990 evaluated ecosystem degradation in Mongolia and created a 1:1000000 scale map. Nowadays, Mongolian scientists use satellite information in order to establish and evaluate the level of desertification. The National Action Program on Combating Desertification relies on these research results to determine the most severely affected areas.

The Government of Mongolia's focus on desertified land and the reduction of further land degradation has resulted in the creation of a legal framework for conservation and restoration activities. The "Forest Law", "Mining Law" and the "Land Law' all cover issues of proper land use and protection and therefore support desertification prevention. However, despite the limited amount of financial resources available for the restoration of degraded land/ pastureland, funding is still provided from the State Budget to carry out practical measures to combat desertification. The restoration of degraded land is a priority for the Mongolian Government.

5.1. Land degradation

Due to climate change, drought and desertification are increasing. This has resulted in an increase in sand movement, salt levels in both soil and water sources, a sharp deterioration of cultivated and pasture plant yields, and a general reduction of the water resources and an expansion of desertified areas.

The main human factors that accelerate the process of desertification and land degradation are overuse of pastures, the overuse of Saxaul trees and sub-shrubs for fuel, vehicle induced multi-land tracks, soil erosion resulting from cultivated land and environmental degradation from mining operations.

Results from research carried out from 1999-2000 came from 11 provinces totaling 58.3 million hectares. Of this, 409 thousand ha or 0.7% was negatively affected by technical impacts, 1.8 million ha or 27% was negatively affected by destructive rodents, 116 million ha or 27.4% was in poor condition due to overgrazing, 1.9 million ha or 3.3% was negatively affected by sand movement. 24 million ha or 41.6% of pastureland remained unchanged.

Results from research in 2001 that formed part of a land restoration project on cultivated land shows 46.4 thousand hectares of degraded land to be "non-renewable". A total of 4575 hectares in 7 provinces and in 7 sub-divisions of the central region are to be involved in the 2002 restoration program funded by the State Budget.

It is important to implement both economical and legal issues at policy level to conduct on-going restoration work on land that has been eroded through mining operations.

5.2. The expansion of the protected area network

In 1996, Protected Areas covered 16.3 million hectares of Mongolia. The Protected Area network increased in 2001 by 25.8% reaching 20.5 million hectares. 13.1% of Mongolia is currently included in the Protected Area network. Over the last 4 years, protection at soum and aimag level increased by 1 million hectares. At present, 40% of the Protected Area network includes desert ecosystems in the Gobi. Funding from foreign countries totaling 228 million tugrugs was spent on implementing 50 small projects to improve the livelihood of people living in the bufferzones of Protected Areas.

5.3. Reforestation

The extreme climates experienced in Mongolia limit the growth and regeneration capacities of forests. Forests are vulnerable to fire, insect predation and human activities. In

the late 1980's, 2 million m^3 of trees were harvested annually. There has been an annual decrease from 1990 in harvesting. In 2000, 520 thousand m^3 was harvested for national use. Wood exports to foreign markets have decreased from 1999 due an increase in Customs tax. The decrease in harvesting shows a positive influence on the conservation of forest resources.

The budget for reforestation activities was 3.2 times higher in 2000 compared with the same budget for 1999. This has also contributed to the conservation of forest resources. 10000 hectares of reforestation annually are now possible with the new financial support. Over the last 4 years, 870 million tugrugs were spent on the reforestation of 24.3 thousand hectares. Each province/locality undertakes reforestation work according to their financial capacity. Harmful insects were eradicated in an area covering 8000 hectares. Research has revealed the total spread of harmful insects to cover 3000 thousand hectares nationally. Dornogobi aimag spent 3 million tugrugs on saxaul resource capacity and the distribution of saxaul forests. Finance was provided from the local budget of Uvurkhangai aimag for reforesting an area covering 40 hectares.

Within the framework of the implementation of the National Forest Program, the "Forestry Resource Leasing through Contractual Agreement" regulation was passed by the Government in 1998. Four "Forest Conservation Teams" comprising local citizens from Darkhan Uul and Selenge aimags established an agreement with the MNE, in order to implement the regulation. The objective of forestry resources community management is to improve the living standards local people through the proper use of forest resources, and raise public awareness on forest conservation issues.

From 1996 - 2000, forest assessment work and activities supporting the natural regeneration of forests was carried out over a 2 million 943 thousand hectare area in Bulgan, Uvurkhangai and Arkhangai aimags. The "Reforestation and Natural Disaster Reduction" project successfully implemented from 1996-1998 through a donation from the UNDP. Funding covered the purchase of firefighting equipment, a short wave radio station, manuals and other materials for high-risk areas in the provinces in Selenge, Bulgan and Arkhangai and the capital city.

The main objectives of the reforestation projects in the Gobi desert region are the re-planting of sub-shrubs and trees suited to drought-prone areas.

5.4. Practical measures for combating desertification and sand movement

Projects over a 4-year period oriented toward limiting sand movement have been implemented in the the Khukh Morit sub-division of the Gobi Altai province and in the Zamiin Uud sub-division of the Dornogbi province affected by desertification. An evaluation on the current status of desertification, soil erosion and sand movement was carried out in Zamiin Uud. Based on this evaluation, local area administration developed and implemented a 10-year desertification combat program. In order to increase public participation desertification combat training and seminars have been organized. A 7-10 hectare area is reforested annually to slow sand movement, funded each year by the local and central budget. A green belt line was created in the center of the Khukh Morit soum as protection from sand movement. Six pump wells were installed for pasture irrigation and several tree nurseries in the Gobi desert region have been established for future sand stabilization projects.

5.5. The restoration of degraded environments

According to rough estimates, an approximate 30% of land degraded through mining process has been restored to date. In 2000, the area degraded through gold mining increased by 5793 hectares. Restoration activities in 2000 (with a total expenditure of 734 million tugrug) covered only 356 hectares. Due to the lack of restoration activities, the Ministry of

Nature and Environment places emphasis on detailed environmental impact assessments of mining projects in order to plan the budget to allow for necessary restoration activities. In 2000, The Ministry developed 5 types of standards for the restoration of mining-degraded land, which were approved by the National Standardization and Measurement Center.

Soil protection activities in 2001 included rotational planting of perennials with organic and mineral fertilizers over an area 170 thousand hectares of agricultural land. This method of planting plays an important role in soil conservation through reducing erosion and maintaining soil fertility.

5.6. Pasture irrigation and the eradication of Brandt's vole

Over the last 3 years, 650 wells in 300 soums of 19 aimags were repaired with funding from the State Budget. In 2001, 251 engineer-designed wells were repaired in a total of 19 aimags at a cost of 385 million tugrug. In the same year, 589 simple non-mechanical wells were constructed through foreign funding. Hydro-geological research took place in 24 soums in Sukhbaatar, Umnugobi, Dornogobi, Dundogobi and Bayankhongor aimags resulting in the discovery of 432 new water points. The cost of the research totaled 75 million tugrics which was provided by the State Budget. A donation of 250 thousand US dollars was made by the Dutch Government within the framework of the "Wash-21" project for repair work on engineer-designed wells.

The approximate sum of 10 billion tugrugs is required for the necessary repair work to be undertaken on all of the wells in Mongolia that are currently in a poor condition. The State Budget is not able to supply the necessary funding therefore repairs are only carried out in provinces most affected by dzud, extreme snow fall and drought.

In 2000, 33900.1 thousand tugrugs were spent on grasshopper eradication, and a further 425479.6 thousand tugrugs were spent on chemical and biological methods used to control Brandt's vole, a species causing the most damage to pasturelands on Mongolia. Control methods took place over an area of 326.7 thousand hectares in 16 soums and 5 aimags.

The planned State Budget funding for 2001 went toward plant protection activities. Activities to control Brandt's vole included biological methods (4.6%), manual techniques (12.1%) and aerial chemical spraying (83.3%). Areas covered in the eradication exercise comprised 407.0 thousand hectares in 20 soums of Tuv, Uvurkhangai, Khentii, Dundgobi and Arkhangai aimag. In 2002, numerous requests fro the vole control from 80 soums of 10 aimags covering 4.5 million hectares of pastureland. Due to budget constraints the Government was only able to provide finance for 10% of the area.

According to scientific research done by professional organizations, Brandt's vole is distributed over 40 million hectares of pastureland - equal to 1/3 of Mongolia's total pasture area.

5.7 Energy supply

The Government of Mongolia, in its present Action program, is putting particular emphasis on rural development for improving the living condition in rural areas, and thereby lessening the present migration of rural population to the cities, in particular to the capital Ulaanbaatar. For the nomadic families which account for 50% of total population, the soum centers are vital for their survival. The reliable provision of heat and electricity are main factors for their preservation and development. An Energy Sector Master plan has also been developed within the framework of technical assistance from Asian Development Bank to the Government of Mongolia with intention to establish a planning framework in which the future development of the energy sector in Mongolia is to be co-ordinated.

Mongolia, because of its geographical location and own particular characteristics, has abundant renewable energy resources, which could be utilized to decrease te import of fuel; hence the outflow of much needed foreign currency. In addition to this Mongolia can at the same time contribute to the combating desertificationt. Energy from sun and wind is in particular suitable for decentralized supply and thereby very favorable to be used in the rural areas of the country.

For the utilization of renewable energy resources detailed meteorological research has been carried out. In Mongolia there are presently the following types of renewable energy systems in use; solar photo voltaic (PV) systems, wind generator sets, small hydro power stations, furthermore wind and solar hybrid systems and wind , solar and diesel hybrid systems.

Various donors have provided solar PV systems to rural settlements (bag communities). The education Foundation has allocated funds for providing 2 bags with 100 W solar PV systems in 1997. In 1998, supported by ADB,20 bags were provided with solar PV systems. In 2000 DANIDA funded 50 bags to be provided with solar PV systems.

Generally, the herdsmen have no electricity supply. But at least 3 % of them have been using the solar PV systems with capacities of 9 to 100W for lighting and TV use for their families.

5.8. Introduction of desertification combat techniques and technology

In the framework of the Green Revolution program, a total of 2,500 kg of vegetable and flower seeds from the USA were donated through ADRA. Seeds were also distributed to 10 “agro-parks” in 8 aimags under the condition of repayment. Hand tools, small-scale irrigation equipment and other items including tractors with ploughs, a potato digger and harvester were also distributed to the agro-parks as a part of the repayment scheme.

There are 166 agro parks in soums and aimags including Ulaanbaatar. 70.8 thousand people were involved in 1049 training sessions that also included general public awareness raising activities. A total of 121.1 thousand families and 1822 companies participated in the Green Revolution Program.

Funding secured from developed countries goes toward training, capacity building, applying practical measures and relevant technology in order to combat desertification. Practical experience in this field from other countries contributes greatly toward implementing the projects in desertification-affected areas.

5.9 Traditional knowledge

The State Program on Ecology and the National Program for Public Environmental Education highlighted the importance of disseminating traditional knowledge on the environment protection to the next generation through the school system.

With GTZ support a project “Integrated Prevention of Desertification” a total of 12 local conservation units have been established and they have been actively participating in sustainable management of natural resources and maintaining traditional knowledge and practices in their local area. For example, in Omnogobi province the “Future” community unit has involved 36 households. They are moving from place to place in order to conserve the pasture using their wealth of traditional knowledge. The results have been very successful by providing a period for the regeneration of grass in areas, and reducing the impact of livestock on pastureland. An environmental public awareness project was established in 1997 and ran until 1999, with assistance from the Dutch Government and the UNDP. It aimed to provide the general public with more information on traditional knowledge.

In 1999 WWF set up, together with the World Bank and the Mongolian Buddhist Religious Centre, a project, called “Sacred Gift to the Earth”. A workshop was held on the “Role of

Religion in environmental conservation". The outcome of the workshop was that the belief of worshipping the mountains, or nature, played a key role, not only for conservation of biological resources, but in the proper utilization of natural resources. Activities included the carving of statues and ceremoniously placing them at sacred sites throughout Mongolia.

6. DROUGHT AND DESERTIFICATION MONITORING AND ASSESSMENT

6.1 Desertification Assessment

Mongolian scientific and research organizations, meteorological stations and patrols are monitoring and assessing drought and desertification. Drought monitoring is carried out by the National Meteorological Center. Drought monitoring is necessary in Mongolia where farming plays an important role in the national economy.

For Mongolia, a country of nomadic herding livestock and non-irrigated farming practices, drought is a natural disaster. Droughts over the summer periods deeply affect pasture plant growth resulting in feed shortages for livestock leading to underweight animals not strong enough to survive the extreme cold of the winter period. Livestock losses have increased over the past 60 years in conjunction with the increase in the number of droughts in Mongolia.

Over 320 stations of the National Meteorology Network in rural areas undertook drought assessments over a period covering ten days. Three categories of drought were established according factors such as the size of the area affected and the duration.

According to a survey that took place from 1973 to 1999, droughts occurred in higher mountainous and northern forest steppe zones once every 10 years, once every 3 years in the southern steppe zone, once every 2 years in the desertified steppe zone and almost annually in desert zones. According to the assessment, droughts affecting over 50% of the land area occurred four times between 1941-1959, but not between 1951-1960. From 1961-1970, 1971-1980 and 1981-1990 droughts of this size occurred once in each period, while droughts of this size occurred 3 times between 1991 and 2000. In order to statistically assess the drought, calculations from 46 meteorological stations and a drought index were developed by scientist D. A. Ped.

In Mongolia, 50-60% of the annual precipitation falls in the summer period. According to precipitation averages, the least precipitation occurred in 1944, 1942, 1978, 2000 and 2001. The drought spanning the last 3 years is the most severe in the last 60 years. The least precipitation has occurred from 1999-2001. One factor that intensifies the effects of drought is hot temperatures during the growing season for plants, especially during the flowering period. In the central agricultural zones, the hottest days (over 30 degrees celsius) are in July. The average number of hot days in July has increased by 2-6 days in comparison to 1970.

The State Meteorology Research Institute forecast precipitation levels and temperature averages for one month in advance and also quarterly.

The Institute develops forecasts on the flowering stage and on the biomass of grassland plants one-month prior and provides the information to citizens and organizations. This information creates the opportunity to use grasslands in a sustainable manner as well as fattening livestock through "otor" - herder movement between pastures.

Pasture resource assessments have been carried out at bag level - the smallest administrative units, since 2001. Assessments take place in the 2-3rd weeks of August and establish the carrying capacities of pastures. Based on this information, pastures can be sustainably managed at bag, soum and aimag, level. Assessments revealed that in 2001, the pasture carrying capacities was exceeded in 330 soums of 19 aimags. (Ulaanbaatar, Darkhan and Erdenet are excluded in this).Agricultural activities can be planned on the basis of

moisture-level forecasts for soil thawing in the spring and weather conditions. A book on agricultural methodology for spring farming was developed in 1997 with assistance from the Meteorology Center, Agricultural Science and Research Institute and distributed to organizations and economic units. However, books on agricultural methodology are not enough to prevent bad agricultural management, financial shortages of herdsmen and land not in a market relationship.

6.2 Desertification monitoring

Climate change and social factors over the last 40-50 years have significantly affected Mongolia. Desertification can be caused by both human and natural factors, however land degradation is accelerated if both factors are combined.

Agricultural land occupies 76.5% of Mongolia (147167.5 thousand hectares). Pastureland comprises:

- steppe grassland - 94896.6 thousand ha
- mountain forest grassland - 9367.8 thousand ha
- high mountain pastures 7376.1 thousand ha
- wetland and forest meadows - 7185.7 thousand ha
- desert/ desert steppe zones - 28340.5 thousand ha

According to scientists Mongolian grassland can carry 50-60 million sheep - if livestock were all converted into sheep. However by the year 2000, numbers of cattle reached 72 million, meaning that grassland carrying capacity has been exceeded. As water points are heavily used and most of the cattle are located near soum centers, grasslands in these areas are overgrazed. The 1998 survey revealed 10.1 million hectares of grassland in 13 provinces severely degraded and impossible to reutilize.

Over the last 40 years, the species diversity and yields of pasture plants have significantly decreased. According to calculation by researchers, pasture yields per hectare have decreased by 19-24% over the last 25 years.

According to research carried out from 1989 to 1994 in 145 soums in 12 aimags covering 1206.4 thousand hectares of cultivated land, 46.5% or 561.5 thousand hectare were eroded.

Over the last 40 years, sandy areas have increased by 38 thousand hectares, with an 88% increase in the Gobi desert region and a 12% increase in the northern part of the country. Soil degradation and the frequency of sand storms have increased due to the overgrazing of pasturelands in built-up areas and increasing number of multi-lane vehicle tracks. According to the research carried out by L. Natsagdorj and D. Jugder the number of dust storm days have increased 3-4 times over the last 30 years.

Pasture degradation

Provinces	**Pasture degradation level**				
	Not degraded	Low level /10 %/	Medium level /20%/	High level /30 %/	Extremely degraded /over 50%/
Arkhangai	134.8	988.2	2470.0	898.4	-
Bayan-Ulgii	41.7	584.1	286.3	1251.7	208.6
Bayankhongor	238.2	1905.3	5716.1	1667.2	-
Bulgan	-	727.4	2727.7	181.8	-
Gobi-Altai	276.9	1846.2	5815.5	1292.3	-
Dornod	-	2125.2	7332.0	1168.9	-

East Gobi	-	3768.3	5092.0	1324.0	-
Middle Gobi	-	2218.3	4436.7	517.7	221.8
Zavkhan	-	1031.0	3711.8	2130.8	-
Uvurkhangai	-	598.2	2392.9	2692.0	299.1
Umnugobi	-	9097.0	4108.3	1467.0	-
Sukhbaatar	-	772.6	6181.8	772.7	-
Selenge	98.3	590.0	393.3	786.6	98.3
Central	180.1	660.3	2461.1	2401.1	300.2
Uvs	282.1	1410.5	1974.7	1974.7	-
Khovd	-	604.0	3321.7	2114.0	-
Khuvsgul	590.5	1181.2	2066.9	2066.9	-
Khentii	305.5	1955.0	2016.1	1221.9	611.0
Darkhan	-	-	-	44.6	-
Ulaanbaatar	-	-	-	-	75.5
Erdenet	-	-	-53.0	-	
Choir					
Total	2148.1 /1.7%/	32062.9 /25.4%/	64306.1 /50.8%/	26027.4 /20.7 %/	1814.5 /1.4%/

Soil erosion in cultivated areas is again a desertification indicator. Of the 1.3 million hectares formerly under cultivation, 367.8 thousand hectares have since reverted to a wild state, with 806.8 thousand hectares remaining under cultivation in 2000. Research carried out from 1989 to 1994 in 12 provinces and 145 sub-divisions and covering 1206.4 thousand hectares of cultivated land, revealed erosion in 46.5% (561.5 thousand hectares) of the total area. 58.9% was classified as low level erosion, 28.2% medium level and 12.9% as heavily eroded. 118.0 thousand hectares were classified as unusable land or “red sand”.

Due to the excessive use as fuel by local people of Saxaul forests – the primary tree species in the desert region, 125.0 thousand hectares have been destroyed through over the last 30 years. The removal of the primary erosion controlling tree species in the Gobi desert accelerates sand movement. According to Geology Institute research, 8-10 meter high sand dunes move up to 15 meters annually in the Ulaan nuur lake region, with 5-6 meter high dunes moving up to 20 meters annually in the Tavan els sand dune region.

The Information and Calculation Center of the Hydrometerological Institute is responsible for drought monitoring activities by ground, air and satellite methods. The center calculates the drought index for each year and releases statistics on long-term changes in vegetation cover. The center monitored the intensity, duration and sizes of areas affected by the droughts from 1985-2000. According to the drought index, droughts occur in differing frequencies, namely in 4, 12 and 24 year cycles.

Using NOAA satellite information, a map of pasture conditions are produced every 10 days over the summer and published on the Internet.

A complex desertification assessment method was developed in collaboration with scientists from the Geo-ecology Institute integrating natural, climatic and human factors. The method was applied in evaluating the existing situation in desertified areas such as the Darvi, Zereg and Mankhan soums of Khovd aimag.

Highly detailed satellite information and GIS are used to make 1:100000 maps in parts of Mongolia. Maps were produced for some soums of Khovd, Gobi Altay, Dornogobi and Sukhbaatar aimags.

The Desertification and Land Degradation Map of Mongolia (1:300000) was produced through satellite and GIS systems. The map reveals 78.4% of land in Mongolia to be degraded.

The Information and Calculation Center undertakes experimental studies on pasture carrying capacities, the impact of mining operations on the environment and water and wind erosion modeling.

The "Scientific and Technological Basis for Desertification Reduction in the Gobi and Steppe Regions" project was implemented through the Science and Technology Foundation in order to expand research work on the current state of desertification in Mongolia. The report was released by the Geo-ecology Institute of the Academy of Science. The project is financed by the Science and Technology Foundation.

The Science and Technology Foundation has implemented/ is implementing the following desertification-related projects:

- Information database on land resources
- Standards, assessments and norms for the proper use of water resources
- Mapping of cultivated and disused land and improving its soils and vegetation cover
- Assessment of land quality and capacity
- Climate change in Mongolia
- Combating desertification and sand movement in the Zamiin Uud region
- Scientific justifications for the changes in forest ecosystems
- Artificial methods to induce precipitation
- Restoration methods for degraded land

The economic and ecological evaluation method on forest ecosystems, wildlife, land and water have been renewed and approved by Government ordinance (No. 264) in 2001.

The Central Environmental Database has been established and provides information on weather, land degradation, climate change etc.

There is an urgent need to strengthen existing the Hydrometerological Network and to develop modern drought assessment and monitoring methodology as well as undertake further capacity building in this area. It is very important for Mongolia to participate actively on an Asian regional level activities and programs such as the TPN 1.

(7) FINANCIAL ALLOCATIONS FROM NATIONAL BUDGETS IN SUPPORT OF IMPLEMENTATION AS WELL AS FINANCIAL ASSISTANCE AND TECHNICAL COOPERATION RECEIVED AND NEEDED, IDENTIFYING AND PRIORITIZING REQUIREMENTS

Implementing the National Action Plan to Combat Desertification is a priority for the Government of Mongolia. The State Budget provides a limited amount of funding on an annual basis for desertification related activities. Projects funded by foreign countries and international donor organizations contribute greatly toward combating desertification in Mongolia.

7.1 State Budget allocations for nature protection and restoration in 2000

- 44,2% of the total budget of 2,3 billion tugrug went toward hydro-meteorological and environmental / desertification monitoring activities
- 15,3% went toward environmental sector staff costs
- 40,5% went toward nature protection and restoration activities

The amount of money spent in the environmental sector in 2000 is less 1% of the GDP of Mongolia. During last five years, contributions for environmental protection from state budget have increased by 3 times. Disbursement for activities to combat desertification from the State budget is increasing annually.
Fund for Environmental Protection was established by the Government resolution in 1998. Several small size projects related to combating desertification were implemented during last 4 years. About 35 mln tugrig have been for projects in 2000.

To guarantee financial resources for nature conservation and restoration activities, the "The ratio of the income from the natural resources use payments to be spent for environmental protection and natural resource restoration" was passed by Parliament in 2000. This law determines the legal basis for creating sustainable financial resources for sustainable natural resource management either at a central or local level.

From the 2000 budget approved by the Ministry of Finance and Economy, 620,0 million tugrug was spent on reforestation and forest-based activities, 189,2 million tugrug on Protected Area administration costs and 30,0 million tugrug on general environmental activities. When compared to previous years, figures from 2000 represents an increase in all areas, especially in the budget for reforestation and forest activities. The fund allocated from the State Budget to the Protected Area Administration increased by 14%.

7.2 Expenditures of non-budget funds

The non-budget funds for the environmental sector are made up of donations from international organizations, foreign countries and private donors as well as aid and technical assistance with project implementation.

- 10% of income derived from trophy hunting fees by international hunters - 73,300 USD, was transferred to the Nature Protection Fund in 2000. The Nature Protection Fund spends a certain amount annually on biodiversity conservation, bio-technical measures and environmental education activities.
- 48 projects were implemented from 1993 to 2000 in the environmental sector. Foreign countries and international donor organizations provided technical assistance. Over 44,2 million USD was spent on biodiversity conservation, Protected Area management, forest protection, water resource management, hydro-meteorological and environmental monitoring activities.
- Of the total assistance, 20,9% was spent on biodiversity conservation, 20,9% on hydrometeorology and environmental monitoring, 17,6% on Protected Area management, 8,15% on forest protection and 5,28% on reducing water pollution.

Most of the projects are engaged in policy and program development and research. The majority of the project funds are spent on training and workshops, operational costs and on hiring international consultants. It is necessary to improve the efficiency of these projects and focus the newly proposed projects on direct investment in nature restoration activities.

The agricultural sector is of primary concern to the Government of Mongolia due to its importance in the economic development and food security of the nation.

The creation of a natural disaster protection system for the country's livestock, the improvement of the quality of veterinary and reproductive services as well as the intensification of epizootic disease prevention activities are currently the priority areas for the state agricultural sector. 30 million tugrug from the State Central Budget and 10 million tugrug from local budgets were allocated for livestock reproductive activities.

A “Hay making and Fodder preparation in 2001” project was prepared and 1,5 billion tugrug were allocated for this purpose. As a result, 416,000 tons of fodder, 802,6 thousand tons of hay were produced.

Small and medium sized enterprises reserved 515 tons of first class seed potatoes and 417 million tugrug credit was provided for the purchase of herbicides. As a result, 36.3 thousand ha of land has been chemically treated and cleared of weeds. According to the preliminary estimates, some 169.6 million tugrug were spent for the implementation of the Green Revolution Program. Mini-tractors, sprinkler equipment and hand seeders worth 135.9 million tugrug were imported and loaned on soft terms to 60 agro parks in 21 aimags. The activities within the Green Revolution Program played a positive role in decreasing the level of poverty and unemployment in rural areas.

In 2001, the state budget allocated 535.4 million tugrug for the eradication of harmful rodents.

In early 2002 the “Agriculture Technical Cooperation Program" was developed and preparatory research carried out with financial assistance from the Asian Development Bank. The program will provide 10-15 million US dollars in soft term loans to the agricultural sector.

As a result of cooperation with the UNDP, World Bank, “Water-21” project, Gobi Development Initiative, World Vision and other international organizations, a total of 500.000 US dollars was invested in restoring water points and wells in 12 aimags. A project for supplying agricultural equipment and machines was also prepared under the framework of the KR-2 project assisted by the Government of Japan.

The Budget allocated from Agricultural Sector for combating desertification
/mln tugrik/

1	CATEGORIES	1997	1998	1999	2000	2001	2002
1	Veterinary service	1889.8	1872.2	1900.0	2100.0	5400.0	5484.1
2	Plant protection measures	130.0	200.0	300.0	450.0	600.0	850.0
3	Purchasing of goods for the National Reserves	1056.0	106.1	308.6	1100.0	1100.0	2960.0
4	Livestock reproduction	6.5	10.5	11.5	13.0	30.0	30.0
5	Green Revolution Program	20.5	250.0	250.0	180.0	180.0	150.0
6	Water source research	-	-	-	-	75.0	30.0
7	Reparation of engineer-designed wells	-	238.0	292.0	260.0	394.0	400.0
8	Agricultural rrigation	-	-	-	90.0	100.0	-
9	National Program of Livestock Protection from Dzud and Drought					1050.0	1000.0

The financial situation of the country is weak and there is a strong need to identify and mobilize financial mechanisms and funding sources to combat desertification. Mongolia has adopted a series of important laws concerning financing mechanisms for natural resource management. Adoption all these funding mechanisms within such a relatively short period of time must be considered a significant achievement by the Mongolia Government, although the legislation and payment system has not fully had the desired effects on the use and protection natural resources. There are some limitations and problems related to the public’s

awareness of these laws and to law enforcement. The total costs of the projects identified in the short and medium term in NAP Mongolia is about 29 million USD. It can not be expected that the costs of
NAP can be substantially covered by Mongolian Funds alone. However for the sustainability of the program, it is important to identify local resources for funding anti-desertification activities. In this regard, main challenge of implementation NAP is to support decentralization of natural resource management to soum and aimak level focusing on local institutions, traditional practices and the economic autonomy.
The Government recognizes that assistance from donor countries and international organizations is essential for the implementation of CCD. For the purpose of mobilizing external funding to combat desertification, Mongolia is planned to organize around table meeting among donors to promote the successful implementation of NAP as soon as possible.

(8) A REVIEW OF THE BENCHMARKS AND INDICATORS USED TO MEASURE PROGRESS AND AN ASSESSMENT THEREOF

8.1. The establishment and/or strengthening of national environmental monitoring and observation capacities.

The National Agency of Hydro-meteorology, and Environmental Monitoring is a Governmental implementing agency responsible for an integrated network of climatic and environmental research, observation and monitoring. The legislative framework is established within the law on Hydro-meteorological and Environmental Monitoring (approved in 1997). Through different sectors within the Institute of Hydrology and Meteorology, data on hydro-meteorology, agro meteorology and environmental monitoring is processed. The Institute also manages a sub database on climatic and surface water from the central environmental database.

The Mongolian Institute of Hydrology and Meteorology, the Information and Computer Center and the Central Environmental Laboratories all coordinate and manage the national information network on meteorology, hydrology and carry out monitoring on the state of the environment. The network provides weather forecasts and advises central and local decision makers as well as the general public. The network supplies information to particular industrial sectors such as infrastructure, energy, agriculture and tourism.

Extensive research in the fields of weather forecasting methods and modeling, climate change and impact, ecological modeling, agro meteorology and animal husbandry, atmospheric studies, greenhouse gas monitoring and inventory, renewable energy, solar radiation, ecological and economic assessments of surface water are all conducted by the Institute of Meteorology and Hydrology.

A new environmental sector was established in 2002 to study environmental and climatic change. The Land Management Authority – a Government coordinating agency, manages land quality assessments and data.

8.2. Information systems on desertification at the national level

A comprehensive national level system of information on desertification - open and applicable to every stakeholder, has not yet been established in Mongolia. Almost all of the research and monitoring data on land deterioration and drought/ desertification processes, impact assessments and other related information are based in the National Hydrology and Meteorology Communication Network and in the central environmental database. The network processes information via a high bandwidth computer network at Information and Computer Center at the Institute. Weather forecasting information is collected from regional

WMO centers and from the national meterological network. This network comprises 116 meteorology stations, 80 posts, 7 aerological stations located in 20 aimag centers

Satellite information has been processed at the Information and Computing Center of Nature and Environment Ministry since 1972. Information is now received daily from NOAA. The Computing Center carries out environmental monitoring, contributes to a database and network and disseminates information. The use of GIS is extensive at the center.
A decision was made in 2001 by the Hydro-meteorological Monitoring Network to permanently monitor pasture degradation and desertification from 2002 onwards. This represents an important step toward a national-level integration of methodology. Instructions on observation methodology and a standard sheet to record observations were developed in the preparatory phase of the project. Regional training seminars on observation methodology and the use of the sheets have taken place four times.

The same monitoring and observation methodology will be used throughout the country in order to:

- Asses the state of pasture vegetation and its phases
- Estimate yield sizes through assessing the maturity level of the vegetation
- Observe the spread of rodents and pastoral degradation
- Asses the soil surface
- Determine vegetation species
- Asses the key factors that define the causes of desertification and land degradation

Teams comprising academics and local representatives to assess the level of desertification in affected areas and to recommend further measures are to be formed annually from 2001 by the National Committee to Combat Desertification, although financial hindrances still occur.

8.3. Stakeholders access to available information

Meteorological observations since 1936 are integrated into a database. Information includes air temperature, precipitation and humidity levels, sun shine hours, pasture yields, the maturity periods of major pasture plants, the agro-hydrology status of soil, 10-day drought assessments and general summer conditions.

A new system of checking the observed information at meteorological stations and posts, and integrating it into the database was introduced in 1999. Weather forecasting, predictions on drought for industrial purposes and recommendations on preventive measures are disseminated amongst decision makers at all levels via a special publication as well as to the general public through mass media. The Institute publishes scientific works on the environment, hydrology and meteorology in a bilingual (English/ Mongolian) booklet, obtainable from the organization's library. The network also provides the sectors of infrastructure, energy, agriculture and tourism with specific information. Most of the desertification-related information is concentrated at the Ministry of Nature and Environment and its agencies and in the scientific institutions of the Academy of Science. There is little organized coordination among institutions and limited access for the general public to materials.

Discussions on issues surrounding desertification, disaster impact assessments, disaster prevention and rehabilitation measures, project proposals and project implementation reports and required actions take place at various levels. The National Committee to Combat Desertification (NCCD), the Ministerial Council Meeting of the Ministry of Nature and Environment, the Science and Technology Council Meeting and Cabinet Meetings are all forums in which the above are discussed. Reports on actions to combat desertification and implement the UNCCD as well as results and further policy directions are submitted to the Ministerial Council of Nature and Environment or to the Government by the NCCD for consultation and decision-making.

8.4. Regular production of materials

Publications of pamphlets and booklets as well information broadcast by the media on desertification, land tenure and ecological issues are continuously produced as a part of the extensive public advocacy efforts of the MNE.

Examples are as follows:

- Documentary film "Combating Desertification"
- Booklet "Combating Desertification in Mongolia" (1997)
- Book on "Some Issues Surrounding Combating Desertification in Mongolia" (1999)
- Book "Introduction to the Convention to Combat Desertification" (1998)
- National Report on the Implementation of Combating Desertification (2000)
- Proceedings of the National Forum on Combating Desertification and Synergistic Implementation of Environmental Conventions (2001)

Both Governmental and non-governmental organizations publish various information materials on the status of the environment and environmental protection and conservation. Parliament has held discussions since 1997 and approves annual reports on the status of the environment in Mongolia. A bi-monthly newsletter published by the Ministry of Nature and Environment is a useful tool to extend public advocacy efforts. The Institute of Hydrology and Meteorology publishes weather forecasts and agro-meteorology information for decision makers and the general public.

Examples are as follows:

- Short and medium range forecasting
- Weather forecasts for 1 and 2-month periods (published monthly)
- Agricultural Meteorological Bulletin (every 10 days)
- Long-range weather forecasts for warm and cold seasons - including drought conditions (bi-annually)

Scientific publications:

- Meteorology and Hydrology Papers for scientific journals published bi-annually
- Proceedings of conferences, symposiums and workshops

Scientific research results on the environment, hydrology and meteorology are published annually in booklets by The Institute of Hydrology and Meteorology.

8. 5 Linkages and synergies with other environmental conventions

Mongolia is a signatory to five international conventions within the framework of international cooperation for the protection of natural resources. These are the Convention on Biological Diversity (1993), the Convention on International Trade in Endangered Species of Wild Fauna and Flora (1996), the UN Convention to Combat Desertification (1996), the Convention on Wetlands of International Importance, Especially as Waterfowl Habitat (1997), the Convention on Migratory Species of Wild Animals (1999) and the UN Framework Convention on Climate Change (1993). Various activities have been conducted aimed at implementing the obligations of these Conventions.

The link between combating desertification, mitigating drought and the protection and regeneration of the vegetation cover in Mongolia is evident. The role of animal husbandry is illustrated by the fact that over 80 % of available land is used as pastureland for livestock. Over-exploitation of the pastureland leads to the loss of vegetation and accelerates topsoil erosion. Wildlife and plant diversity in Mongolia threatened by recurrent drought, forest fires, climatic extremes and the spread of desertification. The protection and

maintenance of dryland biodiversity and ecosystems assists in combating desertification. Combating desertification contributes to mitigating the negative impacts of climate change. Impact assessment results show that climate change strongly affects both natural resources and agricultural production. Climate change directly affects natural zones, permafrost areas, livestock, pastures and water resources, which leads to an effect on the national economy.

Mongolia, by recognizing the ecological linkages between the subject matters of the three Rio Conventions is developing integrated response strategies in national sustainable development planning framework. The Mongolian Action Program for 21st century, the National Action Program on Climate Change, the NAP to Combat Desertification, the Mongolian Biodiversity Action Plan and the National Program on Protected Areas all include a set of integrated measures, actions and strategies on the synergistic implementation of international conventions. In this respect, the relevance of the integrated ecosystem approach is underlined to manage land, water and living resources in an equitable manner.

Integrated projects on improving natural resource management, reducing pasture-land degradation, disaster prevention, strengthening the national capacity, increasing public awareness and reforestation - all closely linked to the issue of desertification, climate change and biodiversity conservation have been implemented in recent years throughout Mongolia. One example of this is the GTZ funded project on the "Integrated Prevention of Desertification" which began in 2000. The project aims to reduce the spread of desertification through working with local herders to establish more sustainable grazing systems in the Gobi Desert.

A pilot project on "Sustainable Grassland Management" in Mongolia (2001-2002) with support from Dutch Government aims to assist herders in developing stable local structures to manage and restore overgrazed pasturelands. The main aim of the "Gobi Initiative" project, which began in 2000, is to create economically sustainable development in the Gobi region. This covers livestock breeding management, water and pastureland management and cooperative management.

Under the GEF funded "Eastern Mongolian Biodiversity Conservation and Sustainable Livelihood Options" Project (1998-2006), 15 individual research projects were implemented to study the ecology and biology of mammals, fish, birds, reptiles as well as the impact of pastoral monitoring methodologies and climate changes on biological diversity. The project has also established a pilot 5 -year monitoring program in 3 Protected Areas and 1 Nature Reserve. Together with the Hydrometeorology Institute, methods for monitoring the health of grasslands were developed and are now being used throughout Mongolia.

The Information and Computer Center of the Ministry for Nature and Environment is using software and GIS equipment for processing and analyzing biodiversity data. Maps based on NOAA satellite data on forest and steppe fires, as well as snow and grass cover have been produced. Response measures to mitigate the adverse effects of climate change based on impact assessments have been identified for the natural resource and economic sectors in Mongolia most vulnerable to climatic change.

Mongolia is in a position to closely co-operate with the Secretariats of the Conventions in support of their activities and to integrate their implementation on a national level. The Mongolian Ministry for Nature and Environment is responsible for the implementation of environmental Conventions throughout the country and appointing the National Focal Points of these Conventions. National Committees for each of the International Conventions have been set up to ensure their implementation. The National Project Coordinators are working closely together to create plans and ensure the exchange of information in order to avoid any duplication. It is necessary at this point for National

Committees to further develop cooperation and coordination on both a national and international level.

Workshops and training on biodiversity conservation, ecosystem protection, strengthening Protected Area management, environmental impact assessments and environmental law enforcement are regularly organized by the MNE for all levels of representatives from central and local organizations. A "Basic Conservation Training Program for Protected Area Rangers and Provincial Inspectors" was developed by GTZ in conjunction with the MNE.
Relatively weak institutional arrangements, ecological vulnerability and the limited capacity to deal with different problems all combine to make international cooperation necessary for the implementation of conventions in Mongolia.

In June 2001, Mongolia - with financial support from the Secretariat for the Convention to Combat Desertification, organized a National Forum on "Combating Desertification and Promoting the Synergistic Implementation of Inter-Linked Multilateral Environmental Conventions". The forum addressed important environmental issues affecting Mongolia and defined ways and possibilities of solving them within the framework of international conventions. The participants reviewed the status of desertification, drought, the change in land use and their impacts as well as the progress made in implementing UNCCD and NAP in Mongolia. The National Forum recognized the need to pursue the synergistic implementation of the UNCCD, CBD, UNFCC and other multilateral environmental conventions and policy objectives through integrated ecosystem management approach. The requirements of the policy objectives should be compatible with transitional state of the Mongolian economy.