





GLOBAL ECOLOGICAL ECOLOGICAL



ROJECT GEF/UNDP 'NATIONAL CAPACITY SELF ASSESSMENT FOR GLOBAL ENVIRONMENTAL MANAGEMENT' NCSA-Kyrgyzstan

GLOBAL ECOLOGICAL CONVENTIONS: THE CAPACITIES OF KYRGYZSTAN

SUBJECT REVIEW

Bishkek 2004

This report was prepared under the framework of the 1st stage of the project GEF/UNDP 'National Capacity Self Assessment for Global Environmental Management' NCSA-Kyrgyzstan (KYR/03/G31)

These materials are available on the project site <u>http://ncsa.undp.kg</u> and information on the UNDP project 'Regional Network of Ecological Information CARNet' can be found at <u>www.caresd.net</u>

NATIONAL PROJECT DIRECTOR:

O.S. Rustembekov, Candidate of Science, Biology, Director of the Department of Ecology and Nature Tenure of MEE

PROJECT MANAGER:

M. K. Djangaracheva, Candidate of Science, Philosophy

GROUP ON CLIMATE CHANGE:

E. Orolbaev, International Institute for Strategic Research under the President of the KR, Candidate of Science, Geology and Mineralogy, the National Coordinator in the area of climate change *Ch. Djumadylova*, Candidate of Science, Geology and Mineralogy, the work team leader

EXPERTS:

Sh. Ilyasov, Candidate of Science, Technical Sciences, *G. Kasymova*, State Agency on Energy under President of the KR, *M. Seitkasymov*, Department of Ecology and Nature Tenure of MEE

GROUP ON DESERTIFICATION/LAND DEGRADATION:

 K. Kulov, Scientific Research Institute of Irrigation under MAWRPI, the National Coordinator in the area of land degradation
 O. Pechenyuk, chairman of the NGO 'Independent Ecological Expertise', the work team leader
 A. Abdiev, head of the technical department of State Planning Institute 'Kyrgyzgiprozem' under Gosregistr, L. Penkina, head of the department of pastures monitoring of State Planning Institute 'Kyrgyzgiprozem' under Gosregistr, N. Sharshekeev, scientific employee of SRI of Irrigation under MAWRPI

GROUP ON BIOLOGICAL DIVERSITY:

K. Djundubaev, State Forestry Service *V. Korotenko*, representative of the NGO 'Biom', work team leader

EXPERTS:

E. Shukurov, Doctor of Science, Geography, *Ch. Sadykova*, Candidate of Science, Biology, *A. Chyngozhoev*

REVIEWERS:

B.T. Koshmatov, Deputy minister of MAWRPI

L. P. Lebedeva, Doctor of Science, Biology, scientific researcher of the laboratory of flora in the Biological and Soil

Institute of the NAS

S. A. Moldokulov, Candidate of Science, Economy, First deputy minister of the KR State Ministry of Economic

Development, Industry and Trade.

T. S. Musuraliev, chairman of the Kyrgyz Forestry Service

A. D. Obozov, Doctor of Science, Technical Sciences, professor, Director of the Center of Renewable Energy Sources

Problems

E. M. Rodina, Candidate of Science, Technical Sciences and head of the Sustainable

Development Chair of KRAU

B. E. Saipov, Doctor of Science, Agriculture, Dean of the Faculty of Water Resources and Water Use, Kyrgyz Agrarian

University named after Scryabin

A. R. Tyumenbaev, Candidate of Science, Economy, Deputy director of the State Energy Agency.

TRANSLATORS: E.Sinelshikov, G.Sergunina

EDITOR: Jessicah Curtis

This work was possible thanks to the assistance and all-round support of the **employees of the administrative**, **financial and other departments of the UNDP office**, as well as **Marina Glooshkova**, independent coordinator of the project NCSA-Kyrgyzstan, and **Marina Tereshenko**, the administrative assistant the project NCSA-Kyrgyzstan

CONTENTS

FOREWORD	5
ACKNOWLEDGEMENTS	6
ASSESSMENT OF THE CAPACITY BUILDING NEEDS FOR THE IMPLEMENTATION OF THE UN FRAMEWORK CONVENTIO ON CLIMATE CHANGE IN THE KYRGYZ REPUBLIC	N
(E. Orolbaev, Ch. Jumadylova, Sh. Ilyasov, G. Kasymova, M. Seitkasymov)	7
ASSESSMENT OF THE CAPACITY BUILDING NEEDS FOR THE IMPLEMENTATION OF THE UN CONVENTION TO COMBAT DESERTIFICATION IN THE KYRGYZ REPUBLIC (K. Kulov, O. Pechenyuk, A. Abdiev, L. Penkina, N. Sharshekeev)	56
ASSESSMENT OF THE CAPACITY BUILDING NEEDS FOR THE IMPLEMENTATION OF THE UN CONVENTION ON BIOLOGICAL DIVERSITY IN THE KYRGYZ REPUBLIC	
(K. Djundubaev, E, Shukurov, Ch. Sadykova, V. Korotenko, A. Chyngozhoev)	98

FOREWORD

This report was produced by GEF/UNDP project National Capacity Self-Assessment for Global Environmental Management (NCSA) UNDP/GEF/KYR/03/G31. The executing agency for the project is the Ministry of Ecology and Emergencies of the Kyrgyz Republic.

The main goal of the project is to identify and analyze the priorities and needs for the capacity building of the Kyrgyz Republic to implement the United Nations Convention on Biological Diversity, the United Nations Framework Convention on Climate Change and the United Nations Convention to Combat Desertification on individual, institutional and system levels. These three conventions, adopted in Rio-de-Janeiro in 1992, form the base of international environmental protection efforts. Intergovernmental efforts to conserve the environment and promote the sustainable use of natural resources will improve the ecological condition of the earth.

After gaining independence in 1991, the Kyrgyz Republic engaged the international community and joined several environmental conventions. The Kyrgyz government, realizing the importance of sustainable development and environmental protection, is becoming actively involved in global efforts to combat ecological threats.

The implementation of ecological conventions promotes the improvement of the environment and there are a large number of economic and social benefits from participating in conservation projects and the developing of national funding mechanisms for environmental protection activities. The forming of new financial institutions to aid the implementation of the three ecological conventions allows countries to access new and environmentally friendly technologies. NCSA Kyrgyzstan assesses not only environmental protection activities and the work of ecological agencies. The assessment process should therefore be integrated with national programs such as the Complex Development Framework (CDF), the National Strategy on Poverty Reduction (NSPR), governmental reforms and the coordination of donor assistance.

The Kyrgyz government as the main guarantor of the implementation of the country's convention commitments should take on a definite role on both system and institutional levels. Decision makers need to take on significant roles in activities related to environmental protection and management at a variety of levels. The most important aspects of the capacity-building process are interaction among interested parties and joint efforts by all sectors of Kyrgyz society.

This document was developed during the first stage of the NCSA project – the identification of the commitments of the Kyrgyz Republic to the three global ecological conventions. National experts assessed the current capacity of the country to implement environmental protection projects, reviewed the country's achievements in this area and drew on international experience.

Analyses of the obligations and commitments of the Kyrgyz Republic to implement the three conventions identify the similarities between the experiences of the country and those of other states.

National experts from different sectors of society were involved in this process. They carried out activities in three separate groups – one for each convention. The delegates conducted intensive analyses, meetings and consultations involving a broad circle of key figures, experts and organizations involved in the implementation of the three conventions, capacity-building efforts and the identification of environmental priorities.

The materials developed by NCSA are the result of comprehensive discussions with government ministries, organizations, scientific and research institutes and public bodies and represent the first step in a group of activities aimed at increasing the capacity of the Kyrgyz Republic to implement its convention obligations.

ACKNOWLEDGEMENTS

NCSA – Kyrgyzstan Project extends deep appreciation to: the Global Environmental Facility, *Mr. Jerzy Skuratowicz*, the Resident Representative of the UNDP in Kyrgyzstan, *Ms. Keti Chahibaia*, the Regional Representative of GEF/UNDP in Bratislava and *Mr. Zharas Takenov* for support and consultations

> *Mr. K. Ch. Djanuzakov*, deputy minister of the MEE *Mr. B. Koshmatov*, deputy minister of MAWRPI and *Mr. T. S. Musuraliev*, chairman of the State Forestry Service

GEF and UNDP Programs and Projects: Ms. D. Rakhmanova, project manager for the 'Political and Administrative Management at Central Levels' Ms. Z. Abaikhanova, manager of the GEF/UNDP Project 'Support to the Republic of Kyrgyzstan in Accomplishment of the Activities on Climate Change' and Mr. M. Koshoev, of the GEF small grants program

National experts and partners from the following ministries and departments: The Ministry of Ecology and Emergencies The Ministry of Agriculture, Water Resources and Processing Industries The State Forestry Service The Ministry of Economic Development, Industry and Trade The State Energy Agency The Ministry of Healthcare The Ministry of Foreign Affairs The Oblast Administrations and The National Statistical Committee.

ASSESSMENT OF THE CAPACITY BUILDING NEEDS FOR THE IMPLEMENTATION OF THE UN FRAMEWORK CONVENTION ON CLIMATE CHANGE IN THE KYRGYZ REPUBLIC

ASSESSMENT OF THE CAPACITY BUILDING NEEDS FOR THE IMPLEMENTATION OF THE UN FRAMEWORK CONVENTION ON CLIMATE CHANGE IN THE KYRGYZ REPUBLIC

SUBJECT REVIEW

E. Orolbaev, Ch. Djumadylova, Sh. Ilyasov, K. Kasymova, M. Seitkasymov

Lis	st of acrony	yms	9			
Gl	ossary		10			
Su	mmary		12			
1.	 UN Framework Convention on Climate Change – a tool for international global warming control efforts Global climate change and an assessment of climatic transformation in the Kyrgyz Republic Goals of the Convention and the commitments of countries to its implementation Examples of international experience implementing the UN Framework Convention on Climate Change A summary of the activities in the Kyrgyz Republic aimed at accomplishing commitments to the UN Framework Convention on Climate Change 					
2.	2. Interrelations between the UN Framework Convention on Climate Change, the millennium development goals and National development programs					
3. An	 Accomplishment of the commitments to the Convention in Kyrgyzstan: An analysis of the current situation An analysis of the efficiency of the environmental legal base in Kyrgyzstan 					
4.	Determini which the	ng the priorities relevant to climate change issues and the extent to three subjects areas are interrelated	45			
Re	ferences		47			
An	nex1.	Projects related to the implementation of the Convention				
in	Kyrgyzstai	1	48			
An	nex 2.	A list of publications relevant to the implementation of the Convention	49			
An	<i>Innex 3.</i> The implementation of the Convention by Kyrgyzstan 50					

LIST OF ACRONIMS

CDF	Comprehensive Development Framework of Kyrgyz Republic until 2010
CIS	Commonwealth of Independent States
CLL	Company with Limited Liabilities
EEC UNO	European Economic Commission of the United Nations Organization
EU	European Union
GDP	Gross Domestic Product
GEF	Global Environmental Facilities
GEM	Global Ecologic Model
GHG	Greenhouse Gas
GRINTAI	The Nature Saving Technologies and International Cooperation Organization
HPS	Hydraulic Power Station
IPCC	Intergovernmental Panel on Climate Change
MCD/CO	Mechanisms of Clean Development and Joint Implementation of the Kyoto Protocol
MEE	Ministry of Ecology and Emergencies
MDG	Millennium Development Goals
NAS	National Academy of Science
NTRES	Non-Traditional and Renewable Energy Sources
OECD	Organization for Economic Cooperation and Development
SPECA	UN Special Program for the Economies of Central Asia
TES	Thermal Electrical Station
UNDP	United Nations Development Program
UNEP	United Nations Environment Program
UNFCCC	UN Framework Convention on Climate Change

GLOSSARY

Adaptation to climate All types of activities contributing to the adaptation to climate change of water and ground ecosystems, hydrology and water resources change management techniques, agricultural and forestry sectors, and human health services (for example, the introduction of resistant cultures to compensate for local climate change). Related to human activity. A result of human activity. In the process of Anthropogenic assessing emissions under the UNFCCC it is customary to delineate the anthropogenic emissions and the emissions generated by natural sources. A high percentage of GHGs are released into atmosphere naturally. Anthropogenic emissions are only those, which are related to human activity and supplement natural emissions thus violating the delicate ecological balance. Carbon dioxide (CO₂) Carbon dioxide – a major GHG – is emitted during the burning of mineral fuels, deforestation, changes in land status and the production of cement. The third GHG by significance according to Kyoto Protocol Nitrous oxide (N₂O) classification. It is emitted during production processes and the use of mineral fertilizers, for example, by the chemical and agriculture industries. The greenhouse effect of one ton of N₂O is equivalent to 310 tons of CO₂. The account of anthropogenic emissions made in line with IPCC Inventory (cadastre) methodology and adopted by UNFCCC. There is also a basic 1996 of emissions method, and the more complex 2002 method (the so called 'good practice' method) which is not mandatory for countries with transient economies, and in which there is no section on a change of land tenure (LULUCF). The countries included in Annex 1 are obliged to annually send an inventory report (a cadastre of emissions of greenhouse gases) to the UNFCCC Secretariat in the universal format (or common reporting format) developed by the UNFCCC Secretariat. Kyoto Protocol A Protocol on the restriction and reduction of the emissions of GHGs from 2008 to 2012 by countries included in Annex B. After 2005, future commitments will be the subject of future negotiations. The Protocol was signed in Kyoto, Japan, in 1997. The United States of America has refused to participate in the Protocol. As a result, Russia has veto power over the Protocol's enforcement. This means the fate of the Protocol depends upon its ratification by Russia. Conference of the Parties COP is the supreme body of UNFCCC and usually convenes every (COP), Meeting of the year. MOP is the term used for the future supreme body of the signatories to the Kyoto Protocol, which will convene when or if the Parties (MOP) Protocol comes into force. National Communication A public report to be submitted once every three years to the UNFCCC Secretariat by every country included to Annex 1. This report must contain an inventory of greenhouse gases emissions, forecasts of emissions, measures for the reduction of emissions and planned climate change adaptation methods. Natural sources enabling the large-scale use of their energy without Non-Traditional and

the risk of reducing their volumes. Wind, solar, hydro, bio-energy

Renewable Energy

	Global ecological conventions: Capacities of Kyrgyzstan
Sources (NTRES)	sources and geo-thermal sources are all considered to be part of this group
Intergovernmental Panel on Climate Change (IPCC)	Established in 1988 as a joint body of UNEP and the World Meteorological Organization with the aim of finding the best answers to climate change questions and uncertainties. Hundreds of scientists throughout the world have participated in IPCC activities and the Panel has published reports containing detailed recommendations agreed at an intergovernmental level. The first IPCC Communication was completed in 1990, the second in 1995 and the third in 2001. UNFCCC dictated that all methodical emissions guidelines and the assessment of project would be prepared by IPCC. The Panel is additionally preparing special reports and guidelines.
Methane, CH ₄	The second GHG in order of significance according to the Kyoto Protocol. It is emitted through several means including but not limited to pipeline leakages, agricultural processes and at dumps. The effect of one ton of methane is equivalent to 21 tons of CO_2 .
Greenhouse gas (GHG)	Gases that are known to cause the 'greenhouse' effect by absorbing Earth's thermal emissions from the atmosphere. The anthropogenic growth in the concentration of CO_2 and other gasses the atmosphere, results in an increase in temperature or 'climate change'. The Kyoto Protocol addresses the controlling of six greenhouse gases including carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O) and perfluorinecarbons (CF_4 , C_2F_6). Evaporated water molecules are also considered a GHG, however, steam is not recommended for regulation in the Protocol due to its natural origins, the complexity of its control and lack of data on the increase of its concentration in atmosphere.
Technology transfer	Technology transfer as stipulated in Article 4 of UNFCCC and Articles 10 and 11 of the Protocol is one of tools used by countries under Annex 1 to help ensure the sustainable development and growth of developing countries.
Annex 1	The annex to the UNFCCC text – the list of countries taking special UNFCCC commitments on limitation of emissions (similar Annex B to Kyoto Protocol). This list also includes industrialized countries and a number of countries with transient economies, including Russia, Ukraine, Belarus, the Baltic states and most eastern Europe countries.
Annex 2	The annex to the UNFCCC text – the list of countries taking on special UNFCCC financial commitments. All industrialized countries are on this list.
Framework Convention on Climate Change (UNFCCC)	UNFCCC was signed in 1992 in Rio-de-Janeiro and came into force in March, 1994. More than 180 counties in the world are parties to the Convention, including all the countries of the former Soviet Union and industrialized countries. UNFCCC defines the guidelines of climate change prevention programs undertaken by signatory states, but does not stipulate quantitative obligations, on which the document Kyoto Protocol UNFCCC was developed.
Absorption	A term defining the absorption of CO_2 from the atmosphere by ecosystems including forests.

In the past century the concentration of greenhouse gases has increased, resulting in changes in atmospheric circulation. This could result in an increase in average annual global temperatures. According to existing forecasts, by 2010 the average annual temperature in the Kyrgyz Republic could have increased 2.5-3°C and annual precipitation levels may have risen 10-15 percent compared to 1961-1990 levels.

The UN Framework Convention on Climate Change (UNFCCC) was adopted in Rio-de-Janeiro in 1992 and came into force in March, 1994. The main goal of the Convention is the stabilization of atmospheric greenhouse gas (GHG) concentrations at such a level as to prevent any hazardous anthropogenic impact on the climatic system. Having become aware of the critical importance of supporting sustainable development and environment protection, the Kyrgyz Republic is increasingly involved in worldwide activities aimed at constraining global ecological threats and in joint state efforts to alleviate the negative implications of climate change.

The benefits of the participation of the Kyrgyz Republic in this process are obvious – the improvement of the general environmental situation in the country as a result of efforts to decrease the emissions of GHGs, the attraction of additional resources for the development of nature protection technologies and the increasing of energy efficiency and environmental security.

The country may also derive additional economic benefits from sound environmental policies as a result of the implementation of clean development mechanisms and, in the future, of emission quota trading.

The Kyrgyz Republic ratified UNFCCC on January 14, 2000. In order to implement the country's commitments to the Convention, the Kyrgyz government passed Resolution 369, 'Measures for the Implementation of the UN Framework Convention on Climate Change' on July 21, 2001. In line with the Resolution, the Ministry of Ecology and Emergencies (MEE) and the National Statistical Committee of the Kyrgyz Republic were instructed to conduct state statistical recording on and accounting for GHG emissions. The Kyrgyz Republic's law 'On the Ratification of the Kyoto Protocol to the UN Framework Convention on Climate Change' was passed on January 15, 2003.

As a party to UNFCCC, the Kyrgyz Republic is obliged to regularly submit the results of GHG emission inventories from its territory to the Secretariat of the Convention. The preparation of the First National Communication and its submission to the secretariat in 2003 was a major accomplishment. The efforts of the Kyrgyz Republic enabled the development of the country's first inventory of the sources and emissions of GHGs and the planning of cooperation schemes between ministries and departments on problems relevant to climate change.

However, the means for the implementation of UNFCCC have still not been fully developed in the Kyrgyz Republic. There are two main reasons for this. Firstly, the Kyrgyz government has not identified global climate change issues as a national priority since the country's GHG emission levels are low. Secondly, there is insufficient understanding in the country of the economic benefits of safe environmental practices and a lack of the necessary mechanisms for their implementation.

The study of the further development of the capacity of the Kyrgyz Republic to implement UNFCCC at individual, institutional and system levels is a major goal of the project GEF/UNDP National Capacity Self Assessment for Global Environment Management.

The Kyrgyz Republic made a considerable step forward with the creation of a legal base for the implementation of its commitments under UNFCCC. Its reform and development should encourage the introduction of bylaws and standards enhancing the organization of effective public monitoring and the control of greenhouse gas emissions.

But Kyrgyzstan's economic situation is preventing the full-scale implementation of its commitments under UNFCCC with funds from the state budget. Maximum efforts should be made to attract donors and the financial support of international organizations.

The lack of a unified interdepartmental coordinating body to create an adequate organizational and methodical foundation for the implementation of Convention commitments in the Kyrgyz Republic also presents a major barrier to national capacity building.

A national strategy and a plan of action for the prevention of negative economic, social, environmental and other implications of climate change have yet to be developed.

Sharing the experiences of other CIS countries on the implementation of UNFCCC could be extremely helpful to the Kyrgyz Republic while it is at the inception phase of similar activities.

Analyses of the general structure of GHG emission levels by sector showed the energy sector generates two-thirds of all emissions in the Kyrgyz Republic. The figures highlight the urgent need to build and strengthen the country's capacity for constraining GHG emissions in this sector. Particular attention must be paid to energy effectiveness and the use of the renewable energy sources. Forestry industries are highly active in the Kyrgyz Republic, contributing to emission levels.

In the Kyrgyz Republic, the use of technology to reduce GHG emissions and encourage adaptation to climate change is very limited. There are a few isolated projects using nature saving technologies in the energy sector, but most of theses, as a general rule, were created on a grant basis.

The enhancement of the technological capacity of the Kyrgyz Republic is constrained by the following main factors:

- a lack of financing on the part of the state and little attraction of foreign and domestic investments;
- a lack of the efficient coordination of activities aimed at implementing planned measures;
- flawed bylaws on the implementation of Convention objectives;
- low awareness levels among potential consumers on the benefits of new technologies.

Programs to reduce GHG emissions should be directly coordinated with state and sectoral development programs and provisions for the environmental security of the Kyrgyz Republic. Controlling the implementation of adopted programs is a critical task, which must be solved in this way.

Despite efforts to increase the awareness of the Kyrgyz population on climate change issues, the level of general knowledge on the subject and thorough understanding of the country's commitments to UNFCCC remains very poor, constraining societal involvement in its climate change prevention and capacity building.

After careful data analysis, the priorities for building the capacity of the Kyrgyz Republic to implement UNFCCC should be the following:

- The development of legal measures, the integration of 'green technologies' and the development of specific legal acts directed at the reduction of greenhouse gases emissions;
- The enhancement of institutional capacities and the creation of a coordinating center (interdepartmental commission) on climate change issues. The enhancing of inter-sectoral cooperation for the implementation of the Convention's goals and the development of a national strategy and preventative action plan on climate change;
- The elimination of informational barriers, the establishment of well-developed information systems linking local and international networks and the elevation of the population's environmental literacy. The enhancement of the role of society in the implementation of the ecological conventions, the preparedness of qualified personnel to tackle climate change issues, the reduction of GHG emissions and energy saving issues;
- The provision of a financial mechanism to tackle climate change issues, the development of financial schemes to attract investors and the creation of incentives to attract private sector investment into projects directed at the reduction of GHG emissions. Assessments of the technological
- requirements of the Kyrgyz Republic and project development activities should also be provided to potential donors and investors.

The efficiency of priority measures can be increased through the integration of climate change strategies and the goals of other national and sectoral development strategies to ensure sustainable development in the Kyrgyz Republic.

The basic principles of the three Convention areas demonstrate the synergy of their basic goals and objectives, which, in turn, encourage participatory efforts aimed at implementing the Convention. Joint efforts for capacity building in three directions would help avoid the duplication of projects, ensure efficient organizational schemes for their implementation, iron out the legal framework involved and reduce unjustified costs.

Working together on the three Convention areas would help secure at all levels well-coordinated protection policies and encourage the rational use of the environment.

1. THE UN FRAMEWORK CONVENTION ON CLIMATE CHANGE – A TOOL FOR INTERNATIONAL GLOBAL WARMING CONTROL EFFORTS.

1.1. Global climate changes and an assessment of climatic transformation in the Kyrgyz Republic

A considerable growth in the concentrations of GHGs has occurred in the Kyrgyz Republic. Several scientific studies suggest this is the result of the negative impact of anthropogenic activities on the environment. The growth of GHG concentration, in turn, results in changes to atmospheric circulation and an increase in average annual global temperatures. According to available data, the rates of climate change have gone unnoticed for about the past 150 years.

The concentration of GHGs, such as CO_2 and CH_4 , was relatively constant in the pre-industrial era. At that time, temperature changes could be attributed to natural phenomena including changes in solar activity, volcanic activity and occasional minor climate shifts. The six periods of warming shown in *Figure 1* lasted no more than half a century and the amplitudes of such deviations never exceeded 0.3°C. But in the past 100 years the temperature growth rate was equivalent to 0.6°C, remaining almost constant throughout the 20th century.



Figure.1. The dynamics of global temperature change in the past 100 years

It should be noted that there is a certain inertia inherent in the climatic system. Emissions do not have an immediate impact on temperature change but rather a gradual or delayed effect. Future temperature change can be expected due to emissions that have already been released into the atmosphere¹.

The serious consequences of climatic changes are reflected by increases in the occurrences, power and impact of natural and climatic anomalies. According to assessments in the last 20 years of the 20th century the levels of these anomalies had increased 40 percent.²

These statistics lead us to believe that Earth's climatic system has become unbalanced and is likely to become more so in the future. Even if the greenhouse effect was the sole cause of these phenomena, it

¹ Dudek D., Golub A., Petsonk E., Strukova E., Vang J., Markandia A. Hazards of climate changes and benefits of Russia participation in Kyoto Protocol. - M., 2004. - C.54.

² For example, during an extreme hot temperature on the European continent in summer 2003, five thousand people perished only in France, there were also victims in Italy, Spain, Portugal, Great Britain. Moreover, there happed numerous forest fires the damage of which amounted to billions Euro. The European floods of the last year also took life of many people and inflicted enormous economic damage.

would not be correct to say that global warming was the only consequence. This is just one of the signs of a more threatening system phenomenon – the destabilization of Earth's climate¹.

Forecasted scenarios on climatic changes in the Kyrgyz Republic were presented in the first National Communication to UNFCCC.² The brief conclusions of the Communication revealed overall increases in national annual temperatures and precipitation levels.

Average annual temperatures in the Kyrgyz Republic increased considerably in the 20th century. In three climatic zones calculated precipitation levels also increased in the past 100 years.

Temperatures in the south-west of the Kyrgyz Republic rose between 0.6 and 2.4°C in the past century, 2.4°C in the Issyk-Kul Hollow and 1.2°C in Tian-Shan in the north west of the country.

In general, precipitation levels in the republic increased by 23 mm or six percent in the 20th century. In the north-north-west of the Kyrgyz Republic, 31-93 mm of rainfall was recorded compared with normal levels of between 61-239 mm. In the Issyk-Kul Hollow between five and 60 mm of rain fell, up two percent on normal levels. In the Tian-Shan area, which occupies a considerable part of the territory of the Kyrgyz Republic, precipitation levels remained constant whereas Naryn has experienced an increase of 11 mm in the past 100 years.

In the complex mountain territory of the Kyrgyz Republic, complex temperature increases occurred that are high when compared to overall global increase rates in the 20^{th} century of 1.6°C within a range of 0.6-2.4°C.

Climate change assessments in the Kyrgyz Republic were conducted using scenarios that help predict the state of country's climate system using modern software in line with global climate models.

The data obtained makes it possible to conclude that by 2100 the general range in average annual temperature in the Kyrgyz Republic will have increased between 1.8 and 4.4°C and from 1.3 to 4.8°C during different seasons. By 2100, the trend in rainfall will change from an overall reduction in annual levels to their growth by 54 percent and seasonally from 20 percent decreases to increases of 84 percent.

It should be noted that the obtained climatic scenarios are more accurately represented in practical annexes as they are considered a specter of probable climatic conditions, under which annual warming might amount to 1.8-4.4°C, while the annual precipitation levels may change from decreases of six percent to considerable increases of 54 percent. However, if a general prediction can be made for the whole country by 2100 it seems reasonable to predict temperature increases of 2.5-3.0°C and precipitation increases of 10-15 percent compared to 1961-1990 levels. This conclusion corresponds to the climatic changes registered from 1900-2000, as well as to climatic changes and average assessments of climate change forecasted for 2100.

The expected climate changes underline the need to develop climate adaptation activities to keep possible damage to a minimum.

The most vulnerable ecological, social and economic systems are those that are the most sensitive to climate change and have minimal adaptability, including:

- water resources;
- forest resources and biodiversity;
- public health;
- agriculture.

The predicted climate changes will result in the intensification of a global hydrologic cycle and will affect the world's water resources. Water resources in the Kyrgyz Republic comprise about 44 billion m³/year of surface river run-off, 13 billion m³ of potential ground water reserves, 1,745 billion m³ of lake water and 650 billion m³ of glacial water³. Melted water from seasonal snow, permafrost and glaciers help

¹ Climatic changes: View from Russia/ Under edition of V. I Danilov-Danilyan – M.:TEUC, 2003. – 416 c.

² The First National Communication of Kyrgyz Republic on the UN Framework convention of climate change. Bishkek, 2003. - Pg.98.

³ Draft of water strategy of Kyrgyz Republic, – Bishkek, 2003. – 40 pg...

supply the country's rivers with water. The degradation of glaciers in the region is regarded by Central Asian experts as the most serious nature protection problem.¹

Assessed estimations of the reaction of glaciers to climate change² shows that under the most pessimistic forecasts, when rainfall levels decrease by two times and temperatures increase by 3°C, the alpine firm will increase by 700 m, glaciers will shrink by 86 percent and the glacial run-off by 96 percent.

The increase in temperatures by 1 to 2°C will result in a decrease in river levels, will result in decreases in the levels of melted snow joining river systems and in the distant future will sharply decrease the run-off of rivers with snow and glacier alimentation³.

The temperature growth will increase the process of glacial degradation. From 1957 to 1980 the glaciers in Aral Sea rivers lost 115.5 km³ of their area (approximately 104 km³ of water), the equivalent of about 20 percent of ice reserves in 1957. By the year 2000, losses amounted to 14 percent of the reserves in 1957. By 2020 to 2025 the glaciers will have decreased by a further 10 percent.

Due to changes in the nature of water use in the basin of the Aral Sea, global warming and the desertification of regions where increases in soil erosion, about 0.9 to 1.5 million tons of various salts which are blown towards glacial areas will contribute to their degradation⁴.

The aggregate annual run-off of rivers in the Kyrgyz Republic amounts to 44.5 km³ and its exploitation run-off is equivalent to 47.2 km³, including 35 km³during the vegetation period, and12.2 km³ in autumn, winter and early spring periods.

The republic uses between 10 and 17 percent of available water reserves. About 90 percent of this amount is used for irrigation. Due to decreases in water consumption in the Kyrgyz Republic from 1992 to 2002 (the result of an economic crisis), sharp production declines occurred in the agricultural and industrial sectors. The demand for water resources in this period was satisfied even in periods of comparatively low supply. It is evident that these trends are temporal and a gradual growth in national water use can be expected.

When developing adaptation measures for water resources it should be noted that the national water use requirements of the Kyrgyz Republic will only be satisfied and a balance between interstate water consumption found if water saving programs are implemented. *The adaptation of water resource management techniques to global climate change, while considering trends of increased water consumption, can only be achieved by enhancing the efficiency of portable water use and the simultaneous expansion and development of water saving activities.*

This ideology must be inherent in the water resource strategies of the Kyrgyz Republic. Therefore, the objectives of the national water policy have been formulated in the following way:

- to preserve current water reserves and the purity of water resources by the continued improvement of the condition of water ecosystems;
- to create favorable conditions to expedite the rehabilitation of water ways and to provide for the sustainable development of the population's water supply and water economy infrastructure;
- to ensure the efficient management and the rational use of water resources using water saving principles and advanced water-use technologies.

Global climate change also presents a real danger to public health (Materials from the seminar Climate Change and Health of the Population of Russia in 21st Century, April 5-6, 2004 are available at <u>http://erh.ru/protokol/st09.php</u>).

As global warming occurs, the spread of cardio-vascular, respiratory and other diseases can be expected. Growth in the intensity and duration of heat and other natural anomalies will result in traumas,

¹ Water problems in Central Asia.– Bishkek, 2004.– 142 pg.

² *Glazyrina T.E., Shetinnikova A.S.* Condition of the glaciation of Gissar-Alai in the last decades and its probable dynamics with regard to future climate changes. // ΜΓИ, issue. 90.–2001.– Pgs. 126-129.

³ Agalseva N.A. Assessment of an impact of climatic changes on the water resources in the Aral Sea basin, -Tashkent, 2002. – 12pg.

⁴ *Dikih A.N.* Problems and forecast of the development of glaciation and river capacity in Central Asia. - Bishkek, 2001,- Pgs. 88-92.

psychological disorders and mortality. The gradual warming will affect the functioning of ecological systems, will have an impact on natural resources and will affect human sanitary and living conditions. The increase in temperature will allow insects and other disease carriers to broaden their habitats. Global warming, a decrease in the reserves of high-quality portable water and the spread of micro organisms could increase the incidence of infectious diseases.

Data has been obtained that provides evidence of the negative impact of environment temperature change on the incidence of disease in the Kyrgyz Republic¹. These negative effects on public health can be lessened by improving national healthcare. To this end it is necessary to develop a special program for the prevention of the negative influences of climate change on the health of the Kyrgyz population. The determination of new approaches to preventing and treating mass diseases will also be vital.

1.2. Goals of the Convention and the commitments of countries to its implementation

UNFCCC was adopted in 1992 in Rio-de-Janeiro and came into force in March, 1994.

The Kyrgyz Republic ratified UNFCCC under Kyrgyz Republic Law 11 on January 14, 2000. More than 180 countries are party to UNFCCC including all the countries of the former USSR.

According to article 2 of UNFCCC, the main goal of the Convention, and of all related legal documents which can be passed by the Conference of the Parties, is to achieve the stabilization of the concentration of GHGs in the atmosphere at such a level as to prevent any hazardous anthropogenic impact to the climactic system.

Such a level must be achieved to ensure the natural adaptation of global ecosystems to climate change, to prevent the endangering of agricultural products and to provide for further economic development on a sustainable basis.

In line with the Convention the global community agreed on guiding principles of cooperation for the solution of climate change issues. The guiding principles are:

- the general responsibility of the party countries depending on their capacity to solve the problem;
- taking into account the particular position of developing countries (which the Kyrgyz Republic is among in line with Annex I and Annex II of UNFCCC), of the countries with transient economies and especially those countries which are most vulnerable towards the negative consequences of climate change;
- the necessity of taking preventive measures with the aim of forecasting, preventing and minimizing the causes of climate change and alleviating its negative consequences;
- integrating national policy and activities to protect the climatic system against anthropogenic changes into national development programs, since economic development plays a leading role in the implementation of measures against climate change;
- cooperation among countries in order to establish a favorable and open international economic system;
- measures of climate change management should not be a means of arbitrary or ungrounded discrimination, or concealed restrictions to international trade².

The commitments of signatory states under UNFCCC are stipulated in articles 4, 5, 6 and 12, which also contain more specific commitments for different categories of countries, including:

• Both developed and developing countries take on a number of general commitments. All the parties shall develop and present National Communications, containing cadastres of anthropogenic emissions from their sources and the absorption of all GHGs. They shall develop national programs to limit climate change and develop strategies of adaptation to possible impact. The parties shall also enhance the transfer of modern technologies and sustainable management, as well as increase the quality of absorbers and 'accumulators' of GHGs (such as forests and oceans). The parties will also take climate change issues into account when formulating social, economic and environmental protection

¹ Climate and environment.- Bishkek, 2003.- 208 pg.

² National Communication on the problems of climate change. – M., 2002. – 29 pg.

Global ecological conventions: Capacities of Kyrgyzstan

policies, shall cooperate on scientific and technical issues, as well on educational issues and promote the education of society and encourage an exchange of information related to climate change.

• Industrialized and developed countries take over a number of specific obligations. The majority of member states to the Organization of Economic Cooperation and Development (OECD) plus the states of Central and Eastern Europe (the countries included in Annex I) took on obligations on the development of policies and activities to return emissions to 1990 levels by 2000 (targeted objectives in the area of emissions for the period after 2000 are considered in the Kyoto Protocol). They are also obliged to submit National Communications on a regular basis with detailed descriptions of their climate change prevention and adaptation strategies. Some states may jointly present a general targeted indicator on emissions. Countries making the transition to a market-based economy are granted a degree of flexibility when implementing their commitments.

• Countries with the highest GDPs will extend "new and additional financial resources" to the cause, facilitating a transfer of technology. These countries, as included in Annex II shall cover "all the agreed costs" of developing countries as specified in their National Communications. The available funds extended for assistance in the area of development should not be spent for these purposes. The parties included in Annex II should also finance some other projects related to the implementation of the Convention and should enhance and promote the financing of a transfer of environmentally safe technologies or the access to them, especially for parties aiding developing countries. The Convention stipulates that the degree to which the parties representing developing countries shall observe their obligations shall depend on the financial and technical assistance from developed countries¹.

The last stipulation is the most critical since the development of the capacity of the Kyrgyz Republic to implement its convention commitments depends on help from developed countries.

While UNFCCC defines the general principles for signatory countries' to resolve climate change issues, the Convention does not contain any quantitative obligations. A separate document was developed for this purpose – UNFCCC Kyoto Protocol.

The Kyoto Protocol was signed in Kyoto, Japan in 1997. It outlines the obligation of developed countries to reduce the general volume of the emissions of six GHGs including carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O) and perfluorinecarbons (CF_4 , C_2F_6) from 2008 to 2012 by a minimum of five percent compared to 1990 levels.

The Kyoto Protocol is the first international agreement that uses market mechanisms to solve global environmental problems. The Protocol does not restrict the policies of different countries in terms of regulating GHG emissions. At the same time the Protocol outlines the necessary mechanisms, the 'mechanisms of flexibility' and of international cooperation to fulfill commitments to reduce GHG emissions.

The mechanisms include:

- *projects of joint implementation* intended to reduce GHG emissions. Foreign investors are given a part of emission quotas through the implementation of these projects;
- *mechanisms of 'clean development'* allowing the monitoring of decreases in GHG emissions in developing countries as an additional quota for industrialized developed countries;
- *trading in GHG emission quotas,* allowing the ceding of quotas between countries that take on quantitative obligations to reduce GHG emissions.

The Kyoto Protocol will come into force when it is ratified by no less than 55 percent of the signatory states. The second and most critical condition of the Protocol is that the total CO_2 emissions of signatory countries should amount to no less that 55 percent of the emissions of countries included in Annex I of UNFCCC in 1990. The Protocol remains to be ratified by a number of countries and if the Russian Federation does not ratify the Protocol, it will not be enforced, as the US has not ratified it. The ratification processes for UNFCCC and the Kyoto Protocol are presented in detail on the UNFCCC website, http://unfccc.int/resource/kpthermo.html.

¹ Climate change. UNEP UN FCCC. – USSIA, 2003. – 32 pg.

International activities to address climate change issues are coordinated by the Secretariat of UNFCCC headquartered in Bonn [www.unfccc.int]. The Conference of the Parties usually convenes once a year as the Supreme body of UNFCCC. Between conferences, the sessions of UNFCCC subsidiary bodies are held. There are two such bodies under the Secretariat. One is responsible for financial and organizational issues and the other for methodical and scientific issues.

UNFCCC stipulates that scientific reports on climate and methodical guidelines, the registration of emissions and assessments of projects and accounting procedures should be prepared by a special body – the Intergovernmental Panel on Climate Change (IPCC). Official reports, information on the identification of climate change and its reasons and forecasts and evaluations of environmental impact can be found on the website <u>www.ipcc.ch</u>. The Panel was established by two organizations: The UN Program for Environmental Protection (UNEP) that deals with projects related to climate change issues in developing countries and the World Meteorological Organization that works on a wide specter of climate change materials and data. The IPCC secretariat headquarters are in Geneva and contain some separate divisions that carry out individual thematic assignments, including the Meteorological Center in Great Britain (<u>www.ipcc-ddc.cru.uea.ac.uk</u>), which provides data on climate change and the Center on Inventories of Greenhouse Gas Emissions in Japan (<u>www.ipcc-nggip.ihes.or.jp</u>), which prepares and distributes methodic materials.

The Global Environmental Facility (GEF), a project financing agency, acts as the UNFCCC financial agent. GEF supports nature protection projects, including operation programs on energy development and the decreasing of GHG emissions. These projects are implemented by one of three executive organizations – UNEP, UNDP and the World Bank (WB).

In addition, the WB established the Experimental Carbonic Foundation which is engaged in the enhancement of the preparation and implementation of international projects to reduce GHG emissions. The Foundation works to guarantee the 'quality' of decreases in emissions and is a collective buyer of emission quotas. Information on the activities of the foundation, its projects, the rules for application submissions and other information is on the website <u>www.prototypecarbbyfund.org</u>.

Individual activities and projects are being implemented by a number of international organizations. OECD, which unites developed countries, develops methodical and informational materials on GHG reduction policies and measures for member states. The OECD website can be found at <u>www.oecd.org</u>.

The International Energy Agency maintains statistics on GHG emissions by the energy sector and develops forecasts, measures and projects to combat high emission levels. More information is available at <u>www.iea.org</u>.

The European Bank for Reconstruction and Development (<u>www.ebrd.com</u>) supports energy projects resulting in considerable decreases in GHG emissions including those in the countries of the former Soviet Union.

The European Agency for Environmental Protection works to account for GHG emissions in European Economic Commission (EEC) countries and executes projects in the European Union (EU). Their website is <u>www.eea.eu.dk</u>.

The largest international nongovernmental organization in the world, the World Fund of Wild Fauna (WWF at <u>www.panda.org</u>), supports the implementation of information and education projects, measures for reducing damage to ecosystems by climate change and activities to decrease GHG emissions.

The organization Nature Protecting Technologies and International Cooperation (GREENTIE) provides a list of technologies helping to reduce GHG emissions <u>www.rsci.ru/greentie/worldsrc.html</u>.

1.3. Examples of international experience implementing the UN Framework Convention on Climate Change

Ten years have passed since UNFCCC was enforced and it is seven years since the Kyoto Protocol was adopted as a supplement to the Convention. In this time, the international community has worked hard to implement the goals and the objectives of the Convention and to develop the necessary mechanisms to implement the Kyoto Protocol, though it has not yet been enforced.

Thanks to the efforts of the international community and of developed countries, active measures have been undertaken which help the acquisition of managerial, technical and consultative knowledge and experience and extend additional financial resources for the successful execution of obligations to the Convention.

Encouraging developments have been observed in international cooperation, which works in the following ways:

- a) collaborative efforts between foreign governmental organizations and government bodies to study and analyze foreign experience in establishing inventory systems and monitoring GHGs and emissions quota/permit trading;
- b) cooperation among the international business community to provide all-round assistance to companies positioning and promoting 'carbonic' projects on the international market;
- c) cooperation between nongovernmental and public organizations to promote information dissemination and the enhancement of public, business sector, and government awareness of global climate change issues, the Kyoto protocol, its mechanisms and possible implementation, the status and trends of the international carbonic market and corporate strategies for decreasing and controlling GHG emissions.

Conferences and workshops are conducted with the aim of spreading experience and information on the emission and absorption of GHGs. The following tasks are being solved: The training of the personnel of administrations and enterprises, informing the community on GHG emission reduction measures and the adaptation of the economy and environment to global climate change, which is interrelated with the increasing of the efficiency of energy use and energy and resources conservation.

Critical and pressing climate change issues and Kyoto Protocol implementation problems are being solved through joint implementation projects, clean development mechanisms, emission quota trading, and the registration and control of GHG emission levels.

The EU is developing GHG emission trading schemes¹, which will form one of the basic elements of climate change prevention strategies. The introduction of this scheme is planned for 2005.

The advantage of emission trading is that by allowing companies to be more flexible, it helps to considerably reduce the costs of restricting emissions to a specified level. Emissions from all sources are limited by the total number of the permits issued. However, companies have the opportunity to decide to either reduce their own emissions, or buy permits covering excessive emissions.

The emissions trading scheme, which will be introduced in the EU, is also of great importance in the context of creating integrated markets, which the EU actively encourages. The sizes of fines and penalties for the non-observance of emissions reduction commitments will be standardized throughout the EU.

The EU emission trading scheme has not been finalized but when it is introduced, it will cover five sectors: Thermal and electric energy, oil processing, ferrous metallurgy, the production of construction materials and the cellulose and paper industry, which produce about one half of the total volume of CO_2 emissions in the area.

The implementing of EU commitments will be mirrored by several other measures, including political developments, taken by signatory states at a national level and in the EU at a regional level.

In the near future, the European Commission (EC) is planning to propose the inclusion of 'carbon credits' into emission trading joint-implementation projects among EC companies. If this proposal is approved, the demand for carbon credits through Kyoto Protocol mechanisms will increase.

The importance of the GHG emission trading scheme is obvious. It will introduce a new tool in the process of forming nature protection policies in the EU, provide a considerable increase in the cost efficiency of implementation projects and pave the way for emission trading at company levels throughout the world. This initiative presents a guideline for the resolving of one of the most critical environmental problems of our time – global warming.

In Japan, in the Headquarters on the Prevention of Global Warming, headed by Japan's prime-minister, 'The Guiding Principles on Measures for the Prevention of Global Warming' was developed and

¹ Jose Delbeke. Scheme of greenhouse emissions trade off in the European Union.// International Journal "Business". Special issue. M., 2003. - 97 pg.

presented on March 19, 2002. The document included a general plan for activities aimed at reducing GHG emissions by six percent in line with commitments outlined in the Kyoto Protocol¹.

The government of Japan approved the Kyoto Protocol and decided to establish systems to support clean development and joint implementation (CD/JI) projects, organize the National Roster of Credits for eliminating or reducing emissions through these projects and support private companies in their efforts to start CD/JI projects. The Japanese government also decided to raise the awareness of signatory states to these efforts, assist them in their attempts to implement Kyoto mechanisms and carry out preparations for international emission trading schemes, which will start in 2008.

The Japanese government identified the governmental agencies that will work on the issue, the composition of a work group, the allocation of authority and the extending of support to companies. The work group is made up of representatives of the Secretariat of the Cabinet of Ministers, the Ministry of Environmental Protection, the Ministry of Economy, Trade and Industry, the Ministry of Foreign Affairs, the Ministry of Agriculture, Forestry and Fishery and the Ministry of Land Tenure, Infrastructure and Transport.

Companies willing to take part in the implementation of CD/JI projects can submit an application to any of these ministries for approval. Once an application is received the ministries are required to notify the work group, which will make a decision to either approve a project application or reject it. The Japanese Ministry of Environment has conducted economic feasibility studies on CD/JI projects since 1999. In particular, the ministry has conducted viability studies for projects on use of biomass, the utilization of wastes, forest planting and other projects intended for implementation mainly in Asian countries.

Experience in preparing and implementing CD/JI projects is acquired gradually. From 2000, the ministry initiated the development of guidelines for companies preparing to implement CD/JI projects.

In February 2003 the Government of **Great Britain** outlined climate change prevention as priority governmental energy strategy for the next 50 years in the document 'Future of Our Power Engineering' and announced the long-term goal of decreasing CO_2 emissions by approximately 60 percent by 2050².

The British government is an active supporter of emission trading and considers it to be an efficient economic tool, which facilitates the transferring to a carbon restricted economy by taking a flexible approach to emission reduction through economic means and the provision of incentives for the research and development of emission reduction techniques. This served as an impetus for the development of a national emission trading scheme. The British government also believes that early emission trading operations will provide advantages to British companies in the emerging international carbonic market.

The experience of Great Britain in emission trading on the domestic market has helped the country occupy a leading position in negotiations for the development of emission trading schemes at an EU level, which are planned for 2005. The EC scheme contains a number of principle differences to Britain's scheme, but measures are being developed to alleviate the transfer of British companies from a national level to the EC level.

Under Kyoto Protocol obligations **Switzerland** must decrease its GHG emissions during the first budget period from 2008 to 2012 by eight percent in compared to levels in 1990³.

The Swiss government has pursued an active policy in this area and enhances GHG reduction processes both at national and international levels. Switzerland has already enforced laws and political measures to regulate emission reduction activities, as required under the Kyoto Protocol including:

- a federal law on the reduction of CO₂ emissions;
- a federal law on the efficient use of energy;

¹ Makkia Kuniaki. Utilizing of the mechanisms of Kyoto protocol in Japan// International Journal "Business". Special issue. M., 2003. - 97 pg.

² Henry Dervent. Approach of Great Britain to implementation of Kyoto protocol. - M., 2003. - 97pg.

³ Lishinger A. Policy and activity of Switzerland in the area of climate change prevention // International Journal "Business". Special issue. M., 2003. - 97 pg.

- assurances that approved policies and measures are implemented by the transport, agriculture, forestry sectors.

The responsibility to implement UNFCCC and Kyoto protocol requirements at a national level in Switzerland is entrusted to the Agency for Environment Protection, the Department of Forestry and Natural Landscapes and the Federal Energy Service. The responsibility of monitoring the international activities of Switzerland within the framework of the pilot stage of the Kyoto Protocol lies with the secretariat of a Swiss pilot program to jointly implement related activities by the State Secretariat for Economic Relations.

The Swiss law on the reduction of CO_2 emissions is the most important national tool for regulating measures to implement policies enhancing energetic sector sustainability, the prevention of climate change and the implementation of commitments within the framework of international climate agreements. The law specifies mandatory objectives for decreasing CO₂ emissions generated by energy consumption processes. By 2010 the total emissions of CO_2 resulting from the use of mineral fuels must be reduced by 10 percent from 1990 levels. Individual objectives are stipulated on combustible fuel emissions (by 15 percent) and transport fuel emissions (gasoline and diesel fuel – by eight percent).

Implementation of the law is envisaged in two stages. At the first stage, from 2000 to 2004, attention will be focused on voluntary measures for reducing CO₂ emissions from energy consumption processes at industrial and economic levels. In case of a failure of the voluntary measures, from 2004 a preferential tax on the use of mineral fuels will be imposed.

The priority of private initiatives over state intervention is a guiding principle of the Swiss law on the reduction of CO₂ emissions. If it becomes necessary to impose a state tax it will be paid by organizations that have legal obligations to reduce CO_2 emissions, among which there are power-consuming industries, high GHG emitters and united groups of GHG emitters. The revenues from the tax will be redistributed for economic and social needs per capita without an increase in the national budget.

The law on CO₂ emissions also establishes a legal framework for the implementation of flexible Kyoto Protocol mechanisms in Switzerland, allowing the execution of supplemental measures to national emissions reduction programs. Switzerland demonstrates great interest in international cooperation to resolve climate change issues and takes an active part in international negotiations through UNFCCC.

At the Conference of the Parties to UNFCCC in July 1996, the government of Switzerland stated its intention to participate in the pilot stage of 'jointly implemented activities' (JIA). In April 1997, the Secretariat of Swiss Pilot Program on JIAs was created. The activities of the program are financed with funds from the Secretariat for Economic Relations of the Federal Department for Economic Relations. The program is controlled by the Interdepartmental Committee, which is made up of representatives from interested government institutions.

Switzerland has implemented one CD/JI project in Romania. The project was initiated in 2002 and focuses on the reconstruction of two central heating systems in two Romanian cities. Switzerland is also preparing a second JI project in Romania designed to partially reconstruct central heating systems in Bucharest and a project to replace burners at several Thermal Electrical Stations (TES) in Sophia, Bulgaria.

Among projects selected on the study of Russian national GHG emissions reduction strategies to be implemented through JI, a biogas utilization project at the Nyzhny Novgorod aeration station has been designed to decrease GHG emissions into atmosphere.

The project proposal plans the installation of heat regeneration mounts, the utilization of biogas at TES and the optimization of aeration processes. Preparation for this project was initiated in 1999.

A list of successful international experiences on global climate change prevention, different approaches to the implementation of commitments, carbonic market developments and GHG reduction and control measures could go on and on. However, the above examples effectively illustrate the results of efficient institutional, normative and legal systems, the position of interested parties, technological approaches and other activities to implement commitments and the ensuing ecological, economic, political, social and global benefits.

Sharing international experience is necessary when developing national policies and GHG emission stabilization measures and selecting commitment implementation programs. It is also valuable for signatory states introducing additional economic tools and incentives for regulating power-consuming industries. Finally, it enhances the development of the priorities of national strategies and action plans to prevent the negative economic, social, ecological effects of climate change.

1.4. A summary of the activities in the Kyrgyz Republic aimed at accomplishing commitments to the UN Framework Convention on Climate Change

Bearing in mind the extreme importance of supporting sustainable development and environmental protection, the Kyrgyz Republic is energetically involved in international efforts to restrain global ecologic threats, including joint international efforts aimed at the alleviation of the negative consequences of climate change.

The ratification of UNFCCC by the Kyrgyz Republic is indicative of the country's political nature. It confirms the country's foreign policy course is aimed at supporting and preserving UN agreements and commitments and creates favorable conditions for mutual and beneficial international cooperation on environmental issues and in economic and political spheres. Kyrgyzstan's ratification of UNFCCC is, to an extent, justified by the fact that the country is able to implement its commitments to the Convention without any risk to national interests or the country's economy. UNFCCC does not restrict certain kinds of economic activities or production.

On January 15, 2003 the Kyrgyz law 'On the Ratification of the Kyoto Protocol of the UN Framework Convention on Climate Change' was passed. The flexibility of the Kyoto Protocol enables the Kyrgyz Republic to engage in efforts to reduce GHG emissions with the bonus of attracting considerable resources from nongovernmental, domestic and foreign investments.

The benefits of participating in this process are evident. Improvements in the country's environmental situation, the attraction of additional funds for the modernization of energy capacities, the enhancing of power consumption efficiency and environmental security are just some of the results. The Kyrgyz Republic can also expect additional economic benefits, which may result from the implementation of clean development projects and in future from emissions quota trading.

UNFCCC requires signatory states to implement national policies and measures to restrict and decrease GHG emissions. Article 4.1'b' of UNFCCC reads, "All the Parties take into account their general but still differentiated responsibility and their specific national and regional priorities, goals and conditions, will formulate, execute, publish and systematically update their national and regional priorities, and in respective cases, the regional programs, containing measures for alleviation of the consequences of climate change through resolving the problem of anthropogenic emissions from the sources and absorption of absorbents of all greenhouse gases, which are not regulated by Montreal protocol, and measures enhancing adequate adaptation to climate change".

Guided by these requirements, most signatory states have not paid attention to the proper planning of GHG reduction programs at national levels or the planning and implementation of mechanisms aimed at reducing individual enterprise emissions, but instead to reporting to UNFCCC.

In order to execute its UNFCCC obligations the Kyrgyz government passed Resolution 369 'On measures for implementation of UN Framework Convention on Climate Change' on July 21, 2001. The MEE and the National Statistical Committee were instructed to carry out statistical monitoring of GHG emissions in the country.

Being a Party to UNFCCC, the Kyrgyz Republic was obliged to submit inventories of the country's GHG emissions. To accomplish this task, within the framework of project KYR/00/G31, the 'First National Communication of the Kyrgyz Republic on the UN Framework Convention on Climate Change' was prepared for the Conference of the Parties.

At the second stage of completion is the project 'Assessment of Technological Needs and Assistance to the Kyrgyz Republic for Activities on Climate Change'. The MEE was appointed to be the <u>Executing</u> agency, the <u>Resident Mission of UNDP</u> was appointed the coordinating agency and <u>international</u> <u>assistance</u> to the project is being extended by the Global Environmental Facility.

In line with UNFCCC articles 4, 6, 12 the following were presented in Kyrgyzstan's first National Communication:

- an inventory of the emission and absorption of GHGs;
- a forecast of the basic climatic indicators in the territory of the republic including the growth in the concentration of GHGs in the atmosphere using global climatic models;
- an analysis of the vulnerability of basic sectors of the Kyrgyz economy and natural ecosystems to the forecasted climate change and the development of measures for their adaptation;
- a determination of the emission reduction capabilities of the Kyrgyz Republic, the possibilities for increases in CO₂ absorption by ecosystems and an evaluation of measures to alleviate the negative impact of climate change on the environment;
- ideas for the improvement of climate change education and information dissemination.

Figures from the GHG inventory are presented in *figure 2* and *figure 3*. *Figure 2* shows that by 2000 a considerable decrease in emissions compared to economic decline took place. Emissions of CO_2 equivalent were 15,348 Gg, including the emission of 11,702 Gg of CO_2 .

Net emissions, accounting for the absorption of CO_2 by forests and decreases in land utilization, came to 1,436 Gg, including the emission of 10,719 Gg of CO_2



Figure 2. Dynamics of the total emissions of basic GHG in Gg of CO₂-equivalent.



Figure 3. Share of basic GHGs in total emission levels in 1990 and 2000.

The inventory of GHGs in the Kyrgyz Republic shows that the contribution of the republic to total global

emissions is minor. Data on the levels of atmospheric CO_2 emissions by various countries is shown in *figure* 4^1 . The distribution of emissions is presented by three main indicators: The amount of emissions per capita (each column in height), the population of a country (each column in width) and a total indicator of emissions (population multiplied by emission per capita – the total area of each column).



Figure 4. Distribution of emission by different countries of CO₂

The cooperation of various governmental, academic and educational structures that performed the assessing, researching and analyzing was critical to the preparation of the first National Communication of the Kyrgyz Republic. The majority of these organizations should be included in the list of organizations and persons involved in the implementation of UNFCCC.

The further development of Kyrgyz implementation activities on the commitments under the Convention through the second stage of GEF/UNDP project 'Assistance to the Kyrgyz Republic in Implementing Climate Change Activities' is being completed. The determination of the best technologies for reducing GHG emissions, for adaptation to climate change and the alleviation of its consequences are the basic objectives of this stage, in line with *article 4* of UNFCCC.

When analyzing and further assessing preferred technologies, priority was given those that to a greater degree enhance a decrease in GHG emissions and do not damage the environment but support and enhance the sustainable development.

The presented assessment of the required technologies can be considered the first attempt of a determination of national priorities and a development of a national plan of action on climate change by the Kyrgyz Republic in compliance with nation-wide and departmental development plans.

An overview of Kyrgyzstan's capacity for preservation and the development of domestic potential to implement these technologies is presented in section 3.3.

After assessing Kyrgyzstan's efforts to implement UNFCCC it is fair to say that the *Kyrgyz Republic fulfills the main part of its commitments under the Convention. However*, probably due to its recent entering of the Convention, *these activities are not yet wide-spread. This is due to the fact that climate change has not been identified as a priority issue for the country, which has low GHG emission levels*,

¹ Grabb M., Vrolic K., Brack D. Kyoto protocol: Analysis and interpretation /Trans. from English. – M.: Science, 2001. – 303 pg.

does not fully understands the probable economic benefits of fully implementing its commitments and lacks the mechanisms for their achievement.

Significant efforts were made initially due to the implementation of the GEF/UNDP project, which made it possible to develop the first inventory of the sources and absorption of GHGs in the Kyrgyz Republic and to outline a cooperation scheme between relevant ministries and departments on climate change issues. However, the list of projects related to the implementation of UNFCCC in Kyrgyzstan remains short (see *Annex 1*). Potential lies in the development of project activities with the support and encouragement of international organizations.

2. INTERRELATIONS BETWEEN THE UN FRAMEWORK CONVENTION ON CLIMATE CHANGE, THE MILLENNIUM DEVELOPMENT GOALS AND NATIONAL DEVELOPMENT PROGRAMS

The activities of the Kyrgyz Republic for the implementation of UNFCCC should be considered an integral part of executing other UN strategies including the Millennium Development Goals (MDG). It must complement the goals and the objectives of this strategy through contributing to poverty eradication, the provision of ecological sustainability and the enhancement of global development partnerships.

The provision of ecologic sustainability is one of the main MDGs. This goal is made up of three objectives: The integration of sustainable development principles into country strategies and programs and the reversing natural resources decreases; cutting in half the amount of people with no access to clean, portable water; ensuring the essential improvement of life of a minimum 100 slum dwellers by 2020. The indicators for the fulfillment of these goals and objectives are: The percentage of territories covered with forests; the percentage of preserved areas for sustaining the biodiversity of ground organisms; power consumption per US1 of GDP; CO₂emissions per capita and the consumption of ozone-degrading substances in tons; the percentage of the population using hard fuels. Both the 'Millennium Declaration' and the MDGs are interrelated to UNFCCC.

'The Comprehensive Framework of the Development of the Kyrgyz Republic until 2010' (CDF) is a Kyrgyz government program establishing the long-term development framework of the country. The directives of this document are the implementation of concrete measures to be taken in political, social and economic spheres. These measures are reflected in a matrix of actions that specifies environmental protection objectives. The solving of the following tasks is envisaged:

- improving the national ecological policy;
- decreasing the anthropogenic influence on the environment;
- reducing land degradation;
- increasing the efficiency of water resource use and the melioration of arable lands;
- preserving biodiversity.

These objectives demonstrate the correlation between the CDF and the country's commitments under UNFCCC.

The Kyrgyz Republic participates in implementation activities on international conventions and the harmonizing of the national preservation of planetary biological diversity policy, natural ecosystem policies and the prevention of the negative impacts of global warming. Kyrgyzstan has:

- ratified 11 international environment conventions, including agreements on the preservation of biodiversity, climate change and desertification control;
- become a member of the UN Commission for Sustainable Development and an active member of regional institutes, having supported the concept of sustainable development on a global scale and in Central Asia;
- joined UNEP and UNDP activities on the development of a regional plan for environmental protection.

These actions determine the directions of environmental protection and sustainable development activities and set the stage for the development of Kyrgyz national programs and plans, which are represented in several documents.

- 1. The general objectives of the national ecological policy are defined in the 'Strategy of Sustainable Human Development'. The strategy was approved by a presidential decree in 1996 and is directed at encouraging economic growth with a minimal affect on the environment.
- 2. Taking into account the complex ecological situation in the republic, the government and WB jointly developed and approved the 'National Action Plan on Environment Protection from 1995 to 1997'.
- 3. The Kyrgyz Ministry of Environmental Protection developed the 'Ecological Security Concept' of the Kyrgyz Republic, which was approved by the Security Council on July 29, 1997. The Concept stipulates the principles for the provision of ecological security, the processes and constructions bearing a real threat to the republic as a whole and its separate regions and presents short, medium and long-term measures for the alleviation ecological threats. Ecological security is also a priority of national security policies. After thorough discussions of the Concept and the ecological situation in the Kyrgyz Republic, a comprehensive and strict decision was made obliging all governmental bodies to revise their attitude to ecological problems and take action to ensure the ecological security of the country.
- 4. In order to enforce Security Council decisions, a 'National Environment Protection and Natural Resource Usage' program ending in 2005 was drafted. The program envisages the maintaining of ecological security in the Kyrgyz Republic through a number of measures including:
 - legislative, normative and judicial support combined with organizational measures;
 - programs for the maintenance of optimal atmospheric conditions;
 - water resource management;
 - land resource management;
 - promoting and maintaining biodiversity;
 - ecological monitoring;
 - safe human ecology practices;
 - international efforts.

In each of these areas concrete measures are planned for resolving problems, the year-by-year distribution of the objectives to short, medium and long-term tasks and nominating responsible ministries and departments and executive agencies and finance sources and management.

All these assignments were included into a draft program on the basis of proposals by ministries and departments. It should be noted that after the draft program had been developed and Kyrgyz ministries and departments had approved it, in 1988 the Ministry of Environmental Protection submitted it to the Secretariat of Security Council of the Kyrgyz Republic in line with a decision made on August, 1997. This program has yet to be considered and adopted. More information can be found at http://dudomania.narod.ru/interest.htm.

It should also be noted that current programs are often lacking positive development and sustainability dynamics. Often there is no clearly formulated organizational, financial and legislative or judicial support scheme for these activities and no vertically integrated system for assessing the results of efforts.

In the future, the general objectives of the national ecological policy should incorporate such issues as the development of a state program for the protection of global ecosystems against anthropogenic GHG emissions and the creation of a national system aimed at stabilizing anthropogenic emissions and GHG absorption levels.

The national ecological policy should also take into account the development and introduction of a system to measure and control GHG emissions, including an inventory of GHG emissions, information on international experiences in the area, the introduction of an automated emission registration system and support for energy saving activities and efficient energy use.

3. ACCOMPLISHMENT OF THE COMMITMENTS TO THE CONVENTION IN KYRGYZSTAN: AN ANALYSIS OF THE CURRENT SITUATION

3.1. An analysis of the efficiency of the environmental legal base in Kyrgyzstan

After the passing of the law 'On entering the UN Framework Convention on Climate Change and the UNEEC Convention on Cross-Border Pollution of Air over Large Distances' on January 14, 2000, the Kyrgyz Republic energetically joined the process of unifying state efforts to alleviate the negative impacts of climate change.

The Kyrgyz law **'On Environment protection'**, passed on June 16, 1999, provides the legal framework for environmental protection and the rational use of natural resources. The law covers a range of issues including:

- the utilizing of natural resources in compliance with established norms and ecological standards;
- the management of protected territories;
- rules and procedures for the utilization of natural resources;
- the principles of and measures to ensure environmental protection;
- nature utilization practices;
- the ecological requirements for treating radioactive materials and chemical agents;
- environmental protection controls.

The law **'On the Protection of Atmospheric Air'**, passed on June 12, 1999, regulates the composition of the atmosphere and pollutant emissions, defines measures for the prevention of adverse impacts to the ozone layer of the atmosphere and climate and specifies procedures for the monitoring, controlling and registration of atmospheric air protection practices. The law also establishes the authority of relevant governmental bodies and agencies to enforce regulations and lists the penalties for infringement of the legislation.

The above-mentioned laws have formed the foundation of the environmental legal base of the Kyrgyz Republic, which promotes activities to alleviate the negative impacts of climate change. The national policies on environmental protection and the rational utilization of natural resources are regulated by a number of other laws pursuant to the Constitution of Kyrgyz Republic including:

- the law 'On Strictly Protected Natural Territories' (1994);
- the law 'On Biosphere Territories' (1994);
- the law 'On Portable Water' (1999);
- the law 'On Water' (1994, amended in 1995);
- the 'Forest Resources Code'(1999);
- the 'Land Code' (1999);
- the law 'On the Radioactive Security of the Population' (1999);
- the law 'On Ecological Expertise' (1999);
- the law 'On Fauna Protection' (1999);
- the law 'On Fishery' (1997, amended in 1999);
- the law 'On Entrails' (1997, amended in 1999).

However, Kyrgyz legislation is lacking in some ways. This constrains the efficient implementation of the law. The basic deficiencies are:

- often the legal acts are not properly finalized and are of a declarative nature, preventing legislation from promoting the Convention's implementation goals;
- a lack of the required by-laws, procedural and guiding documents specifying the registration and control of GHG emissions;
- an uncertain or unclear division of responsibility resulting in the overlapping of authority and duties and a duplication of efforts by involved agencies;

Global ecological conventions: Capacities of Kyrgyzstan

Inset 1

Abstract from the Kyrgyz Republic law 'On the Protection of Atmospheric Air'

Article 35. Measures for the prevention of adverse impacts on the climate

Legal persons are obliged to keep the registration of emissions of greenhouse gases and take measures to save thermal and electric power, fuel and energy resources, reduce greenhouse gas emissions and utilize renewable and ecologically safe methods to generate thermal and electric energy.

Abstract from the Law of Kyrgyz

Officials and other guilty employees of

enterprises, institutions, organizations in

line with regulations, charters, internal

routines and other normative acts are open to prosecution for the non-fulfillment

of environmental protection and rational utilization of natural resources measures,

violations of environmental quality norms

and the requirements of nature protection

legislation as a result of their labor

'On

Article 52. Disciplinary

ecological offences

functions or duties.

Republic

Protection'

efficient utilization of natural resources.

Environmental

action

for

• the insufficient dissemination of data and information on by-laws.

These flaws make it impossible to implement many of the articles incorporated in these documents. This can be illustrated using the following examples (*insets 1 and 2*)

The enforcement of this article is constrained by the following factors:

- the lack of a state registration mechanism and GHG emission controls;
- the lack of a unified and simplified method for identifying GHGs;
- a lack of efficient environmental control facilities;
- flawed mechanisms for the beneficial stimulation of natural resources and incentives for the rational and

Inset 2 It is difficult to enforce this article due to:

- a lack of severe sanctions against offenders against environmental protection laws;
- insufficiently finalized interaction mechanisms between state environmental protection bodies, state law enforcement agencies, other public bodies and interested social organizations involved in ecological security programs;
- the insufficient involvement of the community in the observance of environmental protection laws.

The examples of legislation provided highlight the necessity of reforming Kyrgyzstan's environmental legislation in line with UNFCCC commitments. It is critical to:

• revise and amend by-laws, regulations, technical standards, official instructions and other documents, which regulate the control and registration of GHG

emissions and emissions of other dangerous air pollutants;

- enhance measures for the restricting of emissions;
- implement differential taxation and GHG emission quota trading systems;
- decrease subsidies which enhance GHG emissions, abolish morally outdated, duplicated and inadequate normative documents and eliminate controversial discrepancies in active norms.

The reform and development of a normative and legal framework for the accomplishment of the commitments of the Kyrgyz Republic under UNFCCC should include the development of by-laws and standards consolidating the establishment of efficient governmental measures for monitoring and controlling GHG emissions. The improvement of the legal base of the Kyrgyz Republic requires the efficient coordination of efforts aimed at environmental protection and activities to implement UNFCCC commitments. The development of strict and reliable financing mechanisms is also critical to the effectiveness of these efforts.

3.2. An assessment of the Kyrgyz institutional system and financial resources

The coordination of activities for the implementation of UNFCCC commitments in the Kyrgyz Republic is executed by the Kyrgyz government through MEE, in compliance with Resolution 369.

The Department of Ecology and Natural Resource Use under the ministry exercises natural resource use policies. The duties of this department are:

- developing a state policy on environmental control, the rational use of natural resources and the ecological security of the state;
- organizing state ecological and environmental protection controls, ensuring citizens abide by environmental protection legislation, registering and monitoring GHG emissions, assessing the state of natural resources and maintaining natural resource cadastres;
- providing relevant information to governmental bodies, economic entities and the population on actual and expected qualitative changes in the environment and to prevent and minimize damage from unfavorable natural and anthropogenic impacts.

The monitoring of the environment and GHGs is the responsibility of the **Head Department of Hydrometeorology** under MEE. However, the capacities of this department are constrained by a lack of modern measuring equipment and insufficient funding. **The National Statistical Committee** of the Kyrgyz Republic is responsible for maintaining GHG emission statistics.

The Kyrgyz government has authorized the following ministries and departments to implement these environmental protection policy areas:

- *The control of bio-resources use and the preservation of biodiversity* is the responsibility of the **State Forestry Service** as forests absorb GHGs. The service is a state executive body that is not an official government agency and implements a unified policy on forest protection, forestry and hunting in the Kyrgyz Republic. The service was established to develop a national strategy and ensure ecological security, the preservation of biodiversity, the further development of the forest economy complexes and protected natural territories and safe hunting practices.

- *The sanitary surveillance of radioactive, toxic, chemical wastes* is the responsibility of the **Ministry of Health**, which is the central governmental body exercising the national public healthcare policies, including policies on adaptation to climate changes. The presence of more acute problems in this sector has prevented the conducting of research and the prevention of the negative effects of climate change on public health.

- The rational use of water resources comes under the jurisdiction of the **Ministry of Agriculture**, **Water Economy and Industry**, a governmental body performing executive, instructional and coordinating functions for the development and implementation of policies on agriculture, water use, commercial fishing and processing industries and small to medium agricultural businesses.

The ministry also coordinates the activities of territorial agricultural control bodies and economic entities in these areas of activity. It is presumed that the ministry is also responsible for the assessment of the vulnerability of water resources to impacts of climate change. But as far as discernable from available assessments¹, none of its divisions are dealing with environmental protection issues.

An important role in capacity building for the reduction of GHG emissions belongs to the **State Energy Agency**, which functions are:

- introducing power saving and energy efficient technologies;
- developing renewable and ecologically clean energy sources;
- attracting investments to the energy sector.

However, most activities under this department with small staff numbers are focused on tariff regulation policies in the energetic sector.

The **Ministry of Education and Culture**, also a central governing body, takes responsibility for national policies on education and culture and ecological education, including education on climate change and performs the executive and instructional functions in this sector, supervises state control of the quality of education and ensures the constitutional right of Kyrgyz citizens to education. Information and education programs focusing on ecological education are mainly exercised within the framework of projects implemented with the support of international organizations.

¹ Functional review of Ministry of agriculture, water economy and agricultural industry. Report by TASIS project «Assistance in the implementation of reform of public service in Kyrgyz Republic». – Bishkek, 2001. – 28 pg.

Environmental protection policy is jointly implemented by the **Ministry of Finance**, the **Ministry of Foreign Affairs** and the **Ministry of Justice**. An important role in the implementation of the priority activities of the Kyrgyz Republic on climate change could be played by the newly created **Ministry of**

Economic Development, Industry and Trade, which, from May 11, 2004, became a state executing body in charge of the development and implementation of national policies on economic and social development, foreign economic activity, industry, domestic trade, state supervision of the observance of requirements of technical regulations and formats, state support for entrepreneurship, forming of due investment media and the attraction of investments, for antimonopoly policies and the development of competitive relations and the improvement of corporate management methods.

The analysis of the potential for the implementation of UNFCCC commitments in the Kyrgyz Republic is presented in *diagram 1 and table 1*.

Scheme of stakeholders implementing UNFCCC



Diagram 1

Analysis of organizations working to implement UNFCCC commitments in Kyrgyzstan

Agencies taking on commitments	Agencies and organizations sharing partial commitments	Economic agencies and organizations			
The Zhogorku Kenesh of the Kyrgyz Bonublic	The Department of Ecology and Natural Resource Use under	Local administrations			
Administration of the President	- developing national environmental control policies, programs on natural resource use and the ecological security of the Kyrgyz Republic	State Committee on Tourism, Sport and Youth Policies			
The Kyrgyz government	- organizing national environmental protection and natural resource use strategies, the enforcement of environmental protection	Oblast (provincial) and rayon (regional) subdivisions of MEE			
The MEE is a coordinating body working on the implementation of Kyrgyzstan's commitments under UNFCCC.	 legislation, the registration, accounting and assessing of national natural resources and natural resource record keeping; providing relevant information to governmental bodies, economic entities and the population on actual and expected qualitative 				
Committee of the Kyrgyz Republic are jointly responsible for the recording of GHG emission	damage from natural and anthropogenic impacts				
statistics in Kyrgyzstan.	Articles 4.1(b), 4.1(i), 6 (a, b) of UNFCCC The Head Department of Hydrometeorology under MEE is responsible for:				
Resolution of the Government of Kyrgyz Republic 369, 21/07/2000. 'On measures for implementation	 monitoring the environment and GHG emission monitoring. 				
of UN Framework Convention by Climate Change'	Article 4.1 (a) UNFCCC				
	 Ine State Energy Agency, which is responsible for: introducing power saving and energy efficient technologies; developing renewable and ecologically safe energy sources; 	The Ministry of Transport and Communications Center for Problems of Renewable Energy Sources Use The Kyrgyz scientific and engineering center Energia JSC Chakan HPS			
	• attracting investments in the energy sector. <i>Articles 4.1(c). 12.4 UNFCCC</i>	Demonstration Zone of Energy and Water Efficiency ISC Electric power stations			
	The State Forestry Service, which:	Oblast and rayon subunits of forestry			
	 implements a unified policy on forest protection, forestry and hunting in the Kyrgyz Republic. This service was established to develop national strategies and ensure ecological security, the preservation of biodiversity, the further development of the forestry industries and the listing of protected natural territories. 				
	Articles 4.1(c), 12.4 UNFCCC The Ministry of Health ensures:				
	• the sanitary surveillance of radioactive, toxic, chemical wastes and the implementing of national public healthcare policies, including policies on adaptation to climate change.				
	Articles 4.1 (a), 4.1(c)UNFCCC				
	Gossanepidnadzor (sanitary and epidemiologic surveillance)				
	Agriculture, Water Resources and Processing Industry (MAWRPI) is responsible for:				
	assessing the vulnerability of water resources to climate change.				
	Articles 4.1 (a), 4.1(c) UNFCCC The Ministry of Education and Culture:	National Academy of Science			
	carries out the national ecological and environmental education policies.	Higher education institutions			
	Articles 4.1(i), 6 (a, b) UNFCCC	NGOs			
	The Ministry of Finance, Ministry of Foreign Affairs, Ministry of	i ne mass media NGOs			
	Justice and the Ministry of Economic Development, Industry and				
	Trade is responsible for: - the financial, legal and foreign policy support of activities under the Convention.				
	Preamble and Article 4.2 (e) (ii) UNFCCC				

In the framework of the Ministry of Ecology and Emergencies in accordance with international commitments were developed strategic and program documents in the field of nature protection and sustainable development:

- National Action Plan on nature protection for sustainable development (1995);
- State Ecological Programme for 1998 2008
- Conception on ecological safety (1997)
- National reports on state of Kyrgyzstan' nature are being published each year.

Each of the program documents indicates the week action coordination and the lack of information exchange between state institutions and civil society on institutional level.

Four years have passed since the Kyrgyz Republic ratified UNFCCC. However, there is **no united interdepartmental coordinating body** in the Kyrgyz Republic despite such bodies being established in most other CIS countries, for example the Interdepartmental Commission of Russian Federation on the Problems of Climate Change, the National Agency on Climate Change under the Ministry of Environment in Georgia and the Coordination Center on Climate Change in Kazakhstan.

The National Strategy and Nation Action Plan of the Kyrgyz Republic for the prevention of economic, social, ecological and other negative consequences of climate change have not been fully developed.

The experiences on UNFCCC implementation activities of other CIS countries would be very useful to the Kyrgyz Republic at this stage. Its development of implementation activities will need to be efficiently coordination and the mandatory distribution of duties among governmental departments is necessary to avoid overlapping or gaps in the activities.

The coordinating body could carry-out the following activities:

- developing the framework of a national system for implementing UNFCCC, involving the registration and identification of standards and the drafting and controlling of GHG emissions and absorption levels;
- strengthening the legal framework on activities designed to reduce GHG emissions;
- establishing cooperative partnerships with governmental, financial, international and public organizations both within the country and abroad;
- developing programs and projects aimed at decreasing GHG emissions and evaluating the results.

The above measures could form the foundation of a national strategy to combat climate change issues and would ensure additional opportunities to attract *financial resources*.

The economic situation in the Kyrgyz Republic is peculiar as budgetary expenditures that do not provide an immediate positive effect on the economy are considered secondary priorities. This means insufficient funding for environmental protection measures. In recent years, funds for environmental protection projects fell to a critically low level – 0.026 percent of the GDP. The funding of atmospheric protection projects was stopped in 1998. The tendency to reduce capital investments can also be seen in several other environmental and natural resource protection areas (See *Table 2* below).

Table 2

Capital investments in environmental protection in the Kyrgyz Republic (million som)

	1996	1997	1998	1999	2000	2001	2002	2003
TOTAL	27.1	32.3	38.3	104.5	63.0	46.4	43.2	39.7
Protection and use of water resources	4.4	13.1	9.1	51.0	7.4	6	7.5	6.9
Out of which:								
Stations of sewage disposal	3.8	11.7	8.6	4.9	7.4	6	7.5	6.9
Other facilities for sewage	0.6	1.4	0.5	46.1	-	-	-	-
Atmospheric air protection	1	2.3	0	-	-	-	-	-
Protection and rational use of lands	21.7	16.9	29.3	53.5	55.6	40.4	35.7	32.8

			0			2	~ ~ ~	
Including:								
Anti-mud-flow, anti-land-slide and anti- avalanche constructions	19.9	14.0	27.8	10.0	2.2	-	4	10.7
Bank reinforcing constructions	1.8	2.2	1.5	38.9	47.5	27.3	24.6	15.3
Protecting forest planting	0.01	0.0	-	-	-	-	-	-
Land re-cultivation	-	0.6	0.003	-	-	-	-	-
Anti-erosion								4
Hydro-technical constructions	-	-	-	4.6	5.9	13.1	7.1	2.6

Global ecological conventions: Capacities of Kyrgyzstan

Source: The National Statistical Committee of the Kyrgyz Republic, 2004.

The financing of environmental protection activities comes at the expense of payments collected to cover environment pollution costs and is directed to environmental protection funds created under Kyrgyz presidential decree 239 'About Local and Republican Environment Protection Funds and Own Assets of Nature Users' laid down in July, 1999. However, the role of such funds has decreased considerably due to a lack of transparency, accountability and effective management. There is no schedule for distributing these funds and the amount does not correspond to the financial requirements of environment protection projects¹.

It is obvious that the enhancement of the country's capacity for executing its commitments under UNFCCC depends on its economic capacities. Taking into account funding for environment protection *it is impossible to expect the full-scale development, the efficient exercising of a national policy and the implementation of UNFCCC commitments with funding from the national budget. Maximum efforts need to be made to attract donors and financial support from international organizations if the Kyrgyz Republic is to meet its commitments.*

In our opinion, the lack of a united interdepartmental coordinating body which would be involved in the creating of necessary conditions and an organizational and methodic basis for the efficient implementation of Kyrgyz national policy and UNFCCC commitments *presents a major barrier to national capacity building.*

3.3. An assessment of the technological capabilities of the Kyrgyz Republic and perspectives on its development

In the third assessment report of IPCC, particular attention was paid to the technological and engineering prospects for preventing carbon emissions resulting from anthropogenic activities. In particular, one of the main conclusions states that technologies for stopping the growth in GHG emissions are accessible in the short-term. They can be used today and in the near future and will help diminish the negative impacts of climate change. The analysis of the CO₂ emissions by sectors (*Figure 5*) shows that two thirds of emissions are generated by the energy sector².

¹ National Communication on the condition of environment in Kyrgyzstan in 2001-2003 rr. – Bishkek, 2003. – 150 pg.

pg.
 ² First National Communication of Kyrgyz Republic on UN Framework convention of climate change. – Bishkek, 2003. – 98 pg.
2000



Figure 5. The distribution of total GHG emissions by sector

(a) energy generation and consumption; (b) industrial processes; (c) agriculture; (d) change of land tenure and forestry; (e) wastes. Sector 'solvents' is not shown, since its contribution to total GHG emissions is insignificant.

Due to the high levels of CO_2 emission from the energy sector, which makes up a high percentage of total national GHG emissions, *technological capacity should be build in order to decrease and restrict CO*₂ *emissions from the Kyrgyz energy sector.*

Data obtained through wide-ranging studies conducted by WWF show "that in developed countries electric power stations are able to decrease two times their emissions of carbon dioxide by 2020, and by the middle of 21^{st} century completely stop emitting CO₂. In developing countries it will be more difficult to achieve this, since there, for some time, the demand on electric energy will be increasing rapidly. However, even in these countries it is possible to reduce emissions of CO₂ considerably, provided that primary attention is paid to power consumption efficiency and the use of renewable sources of energy"¹.

Development of small hydropower energy

1990

The methods of small hydropower energy production are listed in the 'Program of Development of Small HPS until 2010', which is under consideration by the Kyrgyz government. The program describes comprehensive measures for the development of small energy production and consumption in the Kyrgyz Republic in four main areas:

- the reconstruction of acting small HPS;
- the rehabilitation of small HPS which were operating in the past;
- the construction of small HPS in new areas;
- the construction of small HPS at existing water economy constructions.

The general energy capacity of small rivers and water headers in the Kyrgyz Republic is estimated at eight billion kW per year (*table 3*). At present, just three percent of this capacity is being utilized. Many of the power stations, which were built in the 1940s and 1950s have been closed down temporarily due to the commissioning of a number of big HPS and TES although they were well located and had a reliable run off into appropriate rivers.

Table 3

	The hydro-engin	neering capac	ity of small riv	vers in the k	Ayrgyz Republic	
Chui oblast	Issyk-Kul oblast	Talas oblast	Naryn oblast	Osh oblast	Jalal-Abad oblast	Total
Potential capacity in thousand kW						
640	2,005	354	2,032	2,641	1,728	9,400
Potential power in million kW						
5,545	17,390	3,104	1,778	2,320	15,045	82,072

¹ New energy generation – new life! - M.: WWF Russia, 2004. – 11 pg.

The technical reconstruction of nine operating small HPS with a capacity of 39,000 kW generating 120 million kWh of electric power, the rehabilitation of 39 reserved small HPS with capacities of 22,000 kW and generating 95 million kWh and the construction in different regions 61 small HPS with capacities of 176,000 kW generating up to 900 million kWh of electric power is planned before 2010.

The estimated cost per unit of the power of the restored HPS will be about US\$700 per kW. The estimated cost per unit of the power of newly built HPS will be about \$1500 per kW. In view of growing energy tariffs, the efficiency of the planned small HPS and the high cost efficiency of investments into this kind of energy production will encourage domestic and foreign investors.

In addition to the 'soft' impact on the environment, the benefits and efficiency of small-scale energy production is defined by the following factors:

- relatively small capital investments are needed for equipment, materials, construction, commissioning and testing work;
- short construction periods (for HPS with a capacity of up to one MW no longer than 1.5 years is needed, from 1-5 MW 1.5-2.5 years, from 5-10 MW 2.5-3 years and from 10 to 30 MW 3-5 years);
- no need for the construction of high voltage electric power transmission lines and powerful transformers;
- energy independence in respect to the work rating of the energy system;
- the creation of local energy systems with low operational costs;
- the opportunity to implement energy projects with the attraction of governmental and private investors.



The possible sources of funding for the development of small hydro energy stations could be:

- JSC capital;
- local investments and loans;
- investments from foreign firms and companies;
- technical loans;

Small HPS at Alamedin river.

- share participation of the state, enterprises and organizations, commercial structures and individuals;
- state loans.

In order to attract investors it is necessary to create favorable conditions for an open energy market and conduct development feasibility studies specifying financing options. It is also necessary to estimate acceptable tariffs on local and foreign investments on the basis of the maximum permissible payback of the investment within seven to 10 years.

The development of non-traditional renewable energy sources

Non-traditional renewable sources of energy (NTRES) including solar, wind, biomass, hydro and geothermal hydro energy sources can compete with traditional sources of energy.

But the Kyrgyz Republic uses insignificant amounts of NTRES at just 0.15 percent of the total energy output of the republic. The total capacity of solar panels is 1300 kW, wind mills produce 25 kW and micro-HPS contribute just 1000 kW.

NTRES are mainly used as decentralized constructions in the Kyrgyz Republic, located in mountainous areas (home to shepherd and livestock raising complexes, geological expeditions, hydro-meteorological stations, road constructions, tele-radio repeaters, etc.) as well as in some private homes, livestock raising farms and medical and rehabilitation institutions (rest houses, guest houses and health resorts) located in areas on central electric power supply lines. Therefore, the use of NTRES should be considered not only for ecological reasons, but also as a means of solving of social issues.

It seems more convenient to use heating generated by the sun's radiation using solar thermal collectors, which could supply up to 50 percent of the country's total heating needs in conjunction with micro HPS with capacities of 1, 2, 5, 16, and 22 kW.

The amount of energy that can be generated annually by NTRES could come to between 17,700 and 26,400 tons of relative fuel, provided the total capacity of production of utilization facilities are used and they are introduced into production cycles.

Data forecasting the capacity and generation of electric energy by NTRES in 2005 shows that photoelectric converters could produce 2-3 MW and 5.3-7.9 million kWh of power, micro-HPS could generate 2-2.5 MW and 8.6-10.8 million kWh and wind mills could provide 150-300 kW and 1-1.2 million kWh of energy.

Considerable investments into the development of the domestic production sector and will be needed if the Kyrgyz Republic is to begin the wide-spread use of NTRES and they would need to be implemented in social and economic areas. But the relatively *high cost price of energy generation by NTRES constrains their usage*.

Another development in the area of NTRES is the use of biogas technologies (insets 3, 4).

Inset 3

Biogas technologies

Biogas technologies – a radical way of rendering harmless and processing various organic wastes of both vegetative and animal origin that generate methane emissions and producing high-calorie gaseous fuel – biogas – and highly effective ecologically pure organic fertilizers.

Biogas production in various forms has been used for more than 5,000 years in China and more than 2,000 years in India. Modern biogas production occurs in both developed countries (Denmark, Germany, England, France, Italy, Austria), and developing countries (China, India, Indonesia, South American states and some countries on the African continent). In the former Soviet Union the development of biogas technologies, using modern scientific and engineering methods, began at the end of the 1970s.

Biogas technologies are made up of a complex natural decomposition process of organic substances in anaerobic (without air) conditions. A specific group of anaerobic bacteria are used for the process, which is accompanied by the mineralization of compounds containing nitrogen, phosphorus and potassium. This is accompanied by the generating of mineral forms of nitrogen, phosphorus and potassium which are more acceptable to plants and, more importantly, the total elimination of pathogenic (nosogenic) micro flora, eggs of helminthes, weed seeds, faecal odors, nitrates and nitrites.

The production of biogas and fertilizers is carried out in special bioreactor methane tanks.

More than 10 biogas installations are operating in the Kyrgyz Republic. It is assumed that in time, biogas technologies will be used more actively. Acknowledging the benefits of biogas installations, many international organizations are ready to extend methodic and financial support continued production through the framework of a variety of projects.



A gas holding installation for the collecting and storage of biogas in Petrovka village (photo provided by LLC 'Demonstration Zone of Energy and Water Efficiency').

<u>Global ecological conventions: Capacities of</u> <u>Kyrgyzstan</u>

Inset 4

Excerpts from an interview with A. Obozov, Director of the Center of Problems Related to the Use of Renewable Sources of Energy in the Kyrgyz Republic.

"...on what grounds was the task of introducing of new biogas installations integrated into the program of the National strategy of poverty reduction? Firstly, as a minimum, the population will obtain the required volumes of domestic natural gas. One should bear in mind that any, even the most expensive biogas installation, will pay for itself within one year of operation ...

Secondly, we have launched an active and real environment protection program – carbon dioxide emissions into the atmosphere and that of other harmful by-products of burning are decreasing . . .

Thirdly, we have achieved the 100 percent provision of fertilizers to arable areas at reasonable and affordable prices for farmers . . . the number of jobs for villagers will increase by tens of thousands according to studies conducted.

Finally, the sale of organic fertilizers and biogas generated at the installations will revive rural small and medium businesses due to the use of domestic power, labor force, raw materials"

"In spite of the evidence the benefits of the use of renewable energy sources the matter are at a stand still...

What are the reasons?

There are several reasons. In my opinion the insufficient awareness of potential consumers on the benefits of NTRES is the main problem. Another reason is the lack of assets, investments. All the rest can be helped..." 'Vicherny Bishkek' on 10/03/2000 and 1/04/2003

Basic directions for effective fuel and energy saving programs in the Kyrgyz Republic

The saving of energy resources is of particular importance as not only will it aid the energy industry in the Kyrgyz Republic, but it is also an efficient mechanism for reducing GHG emissions (*see Table 4*).

Energy saving tasks can be implementation using the following measures:

- I. *Economic, normative and legislative measures:*
- establishing rational prices and tariffs on fuel and energy trading;
- developing and implementing state policy aimed at energy saving;
- standardizing and authorizing equipment;
- creating organizational state governance and market-based structures for energy saving.
- II. *Technical measures*:
- conducting technical and economic auditing work and analyzing energy and fuel saving methods in different sectors of the economy (through enterprises, organizations, etc.);
- ensuring the efficiency of energy saving projects;
- determining sources of financing for energy saving projects.

Sector of		Years						
economy	1990	1995	1999	2000	2005	2010	2015	2020
TOTAL, including	0.5	0.3	0.28	0.29	0.41	0.56	0.7	1.0
Fuel and energy complex	0.21	0.12	0.12	0.11	0.17	0.23	0.29	0.42
industry	0.07	0.04	0.04	0.04	0.05	0.08	0.11	0.14
Housing and municipal economy	0.08	0.05	0.04	0.06	0.06	0.09	0.11	0.16
transport	0.02	0.01	0.01	0.01	0.01	0.02	0.02	0.03
agriculture	0.12	0.08	0.07	0.07	0.12	0.14	0.17	0.25

Capacities for energy saving in Kyrgyz Republic (million tons of relative fuel)

To meet energy saving requirements and ensure the efficient functioning of Kyrgyz enterprises, the Kyrgyz 'Energy Saving' law was created, the basic elements of which formed the base of governmental measures to support and finance energy saving activities and a penalty system for administrative, organizational and economic sectors in case of energy law violations.

A guiding principle of this law is that an overall increase of the efficiency of energy use should not constrain the standard of living and that power saving methods should enhanced long-term economic growth.

In order to demonstrate the region's energy saving capacities the 'Demonstration Zone of Energy and Water Efficiency' was established in Bishkek in 2001 *(inset 5)* through the special UN Program for the Economies of countries in Central Asia (SPECA)

The measures for energy saving in the demonstration zone include:

- saving electric power by installing energy saving luminescent bulbs;
- installing systems to regulate thermal energy consumed;
- installing registration systems for energy resources;
- installing cold and hot water consumption meters.

Installation of systems of regulation of consumed heat energy at one of the constructions in the 'Power and Water Efficiency Demonstration Zone in Bishkek (photo provided by LLC 'Energy and Water Efficiency Demonstration Zone').



Global ecological conventions: Capacities of Kyrgyzstan

Inset 5
In compliance with LLC data 'Energy and Water Efficiency Demonstration Zone'
As a result of the implementation of projects from 2001 to 2003 the GHG emissions decreased by 6.5 tons/year: • CO ₂ 4.3 tons per year • SO ₂ 1.5 tons per year • NO ₁₀ 0.7 tons per year The implementation of the program at three Kyrgyz enterprises revealed the saving of energy reserves raw
materials by 20 percent to a sum of US\$50,000.

of it at its own discretion.

The data presented above was obtained through the introduction of energy saving programs in condominiums. When selecting the area for the demonstration zone, particular attention was paid to social sector constructions, the financing of which is covered by the national budget.

The buildings of these areas have a considerable energy saving reserve (up to 40 percent of the total consumption of thermal energy). Unfortunately, current legislation fails to interest budgetary organizations in energy saving equipment. The funds allocated for the payment of municipal services can only be used in a targeted way. Any deviation from this is interpreted as a violation of financial discipline resulting in disciplinary measures including fines and penalties. Even if a state financed organization managed to reduce thermal energy consumption and save some cash, it is not allowed to dispose

Measures aimed at reducing the negative anthropogenic impact on global climate change system are incorporated into a number of implemented targeted programs. In order to assess the capacity available it is necessary to keep inventories of all programs and sub-programs and the functions of executive bodies as stipulated in instructions for the implementation of the commitments of the Kyrgyz Republic under UNFCCC. *The reducing of GHG emissions must be directly related to general and sectoral economic development plans and the ensuring of the ecological security of the republic.*

The development of the fuel and energy industries of the Kyrgyz Republic, the provision of reliable electricity and energy supplies to the population and the energy security of the state are the primary goal of the **National Energy Program** of the Kyrgyz Republic ending in 2005¹.

However, its implementation, particularly with regard to issues of the development of small energy generation constructions, energy saving, use of NTRES is constrained by the following factors:

- insufficient financing on the part of the state and a lack of local and foreign investors;
- the lack of coordination of activities to accomplish planned measures;
- the weaknesses of bylaws on the implementation of objectives;
- a lack of awareness among potential consumers of the capacities and benefits of NTRES.

But the energy sector is not the sole cause for concern and the forestry sector also needs considerable capacity building. Due to comparatively slow growth and the low oxidizing speed of the byproducts of biosynthesis, forest ecosystems not only consume, but also accumulate considerable amounts of atmospheric carbon and are able to retain it for 80 to 120 years until they are ready to be felled. Therefore, forest restoration, planting and plantation reconstruction programs should be a priority of the national policy for preventing the negative impacts of climate change.

The forestry sector should focus on:

- applying new modern technologies for different felling operations, considerably decreasing the loss of wood and ensuring a more efficient use of felled wood;
- increasing the level of automation and mechanization in forest restoration and forest planting programs in order to preserve self-seeding and natural growth at the plots;
- industrial forest growing and the introduction of new technologies to create new forest varieties.

The Kyrgyz **National Forestry Policy** is reflected in three documents: 'The Concept of Development of Forestry Industry', the 'Forestry Code' and the State 'Forest' Program for 2001 to 2005. The first forest industry development concept was approved in 1999 and formed the foundation of the national forestry policy. The document defined the main principles of the national forestry policy and specified its goals, objectives and strategic direction. During the development of this document, most attention was paid to

¹Approved by the Resolution of the Government of Kyrgyz Republic as of June 16, 2001, № 353.

current problems and less attention was paid to forming strategic goals. The Kyrgyz legislature considered the document officially adopted but it was seldom used as the basis for activities.

"...Outdated management structure (an excessively centralized and clumsy bureaucratic system), unimplemented legislation (excessive restrictions and insufficient incentives and encouragement), excessive control on the part of law enforcement and controlling structures and interventions by local authorities do not enhance the efficient work of the forestry sector"¹, which meant the revising of the original concept's strategic focus to take into account modern demands to provide the efficient and sustainable management of forests in the interests of the community.

In 2004, a new 'Concept of Development of the Forestry Sector through to 2025' was adopted². In line with this resolution, the Kyrgyz State Forestry Service, in conjunction with relevant ministries, state committees, administrative departments and local self-governance bodies was assigned to the development of the National Forestry Program until 2015 and a five-year action plan for 2006-2010, which took into consideration the strategic directions stipulated in the new law.

The Kyrgyz government passed Resolution 715 on November 17, 2001 approving the State 'Forest' Program for 2001 to 2005. This is a special plan of action incorporating specific measures that detail the required resources for the planned period. However, the program is not being fully implemented as members of the forestry industry were not ready to properly assess their capabilities and develop real plans. The program determined objectives and activities without taking into account the on-the-ground situation.

In the remaining two years before the program finishes, it is necessary to adapt its technical specifications to the forestry sector. The forestry industry should focus on the multifunctional use of forests according to sustainable resource criteria and indicators. It is also necessary to provide adequate financing in order to eliminate the sector's deficiencies and to improve the institutional base of the industry.

Federal funding for the State Forestry Service had increased 2.2 times by 2003 compared to 2000. In 1998 all forestry enterprises were relieved of taxation, gained more independence and were free to manage their money and reinvestments in their activities.

However, the national budget still does not allocate enough money to cover operational costs, including the modernization of material and technical bases and the implementation of planned activities. During the planning of financing and its distribution the specific needs of the industry are not taken into account. All the required changes should be exercised through strictly regulated financing systems, including applied scientific research and forestry management. It is also necessary to clarify the responsibilities of each interested party including private owners, the state, regional and local authorities and international donors for the development of the forestry economy.

3.4. An assessment of information dissemination levels, the educational capacity of the Kyrgyz Republic and personnel training requirements

The development and implementation of measures aimed at educating the public and increasing the awareness of climate change issues, the improvement of public access to environmental information and the training of scientific, technical and managerial staff are just some of the commitments of the Kyrgyz under UNFCCC.

In the Kyrgyz Republic, special attention is paid to the issues of education, upbringing, scientific research and information dissemination on environment protection. Article 48 of section 9 of the Kyrgyz Law 'On Environment Protection' is devoted to the ecological education of the republic's population.

In the Kyrgyz Republic a law on continuous ecological education is incorporated into existing educational programs (approved by the decision of the Board of MEC on 17/09/2003 and by the order of the MEE). Global climate change is outlined in this law as one of the most important applied ecological problems. Typical curricula on 'Ecology' and 'Security of vital activity' mandatory for all educational standards for all high education specialties allowing the study of global climate change issues and its influence on biological activity and security are developed and are being introduced.

¹ Concept of KR Forest Sector development, 2004.

² Approved by Resolution of the Government of Kyrgyz Republic as of 14.04.2004, № 256.

The following information was issued and published in the Kyrgyz Republic for the benefit of schools, higher education institutions, interested specialists and the general public:

- two books titled 'Climate and Environment' and 'Inventory Making of Greenhouse Gases';
- the manual 'Sustainable Development of Ecological and Economic Systems in the Conditions of a Changing Climate';
- collections of articles devoted to climate change issues;
- three issues of the information bulletin 'Assistance to the Kyrgyz Republic in Preparing the First National Communication on the Implementation of Commitments under the UN Framework Convention on Climate Change';
- the website <u>www.climatechange.undp.kg;</u>
- two booklets titled 'Kyoto protocol. Kyrgyzstan. Questions and answers' and 'What is climate change'.

A list of publications related to the implementation of UNFCCC is given in *Annex 2*. It should be noted that this relatively short list contains mainly publications made in the last two years with the support of the GEF/UNDP Project 'Assistance to the Kyrgyz Republic for the Execution of Climate Change Activities'.

Twelve of Kyrgyzstan's higher education facilities produce cadres on specialty areas related to environmental protection, ecology and natural resource use, meteorology and climatology. All these topics are directly related to climate change issues.

The adverse practice of separating economic, social, ecological and institutional factors of climate change during decision making processes is the main factor constraining public awareness of climate change issues. In order to ensure the sustainable development of information and education programs on natural security and economic needs it is necessary to:

- maximize the use of all available engineering and technical staff, specialists with advanced qualifications and people with unique information and knowledge in specific areas and to transfer this knowledge and experience to the development of non-waste resource saving technologies, the adaptation to new economic conditions and the integration of global scientific, technical and engineering expertise;
- assist the development of partnerships among nongovernmental, public, commercial and local self-governing bodies and encourage the consideration of societal needs when projects aimed at the public are being designed;
- provide information support to public and state controlled organizations and monitor the observance of environmental protection legislation.

A considerable part of the academic capacity of the Kyrgyz Republic can be found in the National Academy of Science. This knowledge can be used to help solve problems related to the implementation of international nature protection conventions.

Scientists at the Academy are working on 11 priority research and development areas (as laid down in Kyrgyz Resolution 44 on July 3, 2003). All the academy's institutes are focused on this task. Among their activities and research topics are the following:

- the solving of physical and technical power generation and consumption problems and the development of plasma and energy saving technologies;
- ensuring the rational use of natural resources and natural water energy resources;
- the comprehensive study of natural technogenic processes in mountain areas and the forecasting of these processes;
- developing new materials and chemical technologies;
- researching biodiversity and ecology;
- solving problems related to mountainous ecosystems and the sustainable development of mountain inhabitants;
- ensuring the sustainable political, economic and social development of the Kyrgyz Republic.

At present, the best scientific research programs are involved in implementing projects that are carried out with assistance from international organizations. Climate change information campaigns are then launched through these projects. But the need for additional knowledge on climate change issues remains acute. Various kinds of information needs to make its way from experts and ministerial specialists and departments responsible for implementing UNFCCC commitments to decision makers, students, lecturers and potentially interested economic entities.

Despite efforts taken to better inform the Kyrgyz population on climate change issues and the republic's commitments under UNFCCC, awareness remains low, constraining any involvement by the community in programs and, most importantly, in capacity building projects.

4. Determining the priorities relevant to climate change issues and the extent to which the three subjects areas are interrelated

Current proposals aimed at improving policies and measures to alleviate the impact of climate¹ suggest using a comprehensive package of tools for reducing GHG emissions, which include:

- establishing a system of state monitoring and management of GHG emissions and the emission of other dangerous air pollutants;
- supporting measures for restricting GHG emissions by the state and the community as a whole;
- periodically preparing and submitting to the Secretariat of the Convention of the National Communications and GHG emission and absorption cadastres;
- improving the relevant legislative framework;
- introducing economic tools such as differentiated taxes, competitive emission trading permits and reducing subsidies that enhance GHG emissions;
- coordinating activities between different countries to reduce GHG emissions, such as emission quota trading;
- facilitating access to information, advanced technologies and financial resources;
- providing the community with information on climate change issues and involving the public in the resolution of these problems and challenges;
- supporting scientific and research work and training highly-qualified personnel.

These measures are in line with the activities of the Kyrgyz Republic and priorities on climate change issues, which can be formulated in the following way:

Legislative measures – integrating support for 'green technologies' into the legal base of the Kyrgyz Republic and the developing of concrete normative and legal acts.

Institutional capacity building – creating a coordinating body (or interdepartmental commission) on climate change issues in the republic, intensifying efficient cross-sectoral cooperation and developing national strategy and action plans on climate change.

Eliminating informational barriers – creating well-developed information systems and connecting them to regional and international networks, increasing the ecological literacy of the population, enhancing the role of society in climate change prevention projects in order to ensure the implementation of environmental protection conventions and preparing and training cadres experienced in climate change issues, the reduction of GHG emissions and in energy saving and energy efficiency areas.

Providing financial mechanisms – developing financial schedules to attract investors, creating incentives for the private sector to invest in projects aimed at reducing GHG emissions, extending the assessment of the technological needs of the Kyrgyz Republic and developing activities under projects selected for concrete investors, in particular, for the enhancement of energy efficiency, energy saving and the use of non-traditional renewable energy resources.

An analysis of the implementation of UNFCCC in Kyrgyzstan, supplemented with the above mentioned recommendations, is presented in *Annex 3*.

¹ First National Communication of Kyrgyz Republic on UN framework convention on climate change.– B.,2003. – 98 pg.

The efficiency of priority measures can be enhanced by integrating existing climate change prevention strategies and the objectives of national and sectoral development strategies aimed at the sustainable development of the Kyrgyz Republic.

The basic principles listed in the three Rio-de-Janeiro conventions demonstrate the similarity of the basic goals and objectives. This provides us with the opportunity to unify efforts to accomplish their provisions. Negative phenomena as desertification, breaches in biodiversity and climate change are caused by anthropogenic activities.

The convention on biodiversity states that, "biodiversity is reduced considerably due to some kinds of human activity". The convention of desertification control (Article 1) says, "desertification implies land degradation in arid, semi-arid and sub-humid areas being the result of the impact of different factors, including climate change and human activity". UNFCCC also links anthropogenic activity to GHG emissions into the atmosphere, resulting in climate change. The reason behind all of these phenomena means it is possible to making combined capacity-building decisions under the three conventions that can have a marked effect on current climate change trends.

Climate change will inevitably lead to a reduction in biodiversity and the enhancement of the desertification processes. Other negative effects of climate change could be:

- changes in temperature and precipitation levels changing the distribution of water resources, the conditions of biota development and biological productivity;
- further desertification;
- draught increases that will inevitably lead to decreases in agricultural yields;
- changes to forest systems that may have negative consequences both for humans and animals;
- decreases in biomass and considerable changes in its varieties are highly probable;
- basic vegetation zones may be subject to serious impacts, which will affect communities of flora and fauna in the area;
- some ecosystems will not have enough time to adapt to new climatic conditions as the climate continues to change rapidly;
- some varieties of plants could disappear completely, resulting in decreases in biological diversity;
- acute social and economic consequences, in particular, in such regions where the well-being of a society depends to a great degree on natural ecosystems;
- precipitation levels could increase in many regions which may lead to changes in agricultural production and natural ecosystems.

In order to prevent or reduce the impacts of these ecological threats, the national capacities of all countries need to be strengthened and unified. Every country needs to develop general environmental protection policies, enhance their administrative capacities and improve the coordination of state ministries and departments and civil society representatives involved in UNFCCC implementation.

The development of national and regional action plans, the improvement and adaptation of laws, the undertaking of scientific research and the education and involvement of the community and qualified personnel are vital to the implementation of commitments under UNFCCC.

Joint capacity-building efforts in these directions will make it possible to avoid the duplication of measures taken, ensure efficient schemes for their implementation, develop an adequate legal base for actions, reduce unjustified material costs and secure the conducting of participatory environmental policies on all levels.

REFERENCES

- Agaltseva N.A. 'Assessment of Climate Changes Impact to Water Resources Located in the Basin of Aral Sea'. Tashkent, 2002, p. 12
- 2. Berdin V.H., Vasilyev S.V., Danilov-Danilian B.I., Kokorin A.O., Kurayev C.H. 'Kyoto protocol Questions and Answers'. WWF, Russian Regional Ecological Center, the National carbonic agreement. M, 2003. p. 24
- 3. Bokonbaev K.D. 'Ecology, Environment and Security of Kyrgyzstan'. Bishkek, 2004, p. 176 pg
- 4. Bokonbaev K.D., Rodina E.M., Ilyasov Sh.A., Podrezov O.A., Kasymova B.M., Abaikhanova Z.O., Jumagylova Ch.K. 'Climate and Environment'. Bishkek, 2003, p. 208
- 5. 'Vestnic KRSU'. vol 3, 6. Bishkek, 2003, p. 131
- 6. 'Water and Sustainable Development of Central Asia'. Bishkek, 2001, pp. 88-92.
- 7. 'Water Problems of Central Asia'. Bishkek, 2004, p. 142
- 8. *Glazyrina T.E., Tshetinnikova A.S.* 'The State of Glaciation of Gissar-Alai in Last Decades and its Probable Dynamics in Relation to Future Climate Change' in 'MGE', iss. 90. 2001, pp. 126-129.
- 9. Grabb M., Vroshik K., Brack D. 'Kyoto protocol: Analysis and interpretation'. M, Nauka, 2001, p. 303
- Delbeke D. 'Schedule of Greenhouse Gases Trade off in European Union' in international journal 'Business'. Special issue. M, 2003, p. 97
- 11. Dervent H. 'Approach of Great Britain to Implementation of Kyoto Protocol'. M, 2003, p. 97
- 12. *Dikikh A.N.* 'Problems and Forecast of the Development of Glaciation and Water Capacity of Rivers in Central Asia' in 'Water and Sustainable Development in Central Asia'. Bishkek, 2001, pp. 88-92
- 13. Dudek D., Golub A., Petsonk E., Strukova E., Vang J., Markandia A. 'Hazards of Climate Change and Benefits of Participation of Russia in Kyoto Protocol'. M, 2004, p. 54
- 14. 'Climate Change, 2001: General Report. Summary for Policy Makers'. IPCC, WMO, UNEP. p. 219
- 15. 'Climate Change. The Set of Information Cards on Climate Change'. UNEP, UNFCCC. M, 2003, p. 32
- Ilyasov Sh. A., Rodina E.M., Yakimov V.M. 'Inventory Making of Greenhouse Gases. Kyrgyzstan: 1990-2000'. Bishkek, 2003, p. 130
- 17. 'Kyoto Protocol: Policy and Practice' in international journal 'Business'. Special issue. M, 2003, p. 98
- 18. International journal 'Business'. Special issue. M, 2003, p. 98
- 19. 'Climate Change: View from Russia'. Edited by Danilov-Danilian B.I.M, TEIS, 2003. p. 416
- 20. 'The Concept of Continuous Ecological Education'. Bishkek, 2004. p. 60
- 'Kyrgyz Republic: New Prospects. Comprehensive Framework of Development of Kyrgyz Republic until 2010'. Bishkek, 2001, p. 175
- 22. *Makkia K*. 'Implementation of the Mechanisms of Kyoto Protocol in Japan' in international journal 'Business'. Special issue. M, 2003, p. 97
- 23. Intergovernmental Panel on Climate Change (IPCC). 'First Assessment Report'. 1990.
- 24. Intergovernmental Panel on Climate Change (IPCC). 'Second Assessment Report'. 1995.
- 25. Intergovernmental Panel on Climate Change (IPCC). 'Third Assessment Report'. 2001.
- 26. 'Murok' in 'Ecologichsky Vestnic'. vol. 1-2. Bishkek, 2004, p. 39
- 27. 'National Organization of Support to Projects of Carbon Absorption. Directorate of Regional and Sectoral Programs'. M, 2003, p. 4
- 28. 'National Communication on Problems of Climate Change'. M, 2002. p. 29
- 29. 'New Energy New Life'. WWF Russia. 2004, p. 11
- 30. 'Overview of Efficiency of Ecological Activities. Kyrgyzstan'. UN EEC, New-York, Geneva, 2000. p. 145
- 'First National Communication of Kyrgyz Republic by UN Framework Convention on Climate Change'. Bishkek, 2003, p. 98
- 32. 'Prevention of Climate Change: Transfer from Debates to Practical Steps' in 'Program of Small Grants USAID'. Almaty, 1999, p. 123
- 33. 'Draft Water Strategy of the Kyrgyz Republic'. Bishkek, 2003. p. 40
- 34. Work Panel of Countries of the Big Eight by Renewable Energy Sources. 'Final Report', July 2001.
- 35. Summary of the 'Report on Ecological Policy in the Period of Transition: Lessons learned in Ten Years of Reviewing of Efficiency of Ecological Activities'. EEC UN. Environment for Europe. Fifth Conference of Ministers. Kiev, 2003. p. 45
- 36. *Solovey Y.V.* 'Kyoto on the Threshold of Russia. Fundamentals of the System of Legislative Regulation of Emissions of Greenhouse Gases in Russian Federation'. M, 2003, p. 320
- Stetsenko A.V., Sidorenko V. N., Luzhetskaya N.V., Shatailov V.V., Kulebsky A.V. 'Absorption of Greenhouse Gases by Forest Belts on Agricultural Land: Investment project'. M, Center of Ecological Policy of Russia, 2002, p. 32

Annex 1

Project	Donor	Size of financing	Goals and objectives	Outcome
Assistance to Kyrgyz Republic in implementation of activities on climate change Duration: 2001-2004	GEF	US\$444,000	 Preparation of the First National Communication of the Kyrgyz Republic for UNFCCC. Assessment of technological needs Development of proposals for pilot projects for key economic sectors aimed at the reduction of GHG emissions. 	 The First National Communication of Kyrgyz Republic for UNFCCC was prepared. A series of publications on the problem were issued. The first office dedicated to climate change issues in the country was opened.
Technical assistance to Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan relative to their obligations to prevent global climate change. Duration: 2004-2006	TACIS	About US\$50,000 (for Kyrgyzstan)	• Capacity building in Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan within the framework of commitments under the Kyoto Protocol	 Expected outcomes: The training of specialists on clean development mechanisms under the Kyoto protocol. The development of proposals for pilot projects on clean development mechanisms.
The preparation of the second National Communication of the Kyrgyz Republic for UNFCCC.	GEF		• The preparation of the second National Communication of the Kyrgyz Republic for UNFCCC.	• Project proposal was developed.

Projects related to the implementation of the Convention

Annex 2

	Title	With assistance of a project /NGO/ of a High Education Institution	Language of the publication	Place and year of issue	Subject matter/area covered/purpose
1	'The first National Communication of the Kyrgyz Republic to UNFCCC'.	Developed within the framework of GEF/UNDP project 'Assistance to Kyrgyz Republic to Implement Activities to Prevent Climate Change'.	Russian English Kyrgyz	Bishkek, 2003	Covers the executing of the commitments of the Kyrgyz Republic under UNFCCC.
2	'Climate and Environment'.	Developed within the framework of GEF/UNDP project 'Assistance to Kyrgyz Republic to Implement Activities to Prevent Climate Change' and GEF project 'Management of Water Resources and the Environment in the Basin of the Aral Sea' with participation from the Kyrgyz-Russian Slavic University.	Russian	Bishkek, 2003	Designed to educate pupils, students and inform the public.
3	'Sustainable Development of Ecological and Economic Systems'.	Developed within the framework of GEF/UNDP project 'Assistance to Kyrgyz Republic to Implement Activities to Prevent Climate Change' with help from the Kyrgyz-Russian Slavic University.	Russian	Bishkek, 2003	Designed to educate pupils, students and inform the public.
4	'Inventory of greenhouse gases. Kyrgyzstan: 1990- 2000'.	Developed within the framework of GEF/UNDP project 'Assistance to Kyrgyz Republic to Implement Activities to Prevent Climate Change' with help from the Kyrgyz-Russian Slavic University.	Russian	Bishkek, 2003	Discusses the implementing of UNFCCC commitments. Designed to educate pupils, students and inform the public.
5	'The Kyoto protocol and Kyrgyzstan. Questions and answers'.	Developed within the framework of GEF/UNDP project 'Assistance to Kyrgyz Republic to Implement Activities to Prevent Climate Change' with help from NGO Sustainable Use of Natural Resources.	Russian	Bishkek, 2004	Designed to inform the public.
6	'What is climate change: A handbook on the UN Framework Convention on climate change and the Kyoto protocol'.	Developed within the framework of GEF/UNDP project 'Assistance to Kyrgyz Republic to Implement Activities to Prevent Climate Change'	Russian	Bishkek, 2004	Designed to inform the public.

A list of publications relevant to	the implementation	of the Convention
------------------------------------	--------------------	-------------------

The implementation of the Convention by the Kyrgyz Republic

Requirements of the	Article of the Convention	National legislative	What has been done	What has not been done	Recommendations
Convention		acts		and why	
Legislation	Preamble, "member-states should enforce efficient legislation in the area of environment"	The law of Kyrgyz Republic 'On the Entering of the Kyrgyz Republic to the UN Framework Convention on Climate Change and the UNEEC Convention on Trans-Border Air Pollution over Great Distances' implemented on January 14, 2000.	 Kyrgyz government Resolution 369 'About Measures for the Implementation of UN Framework Convention on Climate Change' was implemented on July 21, 2001. The law of the Kyrgyz Republic 'On Environment Protection' was passed on June 16, 1999. The law of the Kyrgyz Republic on 'Atmospheric Air Protection' was passed on June 12, 1999. 	There is a lack of the required bylaws and procedural and instructive documents regulating the registration and control of GHG emissions. The implementation of this article is constrained by the lack of a state registration and control mechanism for GHG emissions, the lack of a unified and simplified method of determining global warming levels and the lack of efficient equipment and facilities for controlling the environment.	To develop specific normative and legal acts intended to decrease GHG emissions.
National policy and strategy	Article 4.1(b), "The Partiesshall formulate, execute, publish and regularly update the national and, in relevant instances, the regional programs containing measures for alleviating the consequences of climate change through resolving the problem of anthropogenic emissions from different sources and absorption by adequate absorbers of all greenhouse gases, which are not stipulated in the Montreal protocol, as well as measures of assistance to adequate adaptation to climate change". Article 4.2 (e) (ii), "Each of the Parties shall define and periodically revise domestic policy and practical methods in order to discourage activities resulting in higher levels of emissions of greenhouse gases not regulated by the Montreal protocol as compared with levels which could be reached otherwise".		 The 'Comprehensive Framework of Development of the Kyrgyz Republic till 2010 (CDF)', was implemented. The 'Strategy of Sustainable Human Development', was implemented. The 'National Plan of Action on Environment Protection' was implemented. 	There is still no unified intergovernmental coordinating body that could create the required conditions and an organizational and methodic foundation for the efficient implementation in the Kyrgyz Republic of the national policy and measures for executing UNFCCC commitments. A national strategy and an action plan for the prevention of the economic, social, ecological and other negative impacts of climate change has not been developed.	The establishment of a national coordinating body to aid the implementation of the commitments of the Kyrgyz Republic under UNFCCC. The development of a national strategy and an action plan for the prevention of the economic, social, ecological and other negative impacts of climate change.

Requirements of the	Article of the Convention	National legislative	What has been done	What has not been done	Recommendations
Convention		acts		and why	
The creating of a GHG inventory.	Article 4.1(b), "The Partiesshall formulate, execute, publish, regularly submit to the Conference of the Parties in line with article 12, national cadastres of anthropogenic emissions from different sources and the absorption by adequate absorbers of all greenhouse gases, which are not stipulated in the Montreal protocol, using comparable methods to be approved by the Conference of the Parties."		The first National Communication of the Kyrgyz Republic to UNFCCC was prepared and submitted to the Convention Secretariat in 2003. The Communication presents the outcomes of the inventory of GHG emissions.	The unavailability of a unified and simplified method of identifying GHGs and a lack of efficient equipment and facilities for controlling of the condition of the environment among private enterprises has hindered the Convention implementation process.	The development and implementation of a unified and simplified method of identifying GHGs. The rendering of support to equip enterprises with the tools to gauge their environmental impact.
Technology transfer between developed and developing countries	Article 4.1(c), "The Partiesshall render assistance and cooperate in the development, application, dissemination and transfer of technology, methods and processes resulting in the restricting, decreasing or stopping of anthropogenic emissions of greenhouse gases, which are not regulated by the Montreal protocol, in all sectors of the economy, including energy production, transport, industry, agriculture, forestry and waste disposal".		Through the GEF/UNDP project 'Assistance to the Kyrgyz Republic for the Implementation of Activities on Climate Change' an assessment was conducted of the required technologies, the criteria of their selection, their constraints and risks and the capacity for implementing them in economic, energy production, transport, construction, forestry, water resources and waste disposal and utilization sectors	Technology capacity building is constrained by the following factors: - a lack of financing on the part of the state and low foreign and domestic investment levels; - the poor coordination of implementation activities; - incomprehensive by-laws on the implementation of UNFCCC objectives; - the insufficient awareness of potential consumers about the opportunities and benefits of new technologies	The establishment of a national coordinating body to aid the implementation of the commitments of the Kyrgyz Republic under UNFCCC, which would also provide organizational and methodic assistance to the development, application and implementation of 'green' technologies. Potential consumers should also be informed about the opportunities and benefits of new technologies.
The education and participation of the community	Article 4.1(i)' "The Partiesextend assistance and cooperate in the area of education, training of personnel, the educating of the population on issues of climate change and will encourage involvement in this process of broad layers of population, including nongovernmental organizations"; Article 6 (a,b), "The Parties, in line with national legislations and norms and the capacities available, encourage and facilitate: i) the access of the public to information on climate change and its negative		Through the GEF/UNDP project 'Assistance to the Kyrgyz Republic for the Implementation of Activities on Climate Change' for the provision of information support to schools, higher education facilities, interested specialists and the broader community the following books and instruction materials were developed and published: • the books 'Climate and Environment' and		The creation of well- developed information systems connected to regional and international networks. Enhancing measures intended for the ecological education of the population and increasing the role of communities in the implementation of

Global ecological conventions: Capacities of Kyrgyzstan

	consequences; at international levels and using, whenever necessary, the existing bodies which will cooperate and render assistance in: ii) the development of materials for the education of the public on the issues of climate change and its adverse impacts, as well in sharing such materials".		 'Inventories of Greenhouse Gases'. Kyrgyzstan.: 1990-2000; the manual 'Sustainable Development of Ecological and Economic Systems in the Conditions of a Changing Climate'; a collection of articles devoted to climate change issues; three issues of the information bulletin 'Assistance to the Kyrgyz Republic in Preparing the First National Communication on the Implementation of Commitments under the UN Framework Convention on Climate Change' web-site <u>www.climatechange.undp .kg;</u> the booklets 'The Kyoto protocol and Kyrgyzstan. Questions and answers' and 'What is climate change' 		environmental protection conventions. Ensuring the training of cadres on climate change issues, the reduction of GHG emissions and energy saving and efficiency.
--	--	--	---	--	---

Requirements of the Convention	Article of the Convention	National legislative acts	What was done	What has not been done and why	Recommendations
Producing annual reports	Article 4.1 (j), "The Parties, in compliance with article 12, will send to the Conference of the Parties all the information regarding implementation".		The first National Communication of the Kyrgyz Republic to the UN Framework Convention on Climate Change was prepared and submitted to the Convention Secretariat in 2003.		The initiation of preparation processes for the second National Communication of the Kyrgyz Republic for the UN Framework Convention on Climate Change, taking into account the outcomes achieved in the process of NCSA
Financing	Article 12.4, "The Parties that are referred to in the category of developing countries can propose, on a voluntary basis, projects to be financed, including specific technologies, materials, equipment, methods or practice which might be required for the implementation of these projects, as well as, if possible, cost estimates of all additional expenses, assessment of emissions reduction and an increase of absorption of greenhouse gases, and also an assessment of the expected helpful effect".		With donor assistance the following projects are being implemented: - the GEF/UNDP project 'Assistance to Kyrgyz Republic for the Implementation of Activities on Climate Change', - the TACIS project 'Technical Assistance to Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan in Terms of Their Obligations on the Prevention of Global Climate Changes".	The Kyrgyz government is exceptionally inactive when it comes to compiling and applying for project proposals.	The initiation of development processes for financial schedules aimed at attracting investors; The creation of incentives for the private sector to invest in projects aimed at reducing GHG emissions; The intensification of assessments of the technological needs of the Kyrgyz Republic and the development of activities and projects selected for concrete investors.



Zharas Takenov International Senior Programme Officer, Environment Unit (UNDP, Kyrgyzstan)



Keti Chahibaia Regional representative of GEF/UNDP in Bratislava



The UNDP "National capacity self-assessment for global environment management in Kyrgyzstan" project Inception workshop (Bishkek, February 2004). Vice-prime-minister of the KR Government, Mr. U.Mateev, deputies of the KR Parliament, representatives of Ministries and Institutions, scientific and civil societies, focal points of three conventions in KR, National Director of the project Mr. O.Rustembekov participated in the workshop.



Working meetings of the GEF/UNDP "NCSA" project experts with participation of Mr. Zharas Takenov, International Senior Programme Officer, Environment Unit (UNDP, Kyrgyzstan) and sociological group "Dialect Icon"





ASSESSMENT OF THE CAPACITY BUILDING NEEDS FOR THE IMPLEMENTATION OF THE UN CONVENTION TO COMBAT DESERTIFICATION IN THE KYRGYZ REPUBLIC

ASSESSMENT OF THE CAPACITY BUILDING NEEDS FOR THE IMPLEMENTATION OF THE UN CONVENTION TO COMBAT DESERTIFICATION IN THE KYRGYZ REPUBLIC

Subject Review K. Kulov, O. Pechenuk, A. Abdiev, L. Penkina, N. Sharshekeev

Lis	t of acronyms	58
Sur	mmary	59
1.	Review of the current situation in the Kyrgyz Republic	62
	1.1. Convention goals and state obligations for its implementation	62
	1. 2. Natural environment and land resources of Kyrgyzstan	63
	1.2.1. Degradation of agricultural land 1.2.2. Degradation of forest land	64 68
2. to t	Assessment of the capacity of the Kyrgyz Republic to implement its obligations the UN Convention to Combat Desertification	69
	2.1. Review of the activities of the Kyrgyz Republic to implement its Convention obligations	69
	2.1.1. The National Action Plan2.1.2. Sub-regional and regional cooperation	69 71
	2.2. System capacity of the Kyrgyz Republic to implement the Convention to Combat	
	Desertification and the degradation of land	73
	2.2.1. Compliance of the legislation of the Kyrgyz Republic with obligations of th	e
	Convention to Combat Desertification	77
	2.3. Institutional systems: Development capacity, levels of interaction and coordination	78
	2.3.1. State control over the use and protection of lands	82
	2.3.2. Scientific, information and educational capacities	83
	2.4. Individual capacity development levels	84
	2.5. Factors of preventing the participation of the civil society institutions in the resolution of land desertification and degradation issues	
3.	Financial support required for the implementation of UNCCD	84
	Conclusion	86
	References	90
	Annex 1. Implementation of UNCCD in the Kyrgyz Republic Annex 2. List of publications issued in the Kyrgyz Republic, regarding UNCCD issues	93 95

LIST OF ACRONYMS

AWU	Association of Water-Users
ADB	Asian Development Bank
ASP	Agreement on Strategic Partnership
CA	Central Asia
CAC	Central Asian Countries
CASCS	Center for Agrarian Sciences and Consultative Services
CDF	Comprehensive Development Framework
CIDA	Canadian International Development agency
DE	Degree of Efficiency
FAO	Food and Agriculture Organization
GDP	Gross Domestic Product
GEF	Global Environment Facilities
GIS	Geo Information System
GM	Global Mechanism of UNCCD
GTZ	German agency for technical cooperation
ICAEDA	International Center for Agricultural Research in Dry Areas
ICCA LRM	Initiative of Countries of Central Asia to carry out Land Resource Management
IDA	International Development Association
IPRUQ KSNU	Institute for personnel re-training and upgrading qualification at the Kyrgyz State
	National University
Jogorku Kenesh	Parliament of the KR
KR	Kyrgyz Republic
LG	Local Governments
MAWRPI	Ministry of Agriculture, Water Resources and Processing Industries
MEE	Ministry of Ecology and Emergencies
MFA	Ministry of Foreign Affairs
NAP CD	National Action Plan to Combat Desertification
NAP PE	National Actions Plan to Protect Environment
NC	National Coordinator
NCO/CCD	CCD National Coordinator Office
NCSA	National Capacity Self Assessment to Implement Global Ecological Conventions
NGO	Non-Government Organization
NSRP	National Strategy for the Reduction of Poverty
PP	Partnership Panel
RAPAC CCD	Regional Action Program for the Asian Continent to implement UNCCD
RAP CCD	Regional Action Plan for UNCCD
RAPPE	Regional Action Plan to Protect the Environment
RETA	Regional program for Technical Assistance
RNPF	Republican Nature Protection Fund
SDC	Swiss Development and Cooperation Agency
SPCD	Sub-regional Program to Combat Desertification
SPNT	Specially Protected Natural Territories
SRI	Scientific Research Institute
UNDP	United Nations Development Program
UNCCD	UN Convention to Combat Desertification
UNFCCC	UN Framework Convention on Climate Change
VAT	Value-Added Tax
WB	World Bank

SUMMARY

The thematic review of the capacity of the Kyrgyz Republic to implement the UN Convention to Combat Desertification (UNCCD) was carried out within the framework of the GEF/UNDP Project National Capacity Self-Assessment to Implement Global Environmental Conventions (NCSA), which is aimed at identifying the factors preventing the effective implementation of the international obligations of the Kyrgyz Republic.

Recognizing the importance of implementing sustainable development and environmental protection programs, the Kyrgyz Republic is becoming increasingly involved in international activities targeted at restraining global environmental threats and is participating in united worldwide efforts to combat poverty and land desertification and degradation.

Parties to the UNCCD recognize the importance of capacity building, including the establishment of related institutions, the training of personnel and the development of adequate on-site facilities, through programs targeted at combating desertification and decreasing the impact of drought (Article 19.1 of the Convention). In accordance with their obligations (Article 19.2 of the Convention) the Kyrgyz government is reviewing their capacity and facilities at grass-root and national levels and the potential for their development.

The Kyrgyz Republic joined UNCCD in December 1997 and ratified it the Convention in accordance with the law of the Kyrgyz Republic 85 dated July 21, 1999.

In accordance with its obligations, in November 1999 the Kyrgyz government conducted the first National Forum, attended by government officials, parliamentary deputies, the heads of major ministries and agencies and representatives from NGOs and the community, at which the Coordination Committee for the Implementation of the Convention was established and the 'Concept Paper of the National Action Plan to Combat Desertification' was approved.

This body was created under the Ministry of Agriculture, Water Resources and Processing Industries (MAWRPI) of the Kyrgyz Republic. Since then, all decisions on the implementation of UNCCD commitments have been made by the Coordination Committee, headed by MAWRPI.

The 'National Action Plan' was developed by the Office of the National Coordinator of UNCCD and approved on December 8, 2000 by the Coordinating Committee. The same year, the plan was submitted to the Secretariat of UNCCD and presented on their website, <u>www.unccd.int</u>.

The 'National Action Plan' 2000 identifies the major causes of desertification, program participants and the factors restricting progress in this area. The plan also recommends responsive measures in the form of pilot proposals and projects to monitor and prevent land salination and swamping, erosion and landslides, excessive land clearing and deforestation and to improve the economic ability of local communities to combat desertification.

In this review, the following agencies are listed as primary participants in the implementation of UNCCD:

- MAWRPI is Kyrgyzstan's UNCCD coordinating body, ensuring the monitoring of irrigated land conditions, the sensible use of water resources, the manufacturing, processing and marketing of agricultural products and the implementation of land-development activities, agrichemical plant protection schemes and pasture and cattle farming development;
- The Ministry of Ecology and Emergencies (MEE) acts as a coordinating body of UNFCCC and is responsible for monitoring chemical and geological land pollution, forecasting and preventing erosion and landslides, hydrometeorology surveillance and forecasting draught, rainfall and river levels;
- The State Registry of the Kyrgyz Republic is the main public body responsible for monitoring the use and condition of plough-lands, land-ownership regulations and the formation of the land market and organizing land usage and the design of wind-protectant forest belts;
- The State Forest Service is a UNCCD coordinating body and a professional organization monitoring and managing forests, forest protection and fauna preservation;

- The oblast, rayon and state administrations and village *ayil okmotus* are responsible for the implementation of legislative acts, government resolutions on nature management and environmental protection at a local level and the realization of local development plans and programs;
- The jurisdiction of the ayil, rayon and oblast Keneshes (councils) includes the sensible use of local community land, the comprehensive socio-economic development of relevant territories and environmental protection.

In spite of the availability of a variety of structures and services that cover the major areas of vital activities to prevent land degradation, their often weak logistical and professional capabilities are no match for the problem emerging in the Kyrgyz Republic. This has been especially true in the past few years under the conditions of a transitional economy as some important rehabilitation activities and services were canceled.

Of the 9.2 million hectares of pastures in the Kyrgyz Republic, up to 50 percent are degraded due to excessive land-clearing, compression and erosion, the loss of valuable gramma grass and the removal of plants not eaten by cattle from the land. The area of salinated and alkalized soil increased from 909,700 hectares in 1985 to 1.652 million hectares in 2000, the area of swamped lands increased from 28,900 hectares to 90,900 hectares, rocky lands expanded from 2.397 million hectares to 4.021 million hectares and approximately 70 percent of the country's irrigated land, mainly the in foothills, is affected by irrigation erosion.

It has only become possible for the Kyrgyz Republic to fight this trend since acquiring aid from international donors. Since 1996, the Kyrgyz Government, with support from the International Development Association (IDA), the Asian Development Bank (ADB), the World Bank (WB), the International Fund for Agricultural Development (IFAD) and the United States Agency for International Development (USAID) has launched a number of projects in the following areas:

- the development of sheep breeding techniques and programs;
- the rehabilitation of irrigation systems;
- regional agricultural development;
- the development of agriculture support services;
- the ensuring of rural water supplies and sanitation;
- the development of rural infrastructure;
- land reform.

These projects promote the implementation of pilot measures to improve the situation in the Kyrgyz Republic and to build on its existing capabilities. Through the Research Institute of the State Registry the GIS-Laboratory for Pasture Monitoring was established, about 300 Water Users Associations were set up and the legal framework for their work provided, under the Department of Water Resources the Training Center for Water Users Associations was founded and Rural Advisory and Development Centers (RADCs) were established.

The Kyrgyz Agricultural Market Information System (KAMIS) was also created as were Rural Investment Committees (RICs) at village levels and Territorial Investment Committees (TIC) at ayil okmotu levels. One hundred land appraisers were trained, 14 NGOs were trained in the implementation of land reform and a network of 45 rural consultants for the protection of land users' rights was created.

The launch of investment projects on agribusiness, agrimarketing and regional rural development in the south of the republic is expected, but the burden of the debt of the republic restricts further international loans and has increased the dependency of the Kyrgyz Republic on grants.

Nature management investment policies could be developed, based on the experience of other countries, through UNCCD to secure financial assistance from the Global Environmental Facility through operational programs – there are 15 on land degradation, including desertification and deforestation.

With this in mind, the necessary conditions for donor funding have been created in the Kyrgyz Republic – the 'National Action Plan' was developed and the Partnership Panel on UNCCD implementation under MAWRPI was established. At the request of Central Asian countries, with support from international donors

Global ecological conventions: Capacities of Kyrgyzstan

and ADB, the Kyrgyz Republic prepared a concept paper aimed at launching the Central Asian Countries Initiative for Land Management (CACILM). The concept paper, which was developed with the help of Global Mechanism of UNCCD, the Canadian Agency for International Development (CIDA), the German Agency for Technical Cooperation (CTZ), the Swiss Agency for Development and Cooperation (SDC), the International Center for Agricultural Research in the Dry Areas (ICARDA) and the United Nations Development Program (UNDP) was designed for implementation from 2005 to 2014 and will be based on the national plans and programs of each country.

The national plans will identify priority needs and investments for technical assistance and the combination of current and planned investments and programs for technical assistance provided by external financial organizations.

An analysis of activities aimed at UNCCD implementation allowed NCSA to draw conclusions on the situation and make recommendations within the framework of this review:

- in spite of efforts by the state, basic measures to prevent land degradation are only implemented with donor assistance;
- legislations for the sensible use of land and the conservation of land and water resources were developed but the mechanisms for implementing the corresponding normative and legal acts, particularly at territorial and oblast levels, were not adequately developed;
- insufficient government funding, material and technical support and poor implementation capacities at institutional levels remains an obstacle to UNCCD implementation;
- a lack of coordination between ministries and departments and a lack of transparency and openness in interdepartmental cooperation also hinders the implementation process. All organizations working in this area need to interact more, including at oblast and territorial levels;
- problems including soil erosion, salination, swamping, wind erosion and land clearing require the attention of several ministries and departments, whose employees should be trained and educated on the benefits of UNCCD implementation. The capacity of stakeholder agencies needs to be strengthened at central and territorial levels;
- the implementation of UNCCD commitments was not adequately included into CDF and national budget plans;
- more work needs to be done to secure grants from international donors. This need is dealt with in the CACILM concept paper and requires government support;
- the National Action Plan of the Kyrgyz Republic for UNCCD implementation highlights the need for institutional development and names the national development program as the instrument for this development.

1. REVIEW OF THE CURRENT SITUATION IN THE KYRGYZ REPUBLIC

1.1. Convention goals and state obligations for its implementation

The United Nations Convention to Combat Desertification is based on a decision by the United Nations Conference on Environment and Development in Rio-de-Janeiro in 1992. The Convention was developed in 1994, and came into force in 1996. Since then, 185 countries and the European Community have become parties to the Convention.¹ UNCCD is aimed at combating drought in dry and weakly supplied, semi-arid and arid zones and it acknowledges a direct connection between poverty and land degradation and the need for poverty reduction as a vital instrument to combat desertification.

"The United Nations Convention to Combat Desertification (UNCCD) is based on a decision by the United Nations Conference on Environment and Development, held in Rio de Janeiro in 1992. The major focus of the Convention is the broad participation of the population and the provision of assistance to local populations for people to help themselves to prevent and stop land degradation."²

> Butros Butros-Gali, Former Secretary-General of the United Nations.

The convention acknowledges that, "communities experiencing the effects of desertification" should be the primary target of efforts to stop desertification and addresses the primary methods of desertification and drought prevention through the conservation and rehabilitation of land. The issues facing local communities need to be addressed if desertification is to be prevented and these communities should become involved in development programs that start at a 'grass-roots' level.

The current social and economic situation in the Kyrgyz Republic means adequate funds to carry out activities to combat land degradation can not be allocated. When the Kyrgyz Republic joined the

convention it opened its door to international financial assistance and an exchange of information and experience sharing with other parties, which will aid the development of coordinated activities to combat desertification.

"The basis of the success of any international activity is coordination. The convention stipulates mechanisms within the frameworks of which developing countries, donor countries, intergovernmental and nongovernmental organizations can be united and form a new partnership for the sake of progress. Commitments of donor countries to provide assistance to developing countries to combat desertification have special importance. People, to the utmost, affected by desertification, are the poorest in the world. The Convention can promote the reduction of the vulnerability of the affected population by means of conserving their living environment, increasing food security and establishing new conditions for alternative livelihood sources. Successful implementation of the convention will lead to the improvement of life conditions and poverty reduction, and also will help to diminish such related problems as migration, disappearance of types of animals and plants and provision of emergency assistance to population facing a critical situation."³

Butros Butros-Gali, Former Secretary-General of the United Nations.

The commitments of parties to the Convention are mainly related to the development of an integrated approach to national, sub-regional and regional strategies to combat desertification and to strengthen international cooperation for the collection, analysis and exchanging of information, research and technologies, the increasing of professional capacities and material support and the securing of financial resources to implement desertification programs.

Developed countries take on special commitments to support countries experiencing desertification, by providing substantial financial resources and other kinds of assistance through the mobilization of additional funding from various sources, including the private sector and nongovernmental organizations.

Developed countries are also required to promote access to the appropriate technology and know-how for the implementation of UNCCD.

¹ Ministerial Declaration of Asian Region on Implementation of the Convention to Combat Desertification, Abu-Dhabi, UAE, June 2003.

 $^{^{2}}$ Return to the land. Guidelines to the Convention to Combat Desertification. – 1995. - P.3.

³ In the same place.

Global ecological conventions: Capacities of Kyrgyzstan

As programs to combat land degradation are intersectoral in nature and UNCCD aims to solve both ecological and economic issues, a financial mechanism for the implementation of the Convention, Global Mechanism (GM), was established. This organization was designed to aid the effective use of financial resources, mobilize additional funding and introduce new technologies related to the prevention of desertification. The Global Mechanism is not a fund, but acts as an intermediary between interested parties.

1.2. The Natural environment and land resources of the Kyrgyz Republic

The Kyrgyz Republic occupies 19.995 million hectares. Agricultural land makes up 10.7974 million hectares (54 percent) of the total area, and the State Forest Fund and protected natural territories take up 3.065 million hectares (15 percent).¹

After launching land reform programs, significant changes in the use of land resources based on land categories took place.

In particular:

- the area of agricultural lands decreased by 103,400 hectares due to the transferring of land into other categories;
- the area of inhabited localities significantly increased (to solve housing problems an area of 100,700 hectares was provided for housing);

"Land degradation" means the reduction or loss of biological or economic productivity and complexity of structure of dry plough land, irrigated plough land, or pastures, forests and woodlands in arid, semi-arid and dry sub-humid areas as the result of land use or impact of one or several processes.²

- the area of reserve lands increased by 8.6931 million hectares due to the transferring of unused, mainly, remote pastures into this category(they remained in the agricultural category);
- the area of state forestry lands increased by 361,200 hectares as they had previously been in long-term use by agricultural

companies.

Among these land categories, agricultural lands, State Forest Fund land and protected natural territories are the areas targeted for UNCCD implementation in Kyrgyzstan. These areas in particular suffer from excessive exploitation and anthropological impacts, which encourage the degradation processes (Picture 1) and a reduction in their biological and economic productivity.



Picture 1. Scale of land degradation in the Kyrgyz Republic (2003).

¹ National Land Report of the State Registry on Availability and Distribution of Land in the Kyrgyz Republic as of 01.01.2003.-P. 1.

² Convention to Combat Desertification. – 1994. - Article 1, item f.

Deforestation, swamping, salination, alkalization and erosion processes lead to the reduction of crop capacities and decreases in the biological productivity of the land. Exacerbated by unfavorable socioeconomic factors, this leads to an increase in expenses per unit of production and low economic productivity in affected areas.

1.2.1. Degradation of agricultural land

Agricultural land is particularly vulnerable to reductions in biological productivity. Factors which have a particular impact on the biological productivity of certain areas in the Kyrgyz Republic include *erosion* processes, salination and swamping or underground flooding (Picture 2).

Picture 2 clearly shows that since 1985, the area of degraded lands in the Kyrgyz Republic has increased significantly. It should also be noted that the last comprehensive monitoring of land was conducted in 1990 and subsequent selective surveys may not reflect the complete development of the degradation process. The conducting of regular comprehensive land monitoring is one of the main priorities of UNCCD.

Water and wind erosion processes are caused by many factors, both natural and anthropogenic. With regards to the possible natural factors, the *ruggedness of the territory* of the republic and its hydrographic structures (watersheds, slopes, narrows, hollows and river valleys) should be taken into account. The *characteristics of different soil layers* (due to decreases in their friability some soils are eroded faster than loams) also determine the extent of erosion processes. Evidence of water erosion can be seen throughout the republic as small land-slides and slips dot the landscape. The most vulnerable areas to water erosion are ploughed lands and, in particular, irrigated lands. Rainfall and wind patterns have a great impact on land degradation.



Picture 2 Qualitative characteristic of agriculture land on degradation factors.

The Kyrgyz Republic is in an area particularly prone to erosion. *Water erosion* affects much of the country. Catastrophic situations including mudslides, avalanches and landslides pose risks in the south of the country. According to 2003 MEE data, the southern region of the Kyrgyz Republic experiences 73.5 percent of all natural, man-caused and ecological disasters in the country. Areas that are particularly prone to *wind erosion* are located in the west, adjacent to the Issyk-kul area, the Kochkor havity, the eastern part of Kemin rayon, the western part of the Kara-Bura rayon and in some rayons of the Osh and Batken oblasts¹.

¹ National Report on the State of Kyrgyzstan Environment for 2001-2003. Department of Ecology and Nature Management. 2004. – P.51.

The anthropogenic causes of erosion processes development are directly connected with economic activity, in particular the improper use of irrigated land. Significant soil erosion can occur due to the nonobservance of erosion-protection methods of soil processing and when crops are sown in *inappropriate locations*.

Unregulated *cattle grazing* also causes the degradation of pastures and aids the erosion process. The destruction of foliage and natural vegetation in croplands leads to decreases in the soil's ability to adsorb and retain water and nutrients (resulting from the dispersion, compression and destruction of structural soil components), which also encourages erosion.

There are other types of irrigated land degradation including salination, water logging, swamping and the buildup of subsoil water, which has been observed in the southern regions of the Kyrgyz Republic, where irrigated land is widely used. The Chui oblast is the most vulnerable to degradation in southern irrigated agricultural zones.

Decreasing of capital investments have caused irrigation and drainage systems to fall into disrepair and areas of land degradation have grown across the country, especially in the Talas, Kara-Bura, Batken, Aravan, Kara-Suu and Suzak rayons (Table 1).

Table 1

Nº	Oblast	Salt	Solonetzic	Waterlogged	Rocky	Deflation Dangerous (wind erosion)	Affected by water erosion
1	Jalal-Abad	$\frac{16.2}{3.3}$	$\frac{6.1}{0.2}$	$\frac{2.0}{0.8}$	<u>610.8</u> 26.2	<u>861.0</u> 92.0	<u>867.3</u> 134.8
2	Osh	<u>104.7</u> 19.0	$\frac{\underline{26.9}}{3.0}$	$\frac{\underline{24.5}}{\underline{22.0}}$	$\frac{1005.5}{49.6}$	<u>1277.8</u> 119.5	<u>1242.2</u> 111.9
3	Issyk-Kul	<u>84.3</u> 16.0	$\frac{1.9}{0.6}$	$\frac{40.4}{9.0}$	$\frac{429.0}{23.4}$	<u>1026.7</u> 130.9	<u>823.1</u> 92.1
4	Naryn	<u>674.1</u> 16.1	<u>332.3</u> 11.5	$\frac{28.1}{0.5}$	<u>1210.0</u> 44.7	<u>1066.7</u> 76.0	<u>1628.6</u> 217.5
5	Talas	<u>15.4</u> 5.6	<u>7.2</u> 6.5	$\frac{5.0}{0.5}$	<u>451.4</u> 13.6	<u>711.4</u> 94.2	<u>626.9</u> 73.9
6	Chui	<u>286.1</u> 160.0	<u>96.8</u> 60.0	$\frac{18.6}{0.3}$	$\frac{314.5}{38.6}$	<u>746.2</u> 138.5	<u>438.7</u> 134.6
	Kyrgyz Republic	<u>1180.8</u> 220.0	<u>471.2</u> 81.8	<u>118.6</u> 33.1	<u>4021.2</u> 196.1	<u>5689.3</u> 651.1	<u>5626.9</u> 764.8

Qualitative characteristics of land by oblast of the Kyrgyz Republic 01/01/2002 (per thousand hectares)

Note: numerator – all lands of agricultural companies,

denominator – irrigated lands of agricultural companies

Source: National Report on the State of Kyrgyzstan Environment, 2001-2003.

According to data from the State Reclamation Cadastre the water table is rising and agricultural lands surrounding 96 inhabited localities, including Tokmok and Kara-Balta are subjected to subterranean flooding¹.

Salination primarily occurs as the levels of mineralized ground water rise. Secondary salination is the result of the destruction of collector drainage systems. Secondary salination is widespread in the Kyrgyz Republic and is visible to varying degrees in ploughed areas. The creation of Gypsum by solonetzic have ceased despite this process being one of the most effective means of rehabilitating agricultural lands.

A) Plough lands

Food security in the Kyrgyz Republic has been characterized as *unstable* based on the amount of plough land per capita, population growth rates, 'land imports' and land tenure.²

¹ State Land-Survey of Reclamation State of Lands. Department of Water Resources of MAWRPI, 01.01.2003. – P. 92.

² Rodina E.M. Sustainable Development of Ecology and Economic Systems. - Bishkek: Al Salam Printing House, 2003. - P.135.

Sustainability indicators such as 'land imports', proposed by the UN Department of Economic and Social Affairs (UNDESA), are particularly interesting. Land imports are defined as the annual imports of crops to an average of the grain-crop capacity of the country, calculated in hectares. In the case of sustainable land tenure land imports are zero.

The Republic of Kazakhstan, the main exporter of grain-crops in Central Asia, has land imports of up to 6,000 hectares per year. The Republic of Tajikistan is the main importer of land in the region importing

up to 270,000 hectares per year. In the Kyrgyz Republic, land imports are quite high at 52,000 hectares per year (*Picture 3*).



Picture 3. Indicators of 'land import' in Central Asia.
Source: Rodina E.M. 'Sustainable Development of Ecology and Economic Systems'. Bishkek, Al Salam Printing House, 2003, p. 131.

Reasons for the unstable development of land tenure in the Kyrgyzstan include:

- <u>the low biological productivity of plough lands</u> in the most parts of the republic and much lower than natural levels when humus composition is between 20 and 45 percent higher;
- <u>the reduction of plough lands</u>. Following the inventory of lands (in accordance with Kyrgyz government resolution 'On the Results of State Registration of Lands' from 1993 to 2000) experts from the UNCCD panel noted that the reduction of plough lands was due to their transformation into other land categories. The area of irrigated land dropped considerably, the area of irrigated plough



Photo 1. Man's impact in Toguz-Torousskiy rayon. *Author – Penkina L.M.*

land shrank five percent compared to 1993 figures and in 2003 totaled 813,500 hectares.¹ The total area of ploughed land in 2003 in the Kyrgyz Republic is 1.2374 million hectares;

• <u>population growth</u>. In the past 10 years the population of the Kyrgyz Republic has increased by 13.3 percent, and has reached approximately 5.1 million people, according to 2004 statistics.² The area of ploughed land per capita has dropped correspondingly by 21 percent in the past

¹ In accordance with the Resolutions of the Government «On Results of State Registration of Lands of the Kyrgyz Republic» from 1993 till 2003.

² National Statistics Committee, http://www.stat.kg

10 years. At the start of 2003, this indicator was 0.24 hectare.¹

Climatic peculiarities in the Kyrgyz Republic have led to the development of predominantly irrigated agricultural systems, which are the most productive in these conditions. The productivity of crops cultivated on dry land is lower than on irrigated land.

For example, grain-crops have an average productivity level of 50 centers per hectare on irrigated land and 30 centers per hectare on dry $land^2$. The difference in income from these two systems is significant reaching 28 percent based on the average income from irrigated ploughed land in the republic (see *Table 2*).

Table 2

Oblasts	Income (hectare/som)				
	Irrigated lands	Dry lands			
Batken	2810.7	1217.1			
Jalal-Abad	3043.3	659.6			
Issyk-Kul	2806.6	643.2			
Naryn	978.5	316.5			
Osh	3902.6	1039.6			
Talas	2517.6	709.9			
Chui	3100.3	841.6			
Total on average for the republic	2737	775			
Source: Saigal Sh. Kyrgyz Republic: Issues and Approaches to Combat Desertification. – Annex 2. – June 2003.					

Irrigated land in the Kyrgyz Republic is predominantly watered using surface methods. But surface watering causes irrigation erosion and losses of irrigation water due to the overflow of water and deep filtration. The degradation of the top fertile layer of soils due to land slips increased from 0.04 to 0.05 during the vegetation period and in case of furrow watering, the biggest surface slip was 60.8 ton/hectare.³ These events occur in the sub-mountainous areas of the republic. Valley areas also suffer from land degradation processes, where swamping and salination occur.

One of the basic reasons for salination and swamping is the low level of COE irrigation water use. The Kyrgyz Republic has adequate water-supplies totaling 50 billion m³ per year of surface river water. But the republic uses between just 12 and 17 percent of this amount, and 90 percent of all water used by the republic is used for irrigation, during which most of the water is wasted due to poor delivery techniques. This accounts for between 20 and 26 percent of the total annual diversion capacity. Due to natural, geographic and climatic conditions, the water supply to irrigation lands during periods when crops are growing (between 1.5 and 2 months per each) is insufficient and reaches just 30 to 50 percent of needy areas depending on the year and water levels⁴. This has a dire effect on the economic productivity of the land.

B) Natural pastures

Natural pastures cover 9.2 million hectares in the Kyrgyz Republic. About 30 percent of these are springautumn pastures, 25 percent are winter pastures and 45 percent are summer pastures⁵.

One of the principal types of agricultural activity in Kyrgyzstan is cattle farming, the staple diet of which is cheap gramma grass, comprising 90 percent of the cattle rations. Most pastures are located in mountainous areas, from where water flows to the Aral Sea basin. The state of these pastures has an impact on river flow rates and patterns and processes of desertification both in the Kyrgyz Republic and

Central Asia. Pastures are inclined to desertification, partly because they often exceed the 1991

¹ National Report on the State of Kyrgyzstan Environment for 2001-2003. Department of Ecology and Nature Management. 2004. – P.46.

² Scientifically Justified System of Agriculture in the Issyk-Kul oblast of the Kyrgyz SSR. – Frunze: Kyrgyzstan, 1984. – P.85. ³ Report of Scientific and Research Institute 28-04/96 «Eurrow Frosion Prevention and Increasing of W/

³ Report of Scientific and Research Institute 28-04/96 «Furrow Erosion Prevention and Increasing of Watering Efficiency in Sub-mountain Area of Kyrgyzstan, 1996. – P.28.

⁴ Rodina E.M. Sustainable Development of Ecology and Economic systems. - Bishkek: Al Salam Printing House, 2003. - P.49.

⁵ State Land Report of State Register on availability and distribution of lands of the Kyrgyz as of 01.01.2003.-P 1.

ecologically justified loads on pastures. These recommendations are estimated to be exceeded on average in the Kyrgyz Republic by about 2.25 times based on the findings that pastures of 9 million m² about 18 million head of cattle are grazed.¹

However, the number of cattle found per square meter in the Kyrgyz Republic dropped from 1990 to 1995 and is now stable.

Due to a lack of approved techniques, it is difficult to estimate the ecological and economic damage in monetary terms caused by the poor use of pastures. After studying the mountain and forest regions of the Kyrgyz Republic experts from WB demonstrated (*Table 3*) that improving the use of pastures can result in rises in annual income of up to 62 percent – 23.84 billion som or US\$477 million. WB figures showed that the income of unproductive pastures was 14.78 billion som or US\$296 million.

Table 3

	Area, thousand hectares		Average productivity of dry solid matter (center /hectare)		Cost (million soms)			
	Poor	Improved	Poor	Improved	Poor pasture	Improved pasture		
	pasture	pasture	pasture	pasture				
Spring	1200	1200	4	5.5	1350	1856		
Summer	3800	3800	8	12	11400	19000		
Autumn	1200	1200	4	5.5	900	1238		
Winter	2000	2000	1.5	2.5	1125	1750		
Total	8200	8200			14775 (US\$296)	23844 (US\$477)		
<i>Source</i> : 'Kyrgyz Republic: Report on Mountainous Systems and Forestland in the Kyrgyz Republic'. Working paper of the World Bank, 33, based on tables 5 a, b. p. 23								

Assessment of the current and potential value of pastures in the Kyrgyz Republic

1.3. The degradation of forest land

The environmental peculiarities of the Kyrgyz Republic are caused by its inland location, remoteness from seas and oceans, desert surroundings, the aridity of its climate and its acute horizontal and vertical zoning. This creates the natural prerequisites for land desertification and degradation processes, in particular, when man excessively exploits the land for economic purposes. This situation was identified in the 1980s by a leading Kyrgyz forestry specialist Professor P.A. Gan, who highlighted the disastrous reduction of forest land from 1930 to 1978 and the poor restoration of affected areas.

"Tian-Shan is situated in the desert zone, and a forest in these conditions is an azonal phenomenon, it is located only in places where rainfall is sufficient for its existence. But permanent desert wind, achieving high mountains often causes droughts during which natural forest recovery after felling is almost impossible"².

Covering a small area (849,500 hectares as of1/01/1998³), forests play an important role in the regulation of natural water resources, the protection of soil from erosion, the conservation of biological diversity and the maintenance of a delicate ecological balance. Increasing forest densities in river basins with mixed plantations in mountain areas will allow higher river levels and flow rates. For every 10 percent of forest density water flow rates increase by 7 to 10 mm. For example, in a juniperous zone with annual rainfall levels of 500 to 600 mm per year, additional moisture collected is between 50 and 150 mm or 500 to 1500 cubic

¹ The data on livestock is taken from the Cattle Breeding Department of MAWRPI and provided in conditional heads of sheep; so, 1 head of cattle equals to 5 heads of sheep, 1 head of horse equals to 6 heads of sheep.

² *Kovalenko B.G.* Report of the National Consultant «Examination of Social and Economic Factors which Promote Desertification of Lands in Kyrgyzstan, and Formulation of the Necessary Response Strategy». – Bishkek, 2000. – P. 51.

³ National Report on the State of Kyrgyzstan Environment 2001-2003. Department of Ecology and Nature Management. Bishkek – 2004. – P.92.

meter/hectare of water. The deforestation of water ways causes fertile soil to be washed away in amounts between 10 to 20 times higher than normal during rainy periods¹.

According to FAO statistics, forest land in the Kyrgyz Republic was not significantly reduced from 1990 to 1995. But commercial felling can still cause irreparable losses to mountainous forest systems, even when

felling is regulated. Even now, forest ecosystems face a significant risk of degradation, in particular, the natural recovery of forest plantations has practically stopped in unique walnut forests.²

Increased anthropogenic impact, including uncontrolled land clearing for pastures, the unauthorized felling of trees and fire-wood harvesting has caused significant damage to forests in the Kyrgyz Republic. It is critical that a search for new sources of energy is undertaken as felling for firewood is a large-scale activity. It is important to pay special attention to 'hot spots' in the south, where firewood harvesting is widespread and causes high levels of forest degradation. No attention is paid to the potential capabilities of forest industry to preserve forest ecosystems by creating industrial plantations of fast growing species, to develop and plan nursery forests or organize the harvesting and processing of forest fruit and berries, herbs.

2. ASSESSMENT OF THE CAPACITY OF THE KYRGYZ REPUBLIC TO IMPLEMENT ITS OBLIGATIONS TO THE UN CONVENTION TO COMBAT DESERTIFICATION

2.1. Review of the activities of the Kyrgyz Republic to implement its Convention obligations

2.1.1. The National Action Plan

In September 1997, through an initiative by the Irrigation Research Institute in Bishkek, a discussion workshop was held on the entry of the Kyrgyz Republic into UNCCD. Among workshop participants were representatives of the Kyrgyz government, interested agencies and institutes, the scientific sector, and NGOs and farmers, who unanimously concluded that the country should join the convention.

The Kyrgyz Republic became a party to the UNCCD in December 1997 and ratified the convention in accordance with the Kyrgyz Republic Law 85 'On the Kyrgyz Republic Joining the UN Convention to Combat Desertification in Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa' on July 21, 1999.

When the Convention was ratified the corresponding Kyrgyz legal act did not identify the body or organization responsible for the implementation of UNCCD and the procedure for the integration of International Law standards with national legislation was not performed.³

In accordance with its obligations to the Convention, the Kyrgyz government conducted the country's first National Forum, attended by the first vice prime-minister, key ministries, agency officials and NGO representatives, in November 1999. At the forum, the Coordinating Committee on the Implementation of UNCCD was established under MAWRPI and a concept paper on the 'National Action Plan to Combat Desertification in the Kyrgyz Republic' was approved.

All decisions on the implementation of the 'National Action Plan' and commitments under UNCCD are made by the Coordinating Committee headed MAWRPI and the National Coordinator on Combating Desertification.

The office of the National Coordinator was formed through the Kyrgyz Research Institute of Irrigation under the MAWRPI and is responsible for the implementation of the National Action Plan and for the coordination of activities to combat desertification throughout the country. But the National Coordinator has no official status in Kyrgyzstan and does not receive regular financial support from the state to ensure the effective performance of its functions.

¹ *Kovalenko B.G.* Report of the National Consultant «Examination of Social and Economic Factors which Promote Desertification of Lands in Kyrgyzstan, and Formulation of the Necessary Response Strategy». – Bishkek, 2000. – P. 85.

² Kyrgyzstan: General Country Assessment. UNDP. - Bishkek, 2002. – P. 118.

³ In accordance with item 2 of the Article 29 of the Law «On International Treaties of the Kyrgyz Republic» (in the version of the Law of the KR # 110 of June 27, 2002).

The Kyrgyz Research Institute of Irrigation has developed and supports the website <u>www.water.kg</u>, which is used as an Information Center on UNCCD implementation¹.

The National Action Plan was developed by the National Coordinator on Combating Desertification and was approved on December 8, 2000² by the Coordinating Committee. The same year, the 'National Action Plan' was submitted to the UNCCD Secretariat³. The priority action areas of the plan are:

- the development of a public awareness program on the processes of desertification and its effects;
- strengthening institutional natural resource management capacities;
- combating swamping, salination and water and wind induced soil erosion with the aim of increasing the productivity of irrigated lands for poverty reduction and the development of an agrarian economy;
- the development of agricultural tourism and trade, including the promotion of the Great Silk Road as a means of increasing the economic capacity of rural areas;
- the recovery of pastural capacity and development of large scale cattle farming, beekeeping and phytobusiness;
- increasing forest densities in an effort to strengthen mountain slopes and light soil and increasing the rainfall levels;
- desertification monitoring and the launching and maintaining of sustainable processes to combat desertification.

One positive aspect of the plan is the allowance of state funding for *research* into the monitoring of irrigated land degradation⁴.

The plan contains information on the geo-strategic state of the country, its socio-economic situation, the scale and causes of desertification, the priorities of projects and programs, the legislative framework of the Kyrgyz Republic and the methods for implementing the plan itself. But it should be noted that the 'National Action Plan' is overloaded with scientific information, it does not contain a lot of socio-economic information and its strategic program directions are not clearly specified. The plan reveals a poor understanding of the need for local community participation in projects despite desertification being a community issue. *The implementation of the National Action Plan should provide the direct participation of the civil society and NGOs working in close cooperation with decentralized administrative units at a national level.*

The undeveloped content of the national plan constrains the implementation of the convention, intersectoral activities and the development of partnerships between NGOS, communities and donor agencies.

There are three main restrictions on the implementation of the 'National Action Plan'.

(a) The 'National Action Plan' of the Kyrgyz Republic is a document that lacks the official status of a National Development Program aided by state planning and budget allowances. The document does not contain any clear budget or financing provisions to be made on a regular basis. Its political and program content should be further developed and formulated as a step-by-step plan for implementation.

(b) The Office of the National Coordinator on UNCCD implementation is an informal organization that needs official status, equipment, facilities and financial support.

(c) Employees of the key ministries and agencies whose activities relate to UNCCD implementation should be trained and provided with the necessary information on project development to improve the level of cooperation among partners and the access to international financial resources.

Programs aimed at implementing the 'National Action Plan' should be expanded to cover the technical and scientific parameters of desertification prevention and interdepartmental and intersectoral efforts should be applied to the cessation of factors stimulating desertification. The plan should be implemented using a three-pronged approach:

¹ This web page was created with assistance of the Mission of the United States Agency for International Development in Central Asia Republics under the Project «Natural Resources Management in Central Asia».

² National Action Plan was developed with a financial support of the CCD Secretariat.

³ Information about provision of the NAP by the Kyrgyz Republic is located at the website <u>www.unccd.int</u>

⁴ Theme # 99-02/02 «Degradation Assessment of Irrigated Lands of the Kyrgyz Republic» 2002–2005, implemented by the KyrgyzNII of Irrigation.

- CDF, NPRS, NAPPE and land and forest management, strategies and action plans should be integrated with the development of mountainous territories and the national plan should be integrated with state policies;
- the involvement of civil society institutions in UNCCD implementation projects;
- the implementation of the national plan with the participation of local communities in pilot projects aimed at preventing land degradation.

2.1.2. Sub-regional and regional cooperation

Every Central Asian country is a party to UNCCD. In accordance with their obligations under the convention, all these countries have prepared a 'National Action Plan' to combat desertification. As desertification and drought are transboundary issues and the prevention of desertification and drought requires coordinated action, the first meeting on the preparation of the *Sub-regional Program to Combat Desertification* (SPCD) was held among Central Asian ministers in the Kyrgyz capital, Bishkek in July 2000.

A decision on the development of SDCP was made. The preparation and implementation of the program should be considered an integral part of regional sustainable development policies.

At the second meeting on the preparation of SPCD, held in Almaty, Kazakhstan on April 2001 *the priority areas of sub-regional cooperation* were determined. To develop decisions made in Almaty, pilot projects were prepared and program training courses and workshops on desertification issues were launched. As a result, the Regional Technical Assistance organization, financed by the Global Mechanism (GM) and the Asian Development Bank (ADB) has been founded.

In Geneva in 2001, the Agreement on Strategic Partnership (ASP) was signed between GM, ADB, the UNCCD project of the German Agency for Technical Cooperation (GTZ) and the Canadian Agency for International Development (CIDA). The agreement covered the rendering of assistance to Central Asian countries and was soon joined by the Swiss Agency for Development and Cooperation (SDC) and the International Center for Agricultural Research in the Dry Areas (ICARDA).

From 2002 to 2003, meetings to approve the SPCD text took place. In 2004, UNDP also joined the ASP.

The need for a more *systematic approach to the problem of land degradation* was expressed at the Forum on the Development of Partnership in Tashkent, Uzbekistan in 2003. At the forum, the Tashkent Common Platform of Action to Implement UNCCD in Central Asia was adopted. The platform focused on the following areas:

- the *integration* of land degradation issues *with the national policies and programs* for sustainable development and foreign financial agency programs;
- the creation in each Central Asian country of *working groups* for the development of partnerships to implement the UNCCD.

The Partnership Working Group (PWG) under MAWRPI was established as a national partnership mechanism and was presented by a broad number of international partners, including key ministries, civil society representatives and donor agencies. The group coordinates the implementation of UNCCD and coordination of donor activities in Central Asian countries related to land degradation and desertification prevention. As a result of PWG activities, in 2004 the *Central Asian Countries Initiative for Land Management* (CACILM) was developed and the application of long-term, complex and integrated approaches to land degradation prevention in the region proposed.

Through CACILM, plans were made to develop and implement the partnership program aimed at integrating land degradation prevention with national strategies through long-term multilateral programs managed by Central Asian states. The program also aimed to hone national priorities, adopt transparent participation between concerned parties, flexibly respond to monitoring and evaluation results and mobilize additional financial resources, including grant funds from GEF.

The three principle fields of action expected through the program are:

(i) political, legislative and management assessment and reform for the integration of sustainable land management processes with short, medium and long-term national, sectoral and territorial plans and programs;

(ii) the assessment of institutional strengthening needs at regional, national and local levels and further measures aimed at capacity building, which will:

(a) overcome barriers to the implementation of sustainable land management policies and programs;

(b) create the appropriate mechanisms and capabilities for monitoring the processes and trends of land degradation;

(c) strengthen measures for evaluation of programs to combat desertification.

- (iii) the offering of direct local investments in the form of project intervention packages aimed at improving the quality of life and economic prosperity of local beneficiaries and to preserve or recover the stability of ecosystems through sustainable land management focusing on project investments in the following fields:
 - (a) *Sustainable Agriculture*. The introduction of agriculture and water management methods allowing the improvement of agricultural productivity and additional pilot or demonstrative measures;
 - (b) *Sustainable Pasture Management*. The introduction of measures to improve and achieve the sustainability of pastural economic productivity and additional pilot or demonstrative measures;
 - (c) *Sustainable Forest Management*. The introduction of measures to sustain the economic productivity of forests and additional pilot or demonstrative measures.

After the approval of a multilateral framework, CACILM measures will be financed by international and Central Asian members of CACILM, including GEF. The 10-year framework on financial obligations was applied with the provision of enough time for the necessary political and institutional changes to occur with program members and concrete progress in land related areas.

The 10-year term will be divided into three financial periods, comprising one two-year inception period from 2005 to 2006 and two four-year periods from 2007 to 2010 and from 2011 to 2014. This will allow financing agencies to plan their financial inputs and approaches for the full implementation of commitments in each country.

This approach allows the integration of pilot demonstrations with political and institutional reforms, which should facilitate the refining and replication of successful land management methods and political and institutional approaches.

The Regional Action Program for Asia was adopted in 1997 at the Ministerial Conference on Regional Cooperation to Implement UNCCD, which took place in Beijing. The main purpose of the Regional Action Program for Asia (RAPA), as mentioned in the Article 11 of the Convention, is to harmonize, complement and increase the efficiency of national programs. The action program identifies factors contributing to desertification and discusses the practical measures to combat the problem and mitigate the effects of drought as developed for the national action program in article 10 of UNCCD.

However, cooperation actions may include previously agreed integrated programs for sustainable natural resources management, scientific cooperation and the strengthening of corresponding institutions.

In accordance with the article 6 of Annex II of the convention, regional activities to enhance sub-regional and joint action programs may include measures to strengthen institutions and mechanisms for coordination and cooperation at national, sub-regional and regional levels, such as:

- 1. the promotion and strengthening of technical cooperation networks;
- 2. the preparation of technology, techniques and practices inventories, records of traditional and local technologies and techniques and programs to promote their use;
- 3. the evaluation of requirements for technology transfer and the promotion, adaptation and use of such technologies;
- 4. the promotion of public awareness programs and capacity building at all levels, the strengthening of training methods and the research and implementation of systems for human resource development.

The Regional Action Program, as a part of regional actions in Asia, allows several thematic program networks (TPN). As Kyrgyzstan has strong scientific capabilities, it is represented in all thematic networks including:
- **TPN-1** 'Desertification Monitoring and Evaluating' under the chairmanship of China and Japan, which was launched in July, 1999;
- **TPN-2** 'Agriforestry and Soil Protection' under the chairmanship of India, launched in March, 2000;
- **TPN-3** 'Fixation of Sand-Dunes and Pasture Management' under the chairmanship of Iran and launched in May, 2002;
- **TPN-4** 'Water Use in the Agriculture of Arid and Semi-Arid Areas' was launched in July, 2002 under the chairmanship of Syria;
- **TPN-5** 'Strengthening the Capacity for Mitigating the Effects of Drought and Desertification Control' which was launched in June, 2003 under the chairmanship of Mongolia.

The regional program prioritizes the implementation of sub-regional action programs and the national action programs of Central Asian countries, the improvement of information exchanges and the attraction of donor agencies. Regional actions will be adopted by a group of countries to combat common problems related to land degradation and desertification. Interested parties, including national governments will accept the primary responsibility for these programs and will provide most of the necessary resources for their implementation. The international community will also lend their support to the projects.

2.2. System capacity of the Kyrgyz Republic to implement the Convention to Combat Desertification and the degradation of land

After making the implementation of the Millennium Goals (MG) a national priority, the Kyrgyz government has actively worked to build their capacity and implement decisions related to the reduction of poverty and the effective use of the country's natural resources.

The country's '*system capacity*' is an expression of its political will reflected in concrete political documents, national programs, legal framework, public relations, social standards and benefits. Capacity building is connected to the creation of the necessary conditions for political, economic, legal and control mechanisms, through which institutes and citizens act.

Capacity building is a long-term process promoting the successful realization of national programs and the development and implementation of programs to follow through on the international commitments of the Kyrgyz Republic.

In May 1997, at the National Forum of the Kyrgyz Republic, the National Strategy on Sustainable Development was approved. The aim of this strategy is to develop and implement national programs in the areas of governance, decentralization and the overcoming of the main threats to human security including poverty, economic development, environmental protection, human and social capacity development and the integration of society.

The Kyrgyz government has approved a basic political scheme for the development of the country and the implementation of a reform program. 'The Comprehensive Development Framework of the Kyrgyz Republic through to 2010' lists the main purposes of the program and outlines a long-term national strategy. The first stage of the Comprehensive Development Framework is the 'National Poverty Reduction Strategy (NPRS)', which contains detailed political and program activities from 2003 to 2005. This document is based on the 'Medium-Term National Strategy' from 2001 to 2003. The NPRS contains a detailed assessment of the scale and causes of poverty in the Kyrgyz Republic and recommends the undertaking of a number of measures aimed at reducing land degradation by five percent per year.

Soil is one of the most critical elements of ecosystem, as is almost completely unable to cleaning and restore itself. Polluted soil can remain so for decades. In spite of the significant volume of industrial emissions, the most negative changes to soil in agricultural areas is connected to inefficient and ecologically unsound methods of agricultural management.

The national policy on land and water use aims to prevent the desertification of agricultural land and preserve top-soil. In accordance with the Land Code, all irrigated and reclaimed areas are intensively used for agricultural purposes (land with perennial fruit trees, vineyards, cultivated pastures, hayfields and pastures of fundamental improvement) have a special status as important areas and the maintenance of agricultural lands is a priority of land legislation.

The main legal mechanism for preserving land fertility and protecting soil from the processes of degradation is the Land Code. In Article 3 of the code, the principles of the land legislation are listed as follows:

1) the preservation of land as a natural object and the basis of life, development and activity for people in the Kyrgyz Republic;

2) the provision of national and ecological security;

3) the formation of land markets and their effective functioning;

4) the observance and protection of the rights and legal interests of land owners and land users;

5) the effective use of the land;

6) the purposeful use of the land;

7) the priority of agricultural land;

8) the accessibility of information on land rights;

9) the state support of measures on land use and protection;

10) the prevention of land damage and its consequences.

As a result of land and agrarian reform, in the past 10 years more than 75 percent of plough lands in the Kyrgyz Republic have been divided into land shares and are privately owned by farmers. More than 80 percent of the rural population of the Kyrgyz Republic are agricultural land owners. The ownership of all housing and suburban areas was also transferred to the citizens of the republic. The number of rural dwellers that are private land owners is 2.6654 million people or 526,900 families on an area of 997,300 hectares.¹ This means landowners are now responsible for the state of the top-soil and irrigated areas of their land.

The redistribution of land ownership was implemented due to critical budget deficits and the full withdrawal of the state from participation in the administration of the land, which distanced the government from land provision and management issues. This led to poorly thought out decisions on the forming of new immovable property laws. Large agricultural producers operating in that period lost their land and citizens received property without any economic analysis of the capabilities of emerging farms.

The previous state land management and administration system, which dealt with the sensible use of the land at national, oblast, rayon and collective and state farm levels, has been reduced to working on the registration of land-ownership documents and documents certifying the right to land and further state registration.

Despite the positive results of the first stage of land and agrarian reform significant legislative shortfalls remain. The state regulation of land is still strictly limited to the allowing of access to land for some citizens (for example townspeople and foreigners) and legal persons and does not allow the implementation of effective land use practices. As a result, a percentage of agricultural land remains unused each year and efforts to make the land attractive to potential investors have not been made. The availability of mortgages and credit is also limited in Kyrgyzstan.

As a result of agrarian reforms, land previously belonging to large or collective farms and areas where extensive planting and crop rotation occurred was redistributed among farmers. This led to the fragmentation of large areas and about 241,000 small farms covering between 0.37 and 0.53 hectares were formed². It is impossible for farmers to conduct their previous activities on such small areas and crop rotation became impossible. This has resulted in deteriorating levels of soil fertility. Farmers also need access to roads, irrigation networks and other types of infrastructure if they are to operate. This was also made difficult in some cases.

It is possible to conclude that the previous integrated approach to farming and systems to maintain a balance between ecosystems and agricultural activities no longer works. However, at a system level, the Kyrgyz government solves land use and sustainability issues by transferring agricultural production from state to private ownership and gradually liberalizing the land market.

In an effort to strengthen private land ownership, the Jogorku Kenesh adopted a number of laws regulating agrarian economic reforms including the 'Land Code of the Kyrgyz Republic' and the laws 'On farms', 'On Mortgages' and 'On Cooperation'. On December 18, 2000 the Legislative Chamber of the Kyrgyz Republic

¹ Report on Availability and Distribution of Lands of the Kyrgyz Republic as of 01.01.2003. – Bishkek, State Registry.

² Report on Availability and Distribution of Lands of the Kyrgyz Republic as of 01.01.2003. – Bishkek, State Registry.

adopted a law 'On Agricultural Land Management'. Since the adoption of this law, the buying and selling of shares in agricultural land ceased and the agricultural property market began to function.

The right to landownership allows owners and farmers the peace of mind to invest in the effective use of their land without the threat of losing their fruits of their labor. The provision of rights to landownership promotes ecologically sustainable land management as it encourages landowners to make long-term investments to preserve their natural resources.

Developing countries use land markets as an important means of providing access to land, the effective distribution of land and the promotion of further investments among owners. Land markets also play an important role in the transforming of agrarian economies into service and industrial-based systems. Property markets promote the gradual movement of the work force from agriculture to other sectors, as land owners who want to move to the city are able to sell their land to farmers wishing to extend their businesses. The development of property and land markets also contributes to changes within the agrarian sector, replacing labor-intensiveness with capital intensity as the size of farms gradually increases due to acquisitions.

In order to ensure the development of the property market, the Legislative Chamber of the Jogorku Kenesh adopted the Law 'On State Registration of Rights for Immovable Property' on November 26, 1998. The law provided the necessary legal framework and procedures for a unified system of property ownership registration across the country.

To support the new law a Decree of the President of the Kyrgyz Republic was issued on February 22, 1999 and through the State Agency for the Organization of Land Use, Geodesy and Cartography, town and rayon technical inventory bureaus, the State Agency on the Registration of Rights to Immovable Property under the Government of the Kyrgyz Republic was established.

To achieve its goal of a flourishing property and land market that encourages the proper and stainable use of the republic's land a unique process has taken place in the Kyrgyz Republic – the systematic registration of rights to own property and land rights. The State Registry of the Kyrgyz Republic conducts the free registration of land and property rights and ensures state protection of the rights of land owners through the joint government and WB project Registration of Land and Immovable Property. The guarantee of a persons ownership rights through registration has been a considerable step forward.

There have already been significant increases in the number of real estate transactions in Kyrgyzstan. From January 1, 2004, the republic's secondary property market has hosted 2579 agricultural land transactions and facilitated the sale of 7,050 hectares of agricultural land 5,447 hectares of irrigated plough land and 1,455 hectares of dry plough land. More than 45-million-som-worth of land was sold with an average price per hectare of 6500 som¹.

Despite the fact that landowners are responsible for the condition of their land, the Kyrgyz government reserves the right to maintain land cadastres and land monitoring and management.

The Government of the Kyrgyz Republic through specially authorized state power bodies carries out maintenance of the land cadastre and land monitoring, land management. The Land Code, Article 20 To ensure the timely disclosure of changes in agricultural land use and the assessment and prevention of any negative consequences of changes, the Kyrgyz government, in accordance with Resolution 115 adopted on March 1, 1995, approved the 'Regulations on the Monitoring of the Agricultural Lands of the Kyrgyz Republic' and authorized the State Registry to carry out land monitoring activities.

All agricultural land is subject to monitoring, irrespective of its ownership, departmental use or management. The sources of information on land use and condition are systematic observations, surveys, inspections, inventories, archival data, and other information on the qualitative and quantitative condition of the land.

The government of the Kyrgyz Republic also developed and adopted the State 'Land' Program. The program has been implemented in three stages: 1998, from 1999 to 2000 and from 2001 to 2005. Through this program, the State Registry organizations conduct soil surveillance and salination surveys of agricultural land. Efforts are made to determine the quality of agricultural land and assess its natural soil fertility (the

¹ Report of the Director of the State Registry of the KR at the Conference on the Results of Agrarian and Land Reform. – Bishkek, 2004.

growth score class) – the main criteria needed to determine the land tax rates for agricultural areas and the introduction of property markets in rural areas. This work is also necessary for the maintenance of land cadastres, the organization of soil-reclamation and the development of recommendations for land protection and use.

It should be noted that in the past few years it has been very difficult to obtain information on soil characteristics including changes in humus and mineral compositions, salt accumulation, alkalization, the accumulation of heavy metals, radionuclide and nitrates. The sources of such data are soil, agrichemical and soil-erosion and soil-reclamation surveys. In the past 14 years agricultural land monitoring was implemented selectively and was not conducted regularly, influencing the reliability of the obtained information. These activities have been reduced to a minimum, or stopped entirely stopped due to a lack of financial resources. The data on the qualitative soil indicators in the state land cadastre has not been updated since 1990.

During the implementation of land reforms, work was also conducted to improve the mechanisms and methods of land transferring land from the State Fund of Redistribution of Agricultural Land to a rental property. In an effort to increase the role of rural self-governmental bodies and strengthen their financial base the land management rights and the disposal of the fund were transferred to the jurisdiction of the executive-administrative bodies of the ayil and village councils.

Financial support for activities aimed at land development and protection, the organization of land use and the conducting of soil and geo-botanical surveys is insufficient. As a result of this, there are not enough financial resources to update cartography materials, the implementation of land cadastres and assessments for tax levies does not meet modern requirements, the mechanisms for the calculation of property values are flawed and local budget contributions are incommensurably small.

When it comes to the maintenance of natural resources, having an appropriate legislative base is vital for the effective regulation of land, water and forest use, as well as the use of other natural resources. However, a major problem with many of the legal acts of the Kyrgyz Republic is that their structure and focus is a legacy of the Soviet era. For example, the 'Water Code of the Kyrgyz Soviet Socialist Republic' and the current Law 'On Water' are very similar to the laws of other ex-soviet republics despite significant differences in the climactic, geographical and hydrological conditions of the Kyrgyz Republic.

The state provisions for water pollution represent the weakest point in water legislation. They distinguish only two sources of water pollution – area and focal point pollution. Focal point pollutions can be industrial emissions, communal and cattle-farming emissions and area sources of water pollutants are linked to agriculture when it is impossible to determine the exact source of pollution, for example pesticides and herbicides. The regulation of these two processes requires very different approaches, which unfortunately, is not stipulated by current legislation and has led to confusion.

The Law 'On Water' prohibits the emission of industrial, housekeeping and other wastes into bodies of water in general while article 36 of the law outlines the permission to release waste into water ways. This permission was issued by MEE, however, the issuing of permission to drop waste into water ways and bodies is closely connected with the management of water resources and the provision of rights to water use. These areas fall under the jurisdiction of MAWRPI.

Permission to drop waste above storage facilities for irrigation and drinking water must not be given while the capacity of water bodies to cleanse themselves depends on the water flow through them, which is regulated by the water-use licensing system. The roles of state bodies responsible for water management and environmental protection are clear and legal but the actual implementation of environmental pollution prevention strategies does not reflect the law and there is no clear practical division of responsibility and authority between governing bodies.

Area sources of pollution are much more difficult to control due to their constantly changing nature. The implementation of a system of licensing for the use of chemicals and fertilizers in agriculture, for example, could be very expensive and legally complex. One way to solve the issue of area pollutants could be the toughening of penalties for violating the law and the introduction of harsh penalties. It would also be advisable for ecological experts to cooperate with official bodies in this area. The risk of water pollution is high in the Kyrgyz Republic where the use of irrigation and drainage systems is widespread, posing a serious risk to the health of the general population.

The establishment of water protection areas to prevent and reduce activities leading to water pollution is also very important. The construction of objects that could influence water flows should be prevented. However,

it should be noted that in other territories, some objects and activities located at a great distance from water ways and bodies also negatively influence the water condition. There is no clear legal framework on this issue.

Interstate water relations and the activities of Kyrgyz state bodies are clearly regulated by the Decree of the President of the Kyrgyz Republic 'On the Basis of Foreign Policy in the Area of Use of Water of Rivers, Forming in Kyrgyzstan and Flowing on the Territory of Neighboring States' dated October 6, 1997 and law 76 'On the Interstate Use of Water Objects, Water Resources and Water Management Structures of the Kyrgyz Republic' dated July 21, 2001. This law presents a declaration of the intention of neighboring states to defend their own economic interests and food security when they are obliged to pay for the development of irrigation systems beyond territorial boundaries from their own budgets. The most important questions on interstate water use and water quotas should be solved by agreements, preferable bilateral agreements, between the concerned states.

The practical implementation of concrete agreement should be conducted by both parties based on mutually agreed responsibilities for the expenses, damages and losses to each water reserve. Water management structures should be regulated with consideration for mutual interests and their worth in monetary terms irrespective of yearly water levels. The procedure for determining and registering expenses, damages and losses can be regulated by mutually agreed methods. Neglecting an issue related to interstate water use will inevitably lead to ecological, political and economic conflicts.

2.2.1. Compliance of the legislation of the Kyrgyz Republic with obligations of the Convention to Combat Desertification

From the moment the Kyrgyz Republic ratified UNCCD, the convention became a part of the country's national legislation, in which international commitments take priority. In accordance with its obligations, Kyrgyz law-making bodies made changes to legislation or develop new standards and procedures for the implementation of international regulations into the national legislation. These legal reforms help stabilize the country's legal framework and create a favorable legal and institutional environment. The reforms also increase the efficiency of law-making procedures, sharpen the focus of legislations and improve the legislative framework as a whole.

In this Section, we will consider all the legal acts that directly or indirectly influence the implementation of UNCCD obligations by the Kyrgyz Republic.

The law 'On Water Users Associations', passed on March 15, 2002, determines the legal status of Water Users Associations and the framework for their operation as noncommercial organizations for the provision and maintenance of irrigation systems in rural areas to the public benefit.

In accordance with the Item 'f' of Article 10 and item 'b' of Article 17 of UNCCD, the law provides for the participation of resource users in policy planning, decision-making and the practical implementation recommendations (articles 3 and 9).

The law 'On Agricultural Land Management', passed on January 11, 2001 regulates agricultural land management and is aimed at ensuring the effective and safe use of land for the benefit of the people of the Kyrgyz Republic. In accordance with the item 'e' of UNCCD Article 5, this law allows the strengthening, as appropriate, of relevant and existing environmental legislation (Articles 10 and 11).

The law 'On the Protection of the Environment' passed on June 16, 1999, specifies the legal framework necessary to protect the environment and ensure the sensible use of natural resources and is a comprehensive legal act. This law also regulates the coordination between associations and different governmental structures, their rights and duties. This act also strengthens the right of each citizen and organization to access information on environmental protection from state bodies. The general focus of the law is the provision of a scientifically justified balance between environmental and economic interests while prioritizing the protection of the health and rights of the Kyrgyz people to a healthy and clean environment. In accordance with UNCCD article 19, this law also allows capacity building and the promotion of education and public awareness (articles 48, 49 and 50).

Ecological Assessment – the determination of the level of ecological risk and danger of planned decisions, the implementation of which will directly or indirectly influence the condition of the environment and natural resources. article 1 of the Law on 'Ecological Expertise'

passed June 11, 2003.

The law 'On Ecological Expertise'¹ regulates the use of ecological expertise and is aimed at ensuring the constitutional right of citizens to a healthy environment through the prevention of negative ecological impacts resulting from the economic or other activities. The law is based on the appropriate provisions of the Constitution of the Kyrgyz Republic, the law 'On the Protection of the Environment' and other legal acts. In accordance with

the item 'e' of article 5 and item 3 of article 20 of UNCCD, the law 'On Ecological Expertise', the financing of national ecological expertise is provided at the expense of the national budget (article 22 of Section 6).

The law 'On the Protection of the Environment' (1999) contains general provisions for ecological assessment. The detailed requirements for assessment contents and procedures are listed in the law 'On Ecological Expertise' (1999). In the Kyrgyz Republic, two types of ecological expertise are encouraged: State ecological expertise and public ecological expertise². This law provides the opportunity for citizens and their associations to participate in the decision-making process for environmental protection and nature management.

The law 'On the Guarantees and Freedom of Access to Information³ regulates the right of individuals exercising to freely locate, receive, investigate, produce and spread information. This law provides citizens with an opportunity to refer to the courts any act infringing the rights of a citizen to access information⁴.

The law 'On Information'⁵ identifies the basic legal, economic and organizational needs for the development of information dissemination in the Kyrgyz Republic. This law was designed to create the favorable conditions needed for the satisfaction of the information needs of Kyrgyz citizens, establishments, organizations and state bodies in order to form a modern information infrastructure in the Kyrgyz Republic and facilitate its integration into international information networks and systems.

An analysis of the current situation and legal framework regulating the participation of community important environmental decision-making tasks has shown that Kyrgyz legislation on this area is, in some cases, declarative in nature. When a law is fixed, its efficiency is assessed not simply by its establishment but by how well it is then implemented (see *Annex 1*). The problem with regards to community participation is that it is impossible for citizens to exercising this right due to a lack of the necessary mechanisms for participation. When a right is provided legally but its exercising is impossible a barrier is formed between the legislature and the public. The legislation passed in the Kyrgyz Republic generally reflects the right of the public to access information however secondary legislation is needed to ensure that these rights are made fully available.

2.3. Institutional systems: Development capacity, levels of interaction and coordination

If the international commitments of the Kyrgyz Republic are to be implemented through political will and legislation a system of executive bodies is necessary to coordinate the country's efforts. The United Nations Economic Commission for Europe has studied the ecological situation in the Kyrgyz Republic and has concluded that there is a system of executive bodies responsible for regulating environmental protection and natural resources: "A decision adopted on the establishment of a system of administration on the environment is quite adequate. Taking into account the decentralization of Kyrgyzstan, the Commission also recommended the focusing of more attention on the problems of training and equipping ecologists at all levels: national, regional and industrial"⁶.

¹ # 54 of June 16, 1999.

² In accordance with the Law «On Ecological Expertise», 1999.

³ Law «On Guarantees and Freedom of Access to Information», of December 5, 1997.

⁴ Criminal Code of the KR, articles 138, 257; Code of the KR on Administrative Responsibility, Article 161.

⁵ Law of the KR «On Informatization» #107 of October 8, 1999, in the version of the Law of the KR dated January 24, 2002.

⁶ The UN Economic Commission for Europe, Committee on Environment Protection Policy: Analysis of Environment Protection in Kyrgyzstan, the United Nations Organization, Geneva, 2000.- P. 11.

A functional analysis of effectiveness of the involved ministries and departments and the restrictions preventing these agencies from fulfilling their commitments was also conducted.

The main executive agencies and departments whose activities relate to land degradation issues are MAWRPI, the State Registry of the Kyrgyz Republic, MEE, and the State Forestry Service. Under NCSA these agencies are considered to be the bodies responsible for the creation of national policy, the drafting, implementing and coordination of legislation and the regulation and control of environmental protection and natural resources management activities. Under MAWRPI, a Coordination Body for UNCCD implementation, the Partnership Working Group (PWG), was set up.

<u>The Ministry of Agriculture, Water Resources and Processing Industry</u> (MAWRPI) is responsible for developing a unified national policy on the development of the agricultural, water, fishery and processing industries. The ministry is the only public authority carrying out executive and regulatory and coordination functions aimed at the development and implementation of a unified policy in these areas as well as on small and medium agribusinesses and the coordination of activities of the s territorial agriculture authorities of the Kyrgyz Republic¹.

The ministry and local administrations are fully responsible for the formulation and implementation of an agricultural development strategy. A strategy for village development in a non-command economy traditionally includes the formulation and implementation of agricultural policy, instructions, the provision of information on agriculture and the delivery of support services, public infrastructure development services and other public services such as agricultural investigations and human services.

In accordance with a MAWRPI functional analysis carried out from 2001 to 2003 by the TACIS Project, the following gaps in the ministry's work were identified:

- commitments on food security and food protection are weakly implemented in ministry divisions;
- the Center of Agrarian and Land Reform (CALR) was established under MAWRPI, in 1994. The center deals with village development policy, which is on the agenda of the government's poverty reduction programs. Most of the ministry's activities have an impact on village development.

This issue needs a more focused and systematic approach as it contains cross-sectoral policies which should be coordinated with other ministries and departments including the Ministry of

Foreign Trade and Industry, the State Registry, the Ministry of Health, the Ministry of Labor and Social Protection and MEE^2 .

<u>The State Registry of the Kyrgyz Republic</u> is a state body exercising control over land regulation, the registration of rights to immovable property and the implementation of a unified policy in the areas of:

- (a) the registration of rights to immovable property;
- (b) the regulation of land and land cadastres;
- (c) the development of a property market.

The State Registry includes local registration bodies, area centers on immovable property and land resources and organizations carrying out development, geodesic and cartographic work. The inspection function of the registry is clearly separated from its other functions and this task is performed by the organization for the Inspection on State Control over the Use and Protection of Lands.

The maintenance of land cadastres is implemented through the Regulations on Land Cadastres. But due to the lack of financing, the implementation of work in this area is limited to carrying out an annual state registration of land, its condition, use and distribution among owners and land users on January, 1 each year. The government of the Kyrgyz Republic will annually approve the data. The land cadastre does not carry out soil and geo-botanical surveys or full development assessments. As a result, there is no complete and reliable data on the characteristics of top-soil and land assessment indicators. The generalized indicators of changes in soil characteristics, composition and productivity can be observed only through land monitoring. The State

¹ Article 2 of the Resolution of the Government On the Status of the Ministry of Agriculture, Water Resources and Processing Industry of the Kyrgyz Republic #144 of April 2, 2001.

² Including soil protection, and such issues as salinity, lack of nutrients, and erosion.

Registry monitors agricultural lands (although not fully) in accordance with approved methodical guidelines, plough lands (soil monitoring) and pastures (fodder land monitoring).

Within the framework of the joint project between the government and WB the Registration of Lands and Immovable Property, the State Register of the Kyrgyz Republic oversees the registration of rights to land. Based on the positive results of the registration process a data base covering listing all properties was formed. The Working Group on UNCCD implementation under the State Registry is represented by the Director of the Institute of Organization of the Use of the Land of this Agency.

<u>The State Forest service of the Kyrgyz Republic</u> was established in accordance with a presidential decree on November 25, 2001 on the basis of a number of MEE structures and was named the authority responsible for the protection and sensible use of fauna and flora and forestry resources.

The widespread administrative and functional reform of state bodies and environmental protection structures after the fall of the Soviet Union preceded the establishment of the State Forest Service. In 1996, the State Environment Committee was transformed into the Ministry of Environment Protection and in 2000 the Ministry of Environmental Protection, the State Forest Agency and Ministry of Emergencies and Civil Defense was united into the Ministry of Ecology and Emergencies in accordance with a presidential decree. Based on a Decision by the People's Representative Assembly of the Jogorku Kenesh in November, 2001 unsolved issues relating to ecology, the non-fulfillment of a number of environment protection acts and the need for the improvement of the structure of executive bodies for environmental protection were identified.

The broadening of the participation of the population and the private sector in forest protection and the renewal of forest regeneration are some of the community-based forest-management (CFM) measures the State Forest Service aims to implement¹, which involve the leasing of forest plots by the residents of local communities based on their application to the National CFM Work Group.

The success of this process can be achieved through well-organized awareness campaigns on the allocation of forest plots and the right of the local population to participate in the decision-making process. The representation of different partners (ayil okmotu, farmers, council of aksakals) will ensure the democratic implementation of CFM. The law will change from supporting conservative forestry systems, aimed at protecting the land and prohibiting its use, into a more productive system, which takes into account social and economic needs of the community.

In accordance with a government decision, since 2002 the State Forest Service has become an executive agency for the implementation of a number of international projects and programs aimed at protecting natural resources. The State Forest Service is in charge of reserves, natural parks, protected areas, biosphere area Issyk-Kul, strictly protected natural territories (SPNT), the Head Department on Protection and Regulation of the Use of Hunting Resources, the Service of State Control over Bio-resources and forest companies.

The State Forest Service works in close cooperation with the Forest Institute of the Kyrgyz Academy of Sciences and the Ministry of Education on staff-training issues.

In the Partnership Working Group (PWG) for UNCCD implementation the State Forest Service is represented by the First Deputy of the Chairman of the service.

Interaction with UNCCD is undertaken within the framework of programs and projects developed in accordance with Operational Program 15 of the Global Environment Facility (OP15 GEF) Sustainable Land Management, tackling land degradation, desertification and deforestation.

<u>The Ministry of Ecology and Emergencies of the Kyrgyz Republic</u> (MEE) is the state body responsible for environmental protection, nature management, the prevention of emergencies, civil defense and the security of mountainous controls.

The MEE carries out a number of activities to ensure the ecological security of the Kyrgyz population in the event of emergencies of a natural, ecological and sociological and biological nature and civil defense conflicts.

The ministry comprises five blocks of subordinate, nine territorial subdivisions including Emergencies, Civil Defense, Ecology, Industrial Security and Mountainous Control and Hydrometeorology and nine departments

¹ Resolution of the Government of the KR # 377 dated July 27, 2001 «Provision on Community based Forest Management in the Kyrgyz Republic».

for environmental protection. All the subdivisions of the ministry are financed by the state and other special sources of funding.

The *Emergencies block* of the ministry carries out the forecasting, prevention and resolution of emergencies in the territory of the republic. The source of financing for these activities is the Republican Fund on the Prevention and Elimination of the Consequences of Emergencies (FPECE), which is made up of 1.5 percent of business allocations. The total annual amount of fund allocations is about 800 million som when 40 to 50 percent of this amount is directed to targeted areas. The headquarters of the ministry performs its functions from offices in Bishkek and Osh. The Emergencies block is represented by a division at the ministry headquarters and three departments.

The *Ecology block* is represented by the section at the national headquarters, the Department of Ecology and Nature Management and nine territorial environmental protection departments (Batken oblast, Jalal-Abad oblast, Osh town, Osh oblast, Chui oblast, Talas oblast, Issyk-Kul oblast, Naryn oblast, Bishkek city departments). The Republican Fund on Environment Protection (RFEP) and local territorial environmental protection funds, which are also legal entities. The fund's financial resources comprise nature management payments, normative payments and fees charged at ecology posts and during court claims.

The Ecology block's main activities are the organization of nature management, the regulation of pollutant emissions and control and expertise. The budget of the Ecology block is made up of budget resources and funds received from nature management payments.

Changes in the makeup of the ministry and MEE management are regular and two reorganizations of the ministry and sub-departments have been made, which influenced the quality of its work.

Due to changes in the ministry's decision-makers and professionals, many activities aimed at implementing the republic's international commitments to combating desertification remained unattended.

According to a functional analysis carried out by UNDP in 2003, interdepartmental duplication of activities occurs within MEE. The Production and Technical Department of the MEE has to put its projects forward for the approval of the financial department, after which it develops ministry programs for the following year. The department is responsible for the legal support of production and technical ministerial activities. Similar emergency functions are conducted by MAWRPI subordinate organization Kyrgyzselevodozashita. The main task of this organization is the protection of agricultural land and water resources from emergencies using engineering methods (the construction of irrigation and drainage channels, reservoirs etc.). The activities of this organization are financed by the republican budget.

In the area of land protection – the purpose of UNCCD, MEE controls state programs on the prevention of the chemical and biological pollution land and the prevention of landslides, mudflows and floods and the prevention of the negative consequences of such disasters.

The PWG on UNCCD implementation under the Ministry of Ecology is represented by the Director of the Department of Ecology and Nature Management. The Department of Ecology plays an active role in the implementing of the ecological components of UNCCD, UNCBD and UNFCCC.

A lack of practical co-ordination and transparency in interdepartmental and intersectoral interaction has made these organizations less effective than they could be. When it comes to the introduction of systematic interaction mechanisms, it is possible to resolve issues on the use of natural resources nature and the coordination of conceptual environmental protection programs that complement each other.

While performing their functions, different ministries and agencies should take into consideration national obligations and UNCCD provisions to observance national legislative requirements. The law-making activities of state authorities regulating land and water relations take into account the economic and political aspects of their work, but do not recognize ecological problems and land degradation as a priority issues.

On a positive note, the interaction of employees from different agencies and organizations is maintained at a management level for the approval of legal document drafts. Interdepartmental expert and working panels for research or legislation development have been established. In accordance with a State Registry order, the interdepartmental working group on the development of measures to determine the optimal size of agriculture lands comprising representatives from the Centre of Agrarian and Land Reform under MAWRPI, the State Registry, property area centers and oblast administrations was formed.

Global ecological conventions: Capacities of Kyrgyzstan

The coordination of nature management and environmental protection projects through the PWG on UNCCD implementation, which representatives of MAWRPI, MEE, the State Registry, the State Forest Service, scientists, parliament, the Ministry of Finance and NGOs have been interacting with since 1999 seems to be more systematic. Issues facing PWG are multifaceted and cover many interconnecting environmental, social and economic problems throughout the country.

Access to the international level of PWG is provided by representatives from donor organizations aiding the implementation of the Agreement on Strategic Partnership. Access to GEF is provided through the GEF Secretariat and approved by the GEF concept paper on the Central Asian Countries Initiative for Land Management from 2005 to 2014. The working group has several avenues to access donors.

Regular PWG meetings are conducted at MAWRPI. The first step to mutually beneficial cooperation is the rotating chairmanship of PWG meetings at the MEE, the State Registry and the State Forest Service depending on the PWG Chairman's approval. The working group could be enlarged to include new members and will prepare issues of national importance for high-level consideration. Coordination issues could also be solved by establishing a Council on Sustainable Natural Resource Management. Its main activities would focus on the implementation of environmental protection conventions and the integration of environment issues with strategic planning and management at all levels.

2.3.1. State control over the use and protection of land

At the European Conference of Ministers of Environment in Kiev in May, 2003, in the Declaration of the Ministers of Environment and in the Environmental Strategy of Countries of Eastern Europe, Caucasus and Central Asia, special attention was given to the status and role of environmental protection agencies and the integration of environment requirements into intersectoral policy.

The Environment Security concept paper of the Kyrgyz Republic and the law on Environmental Protection grants departmental control over nature management activities. The government of the Kyrgyz Republic was authorized to control environmental protection legislation through an authorized body (MEE).

Currently in the Kyrgyz Republic:

- control over land use and protection is exercised by MAWRPI and the State Registry;
- control over the use of water resources is exercised by MAWRPI;
- groundwater protection and mineral use are managed by the State Agency on Geology and Mineral Resources;
- control over fauna and flora protection and use and strictly protected areas is exercised by the State Forest Service;
- fisheries are controlled by Fish, Water Inspection under MAWRPI;
- control over the chemical and biological pollution of lands is exercised by MEE.

Business agencies are taking responsibility for their own activities for fear of state imposed consequences and the state exercises control over their actions. The duplication of functions leads to decreases in budget resources, human resources and prompts agencies to resist regulations, which hinders the implementation of the national environmental protection policy.

Complex regulations on social activities effecting the environment also make it difficult to maintain ecological standards, places a heavy administrative burden on bodies responsible for environmental protection and impedes community involvement. The coordination between permit issuing bodies in some environmental areas is too limited.

The organizations responsible for control and oversight do not have enough specialists, have limited personnel numbers and new employees sometimes lack professional qualifications.

The Institute of Community Control over Natural Resources can act as a medium through which some of these issues can be resolved. Studies of the interaction between the community inspectors and organizations have shown that fundamental changes need to be made. Professional Capacity Development courses for employees working on environmental protection are conducted without taking interdepartmental cooperation into account.

In order to be a part-time community inspector it is necessary to gain two recommendations from environmental protection agency employees but once accredited there are almost no commitments from either environmental protection agencies or community inspectors regarding professional skills development and the efficiency of inspectors.

Permanent training courses for environmental inspectors are needed where together state and community inspectors can be certified. Representatives from NGOs, local communities and territorial self-governing bodies can become community inspectors.

The joint training of representatives from all state environmental protection bodies, community inspectors representing NGOs and territorial self-governing community bodies exercising independent control over the observance of environmental protection legislation, will promote the development of a single national environmental policy.

2.3.2. Scientific, information and educational capacities

Information networks and programs in the Kyrgyz Republic are insufficiently developed and do not meet UNCCD implementation requirements. There is also a shortage of educational and special-interest literature on stainable land management. Annex 2 of this report contains a list of publications that contain information related to UNCCD areas.

The republic's scientific ability to implement UNCCD programs and projects is represented by several institutions.

Development programs regarding land use are carried out by the design institute Kyrgyzgiprozem, which also designs and organizes land use programs, conducts land registration and engineering programs, soil evaluation, land-reclamation, land assessment, manages soil laboratories and conducts geo-botanical expeditions.

The designing of water systems and irrigation and drainage structures was conducted by the Kyrgyzgiprovodhoz institute and is now covered by Kyrgyzsuudolbor.

The classification and research of soils in the Kyrgyz Republic is carried out by the Research Institute of Soil Management and Republican Soil and Agrichemical Station. The land cultivation systems are developed by the Institute of Agriculture.

The Research Institute of Irrigation, KyrgyzNII, develops automated irrigation systems, conducts irrigation and drainage investigations, formulates technical drainage and irrigation policies and provides training and consultation at local levels.

The Institute of Cattle Farming and Pastures promotes the development of cattle-farming and the sensible use of the republic's pastures.

The K.I. Skryabin Kyrgyz Agrarian University the Institute of Water and Land Resources (a future prospect from the Institute of Natural Resource Management) containing a faculty dedicated to land use and geodesy has been established. The Institute houses the chairperson of land use organization, the chairperson of land cadastres and the chairperson for geodesy and cartography. The faculty is the only center in the republic that trains specialists and conducts land use, land cadastre, geodesy and cartography research.

In 2002, under MAWRPI the Center of Agrarian Sciences and Consultative Services (CASCS) was established to profile research institutes, however, awareness campaigns and the promotion of innovative and ecologically friendly technologies to businesses was insufficient.

The strengthening of <u>Irrigation, Agriculture and Cattle Farming</u> institutes to increasing their functions and support monitoring programs by Kyrgyzgiprozem, the State Register and the Land-Reclamation Service of the Department of Water Resources, would be beneficial.

2.4. Individual capacity development levels

Taking into account that most plough lands are privately owned, it is possible to say the regional specialization of agricultural production is developing, dependent of course on the market situation.

In the southern region of the republic, the main crops produced are tobacco and cotton as big processing companies need both products. In the Chui oblast sugar-beet and vegetables are the most common produce. The Issyk-Kul oblast has seen the widespread cultivation of potatoes in the past seven years, as farmers try to meet demands from Bishkek and Kazakhstan. Due to demands for the same crops, the lack of crop rotation of the small area of most individual farms it is possible to forecast the domination of one crop and as a consequence the loss of land fertility and the promotion of land degradation.

Changes in the agricultural sector have led to positive results as well as negative by-products. Increases in the number of small farms have made it difficult to carry out environmental protection activities.

A significant innovation, that unites businesses into cooperatives and farmers' associations, was endorsed by the presidential decree 'On New Directions and Measures for Land and Agrarian Reform' announced on April 17, 2004. The cooperation promotes better use of material and financial resources, decreases in production and other expenditures, the introduction of market benefits and plays an important role in the promotion of farmers' interests. The establishment of large farmers' associations allows the pooling of common resources for the implementation of important tasks, including environmental protection measures.

But there is no economic encouragement for the establishment of agricultural associations. The levying of Value Added Tax (VAT) for principal agricultural producers has led to unequal conditions for principle producers and smaller farms, which leads to the break-up of agricultural producers into smaller units¹.

Under the 'Marakesh Agreement Establishing the World Trade Organization', which came into effective on December 20, 1998, signatory countries are required to make certain agricultural commitments. Among these is the requirement that governments of developed countries provide less than five percent of their budget to support the agricultural industry. For developing countries, the requirement is no more than 10 percent.

The Kyrgyz government accepted this commitment since state financial resources only allow them to allocate between one and two percent of their budget to agriculture.² Support for agriculture producers was provided through VAT levying preferences on produce. But these preferences no longer exist and in order to support

agriculture producers the Kyrgyz government needs to make some firm fundamental decisions. One such decision could be to become more actively involved in the securing of new trade partnerships within the guidelines of the new set of trade Doha negotiations. A resolution on agricultural information exchanges and equal conditions for the access of developing countries' produce to world markets would be a significant step forward. A resolution to this effect was put forward by the Kyrgyz Republic and adopted by the Asian Ministerial Conference in Abu Dhabi (UAE).

2.5. Factors of preventing the participation of the civil society institutions in the resolution of land desertification and degradation issues

The term 'civil society' has taken on several different meanings since the eighteenth century. Modern attempts to explain this concept have emphasized the separation of the state and societal actions. These definitions assume that civil society occupies an area of social relations unconnected to the functioning of state institutions. Civil society is considered a union of free and equal citizens being neither state nor family, in which citizens have the right and opportunity to become involved in common interests and social, political and economic needs methods for achieving their goals. In the Kyrgyz Republic as in other ex-soviet countries, the development of civil society has been a major goal for the past ten years.

Local self-government can be considered a mechanism for solving of local problems.

¹ Resolution of the Government # 618 of September 30, 2003 «On Registration Threshold of Value Added Tax».

² Analytical Review «WTO and Kyrgyzstan: Preliminary Results of Four Eears and the Immediate Tasks», January 2003, Bishkek, OO «Independent Ecological Expertize».

But Kyrgyz self-government systems only outline methods for their own development and are still at the inception phase. The development of the legal framework to support these bodies continues and discussions between local governments on their structure, functions and authority are ongoing. The development of self-governing bodies has been prevented due to several factors including:

- the poor development of the civil society institutions in general;
- a lack of understanding of the role of local self-governments as masters of their territories;
- the undetermined scope of the authority of local self-governing bodies;
- poor communication.

Also undetermined is the mission and status of local self-governing bodies.

Self-governing occurs at a public level, using public authority. It can be a powerful catalyst for civil society formation as the conscious participation of citizens in the solving of local problems and the improving of social standards increases the levels of social and civil activities. Community participation in decision-making processes, the establishment of control mechanisms local government activities and the participation of citizens in the resolution of local issues are the main areas through which local self-governments contribute to the development of a civil society.

In the Kyrgyz Republic, due to peculiarities in the country's historical development, the decentralization of public power is implemented from the top, which means special programs to encourage the population to participate in the self-governing of their communities is vital. "Studying the Law of the Kyrgyz Republic 'On local Self-Government and Local State Administration in the Kyrgyz Republic', it is necessary to focus attention on the following text: 'Became effective by the Resolution of the Supreme Council of the Republic of Kyrgyzstan 438 of April 19, 1991'. This law was developed and matured in the depths of the Supreme Council, i.e. under control of ideological section of the Central Committee of the Communist Party of Kyrgyzstan. This is the reason for keeping the remnants of 'centralization' in the law, declared as 'decentralization' of central power. In the next law, in 2001 these positions are even more strengthened'¹.

As a result, the mass consciousness of citizens and local self-governments becomes an institution created exclusively by the state. In such conditions local governments are considered an integral part of the state system. The current situation, in our opinion, does not promote the revival of local self-governments. To the contrary, in many respects, it causes their ineffectiveness.

Moreover, consumer inertia and the tendency toward passive and subordinate relations with the state, the need to trust authority figures, a fear of independence combined with vague wishes of freedom and power are visible in the Kyrgyz Republic. In addition to these factors, the complexity of the situation is compounded by difficulties in forming self-governing bodies, the confusion of interaction and subordination between its structural components, the delicacy of changing from vertical to horizontal forms of governing, the need for the development and improvement of legislation and the inherent corruptibility of managers.

The implementation of a national action plan in the Kyrgyz Republic is linked to the attraction of farmers and their associations into projects and activities. Legislation does encourage such participation. There is a need to highlight the positive impact of intersectoral interaction, the formation of coalitions and information and specialized NGOs networks operating at national and international levels. The potential for NGOs to aid the implementation of UNCCD through programs should also be recognized.

The Asia Development Bank and WB implement programs through which Water Users Associations (WUAs) are established, special emphasis is placed on the structure of WUAs, farmers are encouraged to make common decisions on irrigation and drainage and negotiations with state structures responsible for water supply and the operation of central water-distribution channels are conducted.

The creation of the law 'On Water Users Associations' was the result of a progressive decision. Such associations, acting in accordance with the Law 'On Water Users Unions (Associations)' of March 15, 2002, take on tasks related to the technical operation of irrigated systems and the supply of water to consumers water supply of consumers. But reparation and rehabilitation works, as a rule, are beyond their capacities due, primarily, to a lack of financial resources. In accordance with the government resolution 234 dated April 6,

¹ Korkmasov O.M. Municipal Law. – Bishkek: IRIPS KNU, 2002. – P.40.

2004 'On the Transferring of Waterworks Facilities into the Ownership of Water Users Associations and their Units', access to financial resources (crediting by bank sector) became available and owners have the opportunity to exercise their rights.

3. Financial support required for the implementation of UNCCD

In accordance with obligations listed in articles 5, 3, and 10 of UNCCD, the Kyrgyz Republic is required to "give due priority to combating desertification and mitigating the effects of drought, and allocate adequate resources in accordance with their circumstances and capabilities".

But as a result of the poor economic situation in the Kyrgyz Republic, any budget expenditures that do not immediately aid economic recovery are considered low priority. In the past few years government spending on environmental protection programs has been reduced and has reached a critically low level at just 0.026 percent of the country's Gross Domestic Product (GDP). The general reduction of capital investments directed at environmental protection is clear (*Table 4*).

Table 4

	1996	1997	1998	1999	2000	2001	2002	2003
Total	27.1	32.3	38.3	104.5	63.0	46.4	43.2	39.7
Protection and use of water resources	4.4	13.1	9.1	51.0	7.4	6.0	7.5	6.9
Atmospheric protection	1.0	2.3	0.0	-	-	-	-	-
Protection and sensible use of land	21.7	16.9	29.3	53.5	55.6	40.4	35.7	32.8
including:								
- mudflow, landslide and avalanche protection structures	19.9	14.0	27.8	10.0	2.2	-	4	10.7
- river bank-protectant facilities	1.8	2.2	1.5	38.9	47.5	27.3	24.6	15.3
- preventing deforestation	0.01	0.0	-	-	-	-	-	-
- land re-cultivation		0.6	0.003	-	-	-	-	-
- anti-erosion								4
- hydro-engineering constructions	-	-	-	4.6	5.9	13.1	7.1	2.6

Capital investments in environmental protection in the Kyrgyz Republic (million som)

Source: National Statistics Committee of the Kyrgyz Republic, 2004.

The sources of financing for conservation activities are environmental pollution payments, which are received by the Environmental Protection Fund, established by Presidential Decree 239 on 21/07/1999 'On Local and Republican Funds for the Protection of the Environment and Nature Users Own Means'. However, the role of environmental protection funds has decreased considerably due a lack of transparency, accountability and effective management. A system for the allocation of these funds and their purposes does not exist the funds available do not meet program requirements¹.

Based on interviews with MEE employees hired during the NCSA project implementation period, the following was revealed: in the past four years the mismanagement of financial resources by state and local environmental protection funds was regularly brought-up by the Ministry including in Chamber of Accounts materials and official investigations. Nevertheless, the questions of accountability regarding the management the funds remain unsolved proving the need for radical changes in the structure and functioning of the funds.

In fact, all the money allocated to the State Forest Service is spent on salaries and the personnel needs of its subdivisions (*Table 5*). They do not carry out activities to support their won infrastructure using budget funds. Office premises, laboratories, museums, vehicles and other equipment have fallen into decay and numerous protected natural territories are left unattended.

¹ National Report on the State of Environment of Kyrgyzstan 2001-2003. – Bishkek, 2003. – P.150.

Table 5

Category of SPNT	Number of SPNT	Area (thousand hectares)	Staff (personnel)	Budget (thousand som)
Reserves	6	250.5	241	2296.7
Natural parks	6	213.9	208	3785.0
Protected area	71	312.9	87	313.2
Total:	83	777.3	536	6394.9

Number of staff on-site at protected territories

In 2003, in accordance with Kyrgyz Republic Resolution 229 (18/04/2003) the Hunting Service and Service of State Control were fully financed by the state budget. The Hunting Service is under-financed by about 32,200 thousand som and the Service of State Control by 36,900 som¹.

Since 2000, the Kyrgyz government has allocated significant funds to the agrarian sector, in particular, the water sector with help of from international donors². But according to a request addressed to MAWRPI, projects are systematically under-funded and rarely receive their promised or planned cash injections. Projects aimed at implementing UNCCD are small-scale and often only include monitoring.

The private sector is almost excluded from environmental protection activities. But if ecological protection activities are to succeed, they need support from existing business structures, the private sector and possibly individual entrepreneurs. As most sectors cause some damage to the environment, flora and fauna it is necessary to develop an economic mechanism requiring businesses to reduce their impact on the environment or face financial penalties. It is expedient both ecologically and economically to introduce preferential taxation levies for those companies who take environmental safety into account. Certain rewards and preferences need to be established for enterprises carrying out environmentally safety economic activities.

The efficient implementation of the national policies and measures aimed at fulfilling the UNCCD obligations of the Kyrgyz Republic is not possible is financial support is only provided by the state budget and not from the private sector. In many reports on financial assistance to the Kyrgyz Republic grant assistance and credits are integrated into a common bloc. Thus, in accordance with ADB reports, credits are considered external assistance. According to international practices, grant assistance is provided through the co-financing and participation of the government and credits received are to be considered an input of the Kyrgyz Republic. Therefore, it is necessary to strengthen activities aimed at attracting grants from international donors and adequately invest state resources into selected projects with regard to credit obligations.

A brief review of the projects initiated and supported by international organizations in the Kyrgyz Republic, promoting or addressing problems directly or indirectly connected to UNCCD is provided below.

THE WORLD BANK (WB)

According to World Bank data³, financing for the implementation of 36 projects in Kyrgyzstan amounts US\$736.68 million⁴. Crediting terms include a ten-year part repayment grace period when interest is not charged and a commission fee of only 0.75 percent is charged and repayment periods are 40 years.

The WB Country Assistance Strategy implemented on November 2001 does not clearly list ecology or land degradation as a priority area, although these problems are clearly identified as areas requiring special attention:

• the restoration of economic growth, in particular, in rural areas;

¹ Materials of the Working Group «Kyrgyzstan Capacity Assessment to Implement Convention on Biodiversity», July 2004.

² Law on the Republican Budget from 2000 till 2003

³ http://web.world bank.org (October 2004).

⁴ The data provided takes into account future projects.

- private sector support by means of the creation of an adequate legal environment;
- poverty eradication and the social protection of poor groups of the population during the transition to market relations;
- the provision of due governance and the strengthening institutional capacities.

A number of implemented projects include components which directly or indirectly solve problems related to UNCCD (See *Table 6*).

Table 6

The implementation of UNCCD in Kyrgyzstan

Project name	Source of financing	Scope of financing		Purposes and expected results	What was done
CREDITS	9		8		
Irrigation Rehabilitation Project (1998-2004)	WB, IDA		US\$35 million	Increasing the productivity of agriculture and the rehabilitation of irrigation infrastructure.	The Irrigation Rehabilitation Unit was established under the Department of Water Resources.
On-Farm Irrigation Project (2004-2006)	WB, IDA		US\$20 million	Increasing crop production through equal water distribution.	The creation of WUAs units throughout the republic and the development of the legal framework for their functioning. The establishment of Support Units at the oblast and rayon offices of the Department of Water Resources.
Regional Agriculture Area Development Project in Chui oblast (2000-2006)	ADB		US\$36 million	Land-improvement.	The Training Center for Water Users Associations under the Department of Water Resources of MAWRPI was established.
Sheep Breeding Development and Pasture Monitoring	WB, IDA		US\$11. 5 million	Improving the profitability and efficiency of sheep and wool farming, increasing the	A Pasture Monitoring Unit equipped with GIS facilities was organized through
Project (1996-2001)	International F for Agricultura Development (IFAD)	al	million	efficiency of the use and preservation of natural pasture resources.	Kyrgyzgiprozem. The Cattle- Breeders Association was established.
Agriculture Support Services Project (1998-2003)	WB, IDA		US\$14. 98 million	Improving the production, profitability and sustainability of agriculture through the	Rural Advisory and Development Centers (RADCs) were established
	IFAD		US\$7.9 million	implementation of land and agrarian reform. The provision of advisory and development services (including micro- credits) for emerging private farms and seed industry development. The institutional strengthening of MAWRPI.	throughout the republic. The Kyrgyz Agricultural Market Information System (KAMIS) was established with local centers.
Rural Financial Institutions Project (2002-2008)	ADB		US\$12. 5 million	Poverty reduction through the strategy on poverty mitigation, a strategic direction of ADB. The creation of viable and sustainable financial and credit institutions that can provide financial services to the rural population.	In accordance with 2002 data, through the project 293 credit unions made up of 23,479 participants were developed in the Kyrgyz Republic.
GRANTS					
Water Users	ADB	US\$().9	Capacity building of the	The Law on Water Users

Global ecological conventions: Capacities of Kyrgyzstan

Associations		million	establishment and	Associations was developed
Development Project		minion	management of the Water	rissoerations was acceroped.
(1996-1998)			Users Associations	
Delivery of Infrastructure Services for rural area (2004-2009)	WB	US\$15 million	The provision of financial resources through crediting for rural populations.	The creation of territorial investment committees (TIC) at ayil okmotu levels and the registration of legal entities and bank accounts. Rural Investment Committees (RICs) were created at village levels.
Land Reform Project (1998-2002)	USAID	US\$1 million	The project focuses on the interconnected spheres of land reform in villages and towns, the rights of water users and the aspects of post- privatization and agribusiness	About 100 land appraisers were trained. NGOs were trained in the implementation of land reform (14 NGOs). The network of rural consultants for the protection of land users' rights was created.

The Global Environment Facility (GEF)

The GEF portfolio now includes five ongoing projects in the Kyrgyz Republic and three regional projects¹. The Regional Project 'Water and Environmental Management in the Aral Sea Basin', jointly implemented with the World Bank as acting executive agency has something in common with UNCCD. Through its own programs (aimed at addressing interstate water consumption issue) it touched on land degradation.

Adopted in 2002, GEF Operational Program 15 provides financing for UNCCD priority areas, therefore, the National Office needs to take active steps to initiate projects to increase the biological and economic profitability of land and poverty reduction activities in the republic with involvement from the Global Mechanism (GM) for the mobilization of financial resources of other donor organizations.

The United Nations Development Program (UNDP)

UNDP does not participate directly in UNCCD implementation but through programs such as Poverty Reduction and Political and Administrative Governance at the Central Level Program (implemented by UNDP), the UNCCD priority areas are considered. These programs aim to train local communities to obtain the necessary skills to carrying out traditional governance with regard to local-level planning, the development of effective governance and the integration of their activities into comprehensive country strategies. The key elements of administrative governance include pluralism and the transparency of policy formulation, legislation, administrative accountability, institutional activities and an effective system for rendering services.

¹<u>http://www.gef.online.org</u> (October 2004).

CONCLUSION

Among the positive aspects of UNCCD implementation in the Kyrgyz Republic, some shortcomings hinder the implementation of the country's obligations. Legislation is not efficiently used and institutional capacities are irrelevant to the practical implementation of policy and legislation. Mechanisms for the implementation of adopted normative acts are poorly developed. In spite of the adoption of a number of international conventions, the population's access to environment data is limited and, as a consequence, the population is only passively involved in discussion and decision-making processes related to environmental protection. The development of public awareness projects and their involvement in the implementation of global environment conventions remains weak.

An effective national policy to combat land degradation, using interdepartmental and intersectoral approaches is needed for the successful implementation of UNCCD. Problems including soil erosion, salination, swamping or the loss of vegetation cover, require integrated and intersectoral approaches with involvement by number of ministries and departments. However, many institutions work as enclaves following narrow departmental interests and occupied only with their own mandates and budgets. This demonstrates that different ministries work in isolation on the same tasks. There is an acute need to strengthen the potential of stakeholder agencies to prepare concepts and projects and to develop more detailed project documents. At the same time, such projects should be developed through CDF/NPRS and should be connected with the national budget.

The major shortcoming of most ministerial and departmental activities is a lack of coordination, transparency and openness in interdepartmental and intersectoral cooperation. It is necessary to strengthen efforts to establish partner relations with all stakeholders for the practical participation in UNCCD pilot sites.

The Kyrgyz Republic faces budget difficulties even for the financing of current expenditures, which are much lower than the potential costs for financing development programs in the country. This situation was predominantly caused by serious debt accumulated by the Kyrgyz Republic in 1990, partly due to borrowing from commercial and multilateral organizations, reducing external borrowing and an increased dependency on grants.

Part of the difficulties facing efforts to implement this convention is related to a lack of financing for land degradation prevention activities. The Kyrgyz Republic needs to establish and strengthen its mechanisms for attracting and distributing financial resources for environmental protection measures at the expense of paying off the external debt of the state. We need to acknowledge that efforts to implement UNCCD need urgent external assistance in three main areas: institutional strengthening, capacity building and the implementation of measures to prevent land degradation.

External assistance can be addressed in light of UNCCD obligations adopted by developing countries affected by desertification and developed country which support the actions of affected countries to combat land desertification and degradation.

In accordance with international practice, the provision of grant assistance to developing countries is implemented through co-financing with the governments of recipient countries. Credits received by the government of the Kyrgyz Republic should be considered an input of the Kyrgyz Republic. Therefore, there is a need to strengthen activities aimed at attracting grants from international donors and adequate investment in the country's resources by the government taking credit obligations into account.

Priority actions through the National Action Plan and UNCCD implementation in the Kyrgyz Republic include the following:

- the identification of an authorized body and person responsible for UNCCD implementation in the Kyrgyz Republic;
- the National Action Plan for UNCCD implementation should be revised to include the experience gained by the Kyrgyz Republic and its reforms. It is necessary to give official status to a national development program through governmental planning.

At the same time, the implementation of the 'National Action Plan' must be based on a three-sided approach:

• the integration of the CDF, the NSPR, land and forest management plans, strategies and action plans for the development of mountainous territories with the National Action Plan and state policy;

the involvement of civil society in UNCCD implementation;

• the implementation of the National Action Plan emphasizing pilot projects for local territory development, which consider land degradation issues and community participation.

References

- 1. UN Convention to Combat Desertification in Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa.
- 2. Constitution of the Kyrgyz Republic in the version of 2003
- 3. Provision on r-vegetation (recovery) of Lands and Procedure of Acceptance into Operation. Approved by the Resolution of the Government of the Kyrgyz Republic 304 of July 12, 1993.
- 4. Resolution of the Government of the Kyrgyz Republic 324 of July 21, 1993 'On Results of State Registration of Lands of the Kyrgyz Republic as of January, 1 1993'.
- 5. Law of the KR 'On Protection of State Secrets', of April 14, 1994.
- Law 'On Procedure of Consideration of Proposals, Applications and Administration of Complaints of Citizens' of July 5, 1995
- 7. Resolution of the Government of the Kyrgyz Republic 402 of August 26, 1996 'On Results of State Registration of Lands of the Kyrgyz Republic as of January, 1 1996'.
- 8. Resolution of the Government of the Kyrgyz Republic 345 of June 10, 1997 'On urgent measures on preservation of land fertility'.
- 9. Resolution of the Government of the Kyrgyz Republic 350 of June 12, 1997 'On Results of State Registration of Lands of the Kyrgyz Republic as of January, 1 1997'.
- 10. Law 'On Guarantees and Freedom of Access to Information' of December 5, 1997.
- 11. Resolution of the Government of the Kyrgyz Republic 377 of June 23, 1998 'On Results of State Registration of Lands of the Kyrgyz Republic as of January, 1 1998'.
- 12. State Program 'Land' till 2005. Approved by the Resolution of the Government of the Kyrgyz Republic 548 of August 17, 1998.
- 13. Resolution of the Government of the Kyrgyz Republic 775 of November 30, 1998 'On Measures of Use of Distant-Pastures'.
- 14. 'Criminal Code of the Kyrgyz Republic', 1998.
- 15. 'Land Code of the Kyrgyz Republic', 1999.
- 16. Provision on Monitoring of Agricultural Lands of the Kyrgyz Republic. Approved by the Resolution of the Government of the Kyrgyz Republic 115 of March 1, 1999.
- 17. Program of Monitoring of Agricultural Lands of the Kyrgyz Republic from 1999 till 2005 and next years. Approved by the Resolution of the Government of the Kyrgyz Republic 115 of March 1, 1999.
- Provision on State Control over Use and Protection of Lands in the Kyrgyz Republic 612 of December 20, 1999.
- 19. Law of the Kyrgyz Republic 'On Ecological Assessment', 54 of June 16, 1999, city of Bishkek.
- 20. Law of the Kyrgyz Republic 'On Environment Protection', 53 of June 16, 1999, city of Bishkek.
- 21. Law of the Kyrgyz Republic 85 of July 21, 1999 'On joining of the Kyrgyz Republic the Convention to Combat Desertification in Countries Experiencing Serious Drought and or Desertification, Particularly in Africa'.
- 22. Decree of the President of the Kyrgyz Republic 239 of 21/07/1999 'On local and republican funds for protection of environment and own resources of nature managers'.
- 23. Methodical Guidelines on Monitoring of Agricultural Lands of the Kyrgyz Republic (approved by the Order of the State Register 51 of August, 3 1999).
- 24. Resolution of the Government of the Kyrgyz Republic 444 of August 14, 1999 'On the Results of the State Registration of Lands of the Kyrgyz Republic as of January, 1 1999'.
- 25. Law of the Kyrgyz Republic 'On Information' 107 of October 8, 1999 in the version of the Law of the Kyrgyz Republic of January 24, 2002.
- 26. Law on the Republican Budget 2000.
- 27. Resolution of the Government of the Kyrgyz Republic 507 of August 21, 2000 'On the Results of the State Registration of Lands of the Kyrgyz Republic as of January, 1 2002'.
- 28. Procedure for Determination of value (Normative Price) of Agricultural Lands. Approved by the Resolution of the Government of the Kyrgyz Republic 511 of August 22, 2000.
- 29. Law 'On the Management of Agricultural Lands' of 11/01/2001.
- 30. Provision on the Ministry of Agriculture, Water Resources and Processing Industry of the Kyrgyz Republic. Approved by the Resolution of the Government of the Kyrgyz Republic 144 of April 2, 2001.
- 31. Resolution of the Government of the Kyrgyz Republic 183 of April 19, 2001 'On State Agency on Registration of Rights for Immovable under the Government of the Kyrgyz Republic'.
- 32. Law 'On Protection and Use of Flora' 421 of May 22, 2001.
- 33. Provision 'On Procedure of Purchase and Sale of Agricultural Lands'. Approved by the Resolution of the Government of the Kyrgyz Republic 427 of 13/08/2001.
- 34. Resolution of the Government of the Kyrgyz Republic 479 of August 27, 2001 'On the Results of the State Registration of Lands of the Kyrgyz Republic as of January, 1 2002'.
- 35. Law of the Kyrgyz Republic 'On Production and Consumption Residue' 89 of November 13, 2001.

- 36. Law on the Republican Budget 2001.
- 37. Law of the Kyrgyz Republic 'On tariffs for pollution of the environment (emissions, pollutant emissions, distribution of residue)' 32 of March 10, 2002.
- 38. Law of the Kyrgyz Republic 'On Water Users Association' of March 15, 2002.
- 39. Provision 'On Procedure of Renting and Use of Pastures'. Approved by the Resolution of the Government of the Kyrgyz Republic 360 on June 4, 2002.
- 40. Law 'On International Treaties of the Kyrgyz Republic' (in the version of the Law of the Kyrgyz Republic 110 of June 27, 2002).
- 41. Resolution of the Government of the Kyrgyz Republic 507 of July 31, 2002 'On the Results of the State Registration of Lands of the Kyrgyz Republic as of January, 1 2002'.
- 42. Decree of the President of the Kyrgyz Republic 'On the Measures of Further Development and State Support of Land and Agrarian Reform in the Kyrgyz Republic' PD 202 of August 1, 2002.
- 43. Law on the Republican Budget 2002.
- 44. Law on the Republican Budget 2003.
- 45. Resolution of the Government of the Kyrgyz Republic 411 of July 4, 2003 'On the Results of the State Registration of Lands of the Kyrgyz Republic as of January, 1 2003'.
- 46. Decree of the President of the Kyrgyz Republic 'On New Directions and Measures of Land and Agrarian Reform' of April 17, 2004.
- 47. State Land-Survey 1990.
- 48. Examination of Social and Economic Factors which Promote Desertification of Lands in Kyrgyzstan, and Formulation of the Necessary Response Strategy. Report of the National Consultant B.G. Kovalenko 2000.
- 49. National Action Plan on the Implementation of UNCCD 2000.
- 50. Kyrgyzstan: General Assessment of the State of the Country 2001.
- 51. World Bank: 'Report on Mountainous Systems and Forestland in the Kyrgyz Republic', ECSSD Working Paper 33, September, 2001.
- 52. UN System. 'Kyrgyzstan: General Assessment of the State of the Country (OOC)'. Bishkek, 2002, 118 pages.
- 53. Report 'On the Availability and Distribution of Lands of the Kyrgyz Republic as of January, 1 2003'.
- 54. National Report on the State of the Environment of Kyrgyzstan 2001-2003'. Bishkek, 2003, 150 pages.
- 55. *Shiv Saigal.* 'Kyrgyz Republic: Issues and Approaches to Combat Desertification'. June 2003, TA5941-REG: The Combat against Desertification in Asia.

Materials from the following data banks were also used: KyrgyzNII Irrigation, the National Center to Combat Desertification, GPI Kyrgyzgiprozem and PA Independent Ecological Assessment.

Annex 1

Requirements of the	Articles of the	National legislation	What was done	What was not	Recommendations
The strengthening of legislation for sustainable development.	Article 5, item 'e': "provide an enabling environment by strengthening, as appropriate, relevant existing legislation and, where they do not exist, enacting new laws"	The constitution of the Kyrgyz Republic (2003 version). The Law of the Kyrgyz Republic 'On Agricultural Land Management' of January 11, 2001. The Land Code of the Kyrgyz Republic of April 30, 1999	The transfer of land from state to private ownership.	The transfer of land from state to private ownership of citizens was implemented without a preliminary economic analysis. Poorly regulated mechanisms for letting remote and intensive pastoral holdings on farms.	The increasing of the minimum terms of pasture leases.
The active participation of rural populations and nongovernmental organizations.	Article 10, item 'f': "provide for effective participation at the local, national and regional levels of non- governmental organizations and local populations, both women and men, particularly resource users, including farmers and pastoralists and their representative organizations, in policy planning, decision- making".	Law of the Kyrgyz Republic 'On Water Users Associations' of March 15, 2002 Law of the Kyrgyz Republic 'On Environment Protection' of June 16, 1999 Law of the Kyrgyz Republic 'On Ecological Assessment' of June 16, 1999 Law 'On Guarantees and Freedom of Access to Information ' of December 5, 1997	After the establishment of Water Users Associations (WUAs) services and control over irrigation water usage were passed to social organizations. The regulation of agricultural land management was legislatively fixed to ensure effective and secure land use. The Law of the Kyrgyz Republic 'On Environmental Protection' ensured the implementation of state policies on the preservation of the environment (came into direct effect on June 16, 1999). The Law of the Kyrgyz Republic 'On Guarantees and Freedom of Access to Information' provides each Kyrgyz citizen with an opportunity to freely seek, receive, investigate, produce and spread information	After the establishment of Water Users Associations the transfer of basic funds for internal economic networks was completed only in 2004. These funds provide the opportunity to improve the technical potential of the network by means of crediting the sector. The insufficient development of the necessary by-laws and procedural and instructional documents which regulate the registration and control of agricultural land.	The development of a mechanism of WUA crediting by local banking sector.

Implementation of UNCCD in the Kyrgyz Republic

Annex 2

	Name	Under support of	Language of	Place and Year of	Topic/Purpose
		Project (NGO, Institute	publication	publication	
1	'Law On Land'	Legal Assistance to Rural Citizens (LARC) implemented by the Swiss Agency for Development and Cooperation Helvetas	Russian	Periodical	Giving rural citizens an opportunity to be involved in the production, processing and marketing of agricultural products, to implement their rights, and, thereby, develop legal awareness among the rural population
2	'Agropress'	The World Bank Project Kyrgyz Republic Agricultural Support Services	Russian Kyrgyz	Periodical	Informing the rural population
3	'Basar Tamyry'	The World Bank Project Kyrgyz Republic Agriculture Support Services. KAMIS – Kyrgyz Agricultural Market Information System	Russian Kyrgyz	Weekly Bulletin	Public awareness
4	'Riod- Kyrgyzstan'	Network of NGOs Riod- Kyrgyzstan	Russian Kyrgyz	Information Bulletin	UNCCD Public awareness

List of publications issued in the Kyrgyz Republic, regarding UNCCD issues



National workshop "Global ecological conventions: interaction on national level", organized by the UNCCD Secretariat, GEF/UNDP project "NCSA – Kyrgyzstan" and Ministry of agriculture, water resources and processing industry of the KR (Bishkek, October 2004) In the workshop participated representatives of the UNEP regional office, ministries and institutions and managers of acting projects





"Regional Workshop on National Capacity Self-Assessment in CEE and NIS" (Germany, Vilm, November, 2005)



Assessment of the capacity needs for the implementation of the UN Convention on Biological Diversity in the Kyrgyz Republic

ASSESSEMENT OF THE CAPACITY NEEDS FOR THE IMPLEMENTATION OF THE UN CONVENTION ON BIOLOGICAL DIVERSITY K. Jundubaev, E. Shukurov, Ch. Sadykova, V. Korotenko, A. Chyngojoev

CONTENTS

List of acronyms	100
Glossary	101
Summary	103
1. Characteristics of biodiversity in the Kyrgyz Republic	106
2. Impact of anthropogenic factors on the biodiversity of the Kyrgyz Republic	112
3. International experiences of UNCBD implementation	117
4. Capacity of the Kyrgyz Republic to implement UNCBD	120
4.1. Legal framework4.2. Institutional framework (organizations, people, management structures, links and activities)	120 124
 4.3. Assessment of the awareness levels, educational capacities and personnel training needs in the Kyrgyz Republic 4.4. Projects implementing UNCBD in the Kyrgyz Republic 4.5. Financial resources for biodiversity protection 4.5. Risks, deterrents and additional needs 4.6. Recommendations for the implementation of the convention on biodiversity 	126 128 130 133 135
Conclusion	136
Annex 1. List of species contained in the Red book of the Kyrgyz Republic	139
Annex 2. Fauna of the Kyrgyz Republic (photo)	142
Annex 3. Map of distribution of species contained in the Kyrgyz Red book of the KR:	
Regional profile	143
Annex 4. Ecosystems of the Kyrgyz Republic (map)	144
Annex 5. Reserves and national parks of the Kyrgyz Republic (map)	145
Annex 6. Specially protected areas in the Kyrgyz Republic	146
Annex 7. Convention on biodiversity: Legal framework	150
Annex 8. List of publications published within the framework of biodiversity	
conservation projects and NGO programs in the Kyrgyz Republic	155
Annex 9. Implemented, planned and current projects	157
Annex 10. Materials prepared through the first phase of the UNDP/GEF NCSA project were tested and discussed at the following national and international seminars and conferences	160
References	161

LIST OF ACRONIMS

ACEAN	Agreement on the Conservation of the Environment and Natural Resources
CITES	Convention on the International trade flora and fauna species, which are under threat of extinction
EC	European Community
EMK	Ecological Movement of Kyrgyzstan
FAO	Food and Agriculture Organization
GEF	Global Environmental Facility
GIS	Geographic Information System
HEI	Higher Education Institution
IAE	Impact Assessment on the Environment
IUNP	International Union for Nature Protection
JSC	Joint Stock Company
KNU	Kyrgyz National University
KR	Kyrgyz Republic
MAB	UNESCO program Man and Biosphere
MEE	Ministry of Ecology and Emergencies
MPC	Maximum Permissible Concentration
NASKR	National Academy of Sciences of the Kyrgyz Republic
NGO	Non-Governmental (non-state) Organization
NPEP	National Plan for Environment Protection
NSPA	National Strategy for Poverty Alleviation
NSPACB	National Strategy and Plan of Actions for the Conservation of Biodiversity
PPP	Purchasing Power Parity
SPACB	Strategy and Plan of Actions for Conservation of Biodiversity
SPNT	Specially Protected Natural Territory
TPGP	Thermal Power Generating Plant
UNCBD	United Nations Convention on Biological Diversity
UNDP	United Nations Development Program
UNEP	United Nations Ecological Program
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNO	United Nations Organization
WB	World Bank
WHO	World Health Organization

GLOSSARY

Aboriginal	species local, indigenous to a given territory				
Agrobiodiversity	diversity of local, fauna, flora and domestic animals				
Acclimatized	species adapted to a new place				
Anthropogenic	produced by or dependent on human activity				
Biogeography	science of the geographical distribution of organisms				
Biomass	total weight of living organisms in a certain territory				
Biodiversity, area biological diversity	diversity of species, subspecies and communities across the world or in a specific				
Biosphere	part of the earth where living organisms are found				
Biota	aggregate of living organisms of some kind of country, territory				
Biotechnology	direction of technology, using living organisms and products of their activity				
Biotope	characteristic place of the vital activities of ecosystems, communities and species				
Buffer zone	territory around a reserve where human activity is restricted				
Species	biological species, the overwhelming majority of living organisms				
Genetic bank	collection of genetic materials from various species and breeds				
Protected area	protected natural territory where economic activity is limited				
Reserve	protected natural territory where economic activity is prohibited				
Zoogeography	science on the laws of formation of fauna and the distribution of animal species				
Introduced species	species taken from one habitat and introduced into another by humans				
Red book	approved list of animal and plant species, which are threatened with extinction				
Circuit its flore	bio-geographical distinction of a sector, relatively homogeneous with regards to				
its nora	or fauna content				
Order	in the system for classifying animals and plants, 'order' is placed over 'family'				
National park	specially protected natural territory in which restricted economic activities and controlled visits are permitted, under the protection of the State				
Monument of nature	compact natural formation under special protection, variety of SPNT				
Subspecies Range, vertical range	in the system for classifying plants and animals, 'sub-species' follows 'species' high-altitude areas in the mountains, where relatively homogeneous				

	conditions for plants and animals have been preserved					
Natural park	SPNT where economic activity and visits are controlled					
Genus	in system for classifying plants and animal 'genus' precedes 'species'					
Family	in system for classifying plants and animal 'family' is lower than 'genus'					
Synanthropic	species, formed as the result of anthropogenic activity					
Ex-situ conservation	conservation of species outside their natural habitat					
In-situ conservation	conservation of species inside their natural habitat					
Sub-endemic considered	species whose habitat partially exceeds the limits of the territory being					
Taxon	generic term for the designation of the systematic groups of different levels					
(order,	family, species, subspecies etc.)					
Fauna	species of animals					
Flora	species of plants					
Phenology	study of seasonal natural phenomena					
Edificators	species of plants with strong environment-forming abilities, displaying peculiarities in phytocenosises (composition, structure, phyto-environment, production)					
Ecological network	aggregate of sectors of natural ecosystems					
Ecological corridor	part of the natural network and relatively restricted sector facilitating the migration of species					
Ecology	science of the interaction of organisms with the environment					
Ecosystem	aggregate of the biota and habitat conditions					
Endemic, endemic species	species that do not exceed the bounds of the territory being considered					

SUMMARY

This report was prepared within the framework of the GEF/UNDP Project National Capacity Self-Assessment for the Implementation of Global Ecological Conventions – NCSA Kyrgyzstan.

The main goal of the first phase of the project was to create an inventory of the capacity of the Kyrgyz Republic to implement UNCBD at three levels: Systemic, organizational and individual. The environmental protection legislations of the republic, legal acts, government resolutions, ecological projects and international experience in this area were analyzed in the report.

The main guarantor of the implementation of UNCBD obligations is the government and the cooperation of all interested parties at local, national and regional levels is vital to further capacity building. The execution of UNCBD obligations requires significant efforts from all sectors of society.

International recognition of the fact that biological diversity conservation is one of the main objectives of humanity led to UNCBD being signed at the UN Conference in Rio-de-Janeiro in 1992. The Kyrgyz Republic joined this convention through the Law of the Kyrgyz Republic dated July 26, 1996.

The objectives of the Convention on Biological Diversity are the conservation of biological diversity, the sustainable use of its components and the sharing of benefits arising out of the utilization of genetic resources, including access to genetic resources and the transfer of relevant technologies, taking into account all rights to those resources (Convention on Biological Diversity, 1992).

The first step toward UNCBD implementation was the development of the Strategic Plan of Action for the Conservation of Biodiversity in the Kyrgyz Republic (SPACB) in 1998. For the Kyrgyz Republic, it was the first document, in which specific measures to address key biodiversity problems were determined, based on an analysis of species and ecological diversity and the economic, institutional, legal, educational and scientific capabilities of the republic. SPACB was endorsed by Resolution of the Government of the Kyrgyz Republic 524 dated 3/08/2002.

If the convention is fully implemented a number of ecological, economic and social benefits will result from capital investments and the development of financial mechanisms for the funding of similar projects. The provision additional financial resources for the implementation of the UNCBD will also facilitate the accessing of new technologies to address biodiversity degradation.

High levels of natural ecosystem preservation and species and ecosystem diversity occur in the Kyrgyz Republic and the concentration of species in the republic is much higher than that in Central Asia and the world. Many communities of flora and fauna are only found in the Kyrgyz Republic and despite certain anthropogenic transformations, a high percentage of ecosystems in the country have preserved their self-renewal abilities. In most instances measures to restore certain species are not necessary and it is sufficient to cut-back excessive anthropogenic pressures.

It should be noted, that the spatial heterogeneity of biodiversity and anthropogenic pressure is absolutely not taken into account by economic programs in the Kyrgyz Republic. This approach will inevitably lead to the reduction of flora and fauna species by number and areal distribution and impact on natural ecosystems. Some of these ecosystems, including sub-mountain steppe and desert ecosystems have almost disappeared and others have experienced decreases in the area and numerical ratio of species. Some species are under threat of extinction and were included in the Red book (1985).

Reduction in the population of a certain species can be attributed to changes in their habitat, the pollution of their habitat and direct and deliberate extermination of animals and plants. Mining, tailing dumps, waste rock piles, transport and pollution caused by unchecked industrial development represent an immediate danger.

Ecologically unbalanced agricultural production is also negatively affecting natural ecosystems and has caused widespread environmental degradation. The ecological situation in the republic has became worse

as economic problems have pushed the population, particularly in poor rural areas, to rape the country's natural resources (cutting down forests, poaching, extensive land clearing and neglecting of land-improvement activities). It should be noted that decreases in the diversity of species and ecosystem leads to decrease in the sustainability of a given habitat and the deterioration of its resources.

Since ratifying UNCBD the Kyrgyz Republic has launched a number of efforts to implement its goals and principles. A number a news laws have been passed in the country including the 'Forest Code' and the Laws of the Kyrgyz Republic 'On the Protection of the Environment', 'On Fauna', 'On Flora Protection and Utilization' and 'On Specially Protected Natural Territories'. Various projects aimed at conserving natural ecosystems and creating the mechanisms for their protection have been launched in the country.

Projects supported by the GEF, WB, UNDP, the European Commission and the governments of Switzerland, Germany and other countries have also been implemented in Kyrgyzstan. Many of these projects operate in several Central Asian countries and aim to improve regional cooperation on environmental protection issues. Through TACIS and GEF/WB biodiversity conservation projects in Western Tian Shan, efforts are being made to organize a transboundary protected territory based on existing protected areas, national parks and reserves in Kazakhstan, the Kyrgyz Republic and Uzbekistan. A draft of the Intergovernmental Agreement on the Creation of the Transboundary Protected Territory has been prepared and is being approved by the relevant ministries and agencies in the three countries.

Efforts have been made to conserve biodiversity in both natural and artificial environments but these measures are insufficient. Public awareness of the global ecological conventions remains low due to a lack of publications, special information campaigns and public relations activities relevant to implementation activities. Developments and capacity-building efforts are needed to ensure the implementation of UNCBD obligations in this area.

The implementation of UNCBD in the Kyrgyz Republic and across the world highlights the importance and value of biodiversity for the maintenance of life and the sustainable use of natural resources.

The implementation of the Convention in the Kyrgyz Republic will result in the following benefits:

- the conservation of the biodiversity of pasture ecosystems will significantly increase their productivity (for example, pasture ecosystems that are ecologically balanced can be up to 40 percent more productive that other pastures) which is vital to state poverty reduction programs since a considerable percentage of the Kyrgyz population is involved in cattle breeding;
- the conservation of grass and forest ecosystems is important for the prevention of climate change, the prevention of natural disasters and desertification and will allow the ecosystems to retain their water-regulative, slope and soil-regenerative functions.

The maintenance of biodiversity levels will allow the further reproduction of medicinal herbs, hunted species, non-timber forestry products and wild plants. Bio-resources support the population. This needs to be taken into account when plans for country development programs are being drawn-up.

It should also be noted that the Kyrgyz Republic has a rich gene pool of species that are considered an important resource for the creation of fast reproducing and resistant varieties of ornamental, medicinal and aromatic plants and raw technical materials. One of the world's highest concentrations of cultivated plants can be found in the country. Walnut forests alone contain an inexhaustible supply of fruit trees and berry-bearing shrubs. Local breeds of domestic animals also contribute to agricultural biodiversity levels.

If the obligations of the Kyrgyz Republic to UNCBD implementation are to be completed, the following measures are necessary:

• the maintenance of an optimal balance between economic activity and biodiversity conservation in each sector of the country taking into account that both spheres are equally important for the achievement of the sustainable social-economic and ecological well-being of the population;

- the strengthening of institutional capacity, the improvement of the ecological awareness levels of decision-makers and the consideration of ecological factors by all state programmes;
- the creation of favorable conditions for the attraction of private and international investments in ecological programs;
- the development of intersectoral cooperation in environment protection programs;
- the development of projects and programs to disseminate information to the population on global ecological conventions and to ensure public access to ecological information, biodiversity discussions and decision-making processes in this area;
- the development of mechanisms for local community participation in the management of protected natural territories.

1. Characteristic of biodiversity in the Kyrgyz Republic

Geography

The Kyrgyz Republic is a highly mountainous country with a complex billowy relief. Of the 199,000 square kilometers of the country, more than 90 percent is occupied by mountains with altitudes between 500 and 7,134 meters above sea level. About 40 percent of the country is uninhabitable and features glaciers, perpetual snow-cover, rocks, high mountains and rocky deserts. About seven percent is occupied by cultivated land including fields, inhabited localities, roads and industry. Highly productive agriculture is only possible on irrigated land, which occupies about two-thirds of the country.

Climate

At about 3,000 kilometers from the nearest ocean, the Kyrgyz Republic has an arid and continental climate. The high mountains have facilitated the formation of several diverse local climates. From the oppressive heat and aridity of sub-mountain plains, where average January temperatures are between 0 and 2 °C, July temperatures start at 26 °C and above and July rainfalls are less than 10 mm, to the high humidity and cold of the high mountains where the average January temperature is minus 28 °C, July reaches just 6 °C and July's rainfall reaches between 100 and 150 mm. Above a height of 3,500 to 4000 meters glaciers and perpetual snow-cover dominate the landscape⁷².

Population

As of January, 2001 the population of the Kyrgyz Republic was 5.12 million. Of that figure 35 percent live in urban areas and 65 percent live in rural areas. According to the age structure data, children account for 38 percent of the population, people capable for working make-up 53 percent of the population and the elderly account for the remaining nine percent⁷³.

Convention on Biological Diversity: Ratification and obligations of the country

The heads of more than 100 countries signed the UN Convention on Biological Diversity at the UN conference held in Rio-De-Janeiro in 1992. Having been made aware of the importance of biodiversity protection and the significance of the extinction of species and the disappearance of ecosystems as a serious threat to life on earth, the Kyrgyz government ratified the convention on July 26, 1996.

The objectives of the convention are the conservation of biodiversity, the sustainable use of its components and the equitable sharing of the benefits arising from the utilization of genetic resources, including the appropriate transfer of relevant technologies with regard to rights over those resources and technologies and through appropriate financing.

The main subjects of the convention are:

- ecosystems and habitats characterized by a higher degree of diversity, a greater number of endemic or endangered species;
- species and communities being endangered, representing the wild species of domesticated or cultivated species important for conservation, biodiversity and sustainable development research.

'Biological diversity' means the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are a part; this includes diversity within species, between species and diversity of ecosystems. **Convention on biological diversity. Rio-de-Janeiro, 1992. article 2**.

⁷² G.H. Yar-Mukhamedov, 1982

⁷³ 'Kyrgyzstan: The overall assessment of the status of the country', 2001

According to international law, when a country ratifies the Convention, it accepts the obligations to:

- develop a national strategy, plan or programs for the conservation and sustainable use of biological diversity;
- conserve and utilize the biological resources of the country in a sustainable manner;
- develop and implement scientific and technical training programs and prepare personnel, to promote and provide information on UNCBD implementation to the public;
- ensure financial support and incentives within reasonable limits on a national level;
- present reports to the Conference of the Parties on the measures undertaken to implement the provisions of the convention;
- determine the right of access to genetic resources;
- conserve in-situ ecosystems, native habitats, ex-situ ecosystems and to regulate and create a system for the protection of an area or areas, in which biodiversity conservation measures are taken.

Benefits for the countries that joined the Convention:

The Convention and its implementation in the Kyrgyz Republic confirms the country's understanding of the intrinsic value of biodiversity for the maintenance of life, the sustainable use of natural resources and the ecological, genetic, social, economic, scientific, educative, cultural, recreational and aesthetic value of biological diversity and its components.

International cooperation and partnerships between states, inter-governmental and non-governmental organizations and the private sector for the conservation and sustainable use of biological diversity and access to information, technologies and resources improves during convention implementation activities.

The successful implementation of UNCBD, through economic and social development, also promotes the elimination of poverty.

Since biodiversity conservation projects require substantial capital investments and the Kyrgyz Republic is a developing country it is expected that it will receive ecological, financial and social benefits from donor countries to aid the implementation process. The Kyrgyz Republic and its donors are developing the necessary financial mechanisms for the implementation of the country's obligations under the Convention. New and additional financial resources will help the Kyrgyz Republic access new technologies and adequately address biodiversity degradation. Participation in the Convention provides a country with the opportunity to receive financial support for biodiversity conservation.

According to biological diversity indicators, the Kyrgyz Republic has a high concentration of plant and animal species and its ecosystems and landscapes are relatively undamaged. About two percent of the world's flora and three percent of the world's fauna inhabit the country (*table 1*). This is a lot when we take into account that the country occupies just 0.03 percent of the planet or 0.13 percent of the earth's land mass ⁷⁴.

The Kyrgyz Republic contains many of the world's plant and animal species. About 77 percent of the 22 divisions in the plant Kingdom (including fungi) can be found in the country. Ten or 41.7 percent of the 24 types of animals can also be found here. About 260 viruses, bacteria and protozoa, 3,676 species of fungi and other lower plants, 3,786 higher plants, 10,290 insects and other arthropods, more than 1,500 other invertebrates, 75 species of fish, four types of amphibians, 33 types of reptile, 368 types of bird and 83 types of mammal are known to exist in the country. The number of invertebrates in the country has not been adequately investigated ⁷⁵.

⁷⁴ 'The Strategy and Plan of Actions for the Conservation of Biodiversity'. Bishkek, 1998, p. 160

⁷⁵ Shukurov E. Dj. 'The problems of biodiversity in Kyrgyzstan' 'Echo of science' 'Proceedings of the National Academy of Sciences of the Kyrgyz Republic'. vol. 2,3. Bishkek, 1997, pp. 89-92

	World		The Kyrgyz Republic			
Group	Number of species in the world	Number of species per 1000 sq. km	Number of species in Kyrgyzstan	% of the world quantity of species	Number of species per 1000 sq. km	
Viruses, bacteria,						
protozoa	5,760	0.011	261	0.05	1.32	
Lower plants	73,883	0.145	3,676	4.98	18.57	
Higher plants	248,428	1.666	3,786	1.52	19.12	
Worms	36,200	0.071	1,282	3.54	6.47	
Mollusks	50,000	0.098	168	0.34	0.85	
Arthropods	about 2 million	13.407	10,290	0.51	51.72	
Fishes	19,056	0.041	75	0.39	0.38	
Amphibians	4,184	0.023	4	0.09	0.02	
Reptiles	6,300	0.047	33	0.52	0.15	
Birds	9,040	0.062	368	4.07	1.86	
Mammalians	4,000	0.027	83	2.07	0.44	

Species diversity and concentration of species

Source: E. Shukurov and others, 2002.

Communities of flora and fauna form an integral part of the Kyrgyz milieu that provides suitable conditions for life in complex mountainous conditions. It should be noted that units of life do not represent individual plants or animals nor separate species. They represent ecosystems since no species can exist is separation from its habitat and the other plants and animals it interacts with.

Diverse natural communities are abundant in the Kyrgyz Republic and include walnut forests, juniper, spruce, foliage forests (3.5 percent), bushes, tall grass, middle-range mountains, middle and short grassed high-mountain meadows, steppes and deserts and water-paludous land (*table 2*)⁷⁶.

Table 2.

Table 1.

Ecosystems of Kyrgyzstan

	Title of ecosystems	Area (km2)	% of the territory of the
1	Comuna formata		country
1	Spruce forests		
2	Juniper forests		
3	Broad-leaved forest		
4	Riparian forests		
5	Small-leaved forest		
6	Middle-mountain deciduous bushes		
7	Middle-mountain petrophilous bushes		
8	Savannoids		
9	Almond-trees and pistachio-trees		
10	Nival-subnival belt		
11	Cryophyte meadows		
12	Cryophyte steppes		
13	Cryophyte deserts		
14	Middle-mountain meadows		
15	Middle-mountain steppes		
16	Middle-mountain deserts		
17	Mountain boghara		
18	Sub-mountain steppes		
19	Sub-mountain deserts		
20	Petrophilous low-mountain bushes		
21	Lakes and bogs		
22	Cultivated lands		

Source: E. Shukurov, 1996.

⁷⁶ Golovkova A. G. 'Vegetation of Kirgizia (the rational use and protection)'. Frunze: Ilim, 1999, p. 444
More than 20 ecosystems and 160 varieties of mountain and plain landscapes can be found in the Kyrgyz Republic (*Table 2*). They are populated by more than 50,000 species of living organisms. One of the ecosystems found occurring abundant and in many diverse forms are forest systems. More than 170 strains of trees and bushes grow in Kyrgyz forests. Cades, Tian-Shan spruce and walnut are the predominant, forest-forming species. Valuable coniferous forests occupy 38.7 percent of the territory. Walnut plantations occupy about 4.6 percent. On more than half of the territory occupied by these plantations, coniferous species are can be found surrounded by low-density vegetation. These plants regulate the ecosystem's water drainage and prevent the erosion of soil on mountain slopes. Productive forests with between 0.8 to one percent vegetation density account for 7.8 percent of the total area, occupied by major forest-forming species (*Annex 4*.)⁷⁷.

Much of the rest of the territory is occupied by lifeless glaciers, snowfields and rocky high-mountain deserts.

High-mountain ecosystems are extremely delicate and cannot be effectively reproduced or staged. The living organisms that make up ecosystems are always highly dependent on each other but even closer links between species have been observed in high-mountain ecosystems. In such communities disappearance of one species can result in the death of other species directly dependent on it⁷⁸.

The Kyrgyz Republic has an extensive gene pool – a potential resource of resistant cultural varieties, ornamental plants, medicinal and aromatic herbs and raw technical materials. One of the world major centers for cultivated plants is in the Kyrgyz Republic. In the walnut forests alone, abundant supplies of fruit trees and berry-bearing shrubs can be found. Local breeds of domestic animals and cultivated plants can contribute to agricultural biodiversity. Copious amounts of the wild progenitors of common cultivated plants are also a source for genetic and selection work. Among them there are walnuts, apples, pears, cherry-plums, apricots, pomegranates, grapes, raspberry bushes, currant bushes, tulips, onions, desert-candles (eremuridae) and other ornamental flowers and bushes. Many local handy-crafts utilize these products⁷⁹.

Changes to habitats and reductions in the number of species place many organisms under the threat of extinction. Rare animal species include gray monitor lizards (varanus griseus), ibis-bills (ibidorhyncha struthersii), marbled [mottled] polecats (vormella peregusna), snow leopards (felis uncia), Tian Shan brown bears (ursus arctos isabellinus) and many localized species and previously localized species such as mollusk siraphoroides (siraphoroides moltschanovi), inhabiting only the Ak-Terek isolated terrain of the Fergana mountain ridge. A rare plant found in the country is otostegia nikitinae. Useful invertebrates (soil formers) also deserve protection. These include the localized Red Hills annelid worms and allolobophores of the nut-fruit forests⁸⁰.

Ninety two animal species and 65 plant species are included in the list of endangered species. These plants and animals account for about one percent of species in the Kyrgyz Republic (*Table 3*). To date, 68 animal species and 65 plant species have been included in the Kyrgyz Red book. (*Annex 1, 3.*) However, according to modern botanic findings, up to 400 species of higher plants are subject to inclusion into the Kyrgyz Red book. For a species to be classified as extinct all but one of their number needs to be wiped out and many species have a critical population below which, they will be unable to recover. Many species in the Red book are facing extinction not only because of extermination but due to changes to their habitats⁸¹.

Many of the listed species of mammals are close to extinction including the alpine dhole (cuon alpinus), the Central Asian otter (lutra lutra), the goitered gazelle (gazella subgutturosa) and birds including the great bustard (otis tarda l.) and the imperial eagle (aquila heliaca). Critically endangered plant species include the nitidous (tulipa nitida), the ostrowskian (tulipa ostrowskiana), the rose (tulipa rosea), tulips

⁷⁷ Musuraliev T. S. 'The Main Reasons for the Degradation of the Forests and Deforestation in Kyrgyzstan', Bishkek, 2001, p. 103-120

⁷⁸ 'Productivity of the High Mountain Ecosystems of Tien Shan', 1992

⁷⁹ Vykhodtsev I. V. 'The Vegetation of the Tien Shan-Alai Mountain Structure'. Frunze: Ilim, 1976

⁸⁰ Shukurov E. Dj. 'The wild mammalians of Kirgizia'. Frunze: Mektep, 1989, p. 176

⁸¹ 'The Red book of Kyrgyzstan'. Frunze, 1985

and wild pomegranates (punica granatum). The main reason for their precarious situation is the disturbance of their natural habitats by economic ventures and direct extermination by man^{82} . (Annex 2.)

Table 3.

		Number of endangered species					nsion of species			
Systematic group	Total	Included in the Red book	Practicall y extinct	Endangered	In a stable condition	In high moun- Tains	In the middle moun- tains	In the low moun- tains		
Annelid worms	6	-	-	6	-	2	4	-		
(Annelides)										
Mollusks	2	-	-	2	-	-	1	-		
(Mollusca)										
Insects	50	17	-	16	17	7	35	8		
(Insecta)										
Fishes	6	2	-	4	2	3	2	1		
(Pisces)										
Amphibians	3	-	-	3	-	-	1	2		
(Amphibia)										
Reptiles	5	3	1	4	-	-	3	2		
(Reptilia)										
Birds	35	32	4	30	5	7	12	16		
(Aves)										
Mammals	15	13	3	12	3	5	6	4		
(Mammalia)										
Plants	71	71	3	54	17	17	36	18		
(Plantae)										
TOTAL:	187	132	11	131	44	41	100	52		

Number and the distribution of endangered species

Source: SPACB, 1998

In addition, it is necessary to take into account that considerable numbers of species have yet to be discovered and of the species registered, their numbers and whereabouts are not completely known. Some species have only been found once.

The most reliable information available concerns vertebrates and high-level plants. The poor population levels of many amphibian species, snakes, the big ungulates, predatory mammals and birds are worrying.⁸³

Biodiversity assessments, forecasts of ecological change and assessments of the necessary conditions for conservation and sustainable natural resource use are carried out through monitoring. In the Kyrgyz Republic, environmental monitoring is carried out by the Department of Ecology and Monitoring of the Environment of the MSEP, which supports the national observatory network, maintains data bases, analyses the environmental situation in the country and draws up forecasts and develops ecological accreditation and certification procedures. The department determines the categorization of certification subjects and organizes environmental protection standardization projects.

The department is also responsible for developing pollution penalty payments, nature management and for the preparation of materials related to the singing of international conventions and agreements. Through the State Forest Service of the Kyrgyz Republic, the development and presentation of state projects for the monitoring plants and animals is exercised by the Department for Accounting,

⁸² Sultanova B. A., Lazkov G. A., Lebedeva L. P., Ionov R. N. 'The preliminary list of species of higher plants subject to protection and inclusion into 'The Red book of Kyrgyzstan'. Science and new technologies. vol. 2. Bishkek, 1998, pp. 199-127

⁸³ Shukurov E. Dj., Tarbinskiy Yu. S. 'Biodiversity: What is it like?' in 'Echo of Science' 'Proceedings of the National Academy of Sciences of the Kyrgyz Republic. vol. 2. 1995. pp. 33-37

Monitoring, Regulation and use of Bio-resources⁸⁴. The monitoring programs are vital for tracking the condition of the environment, identifying any trends and measuring the efficiency of management actions (UNCBD, article 7). It is necessary to identify, through sampling, the components of biodiversity, those requiring urgent conservation and those that offer the greatest potential for sustainable use. Monitoring is carried out through a three-step registration process:

- the registration of the condition and number of an ecosystem's population and the numbers of the main plant and animal species found there in a certain period of time, compared to previous numbers;

- the assessment of the condition of species and their habitat;
- the forecasting of changes to these figures and the measurement of the reproductivity of species.

The condition of the environment is measured using vegetative indicators. Plants can be used as sign of the condition of an environment as they indicate other environmental conditions including soil quality, water levels, temperature, light and animal inhabitants. The composition of ecological communities and the phenological rhythms and viability of plants are considered the most sensitive and reliable environmental indicators. In order to link the conditions of the indicator species to the condition of the conservation priority objects, significant amounts of data on the indicator species are required.

The key indicators of biodiversity in the Kyrgyz Republic are:

- the sizes of forested areas;
- the condition and productivity of pasture ecosystems;
- the relative proportion of endangered flora and fauna species to the overall species composition;
- the condition of the water resources and the organisms living around them.

There are no techniques for monitoring or direct indicators of the conditions of individual species of flora and fauna. The vegetative cover prevents the loss of fertile soil layers on the slopes of the mountains and prevents destructive floods, mudflows and landslides, which cause annual monetary losses estimated at millions of dollars.

The Kyrgyz Republic can boast rich biodiversity as the concentration of species in the country is much higher than that of other Central Asian countries and indeed the world. Many of the country's natural flora and fauna cannot be found anywhere else. But many species are dwindling in the amount and area of distribution and some are threatened with extinction and have been included in the Kyrgyz Red Book (1985). The decreases in these species are caused by changes to their natural habitat and environmental pollution. Kyrgyz Flora and fauna have not been studied uniformly. Higher vascular plants and vertebrates are comprehensively understood but species of lower plants (including fungi) and invertebrates are lesser known.

⁸⁴ The functional analysis of the Ministry of ecology and emergency situations of the Kyrgyz Republic. The UNDP Report, Bishkek, 2003

2. Impact of anthropogenic factors on biodiversity in the Kyrgyz Republic

The crises faced by the Kyrgyz Republic during the transition from the Soviet Union to a market economy have aggravated problems related to biodiversity. Many indicators suggest that the country is a poorly developed state. The level of poverty by expenses (52 percent or 62.5 percent by consumption) against the total population in 2000 decreased to 40.8 percent in 2003 although this decrease in poverty levels is only noticeable among the urban population and poverty levels in rural areas are still high.⁸⁵ The ecological situation in the republic has worsened due to economic problems prompting the population, the residents of poor rural areas in particular, to use natural resources in a destructive way (depredation of forests, poaching, the extensive exploitation of arable land and negligence towards melioration and other activities) resulting in the degradation of the ecosystems of the republic.

But the Kyrgyz Republic is still home to unique landscapes, clean water and un-touched areas not affected by anthropogenic activities. These areas are of international importance but poverty and social inequality constrain the Kyrgyz Republic from fully developing and utilizing these areas. Demonstrations in the country cause violations of human rights, enhance the vulnerability of social, economic and political freedoms and create social tension within the society to the detriment of the environment, natural complexes and biodiversity both within the country and in the region as a whole. In the Kyrgyz Republic, the functioning and distribution of flora and fauna depends greatly on their elevation above sea level. On the whole, the republic enjoys favorable climatic conditions (*fig.1*). However, the intensification of the anthropogenic impact on the environment hampers the preservation of many wild species in natural conditions.



*Figure 1. Ratio of areas of basic types of ecosystems*⁸⁶ *Source:* National Communication of the state of the environment. 1998-1999 MEP.

Without exception, the social and economic sectors of the country depend on biodiversity either directly or indirectly. Firstly, biodiversity helps maintain the sanitary and hygienic state of the environment on which public health depends. In the agricultural sector, pastures which still contain their original plant varieties are of the highest feeding value. For crop cultivation, horticulture and forestry the most sustainable and safe measures for combating the pests utilizes other natural organisms to restrict their population. Hunting and fishery would cease if the species they targeted died out completely. The same can be said about pharmacology, which utilizes wild plants containing medicinal properties.

The climatic conditions in the Kyrgyz Republic have made the development of the mining industry, hydro energy, agriculture and transport a national priority. But thoughtless economic activity, the absence of controls and a lack of ecological awareness among the population and public administrations presents a threat to the preservation of biodiversity.⁸⁷

The intensive extraction of mineral resource deposits and the production of copper, zinc, lead, uranium concentrates, gold, mercury and antimony using inadequate technology caused the accumulation of high volumes of solid and liquid waste. Fourteen mining stations are located in the basin of the Naryn-Syrdaria

- lake and swamps; anthropogenic - including arable land and populated areas; others - predominantly lifeless areas of glaciers and permasnow, cliffs and stony localities.

⁸⁵ Information bulletin – Kyrgyz Republic by food security and poverty//NatsComStat of Kyrgyz Republic №1/2004.

⁸⁶ Forest – including bushes; grass – including subnival belt (the belt adjoining a snow line in the mountains); water

⁸⁷ Shukurov E. J. 'Natural and Anthropogenic Media of Kyrgyzstan'. Bishkek: Ilim, 1991, p. 125

rivers just inside Kyrgyz territory. The volume of solid wastes in the tailing dumps of these sites exceeds 550 million m³.⁸⁸

Almost 50 tailing dumps and 80 rock piles remain in the Kyrgyz Republic as a result of activities of soviet enterprises involving uranium and complex ore mining. These sites must be properly closed down and isolated. The condition of the majority of the tailing dumps and waste piles, which are located in seismically active zones, is unsatisfactory.⁸⁹ In 2004, the WB five-year project Prevention of Emergency Situations in the Kyrgyz Republic was initiated for US\$11 million. The rehabilitation and prevention of uranium waste leaks is the main objective of the project. The program's activities should help improve the ecological situation in the country.

The Kyrgyz Republic experiences natural and climate conditions that increase the risk of natural disasters. In 2003, 27 mud-torrents, 16 spring floods, 47 landslides, 11 earthquakes, 25 avalanches, and 40 other hazardous phenomena were recorded.⁹⁰

Thoughtless economic activities, such as the cultivation of mountain slopes⁹¹, unsystematic and unregulated road building and excessive land-clearing have a devastating impact on the environment.⁹² The area directly affected by mining enterprises in Kyrgyzstan is 3,700 hectares.⁹³

Almost half of the population's energy demands are satisfied by the burning of wood and bushes.

Recently many large areas of natural forests in the republic have been destroyed by fires (table.4). This causes the permanent loss of large parts of the forest ecosystem. Fires also cause the loss of a fertile layer of soil, which is usually burnt out to a depth of 10 to 20 cm.

Table 4

. . .

	1998	1999	2000	2001	2002
Number of fires, cases	5	2	17	14	12
Area of fires, hectares	58.0	4.8	13.2	771.1	757.5
Damage, thou. som	19.3	3.8	6.9	75.0	183.0

Forest fires in the period of 1998 to 2002

Source: National report on the state of the environment in Kyrgyzstan in 2001-2003.

Fires, forest felling and livestock grazing on State Forest Service land, greatly affects forest areas. The Kyrgyz Forest Fund experienced great losses from 1925 to 1950, when 5.95 million m³ of coniferous forests were logged. In that time, 229,000 m³ were felled annually compared to 74,700 m³ of new growth. Decreases in forest areas continued until 1966 and only began recovering in 1978 (from 654,100 hectares in 1978 to 769,500 hectares in 1993). By 1999-2000 forests covered 864,900 hectares due planting programs (Table 5). From January 1, 2003 State Forest Service controlled 3.3215 million hectares or 4.32 percent of the republic. The Forest Fund of the State Forestry Service holds 3.2757 million hectares, of which forests cover 834,700 hectares.⁹⁴

Dynamics of forest cover area of the republic

				Tat	ole 3
1966	1978	1988	1998	2003	
3.09	3.27	3.98	4.22	4.32	

Forest covered area, in %	6	3.09	3.27	3.98	4.22
<i>Source:</i> Materials of the Regional Ford	estry Con	gress. Nov	vember 25	5-27, 2004.	Bishkek

1930

Forest covered area, in %

⁸⁸ Bogdetsky V.N., Shukurov E.J, Suyunbaev M. N., Stavisky V.A., Dyikanova Ch. K., Esengulova N. D. 'Mining industry and sustainable development in Kyrgyzstan'. Bishkek, 2002, p. 160

⁸⁹ Orolbaeva L. E. Impact of mining industry on ecological situation'. Bishkek, 2002, pp. 144-146.

⁹⁰ Statistical data on emergency situations of natural, technogenic and ecological nature in 2003.

⁹¹ Abdykaparov Ch.M., Imankhodjaev Ch.U. 'Ecological impact of tailings dumps and waste piles of uranium and complex ores in KR' in 'Collection of materials of ecological conferences and workshops'. Bishkek, 2002. ⁹² *Khudaibergenov A., Akhmatov M.* Degrading of ecosystems in West Tyan-Shan//Materials of the conference

^{&#}x27;Biological diversity of West Tyan-Shan, state and prospects'. Bishkek, 2002, pp. 260-263.

⁹³ National plan of environment protection (NPEP) in the Kyrgyz Republic, 1995.

⁹⁴ Materials of the Regional Forestry Congress, November 25-27, 2004, Bishkek

According to data from the last registration an aging trend exists in some forests. The aging process exceeds new growth. In particular, this trend is noticeable among coniferous forests, where 49.9 percent of trees are mature while new growth accounts for just 7.8 percent. A biological peculiarity of coniferous forests is that they demonstrate very poor renewal and reparative abilities.⁹⁵ Planting programs should extend work in this area.⁹⁶

Different types of agricultural activity have a negative impact on biodiversity preservation in Kyrgyzstan. The excessive use of pastures (which comprise more than 85 percent of the total area of agricultural land) for hay cultivation and livestock grazing, results in the degradation of topsoil and vegetation in pastural zones. More than 50 percent of pastures (4.5 million hectares) are considered degraded. Pasture yields have decreased two-fold in the past 15-20 years. The clearing of snow-less mountain zones for livestock grazing meant ousting wild animals and birds from their natural habitat and caused considerable decreases in their numbers. The trampling of laid eggs resulted in sharp decreases of the population of steppe birds.

Since Kyrgyzstan gained independence, small livestock owners have not been able to use distant pastures and are forced to graze their livestock near populated areas, resulting in the degradation of vegetation and sanitary and epidemiological conditions.

It should be noted that the health and diversity of certain ecological ecosystems depends on human economic activities. These ecosystems include ploughed fields, gardens, vineyards, forests and park plantations, forest shelter belts, plantations on technogenically upset soil and improved pastures.

All suitable arable lands are ploughed and used for irrigated farming. In arid foothill valleys in the hot summer season irrigated fields and gardens produce more organic products than the original desert, semidesert and arid steppe ecosystems. Nearly all the native ecosystems to these areas have vanished and almost half have disappeared on the plains and in mountainous hollows. On the other hand, irrigation creates more favorable conditions for a great number of vegetable and animal varieties.

But poor irrigation practices and a lack of the necessary drainage systems, irrigated land is becoming salinated. Salination is a critical problem for 20 percent of cultivated land in the lowlands of the Chui and Fergana valleys. The unregulated storage and use of manure pollutes surface and ground waters with nitrates, bacteria and helminthes.

Economic developments in new areas (semi-deserts and swamp land), large-scale hydro-melioration work (in particular in the Issyk-Kul and Chui valleys and in southern parts of the country) have resulted not only in the degradation of native vegetation but also in decreases of the natural habitat of wild animals. In its turn, this has resulted in population decreases, the extinction of a number of animal species, biological imbalance and the spread of infectious diseases.

The long-term use of pesticides and mineral fertilizers has caused decreases in the populations of useful soil organisms, invertebrate pollinators, soil generators and enthomophages and other fauna.

Human activities that have a negative impact on biodiversity:

- *The building and exploitation of roads.* Many roads do not connect settlements and populated areas but facilitate access to remote areas. The saturation of the country with private transportation threatens the environment. The implications of this are evident, for example the degradation of roadside belts up to 1 km wide, the changing of natural habitats, the introduction of foreign species and the excessive exploitation of components of biodiversity.
- *The destruction of habitats and killing of animals during digging activities* (the laying of underground communication equipment, water pipelines, gas pipelines, etc.).
- *The installation of high-voltage electric power supply lines*, and clashes with transport vehicles result in the deaths of considerable numbers of birds of prey, mammals, reptiles, insects and nocturnal animals.

⁹⁵*Kolov O.V., Musuraliev T.S.* 'Comprehensive solution of the problem of sustainable preservation of biodiversity and rational use of natural resources in West Tyan-Shan' in 'Collection of materials on Biological diversity of West Tyan-Shan'. Bishkek, 2002, pp. 166-169.

⁹⁶ Materials of organization of the use of forest and reports of State Forestry Service of the Kyrgyz Republic (1993-1998).

- *Light pollution* inflicts damage on insects and nocturnal animals, in particular along highways with intensive traffic and in populated areas.
- Unauthorized forest felling, livestock grazing and forest degradation affect forest restoration. Every year, forests belonging to the State Forest Fund tree felling and sanitary and forest restoration felling are carried out on about 37,000 m³ of the forest.
- Swamp draining, which degrades the habitat of water and swamp dwelling organisms.
- *Fires*, intentionally and unintentionally lit by local people resulting in destruction of flora and fauna.
- *The elimination by the local population of animals,* who in unfavorable weather conditions (snow fall, deserts, strong frosts) migrate to populated areas in search of food and are unlawfully caught or killed.
- *The over fishing of mature fish* results in sharp decreases in their population and reproductive capabilities.⁹⁷
- In the past few decades the prevalence of many common and rare animals has decreased due to direct extermination and habitat destruction. Many animals in the Kyrgyz Republic are endangered. One vivid example of this is the over hunting of marmots to near extinction. Marmots have been hunted excessively and Menzbira marmots are now included in the International Red Book. The same fate may also befall grey and red marmots if hunting levels do not decrease.

The following social groups are directly responsible for the reduction of biodiversity: Vegetation pickers, folk healers, bee-keepers, amateur hunters, amateur fisherman, fur sellers, private livestock owners, farmers, herdsmen, folk handicraft makers, tourists and collectors. In some localities and especially along busy roads the picking of wild flowers is widespread. The reserves of wild medical plants are being depleted.⁹⁸ Commercial trades in snakes, birds of prey and other animals are becoming more frequent. A lack of resources makes environment protection ineffective in many places.

In line with the Resolution of the Kyrgyz Republic 523 (article 3) as of August 3, 2002 'On Amendments and Addendum to some Resolutions of Kyrgyz Republic Government', the State Forestry Service is authorized to issue licenses for activities related to the hunting and catching of birds according to the list as defined by PKR.

In the republic, the *grey marmot and musk-rat* are referred to fur-bearing animals. In 2003, the limit of marmot hunting was 9,320 heads and license holders were issued 25 permissions for 7,300 heads. The limit on musk-rat hunting is 2,367 heads, five permissions for the hunting of 2,367 heads have been granted.

In 2003 the amateur hunting limit of 1,193 heads of wild mountain goat (ibex) was established. Limits of 91 wild boars, 304 roe (deer), 14,110 partridges and 4,642 pheasants were also established. Hunting permission was issued for 280 wild mountain goats, 26 wild boars, 127 roe, 6,880 partridges and 2,280 pheasants.

In 2003 game-shooting limits were issued for *foreign hunting tours*. The hunting of Siberian wild mountain goats was limited to 450 head, roe hunting was limited to 19 head, just three head of wild boar and 1,000 partridges. License holders were issued 12 permits for 54 Siberian wild mountain goats (only 28 were shot) and two permits for 220 heads of keklik.

Poaching has decreased as the populations of valuable varieties of animals, fish and plants have decreased due to the destruction of their habitat and natural selection. In 2003 The Department of the State Control of Bio-resources of the State Forestry Service conducted 2,833 inspections, composed 1,025 inspection acts and issued 527 instructions. More than 1,280 violations of protection laws were registered. As a result of attempts to combat poaching 861 decisions for administrative penalties were made, fines of 200,724 som were issued, and 2.725 million som of compensation were paid. Bases on these compensation suits, fines for 113,429 som were issued, law suits for 1.245 million som were registered and people violating nature protection laws on illicit hunted and fishing were fined 611,641 som. Almost 130 cases were put before the courts, 74 cases to prosecuting bodies and 14 cases were put to the Interior Ministry.

Information of State Forestry Service 2004

⁹⁷ Konurbaev A., Timirkhanov S. Fishes of Kyrgyzia. Bishkek, 2003. – 119 pg.

⁹⁸ Natural medicinal resources of KR. – Bishkek, 1993. – Pg. 438.

The future of the flora and fauna of the Kyrgyz Republic and the condition of the country's natural ecosystems which have suffered from human activities are uncertain. There have been significant decreases in the sustainability of its habitats.

Biodiversity and anthropogenic activity cannot coexist without mutual detriment in the Kyrgyz Republic. Therefore, a certain compromise is required between economic activity and biodiversity preservation in every sector, taking into account the fact that both of these tasks are equally vital to the social, economic and ecological welfare of the population.

The industrial sector places pressure on biodiversity by means of environmental pollution and mining, which produces dangerous wastes. Deteriorating tailing dumps and waste piles threaten to leak radioactive pollutants into the environment.

Often agricultural practices degrade large areas of the environment. Some of theses areas (steppes and deserts) have almost disappeared and others have suffered losses to their biodiversity. Agricultural land plays a critical role in providing humans with food but is not able to provide a sustainable and favorable environment. Forests are exceptionally important to sustainability and biodiversity but in past decade they have deteriorated considerably. Forest areas have been reduced by fires, unauthorized felling and livestock grazing.

Herbal ecosystems provide medicinal plants and hay and therefore endure heavy anthropogenic impacts that have eroded their population by almost 70 percent. In order to improve the protection, reproduction and sensible use of wild animal products the Kyrgyz government passed a number of relevant resolutions and introduced necessary amendments to environmental protection legislation (see, Section 4.1).

3. International experiences of UNCBD implementation

International efforts to preserve biodiversity have been carried out for about 100 years. Humans realized the danger caused by environmental degradation and created special organizations and documents to prevent it. This was the first step towards the preservation of flora and fauna, which are on the brink of extinction.

In 1902, a number of countries signed the International Convention on Bird Preservation in Paris. This can be considered the first international agreement to protection biodiversity. In 1948, the International Union of Nature Protection (IUNP) was founded as an international consultative nongovernmental organization under UNESCO, which by 1984 had united 502 organizations from 130 countries of the world. IUNP is still operating and from 1996 has been represented in Kyrgyzstan by the NGO Aleine.

In 1949, under the auspices of IUNP, a special Public Commission on rare species was established. The compilation of this worldwide list of animals facing extinction, the Red Book, was the goal of the commission. The Red Book is a document of state importance. The book is vital to the studying and monitoring of rare animals and plants as well as of their habitat, development and prevalence. It is also vital to the development of measures for their protection, and re-establishment.

The Red Book became an inventory making tool for the registration of rare species and endangered species, the scientific foundation for their protection and a valuable tool for ecological enlightenment. The Kyrgyz Red Book was published in 1985, is outdated and needs amending. IUNP regulations dictate that the book should be revised every five years. Nearly 20 years have passed since this occurred in the Kyrgyz Republic.

At this stage the "State forestry service of Kyrgyz Republic with the assistance of FAO and jointly with NAS of Kyrgyz Republic started work aimed at the renewal of the Red Book. To this end the regulation on procedure of maintaining of the Red Book, specifying the norms regulating the organizational and conceptual issues primary activities – one of the most required and priority measures for efficient use of biological resources of biodiversity not of the republic only, but of the region as a whole. The composition of the Interdepartmental commission on the maintenance of the Red Book and its Regulation is now being agreed with all the interested parties and will be submitted to the Government for approval".

In 1962, The Resolution of UN General Assembly on Economic Development and Nature Protection was passed envisaging that environmental protection is effected in advance of economic development through domestic and international laws.⁹⁹

In 1992, CIS countries signed an agreement on ecological and environmental protection cooperation. Now, the Intergovernmental Commission on Rare Species has been created and a list of species to be included in a new CIS Red Book was developed. Draft lists and recommendations are being developed.

It should be noted that preparing lists of endangered species is only one of many informative approaches to environmental protection. Integral to concepts of environmental protection is the idea that variety and biodiversity, as a system of integrated populations, must be protected.

Taking into account the importance of the fact that biodiversity preservation is a global challenge, the extinction of plant and animal species and their disappearance from ecosystems is a serious threat to the welfare and existence of life on Earth. The UN Environment Program (UNEP), established in November 1988, and later founded the Intergovernmental Panel for the development of an international document on biodiversity in May 1989. From February, 1991 the panel was granted the status of Intergovernmental Committee for Negotiations, which hosted the conference on the adoption of the agreed UNCBD text on May 22, 1992 in Nairobi (Kenya). The convention was opened for signing from June 3 to 14, 1992 at the

⁹⁹ *Bowman M*. The Nature, Development and Philosophical Foundations of the Biodiversity Concept in International Law. 1998.

UNEP Conference in Rio-de-Janeiro (the 'Planet Earth' summit) and was enforced on December 29, 1993.¹⁰⁰

The basic concepts for biodiversity preservation were formulated with the assistance and cooperation of the International Union of Environment Protection, UNEP, FAO, UNESCO and the World Nature Fund. The text of World Strategy of Development (1980) was the result of this cooperation.

The strategy focuses on three fundamental areas:

- preventing the violation of critical ecological processes and the system of life maintenance;
- preserving genetic biodiversity;
- providing for the sustainable use of species and ecosystems.

The general focus of international and legal ideas is the global review of the use of natural resources and the preservation for future generations of Earth's biodiversity. These ideas have been continually enriched by the implementation of various international agreements on environmental protection. Among them are:

- The Ramsar Convention on Water and Swamp Land of 1971. This convention is the first international agreement stipulating the protection of ecosystems;
- The Convention on International Trade of Species Subject to the Threat of Extinction (1973). This convention introduces more complex procedures for regulating the trade of endangered species and the procedure for issuing permits for their export. It also outlines regulations for the trade of species bread in captivity or in a domestic setting. The convention regulates a wide range of issues related to the transfer of genetic resources abroad;
- The Bern Convention on the Preservation of Wildlife and Natural Communities in Europe (1979). This convention proposes the reintroduction of wild animals and plants to their natural habitats under certain conditions. The ASEAN organization (Association of South-East Asian Nations) (1985), which encourages environmental preservation, also envisages the creation of gene banks.

The Convention on the Preservation of Migrating Varieties, the Agreement on the Protection of African and Eurasian Migrating Water and Swamp Birds and the Mazel Declaration should also be mentioned.

Entering the Cartakhena Protocol on Bio-security enables member states to utilize international experience and assistance for the prevention of uncontrolled population and genetic changes in wild animals and plants as a result of the introduction of artificially engineered genes. Member states agreed to develop specific procedures to consider issues including the secure transfer, processing and use of any genetically engineered organism obtained using specific biotechnologies, which can have a negative impact on the preservation and sustainable use of biodiversity. The Protocol requires that trans-border transfers and the processing and use of all live genetically modified species that may affect biodiversity take into account possible risks to public health. The Protocol establishes a mechanism for the mediation of biodiversity as a component of scientific, technical, environmental protection and legal exchanges on this topic.

The Kyrgyz Republic has signed a number of global ecological conventions including the 'Protection of World Cultural and Natural Heritage' (1995), 'Biological Diversity' (1996), 'Desertification Control...' (1995), 'Assessment of the Impact on the Environment in Transborder Space' (2001) and 'Access to Information, Involvement of the Community in the Decision-Making Process and Access to Legislation on Issues Relevant to the Environment (Orkhuss)' (2001). The republic has also signed the convention on 'Water and Swamp Territories having International Importance as a Habitat of Waterfowl 'Ramsar' (2002) and the UN Framework Convention on Climate Change (2000).

In addition to entering international agreements some countries develop specific tools and mechanisms for environmental protection in their territory or region. Regional environmental protection activities are therefore launched. For instance, the cohesion between biodiversity preservation and the optimization of agriculture, land tenure regulations and 'green' taxation is one of the priorities of the Environment for

¹⁰⁰International Law and the Conservation of Biological Diversity. Ed. by M. Bowman, C. Redgwell, 1996.

Europe project and the European Commission. The Ecological strategy VEKSA was also developed to resolve regional ecological problems on the basis of close east-west cooperation.

In general, two approaches to biodiversity preservation can be found – ex-situ (article 9, UNCBD) and insitu conservation (article 8, UNCBD).

The ex-situ conservation of animals is exercised in zoos, special farms and aquariums through captive breeding programs. Plants are preserved in botanical gardens, dendrariums and seed banks. It should be noted that a variety approach to biodiversity preservation is insufficient since to preserve life it is necessary to preserve not only separate varieties, but general natural ecosystems.

As early as 1968, UNESCO convened the Intergovernmental Panel on basic scientific fundamentals for the rational use and preservation of the biosphere, which outlined the Man and Biosphere program. The program focuses on correctly placing humans in the natural order of the universe and an ecosystem approach to environmental protection.

In-situ conservation is a national system for the preservation of ecosystems through the organization of reserved territories *(See the map in Annex 4 and the list of SPNT in Annex 5.)* The Kyrgyz Republic inherited a state system for in-situ conservation from the former Soviet Union. However, Russian and global experiences show that the protection of organisms in reserve areas (comprising two percent of Russian territory, and five percent of Japan) does not solve the degradation of biodiversity.¹⁰¹

To efficiently preserve living organisms while maintaining economic turnover it is necessary for organizations, enterprises, community groups and private citizens in the Kyrgyz Republic to participate in environmental protection programs. Serious progress in this field can only be achieved through the development of an environmentally aware society and the adoption of positive social and cultural (including ethical and religious) attitudes to conservation and protection. The registration of land and the maintenance of land cadastre can form the foundation of natural resource management. The monitoring and management of endangered species is a critical part of ex-situ and in-situ conservation efforts. To some extent, many populations remain wild, but humans intervene to prevent decreases in their number. Ex-situ conservation efforts are an important part of strategies for the protection of endangered species.

At the World Mountain Summit, which took place in Bishkek in 2002, the former president of Kyrgyz Republic Askar Akaev supported the international initiative Gifts to the Earth. He signed a document stating that in the near future the Kyrgyz Republic would create environmental protection territories in areas considered valuable to biodiversity preservation. This step was highly appreciated by the international community. The implementation of the national strategy by both government structures and agencies, for which preservation is not a priority, requires the development of original programs and organizations. The Collective Agreement on the preservation of plants and animals in Russia, which has been already approved¹⁰² expresses the consent of all sectors to procedures for biodiversity preservation and of entry to the agreement by specific structures, organizations, and individuals, confirmed by special protocols.

The agreement outlines the main guidelines for the development by different parties of their own policies pursuant to agreement's goals, while individual entries make it possible to take into account the role of each participant in the preservation process. This flexible approach ensures a coordinated effort by a range of public structures and makes it possible to avoid the duplication of projects without superimposing restrictions on participants. This model of Collective Agreement for the coordination and integration of biodiversity preservation efforts among different parties is acceptable in Kyrgyzstan, where preservation efforts are exercised by several groups. Of course, governmental structures responsible for environmental protection should not be limited by joining a collective agreement. Therefore, the state bodies responsible for environmental protection and healthcare must regulate natural resource use through appropriate legislation.

¹⁰¹ National forum by preservation of live nature of Russia, 2000.

¹⁰² Materials for discussion at a 'Round table': Strategy of preservation of live nature and land relations in Russia, State Duma of the Federal Assembly and Goscomecologia of Russia (State Committee by Ecology of the RF), May, 2000.

4. Capacity of the Kyrgyz Republic to implement UNCBD

The assessment of the capacity of the Kyrgyz Republic to implement its obligations under UNCBD, its deficiencies and the development of a coordinated approach to capacity building is the goal of this capacity assessment.

For the successful implementation of UNCBD, capacity building is required in the Kyrgyz Republic. *The capacities of citizens, institutions and systems need to be developed to facilitate the making and execution decisions to accomplish projects in the most efficient and sustainable way.*¹⁰³

All capacity building activities in this area must be affected and headed by the Kyrgyz government, as it is responsible for its commitments. The development of the capacity of the country and interested parties can be carried out at local, national and regional levels. Interaction between interested parties on different levels is critical to capacity building for the implementation of UNCBD, as capacity building requires the redistributing of land and unemployed resources.

4.1. Legal framework

Some measures aimed at implementing UNCBD have been planned and partially implemented. In 1998, the draft Strategy and Plan of Action for the Preservation of Biodiversity were developed. The strategy has several objectives including the intensification of efforts to preserve biodiversity and the resolving of issues related to the protection and use of natural resources. However, due to certain structural changes in the government, the Strategy of Biodiversity Preservation in Kyrgyz Republic was approved through a government resolution as late as August, 3, 2002.

Article 4 of the Constitution of Kyrgyz Republic (2003) stipulates that land, its contents, air, waters, forests, flora and fauna and other natural resources are the property of the Kyrgyz Republic and are used as the base of life and activity for the Kyrgyz people under the protection of the state. Through relevant public governance bodies the state will ensure their protection and reproduction, which is achieved and regulated by the laws of Kyrgyz Republic. *Constitution of Kyrgyz Republic*.

The laws of Kyrgyz Republic that relate to the preservation of biodiversity are:

- 'Strictly Protected Natural Territories' no. 1561, 28/05/1994;
- 'Biosphere Territories in Kyrgyz Republic', 9/06/1999;
- 'Environmental protection' no. 53, 13/05/1999, (Articles 2, 5, 6, 41);
- 'Fauna' no. 59, 13/05/1999 (Articles 1, 8, 15, 20, 21, 22, 29);

- 'Flora Protection and Use' no. 53, 20/06/2001, (Articles 2, 3, 8, 9, 10, 14, 19, 21, 22 define flora as an object of biodiversity needing protection);

- 'Forestry Code of Kyrgyz Republic' no. 66 29/06/1999 (Articles 1, 18, 24, 25, 29, 30, 31, 55, 63, 64, 65, 67, 75);

- 'Land Code of Kyrgyz Republic' no. 45, 2/06/1999 confirms PPNT by the Code of Kyrgyz Republic on Administrative Liability (Articles 124-144, 145-157, 158-184), the Criminal Code (Articles 265-279), the Civil Code no. 15, 8/05/1996, (Part 1) no.1, 5/01/1998 (Part 2), the Labor Code no.70, 4/10/1997;

- 'Ecological Expertise' no. 54, 16/06/1999.

Aside from these laws, several bylaws and other legal acts are important including:

- Resolution of the Security Council of Kyrgyz Republic, 4/08/1997, 'On the State Project and Measures for the Insurance of Ecological Security of the Kyrgyz Republic';

- 'Strategy for the Preservation of the Biodiversity of the Kyrgyz Republic' no. 524, approved by a government resolution on 3/08/2002, stipulating the intensification and development of SPNT networks until 2006;

- 'Concept of the Development of the Forestry Sector in Kyrgyz Republic' no. 256, 14/04.2004;

¹⁰³(CDI), October 2000, Country Capacity Development Needs and Priorities: A Synthesis.

- 'Instruction on the Procedure of Assessment of the Impact of Planned Economic Activities to the Environment (AIE), approved by the Kyrgyz Minister for Environmental Protection on June 27, 1997.

In order to execute the requirements of UNCBD by integrating biodiversity preservation and sustainability measures into sectoral and intersectoral plans, programs and policies (UNCBD, article 6, item 'b'), the nature protection legislation of the Kyrgyz Republic contains a number of provisions which define in detail the commitments relevant to the activities of ministries and departments. Normative and legal documents regulate a wide specter of legal relations with regard to strictly protected territories and the preservation of biological diversity, in particular:

- the legal status of strictly protected territories has been defined as has the procedures for their regulation;
- allowances for the use of natural resources in protected territories has been specified;
- the norms and requirements for the environment protection during economic and other activities has been specified;
- ecological judicial issues and the penalties for their violation have been specified;
- the procedure for compensating damage inflicted to natural resources as a result of illicit actions by certain citizens, organizations and foreign persons has been established;
- international cooperation on biodiversity protection and the development of a network of protected natural territories and other issues has been established and maintained.

The participation in the development of trans-boundary protected territories by states is one recommendation of the International Union for Nature Protection (IUNP), which sets a good precedent for the further biodiversity protection and sustainable development of the region. On March 17, 1998 the intergovernmental agreement between the Republic of Kazakhstan, the Kyrgyz Republic and the Republic of Uzbekistan 'On Cooperation in the Area of the Preservation of Biological Diversity in west Tian-Shan' was signed. The agreement requires that the three country's coordinate efforts to regulate nature use and protection in west Tian-Shan and enhance the implementation of regional projects aimed at the sustainable social and economic development of the region. This agreement provides the legal framework for the development of long and short-term programs for biodiversity preservation and the creation of trans-boundary protected territories in west Tian-Shan, in line with UNCBD requirements for international and regional cooperation (UNCBD, article 5)

However, Kyrgyz environmental protection legislation is flawed in a number of ways. The laws on 'Environmental Protection' and 'Specially Protected Natural Territories' contain the following deficiencies:

- A lack of norms stipulating animal migration routes or the preservation of the natural habitat of rare and endangered varieties of animals. This measure seems necessary for the protection of animals outside reserve areas and their buffer zones;
- It is unclearly stated whether ecological tourism in strictly protected natural territories is permitted (also with regard to natural preserves and national natural parks). Different interpretations of the law are possible. The laws do not mention the possibilities for establishing of trans-boundary private protected territories or of strictly protected zones of local importance;
- The creation of a fund for protected nature territories has not been stipulated;
- Protection methods and regulations for buffer zones has not been specified;
- Regulations for reserve, recreation and other zones of national parks have not been specified and the laws inadequately regulate activities in the protected territories of national parks;
- The exercising of income generating activities in strictly protected territories is not envisaged;
- The participation of local communities in the management of reserves and national parks is not envisaged.

Recommendations for legal reform to improve the preservation of biodiversity and management of protected territories. Materials from the Intergovernmental project TASIS for the preservation of biodiversity in west Tian-Shan, December 2001.

From 2003, FAO is implementing the regional project (with Kazakhstan, the Kyrgyz Republic and Uzbekistan), 'Improvement and Harmonization of Legislation Relevant to Protected Natural Territories'. Kyrgyz consultants have developed a new draft of the law of the Kyrgyz Republic on 'Strictly Protected Natural Territories in the Kyrgyz Republic', which will eliminate flaws in the current legislation. After discussions and parliamentary approval the three countries and their new laws will contribute to the preservation of biodiversity in Central Asia.

Kyrgyz legislation does not recognize the concept of 'ecological networks'. The development of ecological networks was recommended at the World Summit on Sustainable Development in Johannesburg in 2002 as one path to the preservation and sustainable use of biodiversity and the achievement of the ultimate objective to considerably decrease biodiversity losses by 2010.

It should be noted that despite that fact that the Kyrgyz Republic has joined UNCBD it has not yet signed the UNCBD Cartakhena protocol on biological security.

Being a party in this protocol brings a country certain benefits:

- parties that are developing countries or have transient economies have the chance to secure financial support and other assistance from the Global Environmental Facility (the financial mechanism of the Protocol) to enhance their capacity to implement the convention;
- the enhancement of the reliability and feasibility of national bio-security regulation systems through global programs;
- assistance for the development of rules, procedures and management practices for the trans-border movement of LMO (live modified organisms);
- access to relevant technology and data and the opportunity for regular information and expertise exchanges.

It goes without saying that land, its use and protection is a foundation of life and a critical factor for the preservation of the environment. Land legislation is vital for the implementation of biodiversity preservation strategies and for the sustainable development of the country.

The land reform in the Kyrgyz Republic started immediately after the country gained independence in 1991. Land that had previously been used for collective farms was given by state for the free use of rural citizens. Three quarters of the country's agricultural land was distributed in the form of land parcels with 49-year terms. These terms were later increased to 99 years. In 1998, a national referendum was held and the majority of the population voted in favor of introducing private ownership rights to land. After the referendum, citizens who had been granted land parcels for 99 years became the owners of the land.

According to the Constitution of the Kyrgyz Republic, land may be state, municipally and privately owned. The Land Code is the main legal act regulating the land use in the Kyrgyz Republic.

Land in the Kyrgyz Republic is divided into the following categories:

- agricultural land;
- populated areas (towns, settlements of a town type and rural settlements);
- land allocated to industry, transport, communications, defense and other purposes;
- protected natural territories;
- Forestry Fund land;
- Water Fund land;
- reserve land.

The registration of land into these categories and the transfer of land from one category to another is carried out by the Kyrgyz government.

Land Code of Kyrgyz Republic, 2/06/1999, 'N' 45.

It goes without saying that different plots of land have different values not only in terms of fertility, development and infrastructure but also for environmental protection. However, the comprehensive assessment and evaluation of land remains one of the most critical issues facing territorial governments.

Land is evaluated only with regard to its present use. The current land cadastre is more or less suitable for agricultural needs, the water cadastre for water use bodies and the forest cadastre for forest use only. But land legislation does not take into account the need to preserve natural ecosystems in certain areas. The comprehensive nature cadastre and its land component, is not available. As a result, there are no approved methods for the studying of optimal land use.

Therefore, there is no legislative foundation for land management and development practices. With regards to environmental protection it is vital to define a clear system for the valuation of land, taking into account its natural, cultural, aesthetic and other values.

The issue highlights the need for land to be valued according to its potential. As yet, no legal procedures have been developed to determine the value of private and state-owned land. Many state and privately-owned areas enjoy reserve, national park and biosphere territory status. It is not always practical to establish protected territories everywhere. It is sufficient to restrict some kinds of activities in certain areas and to ban the destruction of natural ecosystems taking into account the vital role of the atmosphere, water and a sustainable climate to the existence of life.

There is no legislation in the Kyrgyz Republic that limits individual activities on valuable land outside reserve areas. This hinders the implementation of UNCBD obligations (UNCBD, article 8, item 'd').

The Kyrgyz Red Book is outdated and needs amending. There are also no procedures and criteria for the identification of plant and animal species as endangered. Therefore, the development of regulations requiring the maintaining of the Red Book, which would incorporate regulations for organizational and conceptual issues, is a critical priority for biodiversity preservation in Kyrgyzstan and the surrounding region. It would also meet UNCBD requirements on preservation in-situ conservation (UNCBD, article 8,item 'k').

The concept of an *ecological network* should be introduced into Kyrgyz legislation in compliance with recommendations from the World Summit on Sustainable Development in Johannesburg. The functional elements of the ecological networks include:

- 1) SPNT (a reserve, national park, a natural memorial) in key territories for the preservation of ecosystems, habitats, species and important landscapes;
- 2) preservation (buffer) zones around SPNT for the protection of the area against external unfavorable factors;
- 3) ecological corridors that help improve interrelation among natural systems and of the integrity of the network. Ecological corridors guarantee provide populations with the opportunity to spread out and migrate and creates the necessary preconditions for genetic exchanges between different populations or biological communities;
- 4) forestry protection institutions, hunting and recreation zones and rehabilitation territories. These are territories in which the sustainable use of natural resources is exercised and the restoration of ecosystems, habitats, species and landscapes of particular importance or total restoration is needed.

The following measures are vital to the improvement of environmental protection laws in the Kyrgyz Republic:

- the creation of a system of mechanisms for the implementation of organizational and legal guarantees and for the implementation of scientific and economically viable preservation methods;
- the development of a mechanism for the protection of valuable natural ecosystems which are located outside protected territories;
- the introduction of changes and amendments to legislation that enhance measures for the preservation of species listed in the Kyrgyz Red Book;
- the inclusion in the national budget of resources for the maintenance of the Red Book;
- the introduction of community participation requirements into environmental protection legislation;
- the enhancing of interdepartmental cooperation for the implementation of legislation aimed at protecting and restoring the populations of endangered species of fauna and flora.

Environmental protection legislation incorporates the above mentioned laws and bylaws. However, the mechanisms for their implementation have not been finalized. For this reason many laws do not work, are

not used or contradict each other. Scientific support for the law is low. The laws aim to protect the environment from pollution and do not provide for the preservation or support of natural ecosystems. In pursuit of economic profit, natural resource users do not consider the potentially grave consequences of their actions. When biological resources are being developed and monitored, the costs of these processes should be compared to the damage inflicted by anthropogenic activities. The cost of natural and sustainable reproduction measures should be taken into account. Therefore, legislation should be amended to incorporate systems for identifying comparable economic and ecological benefits.

4.2. Institutional framework (organizations, people, management structures, links and activities)

The commitment to implement UNCBD was made by the government of the Kyrgyz Republic, however, the State Forestry Service and the Ministry of Ecology and Emergencies are the main executive agencies responsible for accomplishment of the country's obligations. The Ministry of Agriculture, Water Resources and Processing Industries (MAWRPI), the Ministry of Education, the Ministry of Foreign Affairs, the State Committee on Tourism, territorial public administrations and local self-governing bodies are also directly involved in the implementation of UNCBD.

In 1988, the State Committee on Environmental Protection (GosComPriroda) was established. The State Forestry Committee was established as early as 1948.

From 1991, when the Kyrgyz Republic obtained independence, administrative and functional reforms to public governance and nature protection structures have been conducted on a continuing basis. In 1996, GosConPriroda was transformed into the Ministry of Environmental Protection and in 2001 under a presidential decree the Ministry of Environmental Protection, the State Forestry Agency and the Ministry of Emergency Situations and Civil Defense were united and transformed into the MEE.

Due to this reshuffle, the continuous turn-over of officials and the discarding of cadres, many activities aimed at the preservation of biodiversity were ignored and many cases were forgotten.

However, the integration of the Kyrgyz Republic into the international community placed pressure on the government to reform its environmental protection strategies.

In November, 2001, at a parliamentary session of in the Kyrgyz Republic, a number of unsolved ecological problems were highlighted. The most critical of these included the non-execution of a number of environmental protection laws and bylaws and the flawed structure of executive powers in the environmental protection and forestry sectors.

After the session, a presidential decree dated November 25, 2001 was issued and a number of structures including MEE the State Forestry Service were formed and appointed the main governmental bodies responsible for environmental protection, fauna and flora use, forestry resource use, the preservation of biodiversity and the development of SPNT.

From 2002, the State Forestry Service became the main executive agency responsible for the implementation of a number of international projects aimed at the protection and rational use of natural resources and UNCBD implementation.

The service is made up of divisions that directly tackle biodiversity preservation issues. These are reserves, national parks, Issyk-Kul biosphere territory (which has SPNT status), the Head Department for the Protection and Regulation of Hunting Resources, the Bio-Resources State Control Service and forest economy enterprises. Within MEE ecological and resource use issues are handled by the Department of Ecology and Nature Use (DENU). DENU also contributes to the implementation of a number of environmental protection conventions, regarding the protection of the atmosphere, water resources, land tenure and the monitoring of natural processes and phenomena.

Due to joint efforts by the State Forestry Service and the MEE, current legislations and legal acts are complemented by environmental protection acts including the laws on 'Environment Protection', 'Fauna' and 'Atmospheric Protection'.

But poor coordination between these structures and a lack of transparency prevent environmental protection work from being fully effective. Once this is rectified it will be possible to ensure close coordination between relevant departments for the resolution of environmental issues.

In 2003, The State Forestry Service decreased the debt of the Kyrgyz Republic by paying entry and annual fees to the UNCBD Secretariat. The debt accumulated from 1996 and amounted to more than US\$6 million. As a result, the Kyrgyz Republic was able to take part in the seventh Conference of the Parties in Kuala-Lumpur (Malaysia) in February, 2004. Previously, financial constraints had prevented the Kyrgyz Republic from participating. Recently, the State Forestry Service organized a special division for international cooperation and monitoring which will exercise continuous contact with the UNCBD Secretariat, will handle issues of international cooperation with relevant ministries and departments, including the Ministry of Foreign Affairs and will coordinate the UNCBD implementation activities through international projects.

MAWRPI, which controls commercial fishing, has failed due to certain reasons to improve the fishery sector. Despite the Program for the Development of the Fishery Sector until 2008 was adopted, its development, as well as the improvement of protection and usage regulations was hampered by the duplication of projects in this area by the State Forestry Service, MAWRPI and local administrations. Having taken this into account the Kyrgyz parliament made a decision in April, 2004 to create a unified independent body responsible for the fishing industry. Nevertheless, the resolution of project duplication issues and compromises between agricultural activity and environmental protection leave a lot to be desired. Agricultural activities are carried out without any consideration of their environmental impact.

Local self-governing bodies must play a more efficient role in this area. Local communities can improve their social and economic position by becoming involved in 'environmental friendly' activities and the implementation of alternative agricultural techniques.

The State Committee of the Kyrgyz Republic on Tourism, Sports and Youth Policy is in charge of creating favorable conditions for tourism investments and the development of viable investment projects, the arranging of tourism personnel training, physical culture and sports and the development of a unified state system of classification and standardization of tourist goods and services.

It should be stressed that the tourism industry has always encouraged environmental protection. However, environmental preservation in tourist areas is different to activities aimed at the preservation of natural ecosystems. The goals and the objectives of tourism and environmental protection differ considerably. The organization of tourism and the protection of biodiversity have two conflicting interests. On one hand, tourism is an economic sector interested in the preservation of picturesque natural scenery -a common attraction for tourists, on the other hand, the construction of tourist infrastructure often results in the degradation and elimination of natural habitats. A clear strategy for the development of ecotourism has not yet been developed in the Kyrgyz Republic. No calculations and assessments of the tourism impact on the environment have been conducted.

The Ministry of Education is responsible for the integration of environmental ideology and national ecological policies into educational resources and institutions. The discipline Fundamentals of Ecology in the natural science block of mathematical disciplines is the latest step forward for ecological education in the Kyrgyz Republic.

In June 1996, the Fundamentals of Ecology discipline with humanitarian, economic, agricultural and technical specialties was approved by the Ministry of Education, Science and Culture (MESC). In a number of cases, the ecology course has been included in the mandatory subjects including Concepts of Modern Natural Science. On September 17, 2003 the Ministry of Education and MEE approved the concept of continuous ecological education.

UNCBD implementation and capacity building activities must be based on the provisions and commitments of the convention. Local experts using national environmental protection programs must be key players in this process. Supporting and strengthening scientific and educational interest in this discipline will encourage more members of the population to become involved in environmental protection and poverty reduction measures.

Ecology study through schools and higher education institutions will help increase the general ecological literacy of the population. However, a number of obstacles stand in the way of this goal. One of them relates to the fact that the majority of modern school curricula on natural sciences, biology and ecology do not encourage students to obtain specific skills in the area of biodiversity preservation, but provide abstract knowledge of plant and animal groups which many children will never encounter. Pupils are not

provided practical knowledge on the biodiversity of their country, not to mention on endangered species. These flaws may lead some children to disregard their country's natural resources.

There are many other problems in this area including the fact that ecological curricula does not take into address the issue that sound ecological knowledge is not always reflected in sound ecological practices. Therefore, one of the critical tasks of ecological studies is to encourage environmentally friendly practices and among students. It is also necessary to note that the promotion of these practices among students is a complex task, which is no doubt harder than the basic transfer of knowledge. The implementation of these tasks will be difficult if teachers do not master innovative and interactive teaching methods. A lack of textbooks and qualified teachers is also a serious problem.

4.3 Assessment of the awareness levels, educational capacities and personnel training needs in the **Kyrgyz Republic**

At individual level, including among trained specialists, capacity development is implemented through training, the establishment of professional qualifications, the promotion of a global outlook and the strengthening of community responsibility for biodiversity conservation. The participation of the community in information exchanges (UNCBD article 13) and the development of decision-making mechanisms are also vital to capacity-building efforts.

"In 1991, a provision on general ecological education was included in the 'Concept Paper on the Biological Safety of the Kyrgyz Republic'. The Ministry of Education, Science and Culture adopted the educational program 'Ecology of Man with Bio-ecology Fundamentals' for pupils from grade nine-11. Ten higher education facilities offer ecological training in two main areas: E.11 'Ecology and Nature Management' and T.35 'Environmental Protection'. In accordance with the Law on Education, schools are entitled to use additional educational components. As a result, a number of innovative schools have development programs and individual projects, allowing them to introduce ecology to students."

The Draft Biodiversity Strategy and Action Plan of the Kyrgyz Republic, 1998

Level of awareness among the population. A lack of highly skilled ecological specialists and a lack of an integrated approach to education have led to the creation of individual programs by various authors and educational facilities. Public ecological education is partly conducted by associations and NGOs. Almost all NGOs have educational programs, but this is carried out on a practical level by no more than 10 NGOs.

It should be noted that in contrast to state educational programs, the objective of public ecological education is not the training of ecological specialists, but the involvement of people in ecology as much as possible. NGOs have the opportunity to be more flexible when determining the essence, methods and forms ecological education.¹⁰⁴ State systems for the ecological education of adults are lacking.

The main purpose of community work in this area is the formation of ecological awareness among the population and the encouragement environmentally friendly day-to-day practices. To achieve this, the following tasks are necessary:

- the promotion of public knowledge on biodiversity conservation and the biological, ecological and aesthetic value of all species;
- the teaching of careful and thoughtful attitudes to nature; •
- the development and promotion among the public of scientifically based nature-management methods, which ensure the protection of endangered species not only from industrial production, but by individual behaviours, for example picking mushrooms and berries, hay production, the use of garden chemicals and poor waste management;
- the encouragement of public support for measures and actions aimed at the conservation of rare and endangered species of animals, plants and mushrooms.

¹⁰⁴ Actions of Ecological Organizations of Kyrgyzstan. – Bishkek, 1999. – 175 p.

It is difficult to monitor changes in biodiversity levels due to limited research. The natural habitats of most species in the Kyrgyz Republic have not been identified, except in the case of common or widespread species. There are no full species lists for some rayons. Inventories of rodents and some species of insects or crop pests have not been compiled since the 1920s and 1930s. From 1940 regular inventories of commercially hunted species and geo-botanical surveys were compiled. Later, studies of the country's herb resources were conducted. Inventories of ground vertebrates, mainly in the north of the country were compiled in the 1970s and 1980s.

At the end of the 1980s these efforts were stopped. Reliable data on current biodiversity levels is almost non existent due to the unavailability of appropriate financing. A set of surveys conducted in western Tian-Shan through the GEF project implementation is the only exception. Literature and information materials on these surveys are being published with donor assistance (Annex 8).

Human Resources, in this context, are people and organizations, participating in UNCBD implementation activities. Human resources comprise people with adequate qualifications and human resource capacity development refers to the upgrading of professional skills in all spheres related to biodiversity conservation and sustainability. Technical and scientific education programs and training schemes have been established and maintained (CBD, Article 12).

Among scientific and educational organizations involved in biodiversity studies and UNCBD implementation are the National Academy of Sciences and several research institutes including the Biology and Soil Institute, the Forest and Walnut-Growing Institute, the Institute of Physiology and Biochemistry, the Mountain Institute, the Pasture and Fodder Institute and the Agriculture Institute. Some research activities are undertaken in higher education institutes in Kyrgyzstan. In accordance with a decision of the Intergovernmental Commission on Sustainable Development of Central Asia, the Kyrgyz-Tajik Mountain Center in the Kyrgyz Republic was established and is responsible for the coordination of sustainable development and biodiversity programs in mountainous regions of the country.

Existing data, experts, state agencies and NGOs form the main implementing force for UNCBD. Further developments are necessary in biological sciences, systematization, the creation of information structures, the recording of statistics and analytical programs and the organization of biodiversity monitoring¹⁰⁵.

The capacity building of municipalities and environmental protection organizations, which can be jointly financed on commercial basis and the development of environmental protection bodies to assess these projects through joint financing, is also necessary¹⁰⁶.

Technical resources, in this context, form the material and technical foundation of ministries, departments, research institutes and other organizations. These resources include equipment, computers, organizational infrastructure and other facilities aiding the implementation of UNCBD. In most Kyrgyz towns technical resources can be considered satisfactory, despite equipment being out of date or broken, for example, the Biology and Soil Institute has only one computer, but the region's material and technical resources are not lacking at all. If environmental protection and UNCBD implementation programs are to be successful, up-to-date information and technical equipment is needed to enable adequate research.

Therefore, an important focus area for biological diversity conservation efforts should be capacity development at all levels. It is also necessary to promote public interest in addressing these problems in accordance with corresponding recommendations and restrictions. There are a lot of organizations in Kyrgyzstan responsible for UNCBD implementation including the State Forestry Service, the Department of Ecology and Nature Management under MEE, the MAWRPI, the State Committee for Tourism, Sport and Youth Policy and the Ministry of Education. However, many of the activities of these organizations are uncoordinated and do not directly promote capacity building for UNCBD implementation. There is also no transparent or mutually beneficial cooperation between these agencies. Changes in departmental

¹⁰⁵ Vorobiev G.G. Biodiversity – Problems and Tasks// Collection of Materials of Ecological Conferences and Seminars. – Bishkek, 2002. – P.182-184.

¹⁰⁶ National Report on the State of Environment 2001-2003.

management and the reorganization of ministries also prevent the effective implementation of the Convention.

Analyses of capacity assessments have demonstrated that in the Kyrgyz Republic, natural ecosystems are the only reliable source of ecological stability. The sustainable socio-economic development of the country also provides the favorable conditions necessary for capacity building. No environmental protection achievements last in the long-term without the sustainability of the country's socio-economic sphere.

The establishment of new cooperation mechanisms at all levels is necessary to ensure the mutual coordination of efforts. Coordinated assessments and analyses of the country's situation will aid capacity development programs aimed at implementing UNCBD and promoting environmental protection and rational resource use.

The activities of nongovernmental ecological organizations and the mass media promote ecological awareness and motivation. The improvement of state legislation and the systematic implementation of tasks aimed at sustainable socio-economic development will assist biodiversity conservation projects.

4.4. Projects implementing UNCBD in the Kyrgyz Republic

Since the Kyrgyz Republic signed and ratified UNCBD and other global conventions, international biodiversity conservation projects have been set up in the country. Projects supported by the Global Environmental Facility, WB, UNDP, the European Commission and the governments of Switzerland, Germany and other countries have begun operating in the Kyrgyz Republic (Annex 9). Many of these projects have been implemented in several Central Asian country's with the aim of enhancing cooperation on environmental protection issues between the countries. Through TACIS and GEF/WB biodiversity conservation projects in western Tian-Shan, work on the formation of a trans-boundary protected territory in the area based on current reserves, national parks and protected areas in Kazakhstan, Kyrgyzstan and Uzbekistan is being carried out. A draft of an intergovernmental agreement on the trans-boundary protected territory has been drafted and is being considered by the relevant ministries of the three countries.

Capacity development is a long-term process promoting the successful implementation of national programs and the development and carrying out of activities aimed at the implementation of the commitments of the Kyrgyz Republic under UNCBD.

Through several projects in the country, the law 'On the Biosphere Territory of the Kyrgyz Republic' was adopted and work on public awareness of biological diversity, SPNTs and the involvement of local communities in SPNT management is being carried out.

• The Draft Biodiversity Strategy and the Action Plan of the Kyrgyz Republic:

The draft Biodiversity Strategy and Action Plan of the Kyrgyz Republic (BSAP) was prepared with financial support from WB and GEF and implemented and managed by Fauna and Flora International in 1998. This strategy was only adopted by the Kyrgyz government in 2003, four years after its preparation, as the reorganization of structures responsible for UNCBD implementation and a lack of interest of decision makers prevented it from being accepted sooner. The adopted strategy does not meet all the UNCBD requirements.

In accordance with UNCBD, a review of project implementation activities has to be prepared every five years. This review should not only include not project achievements made during the period, but reasons for the success or failure during implementation of different elements of the initial plan, lessons learned and recommendations for projects in the next period. The document has to include a detailed review of the plan itself as a working document of organizations-executors and recommendations for future projects based on accumulated experience. In Kyrgyzstan, no initial five-year report was prepared, and now preparations are under way for the presentation of the second annual reports of signatory states.

In China in 2000 and 2001, at a conference organized by the United Nations Environmental Program lessons learnt from the implementation of BSAPs by North-Eastern Asia and Central Asian countries were presented. The objective of the conference was cooperation, a regional experience and ideas exchange and an exchange of methods among experts, professionals, and decision makers planning and implementing BSAPs.

One of the main recommendations was the integration of BSAPs with national programs focusing on capacity building for UNCBD implementation, interregional cooperation, communication between GEF and executing agencies and UNCBD implementation.

Central Asian Trans-boundary GEF/WB Project Biodiversity in Western Tian-Shan

This project, with a budget of US\$10 million was supposed to last from 2000 to 2004 but has been extended until 2006. The project is implemented in Kazakhstan, the Kyrgyz Republic and Uzbekistan, in the western Tian-Shan region.

- The EuropAid Western Tian-Shan Biodiversity Conservation Project This project is the continuation of the Interstate Project on the Conservation of the Biodiversity of Western Tian-Shan (Phase I), financed by EC (TACIS), which was implemented from January 2001 to June 2003.
- The Kyrgyz-Swiss Forestry Support Program (Les-IK) Through this program has been implemented in three phases since 1995 and was financed by the Swiss Government. Its fourth phase (2004-2007) has just started and completion of the project is expected in 2010.
- The FAO Project on the Review and Standardization of SPNT Legislation in Kazakhstan, the Kyrgyz Republic, and Uzbekistan

FAO of the UN provides technical and financial assistance to the governments of Kazakhstan, Kyrgyzstan and Uzbekistan for the revision and standardization of legislation related to protected territories. Two projects function successfully. One is connected with SPNT legislation (October 2003 – October 2004), and the second is related to the solving of forest, nature and hunting legal issues (July 2003-June 2004).

The Central Asian Mountainous Partnership Program (CAMP)

This program, mainly financed by Swiss Government, is implemented in the mountainous territories of the Kyrgyz Republic, Kazakhstan and Tajikistan. It was launched in 2000 is should operate for 10-15 years. The Mission of CAMP is the advancement of the sustainable use of renewable resources in mountainous territories.

The GEF/UNDP Small Grants Program

This program was launched in 2001 and is implemented in the Kyrgyz Republic. Through the program grants for noncommercial legal entities (i.e. NGOs), predominantly working in rural area are provided for the implementation of small and sustainable ecological projects, developed by local organizations in accordance with established criteria.

 The EU JUMP Project on Sustainable Management Support for Juniper Forests in the South of the Kyrgyz Republic

The International JUMP Project will last from 2004 to 2006. Its 1-million-euro budget is financed by EC. The project is aimed at the development of integrated management plans for juniper forests in the South of the Kyrgyz Republic.

The GTZ-supported project Issyk-Kul Biosphere Territory

This project was launched in 1997 under the Ministry of Environmental Protection with the technical support of the German Federal Ministry for Economic Cooperation and Development (BMZ), the German Nature Protection Society (NABU), and the German Technical Cooperation (GTZ). After development and adoption of the law 'On Biosphere Territories in the Kyrgyz Republic' by the government of the Kyrgyz Republic, on September 25, 1998 the Issyk-Kyl biosphere territory was

established comprising 43,144 square meters. The project was implemented in accordance with UNESCO program Man and Biosphere (MAB).

Problems and constraints on the successful implementation of the project

The reorganization of government departments, changes in general management partners seriously constrained the implementation of this project.

• The UNEP-GEF project Development of Bio-safety Frameworks in the Kyrgyz Republic

This joint global project was launched in 2001. The project was initiated by several countries and developed with the aim of rendering assistance to almost 100 participant countries for the creation of national structures for the management of genetically modified species to ensure the implementation of commitments under the Cartagena Protocol. The project started in the Kyrgyz Republic in 2003. The executing agency is MEE.

• The GEF project In-situ Conservation of Crops and their Wild Relatives in Central Asia This project equips farmers, NGOs, research institutes, local communities and decision-makers with the necessary knowledge and skills, which will allow them to improve their conservation activities. The project is implemented in the five Central-Asian republics and its main partner is the International Plant Genetic Resources Institute (IPGRI).

The projects, implemented with financial support from donors, make an important contribution to UNCBD implementation. The projects are aimed at the maintenance of SPNTs, the conducting of research on fauna and flora, public awareness and the involvement of local communities in biodiversity conservation.

4.5. Financial resources for biodiversity protection

Financial resources available for the protection of biodiversity in the Kyrgyz Republic are insufficient. If UNCBD is to be fully implemented, subsidies, co-financing, grants, credits and technology transfers are necessary and can improve socio-economic development and eradicate poverty. In accordance with the obligations of signatory states, the Kyrgyz Republic, a developing mountain country, is vulnerable from an ecological point of view and requires the financial help of developed countries to improve the situation through bilateral, regional and other multilateral channels (UNCBD, article 20, item 3).

The systems for protecting flora and fauna in the Kyrgyz Republic include a set of measures aimed at overcoming the negative consequences of the development of the country's economy. Some economic activities damage the environment. For this reason a balance between industrial development and environmental protection must found and supported by state policy. Current policies are based on the financing of environmental protection measures and the partial recovery of environment losses and damage. Expenditures for nature protection measures are 4 million som. Real expenses are 13 percent higher and the co-financing of environmental protection departments is 20 percent less than stipulated.

According to MEE data and functional analyses, insufficient attention is given to ecological issues under the ministry and its budget does not exceed 25-30 million som a year, while the budgets of the other ministries are up to ten times higher.¹⁰⁷

	Amount, according (1992-2000, May)	g to the agreement	Actually disbursed (1992-2000, June)		
	million US % of the total per		million US	% of the total per	
	dollars	year	dollars	year	
Total	1,939.3	100	1,436.5	100	
Industry	114.43	5.9	88.03	6.13	
Agriculture	92.71	4.78	61.43	4.28	

The structure of foreign assistance by sector (per million US dollars)

¹⁰⁷ Functional analysis of the Ministry of Ecology and Emergencies of the Kyrgyz Republic, UNDP, Bishkek, 2003.

Global ecological conventions: Capacities of Kyrgyzstan

Irrigation	46	2.37	7.75	0.54
Transport	243.14	12.54	124.97	8.7
Energy	196.21	10.12	123.31	8.58
Education, science	28.35	1.46	7.19	0.5
and culture				
Tourism	16.28	0.84	13.76	0.96
Environmental	4	0.21	0	0
protection				
Emergency	4	0.21	0.44	0.03
measures				

Source: Kyrgyzstan: General Assessment of the State of the Country, 2001. p. 22.

The insufficient financing of environmental protection programs proves that ecological conservation is not a national priority. As the country has suffered economically in the past decade, the government places the highest priority on sectoral investments that will give the greatest and most immediate return. But neglecting environment protection today will inevitably cause greater expenses in the future.¹⁰⁸

The financing of environmental protection measures with local environmental protection funds is implemented through programs approved by state oblast administrations. The role of these funds however has been greatly reduced due to a lack of transparency, accountability and effective management. There are no clear guidelines for the distribution of funds and as a result, a lack of formulated objectives. The institutional capacity of the funds does not meet the financial needs of environmental protection programs (National Report of the State of Environment 2001-2003). However, the funds can be considered a safe source of co-financing for environmental protection measures.

Budget funds, allocated to the State Forestry Service, are mainly spent on salaries and the administrative costs of its structural subdivisions, leskhozes and SPNTs. It should also be noted that staff salaries do not correspond to the cost of living in Kyrgyzstan (Table 7). Activities to maintain infrastructure are not carried out. Offices, laboratories, museums, transport facilities and other equipment fall into decay, and in the meantime the environment and biodiversity remain almost unprotected.

Almost no supervision of state reserves is conducted, though they form the majority of SPNTs. In connection with recent land reforms many SPNTs can be transferred into private ownership. Therefore, it is necessary to identify their boundaries and conduct inventories of current reserves, as the only available data is from 1970-80.

The private sector invests next to nothing in environmental protection measures. If programs are to be successful it is important to attract the interest of the private sector, corporations and individual businessmen. A lack of financial resources and knowledge among private producers leads to the ineffective and sometimes destructive use of agriculture land, which is reflected in a reduction of their productivity.

If a system of fines could be established to discourage the causing of damage to the environment, flora and fauna, businesses would need little more encouragement to rethink their environmental impact. It is ecologically and economically wise to introduce preferential taxation for those producers who take into account the ecological safety of environment. For enterprises implementing environmental protection measures during the process of economic activity, preferences should be established.

¹⁰⁸ Kyrgyzstan: General Assessment of the State of the Country, 2001.

№	Name of SPNT	Quantity	Area, thousand	Staff, units
			hectares	
1.	State reserves	7	263.3	249
2.	State national parks	8	258.6	167
3.	General	1	4,314.4	40
	Management of			
	Issyk-Kul			
	biosphere territory			
*TOTAL		*16	*4836.3	459

The financing of strictly protected natural territories

***Note:** The total number of state reserves in the republic is 68, with a total area of 325,500 hectares, which are not separate legal entities and are at the mercy of forestry enterprises, the Main Department of Protection and Use of Hunting Resources (Glavohota), the General Management of the Issyk-Kul biosphere territory and local self-governmental bodies. Funds for their maintenance are not allocated from the national budget, and the financial resources of the State Forestry Service are insufficient.

The 'National Action Plan' for protection of the environment of 1995 determined several priority directions for environmental protection activities. Biodiversity preservation exceeded national and regional frameworks long ago and can only be solved through common efforts and the attraction of international resources. The Kyrgyz Republic has international partners and donor organizations aiding its UNCBD implementation projects.

These investments are aimed at the conservation of the landscape and biodiversity, the allocation and reservation of strictly protected natural territories, the enhancement of the quality of life of the population and the cultivation of environmentally friendly attitudes.

International and intergovernmental cooperation and financing in this area is becoming increasingly common. A 'debt-for-environment swap' is one financing method for ecological programs and involves the decreasing of a developing country's external debt in return for environmental investments. For Kyrgyzstan, with its poor economic situation and lack of financial resources for environmental protection measures, a 'debt-for-environment swap' would be an effective way to kick-start investments into the country's ecological future.¹⁰⁹

The legal framework regulating the use of flora and fauna in the republic is out of date, penalties are low and financial mechanisms for regulation are insufficient. Many industries disregard the impact their activities have on the environment.¹¹⁰

While extracting biological resources (for example, the collection of herbs) the financial gains must be compared to the damage to biological resources. When a walnut tree is felled, the fine is equal to the cost of the tree, but does not cover expenses associated with the planting and cultivating of such a tree over several years. A cost versus benefit analysis of biodiversity conservation is needed and should be incorporated into current legislation.

The Kyrgyz economy should be developed with biodiversity conservation in mind and should meet international standards for ecological safety. The financing of environmental protection projects in the Kyrgyz Republic is insufficient and additional resources must be found. Until the Kyrgyz government understands the global importance of biodiversity conservation, all measures aimed at the implementation of protection schemes will be inadequate.

¹⁰⁹ National Report on the State of Environment 2001-2003.

¹¹⁰ Tarbinskiy Yu. Experience of Calculation of Standards of Payment for Use of Natural Resources // «Selvinia» Magazine, #2, 1995.

Financial resources need to be used more effectively, transparently and responsibly and new institutional mechanisms for the management of environmental protection programs need to be implemented, taking into account international practices.

Therefore, the main shortcoming of all levels of capacity development is a lack of financial resources. The poor financing of environmental protection bodies proves that this is not a priority for the Kyrgyz Republic. For this reason, the attraction of private and foreign investors is vital.

4.6. Risks, deterrents and additional needs

In this section, the risks and obstacles to UNCBD implementation in the Kyrgyz Republic will be considered.

Risks associated with the loss of biodiversity:

- the loss of natural ecosystems and their replacement with human communities;
- the degradation of natural ecosystems (fragmentation, loss of reparation capacities);
- due to biodiversity degradation, human beings are threatened with natural emergencies, the loss of fertile land and the reduction of opportunities to use natural resources.

There are also several serious *problems* preventing the implementation of the UNCBD obligations of the Kyrgyz Republic:

- the frequent reorganization of the government and interdepartmental structures;
- a lack of understanding of importance of the ratification of the convention among decision makers, a lack of understanding that not only environmental protection structures, but all state agencies are responsible for UNCBD implementation;
- insufficient public awareness on biodiversity;
- insufficient financing for state inventories, assessments, protection and monitoring of biodiversity;
- weak financial mechanisms supporting biodiversity conservation and sustainability;
- the ignoring by many departments of ecological regulations needed in a transitioning economy;
- the criminalization of the use of some biological resources;
- the ineffectiveness of management actions aimed at solving national and regional biodiversity conservation problems;
- the poor implementation of international biodiversity conservation legislation by CIS countries.

Lack of financing. Limitations to the funding of environmental protection projects are caused by the scarcity of financial and technical facilities, which can directed for this purpose. The financing of flora and fauna research has almost stopped. This reduces the effectiveness of relevant projects. According to international accounts, only countries with developed economies can allocate large sums of money for environmental protection.

The financial resources of the Kyrgyz Republic need to be used more effectively, transparently and responsibly. The incapacity to do this has weakened arguments for increased funding in this area. It is also necessary to improve the capacity, project cycle and management skills of financial institutions.

The implementation of new and innovative institutional mechanisms for the management of state environmental nature protection programs is necessary, taking into account the international practices. These include models for social agreement on the conservation of biodiversity. These are described in the section of this report that reviews international experience.

It is necessary to encouragement the state to attempt to attract local and foreign investments in environmental protection projects.

The capacity building of municipalities and organizations implementing environmental protection projects needs to be promoted. This can be jointly financed on commercial basis (National Report on the State of Environment 2001-2003).

Economic situation. The external debt of the Kyrgyz Republic has increased. Tax credits have been terminated in favor of provision credits with harsher conditions. At the same time, the improvement of the economy, due in part to the mineral resource industry, poses a serious threat to ecological prosperity of the country. In the Kyrgyz economy, the emphasis in the structure of industrial production is focused on resource extraction industries. Growth in the impact of anthropogenic activities, by marginal groups which survive on natural resources and the business community, has been observed in the Kyrgyz Republic. The economic and management mechanisms of the country do not prioritize sustainability or environmental protection.

Human Resources. If the Kyrgyz Republic is to cope with the development of new technologies and the implementation of biodiversity conservation projects, professionals will need to become involved. Despite high levels of education and professional training in the country, there is a lack of environmental specialists in the republic, in particular, in rural areas. Many directors of reserves and national parks have no experience and or special training in this area. Only some reserve and national park employees have higher education qualifications. Most hunters and timber workers have secondary education at best. Poor access to information and a lack of special educational literature exacerbates this problem. Also, there is no accessible literature on the environment in the country. A system for ecological education has not been sufficiently developed. Many people involved in environmental activities are not ecologically motivated.

Research constraints. Serious scientific and analytical research activities must form the basis for management decisions however, as previously mentioned, research is not conducted in most areas of the country except in some sectors.

Internal constraints. The implementation of sound environmental conservation activities is constrained by the legislation of the Kyrgyz republic. The necessary laws have not been adequately developed and most governmental decisions are made without considering the environment. Ecological literacy levels are low among decision makers.

Interaction between governmental and nongovernmental sectors and the interest of local communities is insufficient. Community interest, in particular, is almost non-existent.

Monitoring. There is no system for ecological monitoring, ecological assessment or public ecological audits in the Kyrgyz Republic. This means that environmental protection activities are not properly evaluated.

Information and access. Access to the necessary information is insufficient in the Kyrgyz Republic and in some cases it is concealed and distorted by officials responsible for its dissemination. A lack of transparency and a lack of public participation in discussion and decision-making process in this area are also a problem. The media does not give adequate attention to environmental issues or news.

The *Main capacities* of the country are based on natural and social factors. Among the natural factors, the extensive conservation of natural ecosystems should be highlighted. Despite certain anthropogenic impacts, they tend to preserve their life-cycles and their ability to recover from damage. Often, reductions in anthropogenic activity, without causing too much damage to the economy, are necessary if ecosystems are to recover fully. Most natural territories are far from populated areas, and access to them is restricted. The construction of roads should only be undertaken after a serious analysis of their impact on surrounding ecosystems is carried out.

The Kyrgyz Republic has literacy rates of almost 100 percent allowing for the effective dissemination of environmental information. A great number of specialists in the Kyrgyz Republic also have higher education qualifications, which is also positive. Careful financing should allow biodiversity research activities, education and training.

The most important factor for the conservation of biological diversity is capacity development. This includes the strengthening of public interest in solving environmental issues, observing and actively participating in personal and organizational efforts to prevent ecological damage. The main objective of promoting awareness among the population is to promote the practical use of environmental protection activities in everyday life.

Democracy helps to promote this process and encourages a dialogue between the government, nongovernmental organizations and the public. Kyrgyzstan has had some experience with this. There is also great potential for international cooperation, which is vital during this difficult time for Kyrgyzstan.

4.7. Recommendations for the implementation of the convention on biodiversity

In the legislative arena:

- The development of legislation on the conservation and protection of natural ecosystems, specifying standards, which prohibit the replacement of natural ecosystems with artificial, anthropogenic ones.
- The establishment of regulations for the storage, transportation, trade and use of Red-Book species and their products.
- The enforcing of additional taxes for the primary use of natural resources of fauna and flora.
- The establishment of administrative authority at all levels, including for the management staff of ministries and departments to fine environmental law violators in their areas of jurisdiction.
- The enforcing of the rights and obligations of land owners and farmers and, the owners of land containing water bodies to prevent damage to the biodiversity of the area.
- The establishment of the obligatory registration and identification with the state of the category of land and water-based areas and the main components of biodiversity therein so state monitoring procedures can be established.
- The prohibition of the reduction of legal protection for strictly protected natural territories.
- The establishment of reserves and protected territories.
- The ratification of the Cartagena Protocol on Bio-safety.

In institutional areas:

- The establishment of an independent state environmental inspection body.
- In addition to the functional duties of managers (deputy level), ministries, departments, big enterprises and industries the obligation to exercise control over subordinate structures dealing with environmental protection should also be enforced. These organizations should also be responsible for public awareness of biodiversity conservation.
- The prohibiting of the extensive economic use of Chatyr-Kul Lake, as this violates its reserve status and threatens the life of Red-Book species, including bar-headed geese.
- The achievement of increasing in SPNT areas to 10 percent of the total area of the country.
- The establishment of an ecological network in the country, which will include the SPNTs from all categories and allow the conservation of the main natural ecosystems in each oblast and rayon.
- The encouragement and development of the professional capacity of people involved in biodiversity protection.

In the area of public awareness:

- At a national and oblast level, it is necessary to hold annual public hearings on biodiversity and projects that could damage the environment, with the participation of leading specialists and relevant ministries.
- The cooperation between governmental and nongovernmental for biodiversity conservation.
- The regular use of the media to highlight biodiversity and conservation issues.
- The publishing for mass circulation of the popular texts of national annual environmental reports, data on flora and fauna and the status of Red-Book species.
- The issuing of publications for broad public use on biodiversity issues.

In the area of research activities and ecological education:

- To support biodiversity research activities, particularly regarding the Red-Book species.
- The inclusion of compulsory ecology programs into existing school and higher education curricula including information on biodiversity, its main attributes, state and importance.
- The maintenance of international contacts in the sphere of biodiversity, including through international representative missions in the Kyrgyz Republic.
- The promotion of seminars, conferences and training sessions and scientific and educational publications on biodiversity.

CONCLUSION

The ratification of the UN Convention on Biological Diversity is the first step toward energetic activities and the coordination of measures for the conservation of biodiversity in the Kyrgyz Republic. The implemented capacity assessment on UNCBD implementation demonstrated that in the country there is a high level of biodiversity and sufficient institutional, scientific and community potential for the maintenance, conservation, and sustainable use of the country's natural resources.

The Kyrgyz Republic has rich biodiversity, and the concentration of species here is much higher than in the rest of Central Asia and much of the world. A considerable number of fauna and flora species in the Kyrgyz Republic are endemic and cannot be found anywhere else. Many species of these species are dropping in number and their natural habitats are shrinking. Some species are endangered and are included in the 1985 Red Book, which must be revised and republished.

Flora and fauna research is conducted irregularly. The most comprehensive information available is on species of higher vascular plants and vertebrates and less information is available on lower plant species and invertebrates. In some cases only 20to40 percent of the necessary research has been conducted. The implementation of regular biodiversity and environmental monitoring is vital.

The attracting of eco-tourists is, in many respects, dependent on the flora and fauna and of country. This should be promoted not only at national and regional levels, but internationally as eco-tourism can provide valuable funds for environmental protection activities. Great fears have been voiced over the state of flora and fauna and natural ecosystems, which have been degraded due to anthropogenic activities. This leads to reductions in environment sustainability and the deterioration of the environment.

The industrial sector places a certain amount of pressure on biodiversity through environmental pollution and transportation. Reductions in plant and animal species are connected to changes in habitats and pollutants. The agricultural industry also causes environmental degradation over large areas. Some of these areas (including sub-mountain steppes and deserts) have almost disappeared or have been reduced in size and contain fewer species than before.

Environmental disasters pose a serious threat to the Kyrgyz Republic. Earthquakes, mudslides and avalanches are very dangerous and happen often in the Kyrgyz Republic. Due careless human activity, landslides and forest and grass fires take place frequently. Vast sums of money from the state budget are spent for prevention and cleanup of disasters. Issues surrounding the degradation and placing of tailing dumps have not been solved. The World Bank has allocated US\$11 million for the rehabilitation of these dumps.

Forests play a critical role in maintenance and sustainability of the environment and biodiversity (forests cover more than four percent of the republic). However, Kyrgyz forests have significantly deteriorated as fires have lead to the reduction of forest areas.

Grass ecosystems are used for the collection of herbs, as pastures and hayfields. These ecosystems have endured unrelenting human activity and almost 70 percent are eroded.

As a result of poaching, the number of several valuable species of animals and plants has decreased sharply. This can also be attributed to the destruction of their habitats and natural selection.

In the Kyrgyz Republic, some progress has been made on the implementation of the UNCBD. The first step for the implementation of the Convention was the Biodiversity Strategy and Action Plan, prepared with financial support from the World Bank and the Global Environmental Facility. The first 'National Report on the Conservation of Biodiversity in Kyrgyzstan' was presented at the UNCBD conference in Bratislava in 1998. Kyrgyzstan receives significant financial assistance in this area GEF, EC and GTZ projects. This reflects the practical involvement of developed countries in the UNCBD implementation process in developing countries. Sufficient research of the capacity of the Kyrgyz republic to implement its obligations under the convention, have been carried out.

If the Convention is to be successfully implemented, efficient national conservation policies are necessary to ensure the preservation of biodiversity and intersectoral approaches to environmental protection. The cooperation of all relevant parties is needed. It is also necessary to establish a mechanism for the effective coordination of activities between ministries, departments and stakeholders.

But insufficient financial resources have meant that the implementation of the convention is almost impossible. As the economic situation in the Kyrgyz Republic is weak, 'debt-for-environment' swaps would help the country enact environmental protection strategies. The forming and strengthening of mechanisms for the attraction and distribution of financial resources for nature protection measures is needed. Along with the positive attempts at UNCBD implementation, there have been setbacks. The Kyrgyz legislative framework on biodiversity conservation is insufficient and has not been fully implemented. Institutional capacities are insufficient and have not allowed the practical implementation of legislation. Legislation on the conservation of biodiversity barely functions.

The Kyrgyz Republic can boast the unique diversity of its flora and fauna. However, the efforts of ministries and departments, which are the main executors of UNCBD commitments, impede the implementation process due to the ongoing reorganization of agencies and the appointing of officials with no experience of environmental protection issues.

Despite the adoption of a number of international conventions, public access to environmental data is limited and as a consequence the public does not get involved in the environmental protection decision-making process. The implementation of public awareness programs on the implementation of global ecological conventions remains weak.

Insufficient cooperation between ecologists, biodiversity experts, the mass media and associations is also a problem. As public interest in conservation is low, it is important to increase public awareness of UNCBD and the reasons behind its implementation.

The process for the appointing of local and international consultants and experts to projects is not transparent. Projects are often implemented by as consultants without the knowledge and qualifications necessary to carry them out. A lack of partnership and mutually beneficial relations between projects is evident. There needs to be some coordination between projects implementing UNCBD, as this will prevent the duplication of projects and will promote real benefit from the project's implementation.

There is a distinct lack of scientific information on the state of biodiversity of the Kyrgyz Republic and only incomplete data is available on invertebrates, lower plants, the fauna and flora of south the country and Tian Shan. Not enough data is available on the natural habitats and numbers of different plants and animals, except on the most common species. Little information is available on subspecies and no studies have been conducted on their communities. Certain species and groups have not been monitored. There is no scientific basis for cadastres of animal nature and cadastres of many species do not exist. Cadastres are vital to the maintenance of the sustainability of ecosystems.

There are not enough activities promoting the aesthetic, recreation, traditional, educational, training and cognitive value of biological and landscape diversity and there is a lack of books and brochures on biodiversity, the natural resources of the Kyrgyz Republic and ecotourism. An inventory of strictly protected natural territories has not been carried out. There is no scientifically developed justification for

their increasing and distribution based on the concentration and endemic of biodiversity. There are no special programs aimed at teaching SPNT management and other staff the principles and methods of the sustainable use of natural resources. The technical, scientific and financial resources of the country are not enough to ensure the sustainability of the environment.

Analyses have demonstrated that natural ecosystems are the only reliable source of ecological stability in the Kyrgyz Republic. One favorable condition for capacity development is the sustainable socioeconomic development of the country. Environmental protection achievements will be short lived without the sustainability of the socio-economic sphere.

The establishment of new cooperation mechanisms is necessary at all levels, to ensure efforts are not duplicated. To ensure the real assessment and analysis on a unified level of the current situation in the Kyrgyz Republic, it is necessary to achieve the significant progress of UNCBD implementation efforts and natural resource protection. The implementation of the Convention requires interdepartmental cooperation and the development of interaction strategies within the sectors of the country, interaction between Central Asian countries and the consolidation of actions and programs between convention secretariats.

Annex 1

LIST OF SPECIES IN RED BOOK OF THE KYRGYZ REPUBLIC (as of January 1, 2004)

MAMMALS

- 1. Rhinolophus hipposideros -Lesser horseshoe bat
- 2. Tadarida teniotis Folded lip free-tailed bat
- 3. Marmota Menzbieri Menzbir marmot
- 4. *Cuon alpinus Siberian red dog, Dhole*
- 5. Ursus arctos isabellinus Bear
- 6. Vormela peregusna pallidor Marbled polecat, Sarmantier
- 7. Lutra lutra Otter
- 8. Felis manul Manul, Pallas's Cat
- 9. Lynx lynx isabellinus Lynx
- 10. Uncia uncia Snow leopard
- 11. Cervus elaphus sibiricus Deer, maral
- 12. *Gazella subgutturisa Goitred gazelle, Sand gazelle, Persian gazelle*
- 13. Ovis ammon karelini Tienshan argali

BIRDS

- 1. Pelecanus onocrotalus White pelican
- 2. Pelecanus crispus Dalmatian pelican
- 3. Platalea leucorodia Black stork
- 4. *Phoenicopterus roseus Flamingo*
- 5. Eulabelia indica Bar-headed goose
- 6. *Oxyura leucocephala -White-headed duck*
- 7. *Circaetus gallicus Short-toed eagle*
- 8. Aquila rapax Tawny eagle
- 9. *Aquila heliaca Imperial eagle*
- 10. Aquila chrysaetos Golden eagle
- 11. Haliaeetus leucoryphus Pallas's fish eagle
- 12. Haliaeetus albicilla White-tailed fish eagle
- 13. Gypaetus barbatus Lammergeier
- 14. Gyps himalayensis Himalayan griffon
- 15. Falco rustiocolus Gyrfalcon
- 16. Falco cherrug Saker
- 17. Falco pelegrinoides Bargary falcon
- 18. Falco peregrinus Peregrine
- 19. Lirurus tetrix tianschanicus Black grouse
- 20. Anthropoides virgo Demoiselle crane
- 21. Otis tarda Great bustard
- 22. Otis tetrax Little bustard
- 23. Chlamidotis undulata Houbara, houbara baster
- 24. Chettusia gregaria Sociable plover
- 25. Ibidorhyncha struthersii Ibisbill
- 26. *Larus ichtyaetus Great black-headed gull*
- 27. Sirraptes paradoxus Pallas's sandgrouse
- 28. Columba leuconota Snow pigeon
- 29. Terpsiphone paradisi Paradise flycatcher

REPTILES

- 1. Varanus griseus Desert monitor
- 2. Coluber karelini Karelin's mousesnake
- 3. Coluber rhodorhachis Red striped mousesnake

FISHES

- 1. Aspiolucius esocinus Aspiolucius
- 2. Glyptosternum reticulatum Glyptosternum

INSECTS

- 1. Saga pedo Saga
- 2. Calosoma sycophanta Ground beetle
- 3. Amphicoma regeli Regel's chafer
- 4. Netocia protobricha Gras-green chafer (beetle)
- 5. Trichius faciatus
- 6. Bombus muscorum Moss bumble-bees
- 7. Bombus serrisquama Plate-tooth bumble-bees
- 8. Bombus armeniacus Armenian bumble-bees
- 9. Megachile rotundata Megachile
- 10. Xylocopa valga Carpenter bee
- 11. Scolia maculata Scolia, Hairy flower wasp
- 12. Satanus gigas Gigantic assasin flies, robber flies
- 13. Papilio machaon Swallowtail butterfly
- 14. Parnassius apollo Apolo
- 15. Parnassius mnemosyne Black apolo
- 16. Parnassius tianshanicus Tienshan apolo

PLANTS

- 1. Alium pskemense
- 2. Kosopoljnskia turkestanicus
- *3. Acorus calamus*
- 4. Eminium rgelii
- 5. Inula helenium
- 6. Lamiropappus schakaptricus
- 7. Lepidolopha komarovii
- 8. *Rhaponticum aulieatinense*
- 9. Saussurea involucrata
- 10. Trichanthemis aulieatensis
- 11. Trichanthemis aurea
- 12. Berberis kaschgarica
- 13. Incarvillea olgae
- 14. Tianshaniella umbellifera
- 15. Iskandera alaica
- 16. Lonicera paradoxa
- 17. Iridodictium kolpakovskii
- 18. Ammopiptanthus nanus
- 19. Chesniella villosa
- 20. Colutea brachypera
- 21. Hedysarum chaitocarpum
- 22. Hedysarum kirghisorum
- 23. Sophora griffithii
- 24. Eremostachys cephalariifolia
- 25. Erianthera anomala
- 26. Otostegia nikitinae
- 27. Otostegia schennikovii
- 28. Salvia korolkovii
- 29. Salvia vvedenskii
- *30. Scutellaria andrachnoides*
- 31. Scutellaria nepetoides
- *32. Tulipa anadroma*
- 33. Tulipa affinis
- 34. Tulipa greigii

- 35. Tulipa kaufmanniana
- 36. Tulipa kolpakovskii
- *37. Tulipa nitida*
- *38. Tulipa ostrovskiana*
- *39. Tulipa rosea*
- 40. Tulipa zenaidae
- 41. Ficus carica
- 42. Cephalantera longifolia
- 43. Abies semenovi
- 44. Acantholimon compactum
- 45. Calligonum usunachmatense
- 46. Primula eugeniae
- 47. Primula macrocalyx
- 48. Punica granatum
- 49. Anemone obtusiloba
- 50. Pulsatilla kostyczevii
- 51. Amygdalus petunnikovii
- *52. Cratagus knorringiana*
- 53. Malus nedzwetzkyana
- 54. Prunoaflatunia (prunus ferganica)
- 55. *Pyrus asiae-mediae*
- 56. Pyrus korshinskyi
- 57. Sibiraea tianschanica
- 58. Sorbaria olgae
- 59. Sorbus persica
- 60. Sorbus turkestanica
- 61. Spiraeanthus schrenkiana
- 62. Ribes janczewskii
- 63. Physochlaina alaicus
- 64. Vitis usunachmatica
- 65. Zygophyllum kaschgaricum



Endangered fauna in the Kyrgyz Republic

Annex 2

- 1. Snow leopard
- Golden eagle
 Swallowtail butterfly
- 4. White stork
- 5. Manul
- 6. Mute swan
- 7. Tian Shan bear

Annex 3



MAP OF THE DISTRIBUTION OF ENDANGERED SPECIES BY OBLAST

Notation abbreviations: Bat – Batken oblast, Jal – Jalal-Abad oblast, Isk – Issyk-Kul oblast, Nar – Naryn oblast, Osh – Osh oblast, Tal – Talas oblast, Chui – Chui oblast; Anim – number of species of animals, Plant – number of species of plants, Nrb – total number of the Red BooK species in this oblast. The number of species is shown at abscissa axis of the diagram.

Total	OBLAST						
number	Bat	Jal	Isk	Nar	Osh	Tal	Chui
of species							
in the							
oblast							
Mammals	4	9 (1)	9	8	9	5	5
Birds	9	17	26 (4)	16	13 (1)	12	18
Reptiles	1	2 (1)	0	0	2 (1)	0	0
Fishes	0	2 (1)	0	1	1	0	0
Insects	8	14(1)	10	9	11	15	15
Plants	13 (8)	34 (18)	10 (6)	13 (3)	13 (4)	9 (2)	8 (3)
in the Red	35 (8)	78 (22)	55 (4)	46 (4)	49 (6)	41 (2)	46 (3)
Book							

Detailed data is provided in the following Table

Note: The number of Red Book species, which can be found only in this oblast, is provided in brackets.

Annex 4



ECOSYSTEMS OF THE KYRGYZ REPUBLIC

Notation conventions

Biogeography regions: A – South Kazakhstan, B – North Tian Shan, C – Issyk-Kul, D – Central Tian Shan, E – Internal Tian Shan, F – West Tian Shan, G – Fergana, H – Alai.

Types of ecosystems: 1 – fir forests, 2 – archa forests, 3 – broad-leaved forests, 4 – tugais, 5 – smallleaved forests, 6 – middle-altitude deciduous bushes, 7 – middle-altitude petrophile bushes, 8 – savannoides, 9 – amygdaloides and pistachios, 10 – niveal and subniveal zone, 11 – cryophilic meadows, 12 – cryophilic steppes, 13 – cryophilic deserts, 14 – middle-altitude meadows, 15 – middle-altitude steppes, 16 – middle-altitude deserts, 17 – boghara, 18 – foothill steppes, 19 – foothill deserts, 20 – petrophile foothill bushes, 21 – lakes and swamps, 22 – cultivated land.

The types of ecosystems available in the region are marked with black figures.


Talas oblast

1. National natural park Besh-Tash

Jalal-Abad oblast

- 2. Besh-Aral reserve
- 3. Sary-Chelek reserve
- 4. Padysha-Ata reserve
- 5. Saimalu-Tash national park

Chui oblast

6. Ala-Archa national park

7. Chon-Kemin national park

Naryn oblast

8. Karatal-Japyryk reserve

- 9. Salkyn-Top national park
- 10. Naryn Reserve

Issyk-Kul oblast

- 11. Sarychat-Ertash reserve
- 12. Issyk-Kul reserve
- 13. Karakol national park
- 14. Issyk-Kul biosphere territory

Osh oblast

- 15. Kara-Shoro national park
- 16. Kyrgyz-Ata national park

STRICTLY PROTECTED NATURAL TERRITORIES IN THE KYRGYZ REPUBLIC

The Kyrgyz Republic contains 84 protected natural territories covering 847,400 hectares (excluding the Issyk-Kul biosphere territory) - 4.25 percent of the territory of the republic.

Based on functional characteristics, these protected areas can be divided into the four categories, adopted by the International Alliance of Nature Protection:

I. *Reserves*. The republic contains seven reserves covering 263,300 hectares, where any economic or other activities or the disturbing of natural complexes are prohibited;

II. *National Parks*. There are eight national parks in the Kyrgyz Republic covering 258,500 hectares, where varied land protection laws are in place (reserve areas, recreation area and areas of economic use);

III. *Natural Memorials*. There are 19 memorials in the Kyrgyz Republic. They were taken under state protection in 1975 and have the total 60 hectares.

IV. *Areas for Biotope and Species Protection*. This category includes two similar sub-categories: Reserves (forestry, botanical and hunting) and integrated reserves (characterized by integrated protection and territorial integrity). Reserves make up the largest protected territory category totaling 325,500 hectares.

RESERVES AND NATIONAL PARKS OF THE KYRGYZ REPUBLIC

TALAS OBLAST

Besh-Tash national park

JALAL-ABAD OBLAST

The Besh-Aral reserve covering 81,600 hectares, established in 1979. The Sary-Chelek reserve of 23,868 hectares, established in 1959. The Padysha-Ata reserve covering 15,846 hectares, established in 2003. The Saimalu-Tash national park totaling 32,000 hectares, established in 2001.

CHUI OBLAST

The Ala-Archa national park covering 2,286 hectares, established in 1976. The Chon-Kemin national park of 123,654 hectares, established in 1997.

NARYN OBLAST

The Karatal-Japyryk reserve covering 5,510 hectares, established in 1994. The Salkyn-Top national park covering 10,448 hectares, established in 2001 The Naryn reserve covering 36,969 hectares, established in 1983.

ISSYK-KUL OBLAST

Issyk-Kul reserve of 19,086.5 hectares, 1948. Sarychat-Ertash reserve covering 72,080 hectares, 1995. Karakol national park covering 38,148 hectares, 1997. Issyk-Kul biosphere territory covering 4.314 million hectares, 2000.

OSH OBLAST

Kara-Shoron national park covering 8,450 hectares, 1996 Kyrgyz-Ata national park

STATE HUNTING RESERVES

ISSYK-KUL OBLAST

Ken-Suu state hunting reserve, 8,712 hectares Tyup state hunting reserve, 19,086 hectares Teploklyuchenka state hunting reserve, 32,140 hectares Jeti-Oguz state hunting reserve, 31,300 hectares Jergalchak state hunting reserve, 23,098 hectares

NARYN OBLAST

Kochkorka state hunting reserve, 2,335 hectares Naryn state hunting reserve, 53,663 hectares

TALAS OBLAST

Kirov state hunting reserve, 28,674 hectares

CHUI OBLAST

Kemin state hunting reserve, 500 hectares Jarly-Kaindy state hunting reserve, 18,698.5 hectares

JALAL-ABAD OBLAST

Sandalash state hunting reserve, 44,099 hectares Chichkan state hunting reserve, 63,551 hectares Toguz-Torouzskiy state hunting reserve, 26,563 hectares

OSH OBLAST

Gulcha state hunting reserve, 500 hectares Ak-Bura state hunting reserve, 13,641.8 hectares Yasen state hunting reserve, 6,173.4 hectares

The total area of hunting reserves in the Kyrgyz Republic is 372,282.7 hectares, taking into account that the Kemin state hunting reserve with an area of 500 hectares was included in the Chon-Kemin national park. The total area of state hunting reserves is 371,282.7 hectares and the total number of state hunting reserves is 15.

STATE FOREST RESERVES

ISSYK-KUL OBLAST Malaya Ak-Suu, 95 hectares

JALAL-ABAD OBLAST

Uzun-Ahmat, 2,320 hectares Miskin-Sai, 483 hectares Dashman, 5,000 hectares Batrahan, 504.3 hectares Jalgyndin, 300 hectares Kara-Kol, 348 hectares NARYN OBLAST Iri-Suu, 395 hectares

OSH OBLAST Bel-Ulinsk, 384 hectares

STATE GEOLOGICAL RESERVES

Ala-Myshik cave Abshir-Sai Waterfall Bolshie vorota cave, (big cave of barium mineral) Chil-Ustun cave Chil-Mairam cave Adjidar-Unkur cave Dangi canyon Taht-Suleiman Mountain

STATE BOTANICAL RESERVES

ISSYK -KUL OBLAST

Baidamtal, 20 hectares Tyup, 100 hectares

CHUI OBLAST

Chon-Aryk, 80 hectares Kapchygai, 280 hectares Chon-Kurchak, 30 hectares Suusamyr, 2,168 hectares Yablonevaiya tshel, 99 hectares

JALAL-ABAD OBLAST

Kosh-Terek, 50 hectares Chanach, 50 hectares Chatkal, 600 hectares Gavin, 50 hectares Jel-Tiybes, 800 hectares Ryazan-Sai, 110 hectares

OSH OBLAST

Sary-Mogol, 60 hectares Bolshoi Oi-Kaiysh, 50 hectares

BATKEN OBLAST

Sulyukta, 30 hectares Jangata, 50 hectares Chiranda, 500 hectares Haidarhan, 30 hectares

TALAS OBLAST

Maimak, 40 hectares Kara-Archa, 100 hectares Shilbili-Sai, 150 hectares

NARYN OBLAST

Min-Kush, 693 hectares

Kani-Gut disused mine Djiydeln cave Koguchken-Sugat waterfall (pigeon waterfall) Issyk-Ata waterfall Barskaun waterfall Jeti-Oguz Mountains Kara-Jigach Mountains Sogon-Tash cave Tegerek waterfall

INTEGRATED RESERVES

CHUI OBLAST

Ak-Suu integrated reserve, 7,631 hectares

TALAS OBLAST

Talas integrated state reserve, 2,511 hectares

UNCBD LEGAL FRAMEWORK

Convention	Articles of the	National legislation	What was done	What was not	Recommendations
Requirements	Convention			implemented and why	
In the case of the	Article 4. Jurisdiction	The current legal framework	A new Draft Law of the Kyrgyz	Mechanisms for NAP	A system of special
components of	Scope	in the area of biological	Republic 'On Strictly Protected	implementation are still not	mechanisms to
biological diversity, it	Article 8. In-situ	diversity includes 10 laws	Natural Territories in the Kyrgyz	fully developed or have	implement organizational
is necessary to work	Conservation	and 70 sub-laws.	Republic', at an interstate cooperative	become out of date. In this	and legal guarantees
within the limits of	Article 9. Ex-situ		level of cooperation was developed	regard, many laws do not	needs to be developed,
national jurisdiction.	Conservation			function, they are not	which will help realize
	Article 16. Access to and			applied, or they contradict	scientifically-grounded
Each Contracting	Transfer of Technology			each other.	and economically viable
Party shall develop	Article 19. Handling of				biological diversity
or maintain the	Biotechnology and			There is no legislative	conservation methods.
necessary legislation	Distribution of its			framework in the country,	
and/or other	Benefits			which would allow the	To make changes and
regulatory provisions				introduction of private	additions to the law on
for the protection of				restrictions on important	strictly protected natural
threatened species				lands outside reserves,	territories.
and populations.				which will not allow the	
				full implementation of	The creation of a
Each Contracting				UNCBD requirements	mechanism for the
Party shall take				(CBD, article 8, item d).	protection of important
legislative,					natural ecosystems
administrative or					outside the area of strictly
policy measures, as					protected natural
appropriate, to					territories.
provide effective					
participation in					The establishment of an
UNCBD					ecological network in the
implementation.					country, including SPNTs
					of different categories,
					which provide the
					conservation of main
					classes of natural
					ecosystems in each oblast
					and rayon.

					To make changes and additions to branch legislation and to strengthen measures for the conservation of animals, plants included in the Red Book of the Kyrgyz Republic. To provide finances for ecological work in annual budgets on all levels. Legislation needs to be developed, which will take into account comparable the economical and ecological benefits of conservation efforts.
Cooperation at	Article 5. Cooperation	Interstate Agreement of	The implementation of the Western	Cooperation levels are	The continued
international,	Article 18. Technical and	1999 between Kyrgyzstan, Kazakhstan and Uzbekistan	Lian-Shan Biodiversity Project.	insufficient. There is no	implementation of
levels on other	Scientific Cooperation	Kazaklistali anu Uzueklistali		transparency of actions	The development of
matters of mutual				activities are often	cooperation with other
interest, for the				duplicated and donor funds	states and international
conservation and				wasted. Priorities need to be	organizations.
sustainable use of				determined in this regard.	-
biological diversity.					
Development of	Article 6. General	'Strategy of the Kyrgyz	The Draft Strategy and Action Plan	The current strategies do	The establishment of a
national strategies,	Measures for	Republic for the	was developed in 1998 with the	not meet the requirements	State Inspection on
plans or programs	Conservation and	Conservation of	support of the GEF/WB	of the convention. The	Natural Resources
for the conservation	Sustainable Use	Biodiversity', approved by		proposed strategies and	organization, independent
and sustainable use		the Resolution of the		action plans are adopted in	from Executive bodies.
of biological diversity		Government of the Kyrgyz		a shortened version that	The inclusion of
or the adaptation for		Kepublic 524, on 3/08/2002.		breaks the principles of the	I ne inclusion of
this purpose of		the increasing and		Convention. Decision	ecological components in
existing strategies,	1	the increasing and		makers must be informed	all state strategies and

plans or programs in		development of SPNT		about the commitments of	programs, such as CDF,
the corresponding		networks in the KR until		the country.	NPRS and others.
sector and inter-		2006.			
sector plans,					The increasing of SPNT
programs and					areas to 10 percent of the
policies.					area of the country.
Monitoring	Article 7. Identification			There is no database on the	The creation of a system
a) identification of	and Monitoring			state of ecosystems and the	for the monitoring and
the components of				conservation of biodiversity	assessment of the state of
biological diversity				due to a lack of monitoring	biodiversity and UNCBD
important for				systems.	implementation.
its conservation and					
sustainable use					
(b) monitoring					
through sampling					
and other techniques,					
of the components of					
biological diversity.					
Promotion and	Article 13. Public		Publications on biodiversity were	The scientific potential of	The state needs to change
encouragement of	Education and Awareness		issued with the support of the	the country is not being	its policy on science and
technical and			GEF/WB and EuropAid.	utilized and many of its	human resource
scientific programs			Conferences, round tables and	scientific practices are out	development, to
and human resources			presentations were conducted	of date. There are no	encourage and popularize
development for			regularly.	financial resources	research activities.
undertaking the				available for research and	
measures required				science.	The implementation of
for the identification,					measures to encourage
conservation and					and enhance the
sustainable use of					qualification of people
biological					working on biodiversity
diversity and its					protection.
components, and					
support of such					At national and oblast
education and human					levels it is necessary to
resources					undertake annual public
development as to					hearings on the state of
satisfy the specific					biodiversity and on large
needs of developing					projects, which can
countries;					impact on biodiversity,

Propagation through the media of the importance of the conservation of biodiversity, and the inclusion of these topics in educational programs and the increasing of public awareness programs, with respect to conservation and sustainable use of biological diversity.				with the participation of leading specialists and relevant ministries. To support cooperation between governmental and nongovernmental sectors in this area. To use the media to highlight biodiversity conservation issues in the country.
Each Contracting Party undertakes to provide, in accordance with its capabilities, financial support and incentives in respect of those national activities which are intended to achieve the objectives of this convention, in accordance with its national plans, priorities and programs. There shall be a mechanism for the provision of financial resources to	Article 20. Financial Resources Article 21. Financial Mechanisms	The ongoing seeking of financial resources for biodiversity conservation activities.	A lack of state financial resources for nature protection activity prevents their implementation. No special skills have been sought for the writing of project and grant applications.	The inclusion of financing of technical and scientific research activities on biodiversity in the state budget. The initiation and support of programs to attract donors. The encouragement of the private sector to invest in ecological programs. To develop the 'debt-for- environment swap' initiative in the country. To develop, with the help of donors and investors special projects for the development of the financial capacity for the provision of needs of the

Parties for purposes			conservation.
of this Convention on			
a grant or			
concessional basis.			
The contributions			
shall be such as to			
take into account the			
need for predictable,			
adequacy and timely			
flow of funds referred			
to in Article 20 in			
accordance with the			
amount of resources			
needed to be decided			
by the Conference of			
the Parties.			

	Name	Under support of Project (NGO)	Language of publication	Place and Year of	Topic/Purpose
1	Information Bulletin/ Digest	Central Asian Trans- boundary Western Tian-Shan Biodiversity Project of GEF/WB	Russian	Bishkek, 2002-2004	Conservation of biodiversity
2	'Western Tian-Shan Biodiversity. The State and Perspectives'. Materials from the Scientific Conference, 26 December, 2001, Bishkek	Central Asian Trans- boundary Western Tian-Shan Biodiversity Project of GEF/WB	Russian	Bishkek, 2002	Biodiversity issues
3	A.T Davletbakov, E.Dj. Shukurov. 'Mammals and Birds – Indicators of the State of the Ecosystems of Western Tian-Shan'. Methodical guide.	Central Asian Trans- boundary Western Tian-Shan Biodiversity Project of GEF/WB	Kyrgyz Russian	Bishkek, 2002	Indicators of the state of ecosystems of western Tian- Shan
4	R.N. Ionov, L.P. Lebedeva 'Plants – Indicators of the State of Ecosystems of West Tian-Shan'. Methodical guide.	Central Asian Trans- boundary Western Tian-Shan Biodiversity Project of GEF/WB	Kyrgyz Russian	Bishkek, 2003	Indicators of the state of ecosystems of western Tian- Shan
5	O.V. Kolov, T.S. Musuraliev, A.T. Chyngojoev. 'Methodical Guidelines on the Establishment of Small Nurseries of Fruit, Ornamental, and Forest Wood-Brush Species'.	TACIS Western Tian-Shan Biodiversity Conservation Project	Kyrgyz Russian	Bishkek, 2002	Establishment of small nurseries of fruit, ornamental, and forest wood- brush species
6	Ch. Kalmamatov 'Nurseries'	Swiss Program Lesic	Kyrgyz	Bishkek, 2000	Forest conservation
7	O.V. Kolov, T.S. Musuraliev, Sh. Bikirov 'Walnut'	Swiss Program Lesic	Kyrgyz Russian	Bishkek, 2001	Biodiversity of Kyrgyzstan
8	K.S. Ashimov	Swiss Program Lesic	Kyrgyz	Bishkek, 2001	Biodiversity of Kyrgyzstan
9	'Main Reasons of Forest Degradation and Disafforestation in Kyrgyzstan', YEM 'Biom'	UNDP – United Nations Environment Program (UNEP)	Russian	Bishkek, 2001	Problems of Biodiversity
10	Postnova E., Korotenko V., Domshov I. 'In the Workshop of the Subject Ecology'. Manual for Teachers on Biodiversity Conservation	With the support of TACIS and GEF/WB West Tian-Shan projects	Russian	Bishkek, 2003	Manual for Teachers on Biodiversity Conservation
11	'Ecological Education in Kyrgyzstan'	KSNU, YEM 'Biom'	Russian	Bishkek, 1999	Ecological Education
12	'Issyk-Kul Biosphere Territory' Materials of	GTZ, Issyk-Kul biosphere territory	Russian	Bishkek, 2003	Issues of the Issyk- Kul biosphere

List of publications issued in Kyrgyzstan through activities and projects on biodiversity conservation and by NGOs

	Issyk-Kul Symposium,				territory
	October 3-5, 2002, Cholpon-Ata				
13	Iost van der Ven, 'About Birds of Kyrgyzstan'.	TACIS Project	Russian	Bishkek, 2002	Biodiversity of Kyrgyzstan
14	'School Green Land' (Bulletin) YEM 'Biom'		Russian	Bishkek , 2002-2004	Ecology issues
15	A.O. Konurbaev, S.R. Timirhanov, 'About the Fish of Kirgisia'.	TACIS Project	Russian	Bishkek, 2003	Biodiversity of Kyrgyzstan
16	G.G. Vorobiev, Iost van der Ven, 'About the mammals of Kyrgysia'.		Russian	Bishkek, 2003	Biodiversity of Kyrgyzstan
17	Conception on the Continuous Ecological Education of the Kyrgyz Republic	Ministry of Education and Culture of the Kyrgyz Republic	Russian	Bishkek, 2003	Ecological education
18	'Sary-Chelek – a unique lake'. Leaflet	TACIS Project	English	Bishkek, 2002	Information on Sary-Chelek
19	M. Yunusaliev, G. Moldosanova, G. Ryskulova, 'Deep into the Thousand Years fo the Chatkal Valley'.	TACIS and West Tian- Shan Project	Kyrgyz, Russian	Bishkek, 2002	Chatkal Valley historical and archeological review
20	A. Jeengaziev, 'Planning and Effective Use of Land'.	With the support of TACIS and GEF/WB West Tian-Shan projects	Kyrgyz, Russian	Bishkek, 2002	Rational use of land
21	A.A. Ermolov, A.M. Toktogulova, M.M. Mihailov, 'Pearl of West Tian-Shan – Sary- Chelek'.	With the support of TACIS and GEF/WB West Tian-Shan projects	Kyrgyz, Russian	Bishkek, 2002	Ecotourism in Sary- Chelek
22	Yu. S. Tarbinskiy, 'Combating Insects and Agricultural Plant Pests without Pesticides'.	With the support of TACIS and GEF/WB West Tian-Shan projects	Kyrgyz, Russian	Bishkek, 2002	Development of biotechnologies
23	L. Plohotnikov, 'Manual on the Use of Biogas'.	With the support of TACIS and GEF/WB West Tian-Shan projects	Russian	Bishkek, 2002	Use of clean technologies
24	Magazine 'Forest'.	Swiss Program Lesic	Kyrgyz, Russian	Bishkek, 1996-2004	Problems of forest
25	The Government of the Kyrgyz Republic, UNDP, the National Center for the Development of Mountainous Territories of the Kyrgyz Republic, 'Biological Safety of Kyrgyzstan as a Factor of Sustainable Development of Central Asia Region'. Materials of International Seminar, 14 October, 2003, Bishkek.	UNEP/GEF	Kussian	Bishkek, 2003	Bio-safety
26	Quarterly Magazine 'Problems of Modern Biotechnology and Genetic Engineering'.	UNEP/GEF	Kyrgyz, Russian	Bishkek, 2004	Bio-safety

Annex	9
-------	---

Project name	Donor	Scope of financing	Purposes and expected results	What was achieved
Kyrgyz Republic Draft Biodiversity Strategy and Action Plan	WB/GEF	US\$108,00 0	The Preparation of a Biodiversity Strategy and Action Plan.	A Biodiversity Strategy and Action Plan were developed.
Central Asia Trans- boundary GEF/WB project Western Tian-Shan Biodiversity.	WB/GEF	US\$10.495 million	Biodiversity conservation in the region of Western Tian-Shan region and in the Sary-Chelek, Besh-Aral and Aksu Jabalgy reserves.	Drafts of nine legal acts were developed. Drafts of six laws of the Kyrgyz Republic, Central Asian Convention 'On the Establishment of Trans- boundary Natural Park western Tian-Shan', the provision of Sary-Chelek State Biosphere Reserve and Besh-Aral State Reserve.
EuropAid West Tian-Shan Biodiversity Conservation Project	EuropAid 2001-2003 2004-2006	- EUR 1.5 million - EUR 900,000	The development of a reserves buffer zone with the help of local communities for the preservation of biodiversity in Western Tian-Shan.	A draft agreement on the establishment of trans- boundary western Tian- Shan bio-reserve was prepared. International contacts were strengthened and expanded and public knowledge of biodiversity has been improved. Ecotourism in Sary-Chelek and Besh-Aral has been developed and sustainable land use has been promoted.
Kyrgyz-Swiss Forestry Support Program (Les-IK)	Swiss Governmen t 1995- 2007	US\$14.8 million	The conservation and sustainable development of the forests of the Kyrgyz Republic.	The new Forest Policy, the Forest Code and National Forest Program for 2001- 2005 were developed. Reforms of forestry policy for the effective, sustainable and multifunctional use and management of forest resources were implemented. The training of specialists in forestry, the training of young scientists, the development of teachers' professional capacity and training and research plans were conducted.
FAO Project on the Review and Standardization of Strictly Protected	FAO, RIM 2003-2004	US\$122,00 0	The provision of assistance to the governments of Kazakhstan, the Kyrgyz Republic and Uzbekistan to review and	Assessments of the legislation of the Kyrgyz Republic, Uzbekistan, and Kazakhstan were

Implemented/Ongoing/Planned Projects

Natural Territories Legislation in Kazakhstan, the Kyrgyz Republic, and Uzbekistan TCP/INT/2903 (A)			standardize legislations related to protected areas.	developed. New laws on SPNTs were expanded and recommended.
Central Asian Mountainous Partnership Program (CAMP)	Swiss Agency for Developme nt and Cooperatio n (SDC) and implemente d by the Centre for Developme nt and Environme nt of the University of Berne, Switzerlan d 2000- 2005	US\$15 million	The consolidation of efforts to support the sustainable development of mountainous regions.	The activities of CAMP are focused on four main thematic areas: The development of mountainous production and marketing, the use of natural resources, village development and political dialogue.
GEF/UNDP Small Grants Program	UNDP/GE F 2001	US\$3.5 million	The program provides grants to noncommercial legal entities (i.e. NGOs) predominantly in rural areas for the implementation of small and sustainable ecological projects, developed by local organizations according to established criteria.	The conservation of biodiversity. Local authorities make decisions on special (nature- conservative) land provided for associations and 83 were implemented projects with participation of NGOs and local communities.
EU Project – JUMP Sustainable Management Support of Juniperus Forests of the south of the Kyrgyz Republic	EuropAid 2003-2006	EUR 988,013	The development of integrated management plans in juniper forests in the south of Kyrgyzstan with involvement by local population will cover a territory of more than 775,000 hectares of forest and pastures of State Forest Land. This includes six forests in Osh and Batken oblasts: Lyalyak, Batken, Uchkorgon, Nookat, Osh forestry and Kyrgyz-Atat national park.	The development of sustainable management processes and instruments for the more effective conservation of forest resources in the south of the Kyrgyz Republic, for the benefit of local users of forest and the population as a whole. The formulation of integrated management plans is planned for 2005. The development of a manual for the dissemination of an integrated management plan throughout Central Asia is planned for 2006.
GTZ-supported Project Issyk-Kul Biosphere Territory	German Federal Ministry for	EUR 1.5 million	The establishment of strictly protected territory in a certain area to preserve biodiversity, the development of legal framework	The law 'On Biosphere Territories in the Kyrgyz Republic' was adopted in 1999, as were sub-laws and

	Economic Cooperatio n and Developme nt (BMZ), German Nature Protection Society (NABU) and German Technical Cooperatio n (GTZ) 1997-2004		and public awareness programs. General management should be an instrument for local populations to enhance social development, taking into account certain ecological frameworks. The development of a pilot project on sustainable nature management and land tenure.	government resolutions 2000 and the provision of Issyk-Kul biosphere territory of. A report on 'Main Directions of Ecologically Oriented Planning of Land Tenure in Issyk-Kul Biosphere Territory and a set of maps were developed. The report is one of the most complete manuals for the Isyk-Kul oblast. The general management of biosphere territory was formed in 2001, and it works with local authorities and communities, NGOs and the private sector. In 2001, the Issyk-Kul biosphere territory was included in a UNESCO global bio-reserves network.
UNEP-GEF Project Development of Bio- safety Frameworks in the Kyrgyz Republic	UNEP/GE F 2003- 2004	US\$150,00 0	The rendering of assistance to almost one hundred participant countries to create national structures for the management of genetically modified organisms to ensure the implementation of commitments under Cartagena Protocol.	
GEF Project In-situ Conservation of Crops and their Wild Relatives in Central Asia	Proposed		The provision to farmers, NGOs, research institutes, local communities and decision makers, the relevant knowledge and skills, methodologies and recommendations, which will allow them to improve activity on conservation of crops and their wild relatives.	The enhanced role of the community in ecological decision-making processes and education and training programs.

Materials of the first phase of the project were approved and discussed at the following national and international seminars and conferences

- The First Regional Seminar on the Improvement and Standardization of Legislation on Strictly Protected Natural Territories in Uzbekistan, Kazakhstan and the Kyrgyz Republic (Bishkek, February 2-4, 2004)
- The round table meeting on the new version of the Conception of Forestry Development project (Bishkek, February 10, 2004)
- The First Seminar of the NSCA-Kyrgyzstan project National Capacity Self-Assessment for the Implementation of Global Environmental Conventions (Bishkek, February 18, 2004)
- The international seminar of the EuropAid (TACIS) West Tian-Shan Biodiversity Conservation project (Bishkek, March 18, 2004)
- The regional seminar of the GEF Small Grants Program for European Countries (Bishkek, April 23, 2004)
- The GEF seminar The GEF National Dialogue in the Kyrgyz Republic (Issyk-Kul, April 27-29, 2004)
- The third national forum on Millennium Development Goals: Poverty Reduction and Social Mobilization (Bishkek, May 13, 2004)
- The seminar Technological Needs Assessment, arranged through the GEF/UNDP Kyrgyz Republic Climate Change Enabling Activities project (Bishkek, June 3, 2004)
- The round table meeting on Participation of Civil Society Institutions in the Implementation of the Convention to Combat Desertification (The Friedrich Ebert Foundation, Bishkek, June 11, 2004)
- The introductory seminar on the UNEP project National and Sub-regional Strategies for the Sustainable Development in Central Asia (Thailand, July 2-3, 2004)
- The round table meeting Interdepartmental and Intersectoral Partnership and Capacity Strengthening in the Process of Implementation of Central Asia Initiative in the Kyrgyz Republic (coalition Partnership Initiative under Support of RECCA, Bishkek, September, 15 2004)
- The NSCA Regional Seminars for Europe Countries and CIS (Slovakia, September27-29, 2004 and Germany, November 25-27, 2004)
- The seminar Global Ecological Conventions: Interaction at the National Level (Secretariat of the Convention to Combat Desertification, NSCA-Kyrgyzstan Project, MAWRPI in Bishkek, October 18-20, 2004)
- The conference Poverty Reduction Capacity Building through the Development of Local Communities in Rayons, Affected to Ecological Degradation in Central Asian Region (UN Department of Economic and Social Affairs, International University of Kyrgyzstan, Bishkek, October 19, 2004)
- The regional seminar for Europe Countries and the Commonwealth of Independent States (Germany, November 25-27, 2004)
- The Regional Forest Congress (Bishkek, November 25-27, 2004)
- The UNDP International Round Table 'Debt-For-Environment Swap with participation from international consultant Leid Merkado (December 3, 2004)
- The conference of the Contracting Parties to the Framework Convention on Climate Change (Buenos Aires, Argentina, December, 2004)
- The national meeting Sustainable Land Management in the Pamirs and Pamirs-Alai Mountains for Kyrgyzstan and Tajikistan (Bishkek, December 24, 2004)
- The Preparation for Emergencies and Response to Ecological Safety Risks in the Central Asian Region (Bishkek, December 24, 2004)
- The NSCA Regional Seminar for Central Asian Countries (January 25-26, 2005)
- Round table meeting on the Discussion of the Results of the First and Second phases of the Project (Bishkek, February 21, 2005)

References

- 1. (CDI), Country 2000, 'Country Capacity Development Needs and Priorities: A Synthesis'.
- 2. *Bowman M.* 'The Nature, Development and Philosophical Foundations of the Biodiversity Concept in International Law'. In: 'International Law and Conservation of Biological Diversity'. Ed by M. Bowman, C. Redgwell, 1996, p.7
- 3. Lyster S. 'International Wildlife Law' (1985), p. XXI et seq.
- 4. Right for Conservation of Biodiversity. International Scientific Magazine/ A.N. Vylegjanin. 'Convention on Biological Diversity' 2000. <u>www.Biodiver-convencUNDP2004</u>
- Abdykaparov Ch.M., Imanhodjaev Ch.U. 'Ecological Impact on the Environment of Tailing Dumps and Slag-Heaps of Uranic and Complex Ore in the Kyrgyz Republic'/Collection of Materials of Ecological Conferences and Seminars. – Bishkek, 2002.
- 6. 'Actions of Ecological Organizations of Kyrgyzstan'. Bishkek, 1999. p. 175
- Bogdetskiy V.N., Shukurov E.Dj., Suyunbaev M.N., Stavinskiy V.A., Dyikanov Ch.K., Esengulova N.D. 'Mineral Resource Industry and Sustainable Development in Kyrgyzstan'. Bishkek, 2002, p. 160
- 8. Brinchuk M.M. 'Ecological Law'. M, 1998.
- 9. Vorobiev G.G. 'Biodiversity Problems and Tasks' // Collection of Materials of Ecological Conferences and Seminars. Bishkek, 2002.
- 10. Vyhodtsev I.V. 'Flora of Tien Shan Alay Mountainous Structure'. Frunze: Ilim, 1976.
- 11. Golovkova A.G. 'Flora of Kirgisia'. Frunze: Ilim, 1990, p. 440
- 12. *Davletbakov A., Shukurov E.Dj.* 'Mammals and Birds Indicators of the State of the Ecosystems of West Tian-Shan'. Bishkek, 2003.
- 13. Land Code of the Kyrgyz Republic 145, 2/06/1999.
- 14. 'Indicators of the Sustainable Development of Central Asian Countries'. Ashkhabad-Bishkek, 2004, p. 79
- 15. Ionov R.N., Lebedeva L.P. 'Plants Indicators of the State of Ecosystems'. Bishkek, 2003.
- 16. *Ionov R.N., Muhamedjanova F.I.* 'Methodical Basis of the Monitoring of the Growth of Diversity...' in 'Materials of the Conference Biological Diversity of West Tian-Shan: the State and Perspectives'. Bishkek, 2002, p. 124- 128.
- 17. *Ionov R.N., Muhamedjanova F.I.* 'Methodical Basis for Monitoring the Growth of Diversity for National Specialists of Reserves of West Tian-Shan' in 'Materials of the Conference Biological Diversity of West Tian-Shan: the State and Perspectives'. Bishkek, 2002, pp. 124-128.
- 18. Cadastre of a Genetic Fund of Kyrgyzstan. V. II-III. Bishkek, 1996.
- 19. *Kolbasov O.S.* 'International Ecological Law on the Threshold of the XXI Century' in 'The First Conference of the World Association of International Law in Russia' (1997). Main Editor Kolodkin A.L.Novorossiysk, 1999. p. 122.
- 20. The Convention on Biological Diversity. Rio de Janeiro, 1992.
- 21. The Constitution of the Kyrgyz Republic 2003, p. 55
- 22. The Kyrgyz Republic: Biodiversity Project. National Report. Bishkek, 1998, p. 79
- 23. The Red Book of the Kyrgyz Soviet Socialist Republic. Frunze, Kyrgyzstan, 1985.
- 24. 'The Kyrgyz Republic: Report on Implementation of Development Goals of Millennium Declaration'. Bishkek, 2003, p. 55
- 25. 'Kyrgyzstan: General Assessment of the State of the Country'. Bishkek, 2001, p. 135
- 26. National Environmental Protection Plan (NEPP) of the Kyrgyz Republic. Bishkek, 1995.
- 27. National Forum on the Conservation of the Animate Nature of Russia / Preserve Nature Together/ Strategy for Animate Nature Conservation and Land Relations in Russia/ The State Duma of the Federal Assembly and the State Committee of Ecology of Russia, May 2000.
- 28. Orolbaeva L.E. Impact of Mineral Resource Industry on Ecological Situation' in 'Collection of Materials of Ecological Conferences and Seminars'. Bishkek, 2002, pp. 144-146.
- 29. 'Natural Medicinal Resources of the Kyrgyz Republic'. Bishkek, 1993, p. 438
- 30. 'The Productivity of High Mountainous Systems of Tian-Shan'. Bishkek: Ilim, 1996.
- 31. The Draft Biodiversity Strategy and Action Plan. Bishkek, 1998, p. 160
- 32. Recommendations for Legal Reform to Enhance Biodiversity Conservation and Protected Territories Management (Materials of Intergovernmental TACIS West Tian-Shan Biodiversity Conservation Project, December, 2001).

- 33. See the Russian text of 'Stockholm Declaration: Current International Law in Three Volumes'. Compiler, Professor Yu. M. Kolosova and Professor E.S. Krivchikova. V.3, Moscow, 1997. See English text: 'International Environment Law'. Primary Materials. Ed. M.R. Kluwer Law and Taxation Publishers. Deventer. Boston, 1991.
- 34. Biodiversity Strategy for the Europe and Central Asia. World Bank, 2003
- 35. *Sultanova B.A., Lazkov G.A., Lebedeva L.P., Ionov R.N.* 'Preliminary List of Species of Higher Plants, Subjected to Protection and Inclusion into 'The Red Book of Kyrgyzstan'' in 'Science and New Technologies', vol. 2, 1998, pp. 199-127.
- 36. *Tarbinskiy Yu.S.* 'Experience of the Calculation of Standards of Payment for Use of Natural Resources' in 'Selvinia' Magazine, vol. 2, 1995.
- 37. *Hudaibergenov A., Ahmatov M.* 'West Tian-Shan Ecosystem Degradation' in 'Materials of the Conference on Biological Diversity of West Tian-Shan: the State and Perspectives'. Bishkek, 2002, p. 260-263.
- 38. Shukurov E.Dj. 'Wild Mammals of Kirgisia'. Frunze, Mektep, 1989, p. 176.
- 39. *Shukurov E.Dj.* 'Natural and Anthropogenic Environment of Kyrgyzstan'. Bishkek: Ilim, 1991, p. 125
- 40. *Shukurov E. Dj.* 'Problems of Biodiversity in Kyrgyzstan' in 'Echo of Science. Proceedings of the National Academy of Science of the Kyrgyz Republic'. vol. 2-3. Bishkek, 1997, pp. 89-92.
- 41. *Shukurov E.Dj et al.* 'Integrated Ecological Monitoring of High Mountainous Systems of Central Asia'. Bishkek, 1998.
- 42. *Shukurov E.Dj., Tarbinskiy Yu.S.* 'Biodiversity: What is it?' in Echo of Science. Proceedings of the National Academy of Science of the Kyrgyz Republic'. vol. 2 Bishkek, 1995, p. 33-37.
- 43. *E. Shukurov et al.* 'Biodiversity of Kyrgyzstan: General Review' in 'Collection of Materials of Ecological Conferences and Seminars'. Bishkek, 2002. p. 3-14.