

**STATE AGENCY ON ENVIRONMENT PROTECTION AND FORESTRY
UNDER THE GOVERNMENT OF THE KYRGYZ REPUBLIC**

GLOBAL ENVIRONMENT FACILITY

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UNITED NATIONS DEVELOPMENT PROGRAMME IN KYRGYZ REPUBLIC



**FOURTH NATIONAL REPORT
ON CONSERVATION OF BIODIVERSITY OF THE KYRGYZ REPUBLIC**

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Fourth National Report on Biodiversity of the Kyrgyz Republic Bishkek, 2008

Concise description

In 2008 in compliance with commitments of Kyrgyzstan that resulted the joining to Convention on Biological Diversity within the support of Global Environment Facility (GEF) and in the framework of the UNDP Environment Protection for Sustainable Development Programme, Kyrgyz Republic has prepared the “Fourth National Report on Biological Diversity”.

Assessment of current situation has been made in this report, as well as outputs on implementation of CBD Strategic Plan and directions of further activities have been identified. In the course of preparation of the report there has been collected information about state of biodiversity, realization of National Strategy and Action Plan on conservation of biological diversity (1998), outputs on implementation of target goals on “Global Strategy of Plant Conservation and Programme of Activities on Protected Areas” and indicators of biological diversity. Also there analysis of sectoral and cross-sectoral interaction has been conducted. In this report problems and achievements of such issues as legislation, expansion of natural protected areas network, increasing of public awareness, ecological education and personnel training, interaction with international partners and donors, implementation of projects on biological diversity conservation are considered.

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ABBREVIATIONS

ADB	Asian Development Bank
CA REC	Regional ecological center of Central Asia
CACILM	Central Asian Countries Initiative on Land Management
CAISD	Central Asian Initiative on Sustainable Development
CBD	Convention on Biological Diversity
CBFM	Community based forest management
CCF	Communal conducting of forestry
CDS	Country Development Strategy
CIS	Commonwealth of Independent States
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
EECCA	East Europe, Caucasus, Central Asia
EIA	Environmental impact assessment
EM	Ecological movement
EM	Ecological movement
EP	Environment Protection
FAO	Food and Agriculture Organization
GEF	Global Environment Facility
GTZ	German Technical Assistance
HEI	High Education Institution
ICSD	Intergovernmental commission on sustainable development
ISO	International organization for Standardization
ISTC	International science and technologies center
IUCN	International Union for Conservation of Nature
KAMIS	Kyrgyz agrarian market informational system
KNU	Kyrgyz National University named after J. Balasagyn
KR	Kyrgyz Republic
MAWRPI	Ministry of agriculture, water resources and processing industry of Kyrgyz Republic
MES of KR	Ministry of Education and Science of Kyrgyz Republic
NABU	German Nature and Biodiversity Conservation Union
NAS KR	National Academy of Science of Kyrgyz Republic
NBSAP	National Biodiversity Strategy and Action Plan
NBSAP	National Biodiversity Strategy and Action Plan
NC	National Center
NFP	National Framework Programme
NGO	Non-governmental organization
PA	Public Association
PF	Public Foundation
SAEPF	State Agency on Environment Protection and Forestry under the Government of the Kyrgyz Republic
SEA	Strategic environmental assessment
SGP	Small Grants Programme
SSDS	Sub-regional sustainable development strategy of Central Asia
TACIS	Technical Assistance for the Commonwealth of Independent States
TICA	Turkish International Cooperation Agency
TRIPS	Trade-related aspects of intellectual property rights

UNDP	United Nations Development Programme
UNECE	United Nations Economic Commission for Europe
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
WB	World Bank
WIPO	World Intellectual Property Organization
WTS	Western Tien-Shan
WWF	World Wildlife Foundation

INTRODUCTION

Convention on Biological Diversity (CBD) was ratified by Kyrgyzstan in 1996. Joining to the Convention not only opens access to international help for the purpose of supporting the activities on conservation of biodiversity, but also imposes certain liabilities on the country. Along with realization of Strategy and Action Plan on conservation of biodiversity in republic developed in 1998, one of the liabilities of Kyrgyz Republic - is the preparation of national reports.

“Third National Report on Biological Diversity in the Kyrgyz Republic” were prepared and presented to Convention Secretariat on Biodiversity in March 2006.

Fourth national report constitute by itself important information source for survey work on biodiversity and making of significant decisions in frames of implementation of Convention on biodiversity by Kyrgyzstan. Data cited in the report allow governmental institutions and community to mobilize their efforts and improve their activities on conservation and sustainable utilization of biodiversity for achieving of stable social-economic development of the country.

Materials and information on activity of the following institutions and agencies were used in a cause of the report preparation:

1. State Agency on Environment Protection and Forestry under the Government of the Kyrgyz Republic
2. Ministry of Agriculture, Water Resources and Processing Industry of the Kyrgyz Republic
3. Ministry of Education and Science of the Kyrgyz Republic
4. Government Agency of Tourism under the Government of the Kyrgyz Republic
5. National Statistical Committee of the Kyrgyz Republic
6. Institute of Biotechnology within National Academy of Science of Kyrgyz Republic
7. Institute of Biology and Mountainous Forestry under National Academy of Science of Kyrgyz Republic
8. Kyrgyz Agrarian University named after K.I.Skryabin
9. Kyrgyz State University named after I. Arabaev
10. ADB “Initiative of counties of Central Asia on land resources management” Project
11. UNDP/GEF «Demonstrating Sustainable Mountain Pasture Management in the Suusamyr Valley, Kyrgyzstan” Project
12. UNDP/GEF “Strengthening policy and regulatory framework for mainstreaming biodiversity into fishery sector” Project
13. Central Asian transboundary project GEF-UNEP-WWF «Generation of ECONET for long-term conservation of biodiversity in ecoregions of Central Asia”
14. Small Grants Programme (SGP/GEF)
15. Ecological movement of Kyrgyzstan «Aleine»
16. Ecological movement «Biom»
17. Public Community «Independent ecological expertise»

Authors express deep gratitude to all institutions and individuals that took contribution in preparation of this report.

Chapter I. Overview of Biodiversity Status, Trends and Threats

Kyrgyz Republic is situated in the center of Eurasia (area 199,9 thousand sq. km) and have general borders with Kazakhstan, China, Uzbekistan, Tajikistan.¹ Kyrgyzstan is surrounded by arid and extra arid plains of Central Asia, whose environment experiences hard influence of desert area that stretches in eastern hemisphere from Sahara till Gobi. Distance from nearest ocean (about 3 thousand km) determines general aridity and continentality of climate.

Rivers applies to closed Central Asian basins: Aral, Tarim, Issyk-Kul, Balhash. General annual flow makes up about 50 thousands cubic km, and altitude amplitude from 500 until 7134 meters above sea level. From North and South they border with large deserts.

Welfare of people in Central Asia mostly entirely depends of rivers starting in high mountains, and wellbeing of rivers entirely depends of integrity of natural ecosystems in their flow formation zones.

There are a rich diversity of resources – species, ecosystems and land forms concentrated in Kyrgyz Republic. In spite of its rather small territory Kyrgyz Republic has sufficiently high amount of species diversity – about 1% of all known aspects on 0.13% of Earth surface².

Almost 90% of republic's territory is located over 1500 meters. Comparative life wealth here becomes available thanks to high mountainous systems of Tien Shan and Pamir-Alay that reaches up to 7 thousand kilometers above sea level height and accumulates the moisture from upper coats of atmosphere. High mountains look like islands of biological diversity among monotonous plains. The character of country's biodiversity reflects highness of significant part of territory, mountainous and alpine species prevail here.

State and conservation tendency of specific diversity

Kyrgyzstan's territory differs by its high level of biodiversity concentration not only on ecosystem but on specific level too. (Table 1)

The rare and endangered species of flora and fauna, included into the Red Book of the Kyrgyz Republic³ are 53 species of birds, 26 mammal, 2 amphibians, 8 reptiles, 7 species of fish, 18 arthropods, and 89 higher plant species.

Abrupt change of habitat and straight removal of plants and animals from nature brought to extinction of 11 species and put under threat of extinction some others. Fauna of large and average mammals - 3 species has been extinct and 15 species are under the thread; fauna of birds – 4 species has been extinct, 26 species are under the threat; medicinal plants and also plants with decorative and technical importance – nearly extinct 3 species and 54 species are under threat of extinction.

Mostly vulnerable group is vertebrate animals. Deterioration of shallow fresh water basins results to dramatic decrease of number and areal of amphibians, especially of Asian frog. Like many other species it is under threat of extinction which is a result of uncontrollable and excessive capture that has particularly increased lately due to arrival of suppliers from China. Direct chase, removal from nature and deterioration of habitats leads to threat of extinction or to reduction of population and areal of significant number of mammals, creepers, fish and bird species.

i)

¹ Atlas of Kyrgyz SSR. Nature conditions and recourses – State Administration of Geodesy and Cartography.– T.1.– 1987.

² National Strategy and Action Plan on conservation of biodiversity of the Kyrgyz Republic, Bishkek, 1998.

³³ Resolution of the Government of the KR «On approval of the list of rare and endangered species of flora and fauna to include into the Red book of the Kyrgyz Republic» as of April 28, 2005, N 170

Table 1

Biological diversity of Kyrgyzstan

Group	World		Kyrgyzstan			
	Number of species in the world	Number of species per 1 thousand km ²	Number of species in Kyrgyzstan	% of world number of species	Number of species per 1 thousand km ²	Number of species in Red Data List of KR
Ultramicrobe (virus), bacteria, protozoan	5760	0,011	261	0,05	1,32	0
Inferior plants	73883	0,145	3676	4,98	18,57	5 (0,13%)
Higher plants	248428	1,666	4200	1,52	19,12	83 (2,19%)
Worms	36200	0,071	1282	3,54	6,47	0
(Spisula) dipper	50000	0,098	168	0,34	0,85	0
Arthropods	874161	5,860	10242	1,17	51,72	18 (0,17%)
Fish	19056	0,041	75	0,39	0,38	7 (9,33%)
Amphibian	4184	0,023	4	0,09	0,02	2 (50%)
Reptile	6300	0,047	33	0,52	0,15	8 (24,24%)
Birds	9040	0,062	368	4,07	1,86	57 (1,54%)
Mammal	4000	0,027	83	2,07	0,44	23 (27,71%)

Many species of animals like dhole (*Cuon alpinus*), otter (*Lutra lutra*), goitered gazelle (*Gazella subgutturosa*), such birds like great bustard (*Otis tarda* L.), imperial eagle (*Aquila heliaca*) are practically not being registered any more. Critically endangered wild pomegranate (*Punica granatum*), tulips: glitter tulip (*Tulipa nitida*), Ostrovskiy tulip (*T. ostrowskiana*), pink tulip (*T. rosea*). The main reason is disturbance of habitats due to economical activity and direct extermination by human being.

In extremely dangerous situation remain such rare species like grey monitor lizard (*Varanus griseus*), ibisbill (*Ibidorhyncha struthersii*), marbled polecat (*Vormella peregusna negans*), snow leopard (*Uncia uncia*), and the Tien Shan brown bear (*Ursus arctos isabellinus*). A number of endemic species are also threatened (such as the mollusc *Siraphoroides moltschanovi*), that inhabit only in Ak-Terek tract of Fergana range, from plants it is relict *Otostegia nikitinae* (*Otostegia nikitinae*).

Such species like snow leopard, Menzbir marmot, red wolf and goitered gazelle, bar-headed goose are recorded into Red book of IUCN⁴.

Precinctive hole annulated worm-allolobofors from caryocarpous forests that refers to beneficial invertebrates are also deserve protection.

Intensive gathering of edible mushrooms in commercial purposes, domestic reclamation of territories, cattle pasturing and forests destruction leads to damaging of forest floor, cercidium, decreasing of ectotrophic mycorrhiza funguses, which in total brings down species composition and number of funguses.

i)

⁴ Red Book of the Kyrgyz Republic. Bishkek, 2007.

State and changing tendencies of ecosystems

There are 20 classes of ecosystems marked out in Kyrgyz Republic, one of which is anthropogenic. Compound high altitude relief of Kyrgyzstan situated in southern part of temperate zone creates favorable conditions for existence of all main types of natural ecosystems, starting from deserts and finishing with high altitude mountainous tundra (Table 2).

Table 2

Ecosystems in Kyrgyzstan and level of disturbance of theirs natural condition

Classes of ecosystems	Area, sq. km	Disturbance		
		Strong	Middle	Weak
Spruce and spruce-pine forests***	3 017,00		X	X
Juniper forests and light forests***	2 548,32		X	
Small-leaved forests ***	1 040,64	X	X	
Nut-forests	928,75		X	
Broad-leaved forest ***	83,67		X	X
Pistachio and almond forests	458,47	X		
Mid-mountain deciduous shrubland	3 871,96			X
Cryophyte (high altitude) deserts	1 953,44	X		
Cryophyte (Alpine) meadows	17 263,49		X	
Cryophyte (high altitude) steppes	22 474,57		X	
Sub-Alpine meadows	13 207,99		X	
Mid-mountain deserts	1 384,34	X		
Mid-mountain steppes	24 803,53		X	
Mid-mountain meadows	8 898,19		X	
Mid-mountain savannah	2 361,89		X	
Sparse growth of trees of mid-mountains	231,51	X		
Low upland and foot-hill steppes	192,70	X		
Low upland deserts	5 571,61	X		
Water-paludal***	8086,02	X	X	
Anthropogenic *	32 111,71			
Other lands**				
Glaciers and snowfields	5 773,74			
Nival-subnival	13 909,04			
Rocks, slide-rocks and placers	9 150,67			
Total:	178 313,38			

Note:

- * - Anthropogenic ecosystems are not evaluated as well as based on detection they are 100% under affected as natural;
- ** - Other lands are not evaluated as well as biodiversity in other lands mostly entirely missing;
- *** - all kind of comparable areas have different level preservation.

Concentration of wide quantity of ecosystems and land forms on a limited territory, and contrast heterogeneity of surface stipulate relatively small summary area for each ecosystem class, and theirs existence in extreme conditions and high level of their separation onto small isolated areas. Described peculiarities increase the vulnerability of mountainous ecosystems.

As the table 2 indicates out of 20 natural ecosystems only 3 can be referred to low disturbed type, 8 applies to middle disturbed, 2 in the same degree to middle and strongly disturbed, 7 to strongly disturbed. Especially strongly disturbed ecosystems are in foot-hill valleys, middle upland kettles and lower mountain belts, situated on an altitude of up to 1500 – 2000 meters over sea level. Significant parts of natural ecosystems here are replaced by anthropogenic ecosystems (arable lands, population aggregates, industrial zones, service lines etc). Remained natural ecosystems are exposed to high anthropogenic pressure. Pasture ecosystems are not recovered from over use in second half of XX century, when grazing limits here were 5-10 times over norm limits. In spite of different levels of disturbance significant part of territory occupied by ecosystems that being reproduced by wild type.

Condition of ecosystems can be characterized by number of inherent to them forms that are under threat of extinction (Table 3).

Table 3

Distribution of types from Red book of Kyrgyzstan by ecosystems*

Type of ecosystem	Number of species						
	plants and funguses	arthropods	fish	amphibians and reptiles	birds	mammals	total
Forest	20	10			9	3	42
Dumetous	14			2	2	4	22
Meadow	14	4		1	6	5	40
Steppe	13	10		7	14	7	51
Savanna	22				2	5	27
Desert	30	6		8	6	5	55
Water- prewater		2	6	3	23	2	35

Note:

- - Some of the species inhabit more than one ecosystem and this is why sums in columns may not match with total amount of species in group.

Grass ecosystems that in common more scant by inhabiting species in comparison with forest ones, have a lot more species that are under the thread of extinction. Consequences of excessive grazing have strongly undermined their ability to sustainable reproducing of its peculiar biodiversity, in spite of that theirs significant territory practically free from grazing due to abrupt decreasing of cattle stock within last 20 years.

Table 3 shows that greatest amount of threatened species are found in desert and steppe ecosystems of Kyrgyzstan, which are exposed to the most destructive anthropogenic influence mainly related to displacement with cultivated lands, pasture digression, poaching, especially in foot-hill zone and lower mountain belts. Pasture grass ecosystems (meadow, steppe, savanna and desert) are inhabited by 233 species already recorded into Red book, whereas in general 64 species fall on forest and dumetous ecosystems and 35 on water-paludal ecosystems. From the other hand, relative to territory the concentration of species indicated in Red book is high in all ecosystems, which tells about theirs general troubles and necessity of theirs restoration.

As it is shown on picture 1, forests and bushes occupy about 8% of Kyrgyzstan's territory, almost 70% occupied by grass ecosystems. Meanwhile amongst grass ecosystems rather productive and various in their species composition steppe and meadow ecosystems are dominate.

Anthropogenic ecosystems occupy 7% of country's territory and have the most practical importance, especially populated areas and arable lands. They replace natural ecosystems of steppes mainly on the altitude from 500 to 2000 meters. The density of population here reaches 100 and more people on square kilometer. The fauna and flora forms from separate specimen displaced cenosises, ruderal and cultivated plants, synanthropic species. Ecosystems are extremely unsustainable, demanding constant large energy consumptions.

	f	o	r	e	s	t	s	b	u	s	h	e	s		
			m	e	a	d	o	w	s						
	s	t	e	p	p	e	s								
												w	a	t	e
			d	e	s	e	r	t	s						
g	l	a	c	i	e	r	s	s	t	o	n	e	d	e	s
	a	n	t	h	r	o	p	o	g	e	n	i	c		

Pic. 1. Correlation of main groups of ecosystems in Kyrgyzstan¹

country's territory.

Diversity of ecosystems unevenly allocated within the country. It is more richly presented in Western Tien Shan and Central Tien Shan biogeographical regions having each 16 out of 20 classes of ecosystems, or 72.7% of their whole diversity. Most poor are Fergana and Southern Kazakhstan regions, they present only 3-5 classes of ecosystems each, which makes up 22.7%. Alay (13 classes of ecosystems – 59.1%), Northern Tien Shan, Issyk-Kul and Central Tien Shan (each 10 classes of ecosystems – 45.4%) regions takes up a middle range

Ecosystems are under threat

There is no single ecosystem that would not experience the impact of human being in a certain extent left on the territory of the country. It had its effect on theirs condition: conservation of area, changing of species compositions, changing in correlation of number of species.

Submountain low steppes, tugai and water-paludal complexes in Chui valley, dry steppe, semidesert and desert ecosystems in adjoining Fergana zone are practically extinct. Due to high pollution and full drawoff for irrigation ecosystems of lower reach rivers become degraded. Ichthyofauna in mostly all water basins has been changed as a result of acclimatization of 21 alien species of fish out of 54. Steppe, desert and semidesert ecosystems of submountain plains and intermountain valleys, streamside arboreal and dumetosous vegetation exposed to strong pasturable demolition. This process has been intensified close to centers of population at the time of transfer of

The rest of the territory presents undisturbed or low disturbed ecosystems. 23% of area taken by azoic glaciers and rocks located over 3.5 thousand meters. About 15% presents almost lifeless petrous, breakstone and clay surfaces.

Noticeable presence of desert (over 13 thousand sq. km or 6.8% of territory) together with utterly poor ecosystems of nival-subnival belt (11.5 thousand sq. km or 5.8% of territory) indicates rather tough living conditions on significant territory of the country (12.6%). The greatest diversity of ecosystems occurs in middle upland between 2000 – 3000 meters over sea

level, where found 14 out of 20 classes of ecosystems, or 63.6%. Meanwhile total area of middle upland takes up only 30.8% of the

cattle into the private ownership. Small owners turned from distant-nomadic to primitive pastoral cattle-raising.

All forest ecosystems where cattle grazing and deforestation is still continuing are in the extremely miserable condition. Their territory has been decreased twice in last 50 years. Decision about deforestation of overripe trees in spruce forests evokes anxiety, as it may bring to irreversible lost of their full-aged structure and further degradation. Out of the forest ecosystems main importance belongs to nut-forests as they are the source of income for the forestry and part of population by harvest of walnuts, wild fruits and berries.

Under the pretext of sanitary cut intermediates merchantable wood nearly everywhere is being carried out. This brought to decreasing of forests area and deterioration of their condition.

Grass ecosystems are used for medicinal herbs and funguses gaining.

Practical value of natural ecosystems have less importance that their ability to compensate destabilizing effect of anthropogenic ecosystems and other impacts.

Forest ecosystems

In spite of its rather small area it is a forest of Kyrgyzstan that plays a key role in providing ecological stability and forming of climate.

Forests occupy 4,32% (864,9 thousand hectares) of country's territory⁵. They stimulate augmentation of rainfall, protect soil cover from erosion, strengthen flanks of hills, conduce to moisture conservation in underground horizons, and regulate surface flow, preventing thereby floods and torrents. These ecosystem services can not be done in such effective way by other natural ecosystems.

Forests are also present important recreation-esthetic resource, necessary for tourism development. Natural forests preserve carbon, which reduces accumulation of greenhouse gases in atmosphere. They may play a certain role in "arrears in exchange for ecology" programme.

There is large diversity of forests concentrated in Kyrgyzstan; by its concentration it does not have any analogs in other countries of the region. Juniper, spruce and spruce-pine, maple, parvifoliolate, nut-forests and also pistachio and almond forest can be found here.

All of them have irreplaceable meaning for the conservation of biological diversity. Nut-forests and spruce-pine forests have global meaningfulness as the largest and most preserved relic forest tracts.

Presence of preserved natural mountain forests warrants to inclusion the territory of Kyrgyzstan into one of the key ecoregions of the planet.

Nut-forests, pistachio and almond forests keep in itself rich genetic resource of ancestral forms of cultural variety of walnut, apple trees, plum trees, grapes, cherry plum, almond and pistachio, which are necessary for breeding of new varieties. Use of non-arboreal forest products like funguses, berries, yields, medicinal herbs, hunted species etc have certain perspectives.

On the score of scarce reserves and special role in maintaining ecological stability mountain forests can not be considered in the capacity of source of industrial wood. Meanwhile there are 6 types of felling permitted in the Forest Code that actually are the cover for logging. More than a half of forest territory has been lost since last half a century. Second growth and inadequate reforestation works can not compensate forests loss. Lots of forest massifs have turned into sparse growth of trees. Practicing cattle pasturing and other types of utilization counteracts to second growth of forests.

The greatest anthropogenic stress lies on parvifoliolate forests (population density 62.40 head/sq km), that mostly grow by the stream canals. Continuing settlement tendency by river valleys leads to their degradation and substitution by cultivated lands. In many places parvifoliolate forests have entirely disappeared.

i)

⁵ Stocktaking of forest resources. Bishkek, 2003.

In general, condition of forests correlates with anthropogenic stress (particularly with population density, existence of roads, pasturing, arable lands). Quite alarming symptom is a growth of population density (up to 20.59 head/sq km) in caryocarpous forests that are on the second place after parvifoliate. This kind of situation is incompatible with further conservation of caryocarpous forests, most of which practically has stopped second growth. A lot of pistachio and almond massifs have virtually disappeared, and high population density has also been noted there (16.69 head/sq km). Noticeable losses are brought by natural and anthropogenic originated conflagrations.

Mountain ecosystems

Mountain ecosystems prevail by territory and economic utilization mostly on animal husbandry. Variety of existence condition defines diversity of grass ecosystems types. Amongst them middle upland steppes and savannah prevail by its territory and economic meaning (6367 thousand hectares), alpine and sub-alpine meadows (3363 and 1773 thousand respectively), low upland steppes and savannah (1956 thousand hectares).

There are a number of phytocenoses and endemic and sub-endemic for Tien Shan and Alay types of plants exist in mountain ecosystems. Speciation centers of many plants and animals (invertebrates), one of the center of origin of cultivated plants (in particular alfalfa, tulips etc) are situated here. Amongst the large phytocenoses one should specify *Umbelliferae* – distinctive endemic cenosis of Western Tien Shan. Amongst applied meaningful species except forage plants characteristic medicine, technical and decorative plants, hunted species of birds and animals.

Mountain ecosystems play significant role in soil formation, streamflow regulation in water-collecting part of the river's basins, protection of soil from erosion, clearance of surface contaminants, and in prevention of flowages and torrents, including landslides that brings a large economical damage worth millions of dollars, especially in the southern regions of Kyrgyzstan, where growth blanket has experienced especially strong damages. Thanks to its large territory and role in formation of humus mountain ecosystems may serve as major drainage for carbon dioxide, but only in terms of their conservation.

Main degradation reason of mountain ecosystems is excessive unregulated cattle pasturing. Whereas equilibrated pasturing is a necessary term for normal reproduction of grass ecosystems, over limited pasturing leads to their degeneration up until substitution to barren, irreplaceable wastelands (badlands).

Starting from the fifties of last century quantity of cattle has risen to 10-12 million heads, pasturing culture has been violated. Over limiting of pasturing norms raised 3-8 times on summer pastures and up to 13 times on winter pastures. These resulted extensive degeneration of pastures, and progress of erosion processes. After the abrupt decreasing in numbers of cattle in the beginning of nineties its quantity has started to raise again, and in present it exceeds 5 million heads. In last 20 years remote pastures has not been recovered to their initial state, and nearby pastures has been undergone to even more pasturing influence.

In present average pasture performance has fell to 40% from norm mark, on the nearby pastures up to 10-20%. Structure and nature composition of stocks does not encourage rational use of pastures. Established order of pastures tenancy when remote pastures are under the charge of province authorities, pastures of intensive use under the charge of regional authorities, and direct holders of stock are left with pastures that are nearby to the villages, destroys the system of distant outrun cattle raising. This system, however, allows using different categorized pastures more evenly, and meets the seasonal and fodder features of pasturable ecosystems.

Technology of pasturable cattle raising has always presented interconnected self-sustained systems of relations. The territory of natural pastures of republic makes up 8.9 million hectares and occupies 45% of total territory of the country. Gross fodder stock from these pastures fluctuates by years in the range from 2.0 to 2.4 millions of tons fodder units. These days there are no

comprehensive approach in formation and improvement of ecologically balanced systems of pasture using and outrun cattle raising in agricultural policy of the state⁶.

Seasonal pastures are formed by change of dominating in different times of the year species of grassy plants, which would be impossible with homogeneous species composition. Production of primary biomass supports important sector in economic - animal husbandry, significant part of population depends on.

Mountain ecosystems also experience press from direct actions of human being. The greatest population density typical for low upland steppes and savannah (33,85 heads/square km), brought to theirs almost complete demolition. Middle upland steppes and savannah are in the comparatively better condition (10,68 heads/square km), as well as there are practically no permanent population in alpine and sub-alpine meadows (0,09 and 0,94 heads/square km respectively). Castle pasturing remains leading anthropogenic factor here. Low upland steppes and savannah replaced by arable lands and centers of population (over 14%).

Water ecosystems

Rivers, swamps, lakes refers to natural water ecosystems. Amongst them water flows are most widespread. Most large lakes are – Issyk-Kul, Son-Kul, Chatyr-Kul, Sary-Chelek. Issyk-Kul and Chatyr-Kul are situated in closed basins, rest belong to basin of Syr Darya. Swamps occupy slight territory. Most of them were drained at second part of last century.

Water ecosystems play incredibly important role in ecologic and economic stability of country and adjacent territories of Central Asia. From the biologic point of view they mainly refer to water reservoirs with lower index of biodiversity basins with rather poor composition of plants and animals species. They inhabited by number of endemic species which give them global importance. In the last century water basins of Kyrgyzstan were inhabited by more than 10 types of alien fish species. Some of them become marketable, or though general catch is not significant. Lakes such as Son-Kul and Chatyr-Kul with no fish in the past were stocked, which resulted to demolition of initial lake ecosystem and put under threat nesting places of rare water and pre-water birds. This contradicts the country's liabilities that comes from joining to Convention on Wetlands having international importance mainly as habitats of the waterfowl (Ramsar).

The Issyk-Kul the largest mountainous lake in Asia thanks to its capacity (1738 cubic kilometers) and water-surface area (6236 cubic kilometers), is a powerful climate-forming factor for all basin of the lake, creating rather stable and moderate climate situation that favors to agriculture and tourism development.

Aesthetic- recreation characteristics of open water basins are very high. Annual water flow in Kyrgyzstan rivers in total makes about 50 cubic kilometers of water, and not only wellbeing of Kyrgyzstan depends on it but also wellbeing of adjacent countries like China, Kazakhstan, Uzbekistan and Tajikistan.

Glaciers and snowfields on the top of the mountains play big importance in water supply and regulation of regions climate. There are 8200 glaciers in Kyrgyzstan, with total area of 8169,4 square kilometers taking 4,2% of the country's territory. Water reserve of Kyrgyzstan's glaciers estimated in 650 kilometers.⁷

Observations on Tien Shan glaciers shows that climate warming that is taking place leads to theirs sustainable reduction in numbers and decreasing of glacial factor which displace accumulation area of glacial substance ratio to whole glaciers area. It is known that small glacial factors are

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⁶ Dialogue at local and national levels – contribution to sustainable development. Bishkek, 2006.

⁷ Alamanov S.K. and others «Climate change and water problems in Central Asia» Prepared with help of UNDP EPP and WWF Russia, 2006.

typical for glaciers that are under degradation, where consumption of glacial substance is not compensated by its income. This way for example, registered deepening of disintegration process of glaciations in Small Naryn, Talas and Assa river basins on southern slope of Kungei Ala-Too, where glacial factors makes up 0,45.

Most unfavorable conditions for existence of contemporary glaciations referred to lower part of Naryn river basin, where glacial factor reduced to 0,18. Declivity on the Tuyksuu glacier situated in the ridges of northern Tien Shan and Kara-Batkak glacier (mountain framing of Issyk-Kul basin) in the period of 1957- 1997 made up 16,5 and 18,0 meters or over one third of glacier's width in its middle part. The largest glacier of Kyrgyzstan's Ala-Too mountain – Golubina glacier, decreased from 1972 to 1993 to 6 meters.⁸ In Ak-Shyirak massif within the period 1943-1977 in the intervals of altitude of 3700-3900 meters declivity of glaciers made up 13,3 – 14,4 meters; in the intervals of 4800-500 meters – 3,7-6,0 meters with average annual glacier ending contraction on 3-5 meters.⁹

Hydro-meteorological observations showed that asynchronous motion of atmospheric precipitations and air temperature in high-mountain zone of Tien Shan have negative impact on balance of glaciers and have its effect on general water content of rivers with significant glaciations of water collectors (>10%).

With negative precipitation trends and positive temperature trends flow within the period 1963-1990 comparing to flow within 1930-1960 in June has increased by 11,-0-28,6% and annual value risen by 11,3-17,1% on rivers of northern slopes of Kyrgyz Ala-Too, Teskey Ala-Too and large tributary of Sary-Jaz river.¹⁰

Biodiversity and climate change

Thereby incredibly main role is played by natural communities in formation of environment suitable for living in terms of highlands. Change of climatic biological communities on the plain happens over an area of many thousands of kilometers. Deserts, steppes, greenwoods and coniferous forests, alpine meadows adjoining within the distance of few kilometers in mountainous Kyrgyzstan. Only high level of diversity allows biota to function effectively in the contrast conditions of mountains. Creation and conservation of soils, involving of precipitations, flow distribution, cleaning of superficial waters, and gas composition of the atmosphere are under control of evolutionally correlated natural communities. In case of lost of highland ecosystems they may not be effectively substitute by others.

While natural ecosystems remain in their composition and structure close to initial, this allows them to react flexible on heterogeneous of mountainous environment and oscillations of climate.

According to prognosis of experts-climatologists of Kyrgyzstan, by 2100 it is expected increasing of global average annual temperature on 2,5-3,0°C and of annual amount of precipitation on 10-15% on the territory of Kyrgyzstan to compare with quantities 1961-1990¹¹.

In flora the most vulnerable to global climate change are plant species and communities that have the largest environmental amplitude – species included into the Red Book, rare, endemic and with reducing areal¹². In accordance with scenarios of climate change, developed by L.I.Titova

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⁸ Podrezov O.A., Dikih A.N., Bakirov K.B. Changeability of climatic terms and glaciations of Tyan-Shan within last 100 years. Izvestiya KRSU, 2003.

⁹ Kuzmichenok V.A. Technology and abilities of aero topographic mapping of glacier's changing on the example of glaciations of Ak-Shyirak. M, MHI, 1967

¹⁰ Alamanov S.K. and others «Climate change and water problems in Central Asia» Prepared with help of UNDP EPP and WWF Russia, 2006.

¹¹ Titova L.I. Consequences of climate change for the regions, 1997; Contemporary climate of Kyrgyzstan, 2002.

¹² The first National Communication of the KR on UNFCCC. Bishkek, 2003.

(2002) on the territory of Kyrgyzstan significant removal of borders of natural zones of expansion desert and steppe ecosystems, including steppification of meadow ecosystem will take place. Catastrophic changes of species composition of biota will not occur. Increasing of temperature will be smoothed by increasing of humidity and mountain relief. Most of plants, and dominants have wide ecological areal and in the process of evolution they will adapt to life under minimal atmosphere humidity and temperature contrasts. Almost to all species of animals are characterized natural, developed in the process of evolution adaptive opportunities that allow them to migrate in habitat with appropriate conditions or change terms of daily or season activity.

Chapter II. Current status of the implementation of Strategy and Action Plan on biodiversity conservation of the Kyrgyz Republic

The Kyrgyz Republic has ratified the Convention on biological diversity in 1996. The first step in its implementation became development of the National Strategy and Action Plan on biodiversity conservation (NBSAP). It was the first national document for Kyrgyzstan that set plan of concrete measures on key issues of biodiversity conservation. The plan is based on analysis of state of specific and ecosystem diversity, economic, institutional, legal, educational and scientific capacity of the republic¹³.

The objective of the chapter is to present a general overview of NBSAP implementation. NBSAP was developed by the Ministry of Environment of the Kyrgyz Republic in 1998 with participation and in cooperation of a number stakeholders, public and international community. Unfortunately NBSAP was not approved by the Government of the KR and was not financed by the state budget. The strategy on biodiversity conservation for 2002-2006 was approved by the Resolution of the Government of the KR in 2002.

In accordance with the Decree of the KR President “On improvement of the structure of public administration institutions of the Kyrgyz Republic” (ibid.: Annex 2, article 36) the State Agency on Environment Protection Forestry under the Government is a state institution of the executive authority system that leads an integrated policy in environment protection, biodiversity conservation, forestry and hunting development and ensuring environmental sustainability areas.

NBSAP (1998) developed in accordance with instructions of the Convention on biological diversity. The document provides an opportunity to coordinate efforts for biodiversity conservation and suggests mechanism to solve current issues related to protection and use of natural resources.

The overall objective of NBSAP is conservation and rational use of biological and landscape diversity for sustainable socio-economic development of the Kyrgyz Republic¹⁴.

Table 4

Level of equivalence of articles of the Convention to biological diversity and NBSAP Strategic components

CBD Articles	NBSAP Articles
Article 7	Identification and monitoring
Article 8	in-situ conservation
Article 9	ex-situ conservation
Article 10	Sustainable use of components of biodiversity
Article 11	Incentive measures
Article 12	Research and training
Article 13	Public education and awareness
Article 14	Impact assessment and minimizing adverse impacts
Article 15	Access to genetic resources
Article 16	Access to and transfer of technologies
Article 17	Exchange of information
Article 18	Technical and scientific cooperation
Article 19	Handling of biotechnologies and distribution of its benefits

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¹³ Global environmental conventions: Capacities of Kyrgyzstan (thematic review). Bishkek, 2004.

¹⁴ National Strategy and Action Plan on biodiversity conservation. Bishkek, 1998.

A line of **strategic components and approaches** that show the way of achievement of NBSAP objectives were developed. It is supposed tasks and complex of measures with planned implementation terms, financial expenses and expected result. NBSAP is based on the integration principle therefore most of activities are common within different strategic components. The strategic components were developed during the process of discussions of cross-sectoral workshops and are similar to articles of the Convention on biodiversity. Articles 7-19 are equivalent to strategic components of NBSAP (Table 4).

Brief review of progress achieved within implementation of strategic components

Strategic component A: in-situ conservation

In-situ conservation means the conservation of ecosystems and natural habitat including maintenance and recovery of viable populations in their natural habitat, concerning domesticated or cultivated species in that habitat where they obtain their distinctive characteristics.

After joining to the CBD the development of in-situ network is increased from 3,2% to 5,2% from country's territory (See Appendix III B). Currently the main categories of specially protected nature areas identified in the Law of the Kyrgyz Republic "On specially protected nature areas", 1994. The protected territories of the Kyrgyz Republic (reserves, national parks, wildlife preserves, relics of nature, botanic gardens, dendrological and zoological parks, nature territories with health-improving aim) are included into the Land Code of the KR¹⁵.

The new in-situ forms are being implemented in Kyrgyzstan since 1998:

Creation of biosphere territories. The biosphere territory "Issyk-Kul" was created by the Resolution of the Government of the Kyrgyz Republic (see Annex II, item 69). Biosphere territory "Issyk-Kul" was included into the UNESCO World Network of bio reserves within the framework of the "Human and biosphere" in 2002.

Expansion of the Ramsar list of wetlands. In 2002 the Kyrgyz Republic ratified Ramsar Convention to conserve wetlands. By the Resolution of the Government of the KR as of November 8, 2005 the Chatyr-Kul lake was included into the Ramsar list of wetlands on international meaning (see Annex II, item 62).

The project proposals on creation of transboundary biosphere reserves were developed (see Annex III, items 1, 21):

- Biosphere plan on biodiversity conservation of Transboundary biosphere reserve of the Western Tien-Shan;
- Intergovernmental Agreement on creation of Transboundary biosphere reserve "Western Tien-Shan" (Kazakhstan, Kyrgyzstan, Uzbekistan);
- Intergovernmental Agreement on creation of Pamir-Alay transboundary protected nature territory (Kyrgyzstan, Tadjikistan).

Creation of ecological network of Central Asia. To provide conservation of biodiversity of the republic and the same time do not contradict the objectives of socio-economic development of country there is a need not only increase a number of specially protected nature areas but create an integrated ecological network. Its main components are not removed of natural resources management but are combined with functions of nature protection and economic development. In the framework of the GEF-UNEP-WWF project (see Annex III, item 3) the scheme of ecological network that is approved by the order No. 156 of SAEPF as of July 7, 2006. The developed scheme of Central Asia ecological network is approved at meeting of ICSD in Ashkhabad (October 2006) and adopted by the Governments of Central Asia's countries¹⁶.

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¹⁵ Land Code of the KR

¹⁶ Econet – WWF life network. Moscow, 2007.

Thus expansion of specially protected nature areas and implementation of new in-situ forms will provide conservation the unique biodiversity of country.

Strategic component B: ex-situ conservation

Ex-situ conservation is conservation of biological diversity conservation out of their natural habitat¹⁷.

The Law of the Kyrgyz Republic “On protection and use of flora” as of June 20, 2001 regulates relations between protection and use of flora and contains a line of legal measures directed at conservation of ex-situ biological diversity components.

The world experience shows that introduction to culture is an important additional factor of flora of biodiversity (ex-situ). Thanks to this in botanic gardens of the world quite a number of endangered flora spices are grown.

In the framework of ISTC project (see Annex III, item 13) the research of current state of 157 endemic and relict plants was conducted. The long-term storage of their seeds are studied and developed records of meristems’ cryopreservation, cryobank of hermoplasm of relict endemic plants was created.

The south Kyrgyzstan is considered as a motherland of many fruit cultures, the same time while forming sort diversity in a result of multiple hybridization of different kinds wild species (*Malus sieversii*, *M. Niedzwezkyana*) underlay for apple tree (*Malus domestica*); wild species (*Pyrus communis*, *P. asiatic-madiae*, *P. Korschinskyi*) underlay for pear trees (*Pyrus domestica*). Apricot (*Armeniaca vulgaris*), almond (*Amygdalus commynis*), pistachio (*Pistacia vera*), circassian walnut (*Juglans regia*) were cultivated here, currently their form diversity is huge in forests¹⁸. International UNEP/GEF project (see Annex III, item 14) is aimed at conservation of fruit culture diversity and their wild congeners through genetic materials. For this in a line with application of scientific technologies it is supposed use of farmers experience on growing local sorts of fruit cultures.

To conserve forests the forest seed farming that includes complex of measures on establishment and use of regular seed base on genetic and selection basis. With the aim to implementation of State “Forest” Programme the froes seed farms’ areas for Semenov’s fir (505 ha), Circassian walnut (79 ha) and pistachio tree (214 ha) were granted. Forest decorative fruit and berry nurseries in juniper (267,2 ha), nut-bearing (359 ha) and fir forests were organized.

Thus, to conserve «ex-situ» a system of genetic resources protection is being developed, its aim is possible recovery of previous habitat.

Under the sustainable use of biological and landscape diversity is considered mechanism that sets conservation in one rank with need and strengthens value of the resources, their need in conservation and the same time satisfies need of local population¹⁹.

This mechanism serves as norms of sustainable use, i.e. lows and by-laws, methods of sustainable use and others.

Present time the existed legislative basis in the area of biodiversity includes a number of laws and by-laws (see Annex II).

The methods of sustainable use of biodiversity are developed:

- involvement of population and local communities into process of conservation of important species and ecosystems;
- improvement of registration system;
- creation of forest plantations for providing alternative resources.

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¹⁷ Convention on biodiversity, 1992 .

¹⁸ National report on biological security. Bishkek, 2004.

¹⁹ Convention on biological diversity, 1992

In 1998 according to the Decree of the President of the KR “On new national Forest Policy in the Kyrgyz Republic” the necessity of development of new forest policy was identified, the policy provided conservation and sustainable use of biological diversity.

Current National forest policy is based on three components “Forest-Human-State” and directed at creation of sustainable forest management system and providing transition from use of forests to effective management to conserve biological diversity²⁰.

The community based forests management (CFM) is implemented in Kyrgyzstan, it supposes to manage forests by local communities that live on territory of forest funds and neighboring territories, the participation of local communities in planning and implementation of forestry activities (see Annex III, item 16).

On territory of the state forest fund (SFF) forests suitable for CMF with area of 44963 ha are identified. For the 1st January 2008 the total area of SFF is 9 427 ha, where 1058 families work, and 10 783 families work on the basis of rent of forest plot.

In the framework of FAO NLP Facility Project (see Annex III, item 31) the «BIOM» NGO conducted survey on involvement of local communities in the process of community based on CFM and division of benefits from joint forest use. The survey showed that during practice of CFM implementation in Kyrgyzstan in most cases local population concern a forest as an accessible invaluable, utilitarian resource²¹.

The methods of community based pastures management are being practiced with support of GEF/UNDP projects in Kyrgyzstan. (see Annex III, items 18, 19).

After appropriate organizing and preparation, when community manages pastures (under supervision) it should be provided by financial resources, including local finance to invest into pasture infrastructure and improvement of pasture state. This support has to be limited as funds for further investments and expenditures for management would be obtained from payment for pasture resources use²².

For conservation of mountain pastures it is necessary to use alternative sources of timber through establishment of industry plantations of quick-growing woods, as poplar, willow, saxaul and others. In the framework of implementation of “Forest” Programme on the lands of State Forestry (1184 ha) quick-growing poplars were planted. In 2002 forestry activities on establishment of saxaul plantations (425 ha)²³ were started. In the framework of the GEF/UNDP Small Grants Programme forests were planted on the territories of local self-governance (see Annex III, item 7).

Detection of limits is one of mechanisms of sustainable use. With involvement of national experts rules and limits of medical herbs storage were developed and approved by SAEPF.

Strategic component D: development of institutional capacity and training

SAEPF, self-governance authorities, State agency on registration of rights in immovable properties (Gosregistr), Ministry of Agriculture, Water Resources and Processing Industry (MAWRPI), State Agency of Geology and Mineral Resources fulfill functions of state management of natural resources of the Kyrgyz Republic.

In the framework of the UNDP “Capacity Building and Environmental Governance Strengthening for Sustainable Development” Project (see Annex III, item 29) the functional analysis of correspondence of SAEPF status to objectives and functions of environmental security at national and local levels was conducted. In result of the survey the recommendations on necessity of SAEPF management system were developed.

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²⁰ National action plan on development of forestry for the period of 2006-2010.

²¹ Research on assessment of involvement of local population into the process of community based management of forests and distribution of benefits of joint forest use. EM «BIOM», FAO, Bishkek. 2006

²² Kyrgyz Republic – review of livestock sector. World Bank, 2008

²³ Materials of SAEPF, 2006

The main documents of Forestry Policy of the KR (see Annex II, items 37, 38) identified imperfection of forest management system that barriers conduction antimonopoly policy and establishment competitive market environment. The interest conflict is caused by economic functions that are fulfilled along with state functions in the system of forest management.

Different international projects (See Annex III, items 10, 16, 22) that promote further structural and functional reforming of system of environment protection and natural resources management in Kyrgyzstan.

Mechanism of joint forests management is integrated management plans. The objective of integrated management plans is to organize forest management taking into account local economic and social conditions, and use of forest resources are conducting with compliance of modern environmental standards and requirements²⁴.

In the framework of international «JUMP» Project supported by the European Union (see Annex 3, item 8) integrated management plans of juniper forests of “Kyrgyz Ata” Nature Park and ten forestries of Osh and Batken regions were developed. The management plans of Sary-Chelek and Besh-Aral State Reserves (see Annex III, item 1) were developed in the framework of GEF/WB Project. Above mentioned plans are directed to decreasing of biodiversity loss’ paces, sustainability of protected nature areas structures and involvement of local communities into the process of joint natural resources management.

Improvement of accounting activities.

National action plan of forest development (see Annex II, item 37) identified objective on necessity of set sustainable management standards and multipurpose use of forests.

Currently Forest sector of Kyrgyzstan started improvement of forest accounting activities. Under support of FAO and Kyrgyz-Swiss Forestry Programme (KIRLES) the Resolution of the Government of the KR “On carrying out National inventory of Forests” is being implemented (2008). In result of these activities the total areas of state and municipal forests will be identified it will follow changes and additions and changes of forest legislation, improvement of forest management system:

- mechanism of differentiation of control, regulating and economic functions at the level of state forests will be developed;
- management system of municipal forests at the municipal level will be developed and approved.

Under support of the Kyrgyz-Swiss Programme (see Annex III, item 16) a forestry service equipped with modern forest accounting technologies is organized.

Training.

Within the UNDP “Capacity Building and Environmental Governance Strengthening for Sustainable Development” Project (see Annex III, item 29) survey in six model reserves and national parks was conducted, it has identified professional suitability of staff of specially protected nature areas. Results of survey demonstrated a low professional level of staff. It relates to lack of trainings in the field of management of specially protected nature areas and biodiversity conservation.

Strategic component E: Environmental education and Public Awareness

Strategic component “Environmental education and Public Awareness” plays an important role in the process of biodiversity conservation and encourages involvement of public²⁵.

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²⁴ Jerar Butty, Kamel Shorfi. Guideline on development of integrated plans of management of juniper forests of the Kyrgyz Republic. France, 2006.

²⁵ Strategy and Action Plan on Biodiversity Conservation of the Kyrgyz Republic. Bishkek, 1998.

Currently environmental education in Kyrgyzstan has legal and political basis for integration of issues of biodiversity conservation in curricular of schools and higher educational institutions with the help of Concept of Continuous Environmental Education in the Kyrgyz Republic (See Chapter III).

In educational programs of the KR the issues of biodiversity conservation are not reflected enough. Standard curriculum “Botany” and “Zoology” include general knowledge on ecology, physiology, separate representatives of different systematic groups of flora and fauna.

Some aspects of biodiversity conservation of Kyrgyzstan are considered in the framework of “Nature history” in primary schools. Within higher education and post education there are specialized training of professional ecologists (See Appendix III A). The special course “Basis of biodiversity conservation and sustainable development” is developed for higher institutions. The course is being implemented since 2007 into curricular of the Naryn, Osh, Issyk-Kul State Universities and the Kyrgyz National University named by J. Balasagyn.

Partially function of environmental education of population of the republic is undertaken by different public organizations, associations and NGOs. Practically all nongovernmental ecological organizations have educational component, however practical activities demonstrate not more than ten organizations.

Goals of NGOs as opposed to state educational programs are not training of environmental profile specialists but involvement of public into environmental sector, i.e. get a critical amount of people holding the same view to carry out joint environmental activities and actions. At the same time NGOs have an opportunity to be more mobile in defining contents, methods and organizations forms of environmental education.

During last years the process of expansion of network “Schools of Kyrgyzstan for biological diversity conservation and sustainable development”. The network was established in 2002 in the framework of the initiative of “Biom” Environmental movement “School Green Country”. Initially the network joined 25 schools and local communities from different regions of Kyrgyzstan on biodiversity conservation through holding different educational activities, information exchange and establishment of micro reserves of wildlife on school territories. Micro reserves of wildlife is a model of natural ecosystems of Kyrgyzstan. The goal of micro reserves is to demonstrate ecosystem approach for conservation of plants and animals to pupils and students. Today about 300 teachers and more than 2500 pupils are trained to establish and use micro reserves in Kyrgyzstan. During 6 years of the network activities the essential results are achieved, they are improvement of education quality in pilot schools and strengthening their interrelation with communities. In present time the network joins more than 50 schools and 5 higher institutions (Naryn, Osh, Issyk-Kul State Universities and the Kyrgyz National University named by J. Balasagyn) and a line of educational centers around the republic.

Strategic component F: Identification and monitoring

For sustainable biodiversity management it is necessary to identify and monitor species and ecosystems. This strategic component considers complex of measures on revision and update of the Red Book, map of biodiversity of the Kyrgyz Republic and development of monitoring system of biological diversity.

SAEPF under the Government of the Kyrgyz Republic is in charge of update and publication of the Red Book. The agency jointly with Biology and Soil Institute of the NAS of the KR implemented the following activities on the basis of agreement:

- analysis of materials of rare and endangered species of flora and fauna to be included into the Red Book is conducted;
- 13 expeditions to define natural habitat of rare and endemic species of flora and fauna that are endangered are conducted;

- The list of rare and endangered species of flora and fauna has been approved by the Resolution of the Government of the KR (see Annex II, item. 72);
- The second edition of the Red Book of the Kyrgyz Republic was published in 2007.

«Kyrgyzgiprozem» conducts the state monitoring of pastures. Results of the monitoring demonstrated that not only village pastures but separate mountainous and high mountainous pastures are degraded that are caused by excessive load and unsystematic use during last years. The total area of pastures are 9,1 million ha or 45% of the country's territory, more than 3,2 million ha or 29% of the total areas are degraded.

International projects and programmes contributed into identification and monitoring of species and ecosystems of Kyrgyzstan. In the framework of the GEF/WB project (see Annex III, item 1) Atlas has been published and data base of biological diversity of Western Tien-Shan was created. With the aim of establishment of ecological network of the Central Asian countries the GEF/UNEP/WWF project studied and mapped natural habitat of rare and endangered species of flora and fauna. The map of SPNA (1:500 000 and 1:100 000) of the Kyrgyz Republic was published. Vector layers of maps are published on CD in ArcGIS format and are given to international organizations. Within the ISTC project (see Annex III, item 13 Atlas of rare and endemic species of flora is published and created a data base.

In the framework of Kyrgyz-Swiss Programme (see Annex III, item 16) the map (1:500 000) of forests of Kyrgyzstan on basis of distance exploration was developed. Under support of the programme (See Annex III, item 16) forest and hunting service of the SAEPP the following measures have been implemented:

- forest regulation activities on the forest area of 2 536 200 ha conducted;
- forestry action plans for 37 forestry services, 8 forestries, 5 reserves, 6 national nature parks, 2 nurseries;
- map and data base of floristries are digitized.

Under support of FAO NLP Facility (see Annex III, item 31) Strategy and Action plan on establishment of digital and informational resources in forestry of the Kyrgyz Republic were developed (see Annex II, item 75). The document foresees two-staged creation of digital informational resources²⁶:

On Biosphere territory "Issyk-Kul" jointly with staff of NAS of the KR the monitoring and evaluation of medicinal herbs (*Licorice (Glycyrrhiza uralensis Fisch)*, *Aconite (Aconitum leucostomum Worosch)*, sea-buckthorn (*Hippophae rhamnoides*)) were conducted.

Strategic component G: Researches

During last years the biodiversity of country mainly was studied by Institute of biology and mountain forestry of NAS of the KR. Researches were focused at flora and fauna: lower plants (fungus, lichen, moss, algae) higher vascular plants, plant communities, their compounds and productivities, medicinal herbs, parasitic invertebrates, insects, spiderlike and vertebrate animals, aquatic organisms communities, insect and terraneous vertebrates, hunting species and migration of birds. In spite of relatively not big financing Institute conducted planned researches. Expeditions covered separate regions of republic. The results researches of flora and fauna were reflected in Cadastre of genetic fund (1996). The main results of botanic and zoological researches were published in articles and monographs.

The definite contribution into biodiversity study was made by Biology Faculties of Kyrgyz National University, Issyk-Kul and Osh Universities, Botanic Garden and Physical and Geographical Station of NAS of the KR.

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²⁶ Strategy and Action Plan on establishment of electronic informational resources in forest sector of the Kyrgyz Republic.

Lack of financing of reserves followed significant loss of scientific personnel. In this connection scientific researches in separate reserves (Sarychat-Ertash, Naryn, Sary-Chelek, Besh-Aral) are conducted only in the frameworks of international projects and programmes. All reserves' staffs keep Chronicle of Nature, which is the important source of information on state and trends of biodiversity changes. To conserve and reproduce size of rare and endangered species of flora and fauna protective and biotechnical measures are conducted. Departments of protection and recovery of nature complex of national nature parks and state reserves carry out inspections with the aim to prevent and identify violations of protected regimes. Accounting of animal species, their winter additional fertilizing are conducted, banner headlines, markings, salt laying, cleaning of springs, repairing of roads.

In the framework of ISTC staff of Institute of Biotechnology of NAS of the KR carried out inventory and evaluated modern state of endemic and sub-endemic rare plant species of Kyrgyzstan and established herbal fund (see Annex III, item 13).

With assistance of Kyrgyz-Swiss programme of forestry support (Kirles) and Swiss Federal Technical Institute, Velix Fund (Nut-Forest) researches on improvement of existed forest typologies of Kyrgyzstan were performed. On basis of integrated approach there was developed new methodology that covers complex of following issues: from soil to social aspects of use of non arboreal products in plantations of each species²⁷.

In forest ecosystems are about 450 tentative areas. All gathered information was processed in Switzerland with support of Freeware R (2004) with use of statistic methods of analysis and 54 types of forest formations was identified.

Researches of biodiversity and ecosystems of the KR require systematic budget financing. It is necessary to strengthen and develop researches in the field of country's biodiversity and ecosystems, creation of informational structures, forming of statistical and analytical programs and organization of monitoring for decision making.

Strategic component H: Exchange and access to information

Present time activities in the area of public awareness increasing on conservation of biological diversity are extremely actual.

An importance of the problem solving is recognized at international level. The Aarhus convention defines obligations that Governments are undertaken in front of public to provide access to environmental information, participation of public in the process of environmental decision making and access to justice in environmental issues. Kyrgyzstan joined the Aarhus convention in 2001.

Not less significant global process in the field of education and increasing of public awareness is UN Decade on education for sustainable development (2005–2015). In Kyrgyzstan the process of the Decade's main programmes are being implemented by SAEPF. The issues of increasing of public awareness in the area of biodiversity conservation are the most significant. Regional Centre of expertise on education for sustainable development was established, its distinctive aspect is conservation of mountain ecosystems.

All stakeholders – schools, higher institutions, state agencies, scientific institutions, international organizations (projects and programmes), NGOs, mass media and others participate in implementation of this strategic component.

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²⁷ Venglovsky B.I. Typology – tool of forest management. Anniversary edition devoted to 60-year of forest sector of Kyrgyzstan. Bishkek, 2007.

Strategic component I: Cooperation

International cooperation of Kyrgyzstan in the area of biodiversity conservation is being extended in the framework of the international organizations, conventions and agreements, bilateral agreements with CIS and other foreign countries (see Annex I and III).

The UN Convention on International Trade in Endangered Species of Wild Fauna and Flora was ratified in 2006.

Creation and strengthening of transboundary cooperation with neighboring protected areas and regional networks with aim of providing more effective conservation and sustainable use of biological diversity, mainstreaming of ecosystem approach and improvement of international cooperation are planned within international projects (see Annex 3, items 1, 21). Draft of intergovernmental agreement on establishment of transboundary biosphere reserve “Western Tien Shan” was developed and submitted to Executive Committees of Kazakhstan, Kyrgyzstan and Uzbekistan to prepare for signing. Within the project the establishment of Pamir-Alay transboundary Protected Area (Kyrgyzstan and Tajikistan) is promoted. The Agreement “On intension between ICSD and WWF Central Asian Programme on EcoNet implementation in region” was approved by the ICSD Resolution No. 3 as of November 16, 2007.

NAS of the KR plays big role in development of scientific and technical cooperation. Thanks to expansion scientific collaborations scientists of our republic participate in international projects and programmes supported by UNDP, ISTC, GEF, EC, UNESCO, WWF and others.

Strategic component J: Impact assessment

Objective of environmental impact assessment (EIA) is prevention and/or mitigation of impact of planned activities on natural resources and environment as whole and social, economic and other impacts, including identification of main sources and types of impacts of planned activities on flora and fauna.

During planning of activities that have transboundary impacts the EIA is carried out in accordance with articles of Convention on EIA on basis of bilateral and multilateral agreements among interested parties and Guideline on conducting of EIA in transboundary content for Central Asian countries²⁸.

An initiator of activities approves EIA documents and submits all project documentations for the state environmental expertise.

State environmental expertise is organized and carried out by special authorized state agency in area of environment protection in accordance with laws of the Kyrgyz Republic “On environment protection”, “On environmental expertise” and Instruction on order of conducting state environment expertise. Positive conclusion of state environment expertise is one of the obligatory terms for financing, crediting, investing, and realization of expertise object (see Chapter III).

Strategic component L: Legislation

Today the existed legislation in the area of biodiversity conservation includes a line of laws and by-laws. Last years the main legislation in the area of nature protection of the Kyrgyz Republic was developed, analysis of previous acting laws was conducted and new laws, resolutions and regulations were developed (see Annex II).

Currently an improvement and harmonization of legislation taking into account requirements of international agreements and comparable economic and ecological benefits are being carried out. However, legislation related to biodiversity conservation is implemented ineffectively. Due to the lack of financing the passed laws in the area of biodiversity conservation work insufficiently. Legal status of use of biodiversity resources strictly regulates norms, withdrawal quota and considers

²⁸ <http://www.unece.org/env/eia>

protective and restoration measures, especially in the area of use of forest and hunting resources, herbal and plant materials.

In spite of the fact that biodiversity conservation is declared in national legislation there are discrepancies. For existent, according to the Law of the Kyrgyz Republic “On biosphere territory” the biosphere territories are specially protected areas, but the Land Code of the KR and National Land Cadastre do not include these changes and additions. There is a lack of legislative norms of development of transboundary biosphere reserves and ecological networks.

Strategic component M: Financial resources

Financing of expenses for state management in environment, protection, reproduction and rational use of biological diversity and forest administration is effected from republican budget, Republican and Local Funds of Nature Protection (RFNP/LFNP) and non-budget financing of forestries, SPNA and General Administration of Biosphere territory “Issyk-Kul”.

As analysis resulted forming of financial resources of state management of biological diversity is implemented through two types of fees for natural resources – for right to use natural resources (forest resources, nature reserve fund, fauna etc.) and environment pollution (fee for emission to atmosphere and stocking of solid wastes and others)²⁹.

Financing of expenses for state management in the area of protection, secure, reproduction and rational use of biological diversity is effected on residual principle. Currently costs for environment protection compose 0,026 % from GDP. Thus today at republican level only secured articles of nature protection agencies are being financed (remuneration and social security). FAO/UNDP “Capacity building of evaluation and monitoring of national forests and trees” project’s experts consider a necessity of increasing of national budget financing and suggest to set target articles for nature protected areas in expenses part of republican budget.

Barriers under NBSAP implementation process

- NBSAP (1998) was not approved by Decree of the Government therefore was not supported by budget financing;
- Frequent reorganizations of state agency on environment protection hampered fulfillment of strategic component “Coordination of Strategy and Action Plan” at appropriate level;
- Lack of NBSAP implementation monitoring;
- Lack of qualified professionals.

Analysis of NBSAP implementation effectiveness

Implementation of following NBSAP strategic components renders positive influence on the state of biodiversity of the Kyrgyz Republic:

A: in-situ conservation

- including of SPNA into National Land Cadastre;
- expansion of SPNA area from 4,5% to 5,2%;
- establishment of Ecological network of the KR.

C: sustainable use of biological and landscape diversity:

- improvement of legislative basis in the area of environment protection;
- improvement of SPNA management system;
- establishment of management system of municipal forests;
- implementation of small grants programme;

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²⁹ Poverty alleviation through sustainable development of local communities. Bishkek, 2008.

- improvement of accounting activities system.

E. environmental education and public awareness:

- issues of biodiversity conservation introduced into curricular of some higher institutions and schools;
- “Schools of Kyrgyzstan for biological diversity conservation and sustainable development” established in 2002 (“Biom” NGO) network is expanded;
- in 2007 the first Regional Centre of expertise for Sustainable Development in Central Asia established, it is an innovation platform for cross-sectoral and inter-agency information exchange that build a dialogue and cooperation for promotion of sustainable development among regional and local stakeholders.

F: identification and monitoring

- data base of endemic, sub-endemic and rare species of flora is created;
- bank of hermoplasm of endemics, rare and economically valued plant species;
- Atlas of endemic and rare species of plants is published
- map of SPNA (1:500 000 and 1:100 000) of the Kyrgyz Republic was published. Vector layers of maps are published on CD in ArcGIS format and given to interested parties.

I: cooperation

- it is planned creation of transboundary biosphere reserves – Western Tien-Shan (Kazakhstan, Kyrgyzstan and Uzbekistan), Pamir-Alay (Kyrgyzstan and Tadjikistan);
- it is approved the Agreement “On intension between ICSD and WWF Central Asian Programme on EcoNet implementation in region by the ICSD;
- KR joins the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

In the framework of this report an expert evaluation on NBSAP implementation successfulness with use of activities indicators was undertaken (Table 5).

Table 5.

Results of NBSAP expert evaluation

№	NBSAP strategic components	Implementation successfulness, %
1	A: « <i>in-situ</i> » conservation	34,6
2	B: « <i>ex-situ</i> » conservation	33,3
3	C: sustainable use of biological and landscape diversity	43,5
4	D: development of institutional capacity and training	34,5
5	E: environmental education and public awareness	48,6
6	F: identification and monitoring	48,9
7	G: researches	32,0
8	H: Exchange of information	31,7
9	I: cooperation	22,3
10	J: impact assessment	37,0
11	K: incentive measures	27,5
12	L: legislation	19,4
13	M: finance resources	11,5
14	N: coordination of Strategy and Action plan	0
	Total:	30,3

According to the abovementioned expert evaluation the total NBSAP successfulness is 30,3%, i.e. management of biological diversity of the Kyrgyz Republic is not sustainable.

The detailed information considered in decisions of the 8th meeting of Conference Parties, Convention on biodiversity is presented in Appendix III B and Chapter III of the report.

Chapter III. Sectoral and cross-sectoral integration or mainstreaming of biodiversity considerations

The purpose of the chapter is description of efforts to integrate biodiversity conservation and sustainable use into relevant sectoral and cross-sectoral plans, programmes and policies in Kyrgyzstan.

The thematic of chapter is extremely innovative as before in national reports biodiversity thematic was not correlated with sectoral and cross-sectoral strategies and programmes. It indicates an importance of biodiversity issues at sectoral and cross-sectoral levels.

To solve biodiversity conservation problems effectively it is necessary to involve different interest groups from direct natural resources users, NGO representatives and scientists till decision makers.

Sectoral and cross-sectoral interaction requires constructive dialogue of different interest groups, identifying cross-cutting points, assessment of capacity of all parties to increase opportunities in partnership.

However for effective development of sectoral and cross-sectoral interaction it is important efficient cooperation among state agencies. Analysis of current situation demonstrates weak partnership among state bodies, existence of inter-agency competition and lack of common objectives in the field of sustainable development and rational use of natural resources. Corporative coordination among agencies, working in the field of rational natural resources use, conservation and sustainable use of biodiversity is restricted. Indistinct responsibilities in state structures and weak communications barrier timely, full dialogue and interaction among executive ministries and agencies in decision making of significant environmental issues. There is a lack of integrated concept of sectoral and cross-sectoral partnership at local and national levels. Involvement of all stakeholders in solving of rational nature management is decisive factor for successful implementation of nature protection policy in country and region as whole.

Currently there is a line of legal documents that regulate process of involvement different interest groups into decision making process of significant environmental issues. There is political will that supports wide public dialogue and process of achievement of sustainable development goals, but declared norms are not fulfilled due to the lack of clearly developed mechanisms of sectoral and cross-sectoral interaction.

An example of successful sectoral partnership in fulfillment of obligations undertaken within CBD is activities of Intergovernmental Commission on Sustainable Development of Central Asia (ICSD), directed to solving of conservation and sustainable use of biodiversity.

Public organizations influence on process of decision making in the field of rational nature management, including development of national programmes and laws. The most active NGOs in the country, implementing projects in the field of biodiversity conservation and working with local population are EM “Biom” (environmental education), NGO “Independent ecological expertise: (public environmental expertise, protection of public interests; EM “Aline” (biodiversity protection), PA “Nabu Kyrgyzstan” (biodiversity protection), “Unison” (alternative energy sources), PA “Eco Oi”, “Tashtar Ata” (biodiversity protection and reforestation), PA “Chintamani” (biodiversity protection), PA “Eco Joomart” (biodiversity protection, struggle with poaching), PF “CAMP Ala-Too” (work with local population on rational use of natural resources in mountain regions and other organizations).

Projects and informational campaigns of ecological NGOs and their networks allow to cover board public groups, contribute into conservation of biodiversity at local level, include environmental component in local territories development plans, protect public interests for

favorable environment. In 2006 on initiative of NGO the “Chatyr-Kul” Lake returned SPNA³⁰ status, and lake included into the list of Ramsar lands³¹. Public organizations work on reforestation and struggle with poaching.

Including of conservation and sustainable use of biodiversity issues into appropriate sectoral and cross-sectoral plans and programmes

Agriculture

Agrarian sector and processing industry were and remain the key sector in providing of food safety of the country. Main impact of agriculture on biodiversity is followed by extreme livestock pasturing, expansion of arable lands, dehydration of water-swamp lands and destruction of habitat of flora and fauna.

Area of pastures makes up almost half (45%) of the country's territory and includes grass ecosystems that are suffered from extreme livestock pasturing³². As a result pastures' fertility is decreased, soil erosion is started, and natural habitat of rare and endangered species of flora and fauna is reduced. Today in agrarian policy there is a lack of complex approach on forming and improvement of ecological balanced systems of pastures use and distant livestock pasturing. Adaptation of mountain pastures related to growing livestock population is a factor of concern as it cause reduce of population and natural habitat of Red Book animals, particularly, argali, snow leopard, wild mountain goat and marmot³³.

In spite of above listed forms of impact of agriculture on biodiversity, the three-year program of development of agriculture complex for 2008-2010 impact factors on flora and fauna are not included.

Approves governmental programme “Development of wheat seed farming for 2008 – 2010”, “Building of hydroeconomic objects and adaptation of new irrigated lands in the Kyrgyz Republic for 2008-2010” and “Strategic plan of veterinary service development for 2008-2012” also were developed without consideration issues of conservation and sustainable use of biodiversity.

The structure of MAWRPI includes Department of Fishing Industry that is authorized body, providing elaboration of complex programmes on development of fishing industry. Fishing industry of the Kyrgyz Republic is a sector of economy covers board range of activities. Raw materials base of fish industry has line specific features related to seasonality of fishery and low forage resources of natural reservoirs. There are difficulties of true forecasting of fish stock, defining of limit and quota for exception without damage for reproduction and state of population. Currently monitoring, conservation, reproduction and catch of fish resources are provided net appropriately. This situation is conditioned not only by economic causes of the country but by lack of target investing policy on fishery industry objects.

System of fish resources and their habitat protection requires further improvement, as scales of illegal fishery, especially endemic and protected fish species. Cross-sectoral regional operation groups developed urgent measures and set objectives on reproduction of fish resources, their protection and monitoring of fish reservoirs.

The programme of fish industry of the Kyrgyz Republic for 2008-2012 is approved by the Decree of the Government of the KR as of April 22, 2008. The programme determines main directions of integrated long term state policy in the area of fish industry development. During its

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³⁰ Resolution of the Government of the KR “On giving status of wetland of international level” № 310 as of 25 July 2005

³¹ Decision of the Secretariat of UN Convention on Wetlands having international importance mainly as habitats of the waterfowl (Ramsar) as of February 23, 2006 Lake Chatyr-Kul assigned No.1588

³² Dialogue at local and national levels – contribution to sustainable development. Bishkek, 2006.

³³ <http://spkirbis.narod.ru/articles/irbis.htm>

implementation will be established single unified legal space that able to provide legislation basis for fishery industry in the Kyrgyz Republic. For these purposes it is planned development and adaptation of legislation, in the first place Law of the KR “On fishery and protection of fish sources”, that will be directed to complex regulation of multi-aspect problems in the field of study, reproduction, use and conservation of fish resources in reservoirs of the Kyrgyz Republic.

At legislative basis norms related to the proprietary right on fish resources, quoting and limiting in the field of fishery.

Environmental education and public awareness

In 2005 Kyrgyzstan joined global process of implementation of UN Decade on Education for Sustainable Development and implementation of UNECE Strategy on Education for Sustainable Development. Initiative in the field of education for sustainable development in the KR is implemented in the framework of environmental education that was reflected in national political documents (see Annex II, items 40-42, 46, 47, 51).

Ministry of Education and Sciences (MES) of the KR and SAEPF closely cooperate in the area of environmental education for sustainable development. One of the main documents of education for sustainable development is a Concept of continuous environmental education of the Kyrgyz Republic, that was prepared by cross-sectoral group of MES and SAEPF with participation of NGO “Biom” under the Decree of the Government of the KR “On establishment of Coordination Council on ESD” (2005).

On the basis of the Law on Education the schools are provided the right to use additional educational component which can be selected on pupils’ choice. As result in the Kyrgyz Republic some innovative schools have an individual curriculum, allowing introduce in it such subject as “Ecology”, “Biodiversity conservation” and others. Some higher institutions are prepare specialists on environmental directions (see Appendix III A).

According to the decision of the board of the Ministry of Education and Culture in 2002 the Concept of schoolchildren education of the Kyrgyz Republic was adopted one of its main components is environmental education³⁴.

There is a lack of publications with information on state of biodiversity and its conservation. National reports on state of environment also do not solve this problem. The newspaper “Jer Ene”, “Les-Tokoi” magazine of KIRLES are published quarterly, workshops and trainings on qualification improvement for personnel of regional environment protection administrations and NGOs’ representatives are conducted. SAEPF hosts information on state of environment on its web: www.nature.kg and provides opportunity to host information of stakeholders. Example of active informational portal is the Central Asian Informational Network www.caresd.net, participating in the process of increasing of public awareness on biodiversity conservation issues. The portal is supported by the UNDP. There are also web-sites of public and international organizations. (see Appendix II).

NGOs contribute and publish reports in the framework of environmental education, education for sustainable development, lawmaking and public participation, which helps to develop sectoral and cross-sectoral partnership in issues of conservation of natural resources. Mass media also pay attention to rational use of natural resources and conservation of biological diversity. The initiatives of NGOs on holding Festival of Ecological Journalism in Central Asia starting since 1999 to present time serve as stimulus for this.

Documents in the field of environmental education and education for sustainable development adopted at national level are being implemented mainly in the framework of projects and programmes supported by international institutions. GEF, UNDP, CAREC and other projects

conduct activities on increasing awareness of local communities on importance of biodiversity conservation (see Annex 3).

Public health

Public health is one of the sectors of Kyrgyzstan that is being reformed. It reflects its role not only in health care but in increasing life expectancy and welfare of the republic's citizens and achievement of Millennium Development Goals.

One of the sectors significantly influences on biodiversity is pharmaceutical sector. In republic there are 42 pharmaceutical producers of 160 herbal medicines from local herbs³⁵. Percentage of medicines based on herbs is about 40%. The most part of registered phyto medicines are natural pickings from wild growing or cultivated herbs.

For pharmaceutical sector of Kyrgyzstan the herbs with export and industrial capacities are important. The study of biological resources was conducted with support of international organization and private sector, it defines supplies and develops rational way of stocking for 10 species of herbs with industrial purposes³⁶. The study shows that availability of raw material base can serve basis for foundation of pharmaceutical production in Kyrgyzstan. In this connection Ministry of Public Health classified and listed medicine on basis of medicinal herbs. In the suggested classification about 90 species of medicinal herbs of the local flora are significantly important. These species are economically profitable and furthers to reduce poverty level of rural and mountain regions' population. Such approach presents an interest not only as economically valuable medicinal herbs but as measures to conserve rare and endangered medicinal herbs.

There is a lack of knowledge in raw materials and locations of economically important objects of flora, ecology and biology peculiarities of used species, rational approaches and methods of continuous use of wild plants in the area of medicinal herbs use.

On the basis of existing flora and fauna traditional knowledge of traditional medicine is being developed during centuries. These traditions are based on knowledge of medicinal herbs and approaches of health improvement in conditions of mountain inhabitancy. Unfortunately, local population gathers medicinal herbs, separate objects of fauna that undermines their funds opportunity to recover. It happens in most regions of the republic with the connivance of local and central authorities.

State policy in the area of protection and use of flora resources is inconsequent and declarative. There is a lack of cadastre of flora species and analytical data base of plant resources, without which it is impossible to regulate system of sustainable use and effective control of raw materials. Issues of rational use of flora objects at local level are not included into the programmes of complex socio-economic development of territories. Also there is a lack of interaction between state structures and self-governance bodies. Imperfection of the legislation establishes opportunities for violations and abuses.

Forestry

Taking into account socio-ecological significance of forest and its global importance for conservation of biological diversity and climate regulation in 2004 new edition of the Concept of forestry development of the Kyrgyz Republic till 2025 was adopted and approved by the Decree of the Government of the Kyrgyz Republic (2004). The forecasted climate change can follow essential negative conditions of conservation of forests and biodiversity³⁷.

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³⁵ Dialogue at national and local levels – contribution to sustainable development, Bishkek, 2006

³⁶ Information by “Phytopharm” Association, 2005

³⁷ Kyrgyzstan: Environment and natural resources for sustainable development , Bishkek, 2007

One of the fortunate approaches of the mentioned concept is attraction of local communities for getting on the fair and equal basis benefits in the process of joint forest management that also responses to the 3rd goal of the UNCBD. Improvement of system of joint forest management and rent relations is a basis of strategic directions of the concept. With the aim to increase responsibilities of local communities to forest resources, strengthening of integrity in forests recovery the community based forest management (CBFM) is being developed)³⁸. Introduction to CBFM has provided an opportunity to local population in the line with state and local authorities participate in planning of forest activities. But, on lands provided for CBFM forest protected measures are not conducted³⁹.

On the basis of the Concept of forestry development of the Kyrgyz Republic National Forest Programme for 2005-2015, aimed at forest conservation and recovery and National Action Plan of Forestry Development for 2006-2010 to conserve biodiversity in forest sector were developed. To implement the mentioned Programmes forestry activities on protection and recovery with participation of regional, rayon, local authorities and forest services are conducted.

In spite of existence of consecutive documents of development of forest sector (concept-program - five-year plan) the mechanisms of mutually beneficial cooperation among local communities, business and forestries aimed at rational use of natural resources and biodiversity protection are worked insufficiently.

Mining industry

Kyrgyzstan is rich with mineral resources and has a developed mining industry. Most of minings are located at the relative height (including gold and ore minings), are threat to vulnerable mountain ecosystems and destroy habitat of species of flora and fauna, pollute rivers and ground waters. Open ways of mining destroy cover and blast works provide inconvenience to most of animals.

There are cases of breaking of nature protection laws by geological companies that worsens tension with local population (Kumtor, Taldybulak, Levoberjnyi, Jerui and Chatkal Gold Mining Companies).

Necessity of planning of measures on protection of natural resources under IEA and control by republican and territorial divisions of SAEPP, local self-governance bodies, ecological NGOs and local communities decreases impact of mining industry on environment.

Follow “Big Eight” countries Kyrgyzstan, confirming its commitments to fight with corruption, implements an Initiative of Increasing of Transparency of Mining Sectors Activities. A basis of the initiative is control over mining companies by NGOs and local communities, cross-sectoral partnership among business, NGOs and local communities. But issues of biological resources in the initiative are not priority.

Development of rural rayons

The developed National Strategy “Decentralization of State Governance and Development of Local Self-governance in the Kyrgyz republic till 2010” does not include conservation of biological diversity.

In the framework of complex environment management local self-governance bodies elaborate socio-economic development plans of territories, which include measures on conservation and rational use of resources. Low socio-economic basis of rural areas does not allow implement all planned activities. Socio-economic development and planning of rural areas without consideration

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³⁸ Detailed information on CBFM in Chapter II, Strategic component C

³⁹ http://www.iucn.org/themes/CEM/news/newsletter/2007/docs/biom_cbfm_kyrgyzstan_feb.2007_ru.pdf.

of ecosystems' capacity and environmental risks, development of their infrastructure and strengthening of the economic activities can not be reflected on state of ecosystems and biodiversity.

In 2008 within reforestation works forest services provided seedlings to Ayil Okmotu. Within UNDP/GEF Small Grants Programme local communities implement different environmental projects (see Annex III, item 7).

Tourism

Today Kyrgyzstan pays attention to development of tourism, but, unfortunately, availability of regions, climatic peculiarities, and state of infrastructure and possible impact of tourism on environment are not taking into account.

The concept of tourist sector of the Kyrgyz Republic till 2010 was approved by the Decree of the President of the Kyrgyz. In 2003 the Government of the KR developed and adopted Programme of measures in the KR till 2010. Action plan on complex development of tourism of Issyk-Kul region was developed under support of the Aga Khan Foundation and adopted by the Decree of the Government in November 2002. However, these programmes and action plans are of declarative character, as concrete measures and executors are not defined in them, budgets are not indicated, issues of biodiversity conservation are not considered and not all stakeholders participated in the process of their development.

Recreational and tourist capacity of ecosystems is not identified as monitoring of tourist effects on nature is not conducted. State services that certify ecological routes, taking into account impact of tourism on biodiversity do not exist. Kyrgyz Association of Tourism based on Communities (KABTC) certifies tourist routes, but does not consider impact of tourism on biodiversity.

In the framework of Intergovernmental project EuropeAid/TACIS on biodiversity conservation of Western Tien Shan training on ecotourism development was conducted, tours to Sary-Chelek and Besh-Tash reserves, taking into account biodiversity conservation were developed (see Annex III, item 2).

Hunter tours for foreigners, especially after endangered Marko Polo sheep and mountain Siberian goat, which are organized taking into account the Convention on International Trade of Endangered Species of Flora and Fauna. Hunter tours are organized in forest of Naryn and Issyk-Kul oblasts. About 90 hunting companies, organizing hunting tours function in the republic. In whole there is a lack of sectoral and cross-sectoral partnership among different interest groups.

Finance, trade and industry

Financing of state management in the area of environment protection, recovery and rational use of biological diversity, forestry are covered by the republican budget according to economically justified standards, developed by SAEPP and approved accordingly. Financing methods of conservation of biodiversity and forests re defined by the Ministry of Finance of the Kyrgyz Republic.

With the aim to integrate to world economics Kyrgyzstan joined the Marakesh Agreement establishing the World Trade Organization and agreements adopted within WTO, including TRIPS Agreement and Agreement on Sanitary and Phytosanitary Control on November 17, 1998. In 2003 the Interagency Commission on WTO issues was established, it includes representatives of ministries, state committees and administrative agencies of the KR on fulfillment of the WTO agreements. Under joining to the WTO our country undertook commitments on free movement of goods, payments and capitals. Procedures of licensing in the area of environment, including import and export of the goods are being reduced.

International technical standards in the field of environment protection (ISO 14000) are being implemented slowly. It allows introducing new approach to protect of biodiversity. When solving of issues of direct investment into the business sector a Strategic Environmental Assessment (SEA) is not considered and carried out.

Development of sectoral and cross-sectoral interaction in development of resource-intensive sectors (mining, energy, agriculture) that seek benefits from natural resources is becoming more actual.⁴⁰

According to the Law of the KR “On basis of technical regulations in the KR” and the Decree of the President of the KR “On institutional and structural reforms in the field of technical regulations in the KR” in 2006 the Resolution of the Government of the KR “On realization by state inspectorates on control of measures of security in the filed of veterinary, plants quarantine, epidemiology, sanitary and ecology” (see Annex II, items 19, 35, 63)

To implement this document MAWRPI, Ministry of Health, SAEPF and Frontier Service of the KR the joint measures on assessment of objects equivalence and providing security activities in the field of veterinary, plants quarantine, epidemiology, sanitary and ecology.

Other national and sub-national strategies and programmes, directed to poverty alleviation and achievement of Millennium Development Goals and Sustainable development

The main document in the area of sustainable development – Country Development Strategy (CDS) till 2010 it is mentioned that reforming of all sectors of national economics should become basis for changes of relation to use of natural resources, realization of socio-economic development with a glance to conservation of natural resources. Country Development Strategy for 2009-2011 presents strategic vision of the country development till 2011 and is an upas of version of CDS till 2010. An action plan was reviewed in the framework of the common concept of regional development the role of regions are strengthened and indicators of monitoring are reviewed as well. Strategic goal of the updated CDS is improvement of life quality through economic growth, improvement of environment quality. Under development of CDS the principle of sectoral and cross-sectoral partnership was used, the working groups with involvement of all interested sectors were established; discussions and collection of recommendations on document improvement were conducted⁴¹.

State Environmental Programmes are significant in implementation of ecological policy of the country. In the Strategy of Biodiversity conservation for 2002-2006 adopted by the Decree of the Government of the KR an action plan for interested ministries and agencies were defined. (see Chapter II).

To fulfill decision of the World Summit on Sustainable Development (Johannesburg, 2002) SAEPF experts under support of UNEP and UNDP “Environment Protection for Sustainable Dvelopment” Programme developed “Agenda XXI century for KR” and Concept of transition of the KR to Sustainable Development till 2010 was approved⁴². One of the main trends of the Concept is environmental sustainability and rational use of natural resources through economical consumption of non-renewable and inexhaustible use of renewable resources. Correlation of economics and ecology, forming of ecology oriented economic system is strengthened as well. In the framework of the document strategic priorities of Kyrgyzstan for transition to sustainable development and following targets for biodiversity conservation till 2010 are defined:

- Develop Cadastre of biodiversity of the KR;
- Expand and develop national network of specially protected territories, increasing its area;

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⁴⁰ Country Development Strategy till 2010.

⁴¹ Materials of Ministry of economic development and trade of the KR

⁴² Agenda XXI , the Kyrgyz Republic. Bishkek, 2002.

- Conservation of in-situ and ex-situ genetic fund;
- Increase forest area of the KR territory till 6% by joint efforts of the government, local communities and private sector;
- Involve local communities and NGOs to fight for conservation of biodiversity on their territories.

Within the ICSD activities Sub-regional Strategy of Sustainable Development (SSSD) of Central Asia was developed. Principles of Agenda XXI, MDG and plan of fulfillment of decisions of the World Summit on Sustainable Development lied in the basis of SSSD. SSDA CA is an integrated orienteer of CA countries, defining joint approaches and trends on forming of favorable legal, institutional, economic, ecological, informational and other conditions for achievement of sustainable development objectives in the region.⁴³

In 2006 Central Asian Framework Convention on Environment Protection for Sustainable Development was developed under support of UNEP. The Convention is signed by Kyrgyzstan, Tajikistan and Turkmenistan, Kazakhstan and Uzbekistan are in the process of joining to the Convention. Thanks to the EcoNet-CA WWF/GEF/UNEP conservation of biodiversity of the region is included in the Convention. As an interim document, confirming readiness of countries to establish ecological network for conservation of biological diversity, WWF and ICSD (2007) signed Agreement about intensions on transboundary implementation of ECONET⁴⁴.

With the aim to conserve land and water resources Kyrgyzstan joined an Central Asian Countries Initiative on Sustainable Land Management (CACILM), it represents an innovative international cooperation of donors to support development and fulfillment of National Framework Programme (NFP). NFP is an important document aimed at fight with land degradation and sustainable natural resources management in the country, including biodiversity conservation. State agencies, public organizations, donors, local communities and civil society participate in NRP.

Processes defined in the framework of adjacent conventions (CITES, Bonn Convention on the Conservation of Migratory Species of Wild Animals, Convention on Wetlands having international importance mainly as habitats of the waterfowl (Ramsar)) and conventions adopted in Rio-de-Janeiro (UN Framework Convention on Climate Change, UN Convention to Combat Desertification and others).

In 2002 Kyrgyzstan joined the UN Convention on Wetlands having international importance mainly as habitats of the waterfowl (Ramsar). One of the results of joining to this convention is an international status of wetland assigned to the Chatyr-Kul Lake (2005)⁴⁵.

In 2007 Kyrgyzstan joined CITES. In accordance with the Law of the KR “On joining to CITES» SAEPF is an administrative agency responsible for implementation of articles of the Convention, and its scientific partner s NAS of the KR. CITES licensing to import, export and reexport of flora and fauna objects, excluding circus tours, transportation of hunting and fish trophies, museum exhibits, and individual models of flora and fauna are carried out on basis of recommendations of the KR CITES Scientific body.

In 1995 the Kyrgyz Republic ratified International UNESCO World Heritage Convention. In 2007 the Government of the KR the List of nature objects for including to the List of World Cultural and Nature Heritage of the UNESCO. However due to the lack plans of management of the objects Kyrgyzstan did not present any objects of nature to include into the List of UNECO.

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⁴³ Sub-regional Strategy of Sustainable Development of Central Asia 2008.

⁴⁴ Decision of ICSD №3 as of November 2007.

⁴⁵ Decree of the Government of the KR №310 as of July 25, 2005

Kyrgyzstan ratified the UN Framework Convention on Climate Change in January 1992. In 2001 the Government adopted the Decree “On measures on fulfillment of the UN Framework Convention on Climate Change”. At present time an executive agency of the Convention is SAEPF, which implements coordination of state agencies’ activities on the obligations undertaken in the framework of the Convention. The Law “On ratification of Kyoto Protocol to the UN Framework Convention on Climate Change” was adopted on January 15, 2003. National Strategy and Action Plan on prevention of economic, social, ecological and other negative climate change consequences were not worked out. Currently under support of GEF the process of development of the Second National Communication on Climate Change is being completed (see Annex III, item 17). Results of this work were got in a partnership of all interest groups and discussion of stakeholders. In the National Communication an assessment of vulnerability and adaptation to climate change were worked out, technical needs were identified and list of measures on impact mitigation on climate change was developed. National Committee on Climate Change Consequences was established according to the Decree of the President of the KR. Also the Memorandum of Understanding between the Governments of the Kyrgyz Republic and Denmark in the area of implementation of the Kyoto Protocol and UNFCCC was signed the same year⁴⁶.

In 1997 Kyrgyzstan joined the UN Convention to Combat Desertification, with the aim to implement the Convention under Institute of Irrigation of MAWRPI the national Centre on Combat Desertification was established, at the same time the Centre is an executive body on fulfillment of National Action Plan on Combat Desertification. In the framework of the Centre pilot projects on land degradation are implemented.

Joining the Aarhus Convention in January 2001, Kyrgyzstan did not sign addition to item 6: participation of public in decisions on premeditated release into environment and sale on market of genetically changed organisms. The item obligates Parties to provide transparency of licensing for import and production on country’s territory new for genetically changed organisms.

National Reports on the Convention implementation are prepared by cross-sectoral groups, i.e. projects on preparation National Report on Aarhus Convention and UNFCCC.

Kyrgyzstan, being a member of the UN Commission on Sustainable Development (2008) and active member of regional institutions supported an idea of sustainable development as at global level so in the Central Asia. Our country also signed Central Asian Convention on Environment Protection for Sustainable Development and actively participated in development of Sub-regional Strategy of Sustainable Development of CA. Kyrgyzstan is a Party of VEKCA Strategy and Central Asian Initiative on Sustainable Development (CAISD).

The country has not yet joined Bonn Convention on the Conservation of Migratory Species of Wild Animals.

In spite of positive examples in implementation of obligations of environmental convention, there are significant distinctions in understanding of commitments on fulfillment of international agreements and initiatives at national and local levels. Therefore, there are decreasing of responsibility for decision making and inefficiency in implementation of different multilateral nature protection agreements. Disconnection of departmental interests does not facilitate optimal decisions, cross-sectoral and inter-agency capacity, resources at central and local levels are not used fully. Implementation of different multilateral nature protection agreements in the country is not coordinated with strategies of sustainable development, the agreements are not considered as effective tool of national policy and decision making.

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⁴⁶ Kyrgyzstan: Environment and natural resources for sustainable development , Bishkek, 2007

Information on scopes of including of biodiversity thematic into sectoral and cross-sectoral strategies and plans

In Kyrgyzstan there is an adequate legislative basis for building sectoral and cross-sectoral interaction, including the fields of conservation and sustainable use of biodiversity. The public right for access to information is consolidated by international agreements (see Annex II 2, item 6) and normative acts of the Kyrgyz Republic (see Annex 2, items 33, 59). In 2001 Kyrgyzstan joined the Aarhus Convention. The signing strengthened opportunities of access to information of all stakeholders in the field of environment protection, although internal legislation provided the right of public to information and the right to participate in decision making process in 1991.

In august 2005 Kyrgyzstan joined Cartagena Protocol to UNCBD. Its joining allows Kyrgyzstan to implement activities related to transboundary movement of genetically changed organisms and products; take measures on non-admission their import to the country, including mutual assistance in making researches and scientific and technical elaborations, and information exchange in the field of biotechnology.

Since 1994 Kyrgyzstan is a member of World Intellectual Property Organization (WIPO). The Government of the KR realized a necessity of development of methods of protection and working out of standards in the field of protection of traditional knowledge, genetic resources and folklore. International symposium “Intellectual property and traditional knowledge” hold on June 16, 2008 with participation of WIPO. In the framework of symposium measures on cooperation between Kyrgyzstan and WIPO in the area of protection of intellectual property for transformation of human capacity, cultural wealth, unique folklore and ancient history in economic development. The Government of the KR adopted State Programme on development of system of intellectual property “Intellect” for the period of 2001-2010, National network of Informational provision of subjects was established in its framework. In the programme the issues of protection of traditional knowledge, genetic resources and folklore are considered.

Kyrgyzstan as a competent subject of international right has joined 14 environmental conventions and protocols, which made possible attraction of international resources for solving issues of rational nature resources management, including conservation and sustainable use of biodiversity, capacity building of all stakeholders and promotion of sectoral and cross-sectoral partnership.

For improvement of the Conventions implementation in Kyrgyzstan in the framework of GEF/UNDP “National Capacity Self-Assessment for Global Environmental Management in Kyrgyzstan” (2005) an inventory of capacity of Kyrgyzstan in the field of three Conventions: UNFCCC, UNCCD, UNCBD⁴⁷. Identification of problems and perspectives to fulfill commitments of the KR on mentioned conventions and development of measures became the project results. For its effective implementation analysis of sectoral and cross-sectoral interaction for fulfillment of GEC was made. Cooperation among interested parties in the area of environment protection for sustainable development through building dialogues among stakeholders using interagency and cross-sectoral approach was result of the UNDP “Capacity Building and Environmental; Governance Strengthening for Sustainable Development” Project. Expert support was provided in realization of the first steps in integration of principles of sustainable development, Agenda XXI, MDG into the main strategies and programmes at national and local levels.

Since 2007 the UNDP “Environment Protection for Sustainable Development” Programme develops sectoral and cross-sectoral partnership for sustainable development successfully. The main focus of the Programme became activities in the field of sectoral and cross-sectoral partnership, issues of integration commitments of international environmental conventions into national

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⁴⁷ Global environmental conventions : cross-sectoral interaction and capacity building of the KR. – Bishkek. 2005.

legislation, capacity building of state, public organizations and business structures in the field of rational nature management and biodiversity conservation.

Description of process of including of biodiversity thematic into sectoral and cross-sectoral strategies and plans and measures, undertaken at national and local levels to achieve objectives of the Convention on biodiversity

Rational use of natural resources is a process of cooperation, which requires joining of efforts of Government, NGOs, business and citizens. Involvement of public into nature management activities is a key moment for development and realization of environmental policy.

Since 2006 a process of development and discussion of the main nature protection document, Environmental Code, is initiated and in 2009 the Code is approved by Jogorku Kenesh of the KR. The Environmental Code now is on approval of the Parliament of the Kyrgyz Republic. The work was implemented under support of the UNDP “Environment Protection for Sustainable Development” Programme and WWF with involvement different groups, from NGOs till Parliament deputies. The basic principles of the document are: “pollutant pays” and “strengthening of inter-agency and cross-sectoral interaction in decision of issues of rational use of natural resources”. This year also the process of defining legislative regime of pastures use for conservation of biodiversity was started. Development of the Law “On pastures” was initiated “top-down”, in its discussion a wide range of public took part: ministries, agencies, NGOs, scientific society, business and farmers. Implementation mechanisms of the project of the Law are developed with active participation of representatives of MAWRPI, Institute of Pastures and Forage, “CAMP “Ala-Too” NGO and “LARC” Public Foundation, including international organizations - UNDP, WB, GTZ and others. This activity is a best practice of sectoral and cross-sectoral partnership in law-making process. Local communities, living for pastures use played a special role in the process of law development. In six pilot villages of the country committees for discussion and promotion of the draft law were organized.

State structures and international institutions in cooperation with NGOs and local communities realize principle of rational use of natural resources through limitation and control of flora and fauna resources use. Under licensing of trophies for foreign hunters, mainly on Marco Polo sheep interaction at cross-sectoral level is taken into account. Licensing on hunting after the mentioned animals is limited. Annually limit and terms of hunting are identified by SAEPF in coordination with NAS of the KR. Hunting received licenses on hunting after wild animals have to register in local self-governance bodies that jointly with territorial sub-division of SAEPF and NGOs control rational use of biodiversity. Although hunting objects are located on territories of local self-governance, it does not have economic benefit from fees for use of natural resources.

International institutions support activities on achievement the convention’s objectives. The best practice is EU-JUMP «Support of sustainable development of juniper forest of the south of Kyrgyzstan» Project (2004-2006), its goal to develop integrated plans of juniper forests management with involvement of local population.

MAWRPI expand cooperation in the field of development and rehabilitation of fish sector: NAS and SAEPF inspections developed and approved fish and biological standards. Representatives of MAWRPI and NAS developed a draft law “On changes and additions in the Law “On fishing sector””.

The GEF/UNDP “Strengthening policy and regulatory framework for mainstreaming biodiversity into fishery sector” Project was launched in 2007. This is the first applied project in Kyrgyzstan, directed on conservation and rehabilitation of ichthyofauna of Issyk-Kul Lake. In 2008 Turkish International Cooperation Agency (TICA) and Department of Fishing under MAWRPI

implement project on rehabilitation of Ton fish factory. The aim of the project is to establish incubation department on reproduction of fish materials in Issyk-Kul oblast⁴⁸.

Expanded network of consultative services, established under support of international donor organizations, works to provide consultative, educational and informational services to farmers. Farmers and rural population especially poor are supported through knowledge on agro technique, production methods, agro business and handcraft. Kyrgyz agrarian market informational system (KAMIS) is improving with the aim to provide information to farmer organizations timely.

Measures on prevention introduction, control and extermination of species, constituting a menace to ecosystems, habitats are undertaken on basis of international standards and national legislation. In legislation coordination on import, export, release and settlement of animals, import and grow of plants, damaging objects of flora and fauna of the republic and health of population are regulated. Our country signed regional and international agreements on providing close international cooperation, including mutual assistance in researches and scientific and technical studies, information exchange in the field of biotechnology.

Under support of Helvitas Swiss Programme and Kyrgyz Tourism Association, Based on Communities (KTABC) Instructions for Guides and Guideline for guest houses owners were developed. EuropAid (TACIS) on conservation of biodiversity of Western Tien Shan (Kazakhstan, Kyrgyzstan and Uzbekistan) together with Helvitas, KTABS organized workshops and trainings for local communities in the field of tourism. On workshops information about value of biodiversity for population living near Western Tien Shan was provided. The project also assisted in creation of CBT – tourism based on communities in project territories of three countries.

The Law “On protection of traditional knowledge” was adopted in June 2007; it includes traditions of biodiversity conservation. In historical heritage of Kyrgyz people there are traditions of rational use of natural resources, for example, culture of rational use of biodiversity, variable and distant pastures management, allowing pastures to recover, violation for hunting in the period of reproduction. Traditional knowledge are also used when collection of medicinal, food and technical herbs.

Mechanism and measures, providing minimal loss under implementation of strategies and plans, directed to achievement of objectives of the Convention on biodiversity

One of the mechanisms to achieve objectives of the Convention on biodiversity is improvement of legislation in accordance with international nature protection conventions.

Measures on conservation of biodiversity are included into Forest and Land Codes of the KR, and in Laws of the KR “On environment protection”, “On protection and use of flora”, “On fauna”, “On fishing sector”, “On SPNA”, “On chemicalization and protection of plants”, “On legal protection of selection achievements”, “On seeds” and others (See Annex II).

In result of sectoral and cross-sectoral interaction in the field of biodiversity conservation the following activities were hold with involvement of NGOs:

- The Resolution of State Administration of Issyk-Kul oblast “On introduction of moratorium of hunting for wild animals on territory of Issyk-Kul oblast” was adopted in 2007.
- SAEPF worked out Regulation “On stationary ecological posts of the KR”.
- Guideline on interaction of prosecutor’s offices, Service of National Safety, Ministry of Internal Affairs, State Customs Inspection and SAEPF and struggle against violation with nature protection legislation is signed in 2006. In 2008 to this Guideline Frontier Service of the KR joined.

- Moratorium on cut, processing and sale of finewood on territories of forests of the KR was introduced (2006).
- Hardening as responsibilities for caused damage to environment were introduced into the Criminal Code of the KR.

To provide control over use of valuable species of flora and fauna Licensing Commission under SAEPP was established in 2007.

UNDP Poverty Reduction Programme implements its activities with the aim to decrease load on biodiversity through support of alternative profitable activities: public crafts, bee and poultry keeping, agriculture processing, yak-breeding and others.

In the framework of CBD commitments implementation under support of GEF, UNDP and WB activities on mitigation anthropogenic impacts on specially protected territories local initiatives on alternative energy sources are introduced.

Since 2008 Kyrgyzstan participates in building of Mechanism of contract of Cartagena Protocol on Biological Security under support of UNEP. In April 2008 international experts hold training on Mechanism of contract for representatives of appropriate state structures. Mechanism of contract of CBD established in accordance with Article 18 (3) of Cartagena Protocol. It calls to provide access to information on biodiversity, and free informational exchange among interested parties, including effective scientific and technical cooperation for achievement of CBD objectives at all levels:

- Conservation of biodiversity;
- Sustainable use of its components;
- Joint obtaining of fair and equal basis benefits related to use genetic resources and providing access and transition of appropriate technologies, taking into account all rights to such resources and existence of proper financing.

Use of positive and elimination of faulty stimulus

Positive stimulus can influence on process of decision making, providing recognition and compensation of activities for conservation and sustainable use of biodiversity. In all adopted Programme of regions development measures, stimulating conservation and sustainable use of biodiversity components are not considered. Legal and strategic frameworks for preparation and implementation of encouraging measures are not developed.

For forming of positive stimulus directed to conservation biodiversity in the country only some steps are undertaken:

1. Joining to international environmental conventions is a starting point for creation of stimulus through international cooperation and/or financing.
2. CDS till 2011 developed on basis of MDG contains a section “Ensuring environmental sustainability”. Concept of environmental security developed and adopted as a main strategic document to form state policy in the field of environment protection and rational use of natural resources.
3. Development of agro ecological programmes can serve as one of positive stimulus to conserve biodiversity. For instance, Asian Centre of Permalloy culture and PF “Eco Oi” implement project in Issyk-Kul oblast (2008), that reform agro-industrial sector. Programme of distribution of permalloy culture implements in the oblast resources saving and environmental technologies, allowing population to alleviate poverty. Projects and informational campaigns of ecological NGOs and their networks allow covering a wide range of population, contributing to conservation of biological diversity at local level, including environmental component into local plans of territories

development. For example, in the framework of cooperation of EM “BIOM”, Japan Nature Protection Fund “Keidanren” and PF “Communities of Kyrgyzstan – for biodiversity conservation” in 2006-2007 the wide informational campaign on conservation of sea-buckthorn at Issyk-Kul cost was hold. Campaign resulted resonance and found its supporters – deputies, staff of SAEPF, NGOs, higher institutions, schools, local population, and mass media. In 2007 in Tosor, Kichi-Jyrgalchak and Ak-Terek villages of Issyk-Kul oblast the first public micro-reserves were created. Local communities protect more than 1000 bushes of sea-buckthorns on costal strip.

Implementing ecosystem approach and its use under including of biodiversity thematic into sectoral and cross-sectoral strategies and plans and programmes

The legal basis, proclaiming biodiversity conservation in industrial and scientific activities at ecosystem level - Laws of the KR “On environment protection”, “On protection and use of flora”, “On fauna”. International projects influence on state of flora and fauna objects at ecosystem level (See Annex III, items 1,3).

With the goal to rehabilitation and support of healthy, productive and biologically diverse ecosystems, integrity of its structures, functions and quality of population life in the Kyrgyz Republic presumption of guilt against environment under licensing of intended activities was introduced⁴⁹. A responsibility of representatives of industry and private sector is to provide information is defined by the legislation of the KR (See Annex II, items 1, 4). Practically all big enterprises prepare annual reports on fulfillment of nature protection activities, which are hosted at web-sites of enterprises (if the are) and can be provided on inquiry. But industrial enterprises and nature users often distort information on emissions and dumping, state of sewage disposal plants, contingencies, threatening environment and health of population.

Information on scopes of including of biodiversity thematic into assessment of environmental consequences and strategic environmental assessment conducted at different levels

To identify, analyze and consider character of supposed impacts of intended activity and caused changes in environment it is fulfilled environmental impact assessment (EIA). EIA is an important approach of monitoring of different impacts on biodiversity. Implementation of such monitoring makes possible to provide timely adequate reaction on mitigation of negative impact on biodiversity. Impact assessment also allows analyzing actions of initiators on environment protection. EIA is one of the mechanisms of ecosystem approach under technogenetic influence, as in its frameworks impact assessment of intended activities on biodiversity, flora and fauna, on health is made.

State environmental expertise, apart from EIA till the start of intended activities of industrial enterprises is undertaken. An assessment of the project document as well as EIA materials is made. All enterprises, implementing economic and other activities, not depending from property form, should have positive resolution of the State Environmental Expertise. It means that intended activity does not exceed acceptable impact on environment.

Also Public Environmental Expertise (PEE) is carried out; in the expertise methods and tool of strategic environmental assessment (SEA) are used. Public expertise and SEA are of recommendation character. Today Kyrgyzstan is not a party of SEA Protocol, but PEE has the same methods and the same initial data. On PEE holding in line with ecological factors, socio-economic factors are assessed, i.e. influence of intended activities on environment and on human is considered, that is principal distinction of PEE from State environmental expertise.

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⁴⁹ Law of the KR “On environment protection”, 1999.

The cases of abuse of nature protection legislation became more rapid. For instance, building of cement plant (Kyzyl-Kiya), cement-slate plant (Nookat) and ferroalloy plant were begun without appropriate environmental expertise, participation of public in EIA procedure and therefore were stopped after court according to action of “Independent environmental expertise” NGO.

On results of cross-sectoral partnership of some NGOs, commercial and international organizations on protection of public and environmental interests guideline on procedures of public environmental expertise with SEA tools was published⁵⁰.

Analysis of achieved results in the process NBCAP implementation

Process of implementation of sustainable development principles, including sectoral and cross-sectoral interaction in the field of conservation of flora and fauna, practically introduced into all national strategies, programmes and action plans as at governmental level so at local level. Unfortunately, all of them do not have financial (budget) support of the government, and implementation mechanisms that cause assumption of commitments without guarantees. And only in the case of existence of international financial resources strategies and plans are started functioning. This trend increases dependence of implementation most of national strategies and programmes from external factors.

Current economic situation in Kyrgyzstan conditions that any budget expenses that do not give immediate effect in rehabilitation of economic are insignificant. Expenses directed to protection of environment during last years decreased till critical level and makes up 0,026% of DGP⁵¹. Tendency of decreasing of capital investments is observed in line of positions, directed on environment protection and rational use of natural resources, conservation of biodiversity.

There is a lack of specialists in the field of environment protection and nature management; accordingly, state structures do not have appropriate capacity to implement prioritized measures in the framework of national strategies and plans on biodiversity conservation.

In spite of this, interests of conservation and sustainable use of biodiversity are included into national sectoral and cross-sectoral plans, programmes and policy. Priorities in national strategies and action plans on biodiversity conservation as one of the means to provide implementation of CBD at national level are being identified, but this is not transformed in implementation of measures at local level.

Activities on increasing public awareness are conducted in the republic. These activities stimulate public to participate in decision making and support in CBD implementation.

Main participants and subjects of activity (state structures, NGOs, international institutions), including private sector forms partner relations to realize the Convention and interests of conservation and sustainable use of biodiversity into sectoral and cross-sectoral programmes and plans.

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⁵⁰ Right of public interests protection. Law. Experience. Recommendations. 2008

⁵¹ Country Development strategy till 2010.

Chapter IV. Conclusions: Progress towards the 2010 Target and Implementation of the Strategic Plan

A. PROGRESS TOWARDS 2010 TARGET IN THE FRAMEWORK OF FULFILLMENT DECISION VIII/15

BIODIVERSITY COMPONENTS PROTECTION

Goal 1. Assistance in conservation of biodiversity of ecosystems, natural habitat and biome

Target 1.1. Effective conservation not less than 10% of each ecological region of the world.

As a contribution for effective protection 10% of each ecological regions of the world in the Kyrgyz Republic 84 different objects, that form SPNA network with the area of 1048512 ha, 5,2% from the republic's territory. Areas of reserves have sustainable tendencies to expansion, for expansion of Besh-Aral borders on 25 thousand ha and buffer zones on 139,2 thousand ha (Table 6).

Table 6

Dynamics of area of each SPNA category

SPNA	Changes of total area of SPNA category for five years, thousand ha					
Years	1990	1995	2000	2005	2007	2008
Reserves	164857	236937	236937	354760	377760	377760
National Nature Parks	11172	13458	238697	259197	241997	241997
Preserves	288900	288900	36176	291017	289448	289448
Buffer zones of reserves						139246
Nature heritages	60	60	60	60	60	60
SPNA total area	464989	539355	511870	905034	909265	1048512
% from countries territories	2,3	2,6	2,5	4,5	4,6	5,2

Currently the process of Pamir-Alay transboundary protected territory is being established (PAPT, Kyrgyzstan-Tajikistan). SPNA is established in places of habitat of rare and endangered species, and those included into the Red Book IUCN and Red Book of the Kyrgyz Republic. (see Appendix III B).

Taking into account benefits, provided by SPNA, Kyrgyzstan undertakes measures on expansion and representativeness of SPNAs, more effective management and planning. Principles of sustainable development and poverty reduction are developed in national strategies, mainly in forming of plans and programmes for implementation decisions of the WSSD and MDG (Agenda XXI). In Kyrgyzstan conceptual measures, conditioned by achievement of the third goal of the CBD - joint receiving of benefits on fair and equal basis. Besides understanding of significance of principle of local communities' participation in management, decision taking and distribution of benefits became more conscious.

Thus NBSAP⁵² developed in 1998 in section "In situ Conservation" (CBD Article 8) was essentially changed and supplemented, taking into account related strategies and plans, such as

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⁵² Approved by Resolution of the Government as of 3 August 2002, №524

Poverty Reduction Programme. Agenda XXI, CDS for 2006-2010. Targets for protected regions also were changed due to signing by Kyrgyzstan environmental conventions (See Annex I). In this directive documents, including concepts, strategies and action plans, goals and targets, defined by the CBD Secretariat, including Decision VIII/15 and Decision VII/28 were reflected.

Target 1.2. Protection of regions of special significance for biodiversity

Kyrgyzstan serves a natural barrier between flora and fauna of Kazakhstan, Uzbekistan and China, which are different biogeographic provinces. On other hand, Tien Shan and Alai is a bridge connecting fauna and flora of Himalayas and Hindu Kush across Pamir with biota of Siberia, and across Dzungar Ala-Tau and Altay with biota of Mongolia. These two conditions cause extreme and unique combination of different fauna flora elements, and define significance of biodiversity of Kyrgyzstan, necessity of its conservation is obvious in regional scope⁵³.

Tien Shan and Pamir-Alai are included into the list of two hundred prioritized ecoregions of planet. Here the largest concentration of specific diversity is observed as plants, so animals⁵⁴. Thus, vascular plants reach 2-3 thousand on 10 thousand km². Such a heightened concentration of species and communities is representative for high mountain system, not only in low latitudes but in middle latitudes⁵⁵.

Richness of Tien Shan – Alai biodiversity is higher than richness of biodiversity of adjoining plain territories. It is explained by physical-geographic diversity of environment, identifying high biological diversity (see Chapter I).

For protection of territories of special significance with the aim to conserve biodiversity, it is organized SPNAs on 5,2% territory of the country (see Appendix III B).

SPNA cover main types of forests, and concentrates the most part of biodiversity and plays key role in supporting of ecological balance.

Together with this, protected regions do not cover low mountain semidesert landscapes, making up 3% of the country's territory and represented in the Western Issyk-Kul and adjacent valley of Fergana.

Goal 2. Assistance in conservation of specific diversity of ecosystems

Target 2.1. Rehabilitation, conservation or limitation of species population of separate taxonomic groups

With the aim of rehabilitation and conservation of separate taxonomic plant groups as *Abies semenovi*, *Allium dodecadontum*, *Tulipa anadroma*, *Malus niedzwetzkiana*, *Malus sieversii*, *Hedysarum chaitocarpum*, *Sorbus persica*, *Tulipa kaufmanniana*, *Thesium minkwitzianum*, *Allochrysa gypsophiloides*, *Amygdalus petunnikovii*, *Salvia korolkowii*, *Sorbus persica* and others, it is also organized reserves, national parks, complex forest and botanic preserves (see Appendix III A).

To protect separate species of animals and birds – *Fulabeia indica*, *Ibidorhyncha struthersii*, *Vormella peregusna*, *Felis uncia*, *Ursus arctos isabellinus*, *Cervus elaphus songarica*, *Marmota*

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⁵³ Shukurov E.D., Balbakova F.N. SPNAs of Kyrgyzstan and conservation of biodiversity of Tien Shan-Alai mountain construction. // Materials of ecological conferences and workshops. Bishkek, 2002. p. 43-41.

⁵⁴ Barthlott, W., w. Lauer, A. Placke. Global Biodiversity: Species Numbers of Vascular Plants (Map) //Mountains of the World. A Global Priority. New York – London, 1997.

⁵⁵ Jenik, J. The diversity of mountain life.// Mountains of the World. A Global Priority. New York – London, 1997.

Menzbieri and others, it is established nine reserves, eight national parks and zoological preserves (see Addition III B).

With the aim of maral's reproduction (*Cervus elaphus songarica*) in Naryn reserve nursery of marals functions more than 15 years. Besides in hunting service "Kyrcool" work on reproduction of semirechinskiy pheasant (*Fasianus colchicus mongolicus Brandt*) is conducted.

In the framework of German Nature and Biodiversity Conservation Union (NABU) Project on protection of snow leopard was established a special "Bars" operative group for protection of animals included into the Red Book (see Annex III, item 11).

To recover, conserve and limit reduction of Issyk-Kul Lake ichthyofauna the UNDP/GEF "Strengthening policy and regulatory framework for mainstreaming biodiversity into fishery sector" is implemented (see Annex III, item 20.).

Target 2.2. Increasing of status of endangered species

In 2007 the second edition of the Red Book was published, in which to compare with previous (1985) a number of species need special protection is increased: plants and mushrooms increased by 16 species, animals by 46. As a whole the list of endangered species increased by 62. All newly included species have a status "rare", except of a subspecies of fish (*Schizothor ax intermedius argentatus*), its quantity decreasing caused by uncontrolled catch of local population and now it has a status "endangered".

Other species earlier mentioned as "the rarest" and only some included into the Red Book identified factually, on results of last researches.

Since last publication of the first version of National Red Book the states of the most species changes are mentioned, there is significant number of new data. It is necessity to note that increased number of species included into the new version does not mean worsening of the situation and real increasing of endangered species. For most of included species it means only fuller information on their state, i.e. species, which earlier considered as relatively safe, under intent study appears as endangered. Other part newly included in to the Book can be considered as significantly worsened since the time of the first edition of the Red Book. Besides, species relatively safe in Kyrgyzstan can be endangered in global scale and be protected, especially if it is included into the Red Book of IUCN.

The general trend of increasing of the most endangered species is observed. Such trend evidences that efforts made in the country for conservation of species included into the Red Book (establishment of SPNAs, improvement of legislation) are not enough to change situation. The increased number of species of the new edition of the National Red Book to compare with edition of 1985 clearly indicates it.

Goal 3. Assistance in conservation of genetic diversity.

Target 3.1. Conservation of genetic diversity of agricultural cultures, domestic animals and extractive for industrial purposes species of trees, fishes and products of wildlife, including other valued protected species of plants and related native and local knowledge.

Kyrgyzstan is a party of Convention on protection new sorts of plants and has a legislation, which regulates conservation of genetic diversity of agricultural cultures, including import of cultural plants' seeds. In the livestock sector conservation of genetic of domestic animals is regulated by the Law "On Breeding in the livestock-breeding of the Kyrgyz Republic" and other normative acts in the field of veterinary. Genetic capacity of used wild plants and animals is

protected by laws of the Kyrgyz Republic in the area of biodiversity. In the area of regulation of genetic engineering and microbiology activities after joining Cartagena Protocol on biosecurity the Law on biological security was developed, which is being approved in Jogorku Kenesh of the Kyrgyz Republic. National production of goods, based on native and local knowledge is developed unsuccessfully due to lack of external sale market. A tendency of sustainable use of cultural and natural genetic fund in domestic production is being conserved. Last years retrade of fish resources in the Son-Kul and Issyk-Kul lakes and Toktogul reservoir.

CONTRIBUTION TO SUSTAINABLE USE

Goal 4. Contribution to sustainable use and consumption

Target 4.1. Getting products of biodiversity from sustainable and manageable source and management of production area in accordance with biodiversity conservation objectives.

Areas, used sustainably are: forests - 4,32%, pastures - 45%. Traditional system of natural economic, management and use of pastures are based on differentiation by categories: village pastures (close to populated settlements), intensive and distant pastures. Due to overgrazing it is observed degradation of village pastures and unused distant pastures are under seral processes, which consequences are not studied yet.

Development of action system on adaptation of community based pastures management approaches, including village pastures, is priority in the filed of land conservation. GEF/UNDP “Community based pastures management in Temir Ayil Okmotu” (200-2007) is a demonstration of effectiveness of community based management of natural resources as means for achievement of double goal – rational use and management of resources and welfare of rural population.

GEF/UNDP “Demonstration of sustainable pastures management in Suusamyр valley” (2008-2012) is being implemented.

In the framework of EU-JUMP (2004-2007) “Support of sustainable management of juniper forests of the South Kyrgyzstan” Project integrated management plans aimed at sustainable use of juniper forests of the republic.

V phase of the Kyrgyz-Swiss Programme (KIRLES) aimed at support of forestry to provide forest conservation and use of resources of forest and biodiversity, increase of forests and use its resources on sustainable basis.

In the field of use of not arboreal forest products some success was achieved. Rules and limits of sustainable use of medicinal and food plants were developed, the work on these rules and limits are undertaken through workshops and publication of available materials.

Fish resources’ use increases of catch norms; as a result fishes’ reproduction capacity and stock of the Issyk-Kul Lake are broken.

Target 4.2. Reduction of unsustainable consumption of bioresources with the aim to conserve biodiversity.

With the aim to reduce unsustainable consumption of bioresources in the Kyrgyz Republic in 2006 according to the Decree of the President of the Kyrgyz Republic “On Introduction of the moratorium on logging, processing and selling of the valuable wood growing on territory of the forestry fund of the Kyrgyz Republic. In 2008 Decree of the President of the Kyrgyz Republic “On Measures protecting and increasing fish stocks in the Issyk-Kul, Son-Kul Lakes and other water bodies of the Kyrgyz Republic” was signed.

Target 4.3. Providing security of wild flora and fauna from threats of international trade.

On November 30, 2006 Kyrgyzstan signed the Convention on International Trade of Endangered Species (CITES).

It was proposed to include 47 species of animals and birds and 13 species of wild plants. SAEPF is an administrative authority of CITES in the Kyrgyz Republic, that controls export, import and reexportation of flora and fauna objects. Functions of CITES scientific body are undertaken by Biology and Soil Institute of NAS of the KR⁵⁶. According to the Decree №01-13/200 of the SAEPF as of September 11, 2007 specimen of signature of authorities, signing permissions of CITES administrative authority in the KR are submitted to State Customs Committee of the KR.

Since beginning of 90s of the last century in Kyrgyzstan hunting tours for foreign hunters for mountain sheep Marco Polo, Siberian Goat, Roe Deer and Wild Boar are conducted. Annually limits of hunting for wild animals within hunting tours of foreigners are approved by SAEPF in coordination with Biology and Soil Institute of NAS of the KR. Annual limit of hunting for sheep Marco Polo is 60 heads, Siberian Goat (350-450 heads), Roe Deer (20 heads) and Wild Boar (5 heads).

Under SAEPF a Commission on quoting of hunting after wild animals within hunting tours that defines quota for wild animals hunting in accordance with data on their population is established.

Hunting tours are related by rules approved by the Resolution of the Government No.458 as of (see revision of the Resolution of the Government as of November 3, 2003. 1996). In Kyrgyzstan hunting after Tien Shan mountain sheep-argali (*Ovis ammon karelini*), which according to classification of IUCN is related to vulnerable species is violated. Tien Shan mountain sheep-argali inhabits only in Kazakhstan, Kyrgyzstan and China (Baillie, Groombridg, 1996). Today hunting after this specie's habitat is violated.

ELEMANATION OF FACTORS OF THREATS FOR BIODIVERSITY

Goal 5. Reduction of loads, caused by loss of habitats, change of land use structure, land degradation and unsustainable water consumption

Target 5.1. Reduction of temps of threats and degradation of natural habitats.

To reduce temps of threats and degradation of natural habitats in the country SPNAs (reserves, nature parks, preserves, nature heritages) and territories of regulated use (forestries, pastures) were established.

In separate districts of the country most of pastures are excluded of structure of pasture rotation and cattle are not breeding on them. At the same time due to energy crisis in rural area pressure on flood-plain forests, which close to villages, where forest resources used as firewood. Also overgrazing of cattle resulted degradation of village pastures is mentioned.

With the aim to solve this problem UNDG/GEF Small Grants Programme provide grants to NGOs located mainly in rural area to implement small and sustainable environmental projects, i.e. creation of nurseries of quick-growing trees, development of bee and yak keeping.

Goal 6. Combat threats, coming from invasive alien species

Target 6.1. Control over main ways of potential penetration of invasive alien species.

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⁵⁶ Decree of NAS of the KR as of December 20, 2007, № 01-40

There are a lot of alien species of animals and plants on the territory of the Kyrgyz Republic. At the same time, existence of invasive species caused invasive diseases among animals and plants are not registered. For example, murrain, anthrax, plague, brucellosis, seven-year itch, helminth diseases among animals, and virus diseases, nematode defeats, defeats by stem bark beetles and other insects – agricultural and wood plants. Special danger diseases of domestic animals are hydrophobia, murrain and brucellosis. Last years in Osh oblast cases of anthrax are observed. In nature such diseases (mainly among rodents) as necrobacillosis, leptospirosis, listeriosis and others are circulated. Especially dangerous and distributed diseases among wild animals are tuberculosis among pheasant and seven-year itch (causative agent is *Acarus tics*) among mountain goats and wild boars. Besides in Kyrgyzstan still the threat of distribution of such dangerous disease as plague, which focuses in natural habitat of red and grey marmots.

Besides these invasive species that affect mammals on the territory of Kyrgyzstan alien diseases and pests of flora (Colorado beetle, gipsy moth, dutch disease, pulm coccids on cherry plum) are distributed. Last years penetration of extremely dangerous pests, as Komstone mealybug, Californian Chionaspis and white American butterfly for nut-bearing forests of Kyrgyzstan is mentioned.

In 1930, 1936, 1956 an acclimatization of fishes in the Issyk-Kul Lake and other reservoirs of Kyrgyzstan was practiced, but biological statement of immigration was prepared without taking into account ecosystem approach and deep analysis. Under development of biological statement, as a rule, only abiotic factors – temperature, regime, possibilities and forage resources were considered. Based on this data, recommendations on immigration of new fishes were made. Under this impact of new inhabitants on local ichthyofauna was not analyzed. When immigration in the Issyk-Kul Lake of pike perch and trout these factors were not taken into account, it caused decrease of fishes' reproduction and endemics – Naked Osman (*Diptychus dybowskii*), Chebak (*Leuciscus schmidtii*) and Chebachok (*Leuciscus bergii*). Immigration of fishes needed to be with account state of ichthyofauna on the following scheme: “predator - prey – parasites”.

At the same time acclimatized species of woody plants are very aggressive. First of all it is ash-leaved maple (*Acer negundo* L.), which first planting was limited, but later it was distributed on significant areas. Such introduction of maple can be considered as negative for flora of Kyrgyzstan (see Appendix III A).

Currently adverse alien species are the second threat for biodiversity (the first one is destruction of habitats) and one of the threat for natural ecosystems, sustainability of biological resources and public health.

Control and management of liquidation of adverse invasive species are undertaken by of veterinary inspection and sanitation and epidemiology service, which take measures in focus of animals and people' diseases genesis. However, in natural focuses, in habitats of wild animals, measures are not taken and situation is uncontrolled. Last years a weakening of quarantine control of State Inspection of plant quarantine is observed. В последние годы наблюдается также ослабление карантинного контроля со стороны Государственной инспекции по карантину растений. It is excited the fact that in appeared focus of dangerous plant vermin even in gardens and plot of lands adjoining to hoses no measures are not taken.

Target 6.2. Implementation of plans to combat main invasive alien species, threatens ecosystems, habitat and species.

The activities on prevention of introduction, control and extermination of species, threatening ecosystems and natural habitat are conducted. There are laws and other legislative acts, which declare coordination on import, export, settling of animals, import and grow of plants that can threaten objects of flora and fauna, including public health on the territory of the republic (see

Appendix II, items 3,7-12,14-19). Quarantine inspection identifies objects, included into the list of quarantined vermin's species and undesirable plants (1997) with quarantine meaning for the Kyrgyz Republic.

All inspections, which control extermination of invasive and alien species, function in accordance with planned objectives and regulations on inspection services. However, in the period of perestroika all national control services (veterinary, sanitation and epidemiology, antiplague) were in difficult economic situation, reformed and caused the situation when most of professionals lose their jobs. In these conditions control over transportation of goods were weakened and still needs improvement. Special programmes and plans to combat main invasive alien species, threatens ecosystems, habitat and species are not developed.

To combat main invasive alien species, threatens ecosystems, habitat and species there is a need of technical equipment for veterinary and quarantine inspections, for sanitation, epidemiology and antiplague services, improvement of qualification of staff and development of special programmes and plans in the mentioned field.

Goal 7. Decreasing of loads that caused by climate change and pollution of environment

Target 7.1. Support and increasing of resistivity of biodiversity components to climate changes and availability to adopt.

Almost 90% of territory's of the republic is over 1500 m. Relative wealth of life is possible thanks to existence of high mountain systems of Tien Shan and Pamir- Alai, which are located at the height of 7 thousand m above-sea level and accumulated moisture of upper atmosphere. The highest mountains are as islands of biological diversity among monotonous plains. Character of biodiversity reflects height of significant part of territory, where predominate are mountain and alpine appearances.

In mountainous Kyrgyzstan deserts, steppes, foliage and coniferous forests and alpine meadows are neighboring on the distance of some kilometers. Only high degree of diversity allows biota effectively functioning in contrast conditions of mountains. Natural ecosystems creates conditions for conservation of soils, attracting of precipitation, distribution of stocks, cleaning of ground waters, gas structure of atmosphere. In the case of loss of high mountain ecosystems, they can not be effectively substituted by others.

While natural ecosystems conserve composition and structure close to initial they can flexibly respond to heterogeneity of mountain nature and climate change.

According to prognosis of experts-climatologists of Kyrgyzstan, by 2100 it is expected increasing of global average annual temperature on 2,5-3,0°C and of annual amount of precipitation on 10-15% on the territory of Kyrgyzstan to compare with quantities 1961-1990⁵⁷.

In flora the most vulnerable to global climate change are plant species and communities that have the largest environmental amplitude – species included into the Red Book, rare, endemic and with reducing areal⁵⁸. In accordance with scenarios of climate change, developed by L.I.Titova (2002) on the territory of Kyrgyzstan significant removal of borders of natural zones of expansion desert and steppe ecosystems, including steppification of meadow ecosystem will take place. Catastrophic changes of species composition of biota will not occur. Increasing of temperature will be smoothed by increasing of humidity and mountain relief. Most of plants, and dominants have wide ecological areal and in the process of evolution they will adapt to life under minimal atmosphere humidity and temperature contrasts. Almost all species of animals are characterized

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⁵⁷ Titova L.I. Consequences of climate change for the regions, 1997; Contemporary climate of Kyrgyzstan, 2002.

⁵⁸ The first National Communication of the KR on UNFCCC. Bishkek, 2003.

natural, developed in the process of evolution adaptive opportunities that allow them to migrate in habitat with appropriate conditions or change terms of daily or season activity.

To fulfill UNFCCC and UNCCD in the framework of UNDP, UNEP, GEF, ADB, TACIS Projects effective activities on training and public awareness of local communities, farmers and water users association are implemented (see Annex III).

Target 7.2. Decreasing level of environment pollution and degree of its impact on biodiversity .

In the framework of the Vienna Convention on ozone layer protection (2000), Rotterdam Convention on procedure of preliminary sound agreement in terms of specific hazardous chemicals and pesticides in international trade (2000), UN Convention on transboundary air pollution on long distances (2000), UN Framework Convention on Climate Change (2000), Basel Convention on control of transboundary transportation of hazardous waste and its removal (1996), Kyoto Protocol to UNFCCC, Stockholm Convention on Persistent Organic Pollutants (2002) a complex of measures on regulating turnover of persistent organic pollutants of water, air and soil in Kyrgyzstan are undertaken. During last 15 years use of fertilizers (dung and pesticides) in agriculture are significantly decreased, and in separate regions are not used due to lack of funds for purchasing.

MAINTENANCE OF GOODS AND SERVICES, PROVIDING BY BIODIVERSITY WITH THE AIM TO ASSIST WELFARE OF PEOPLE

Goal 8. Maintenance of ecosystems ability to give goods and services and provide sources for living

Target 8.1. Maintenance of ecosystems ability to give goods and services.

Productivity of land resources provides food security and effectiveness of poverty reduction in the country, as irrigated agriculture provides republic with grain and vegetables, and natural pastures and hayfield with products for livestock sector. Taking into account importance of pasture and forest ecosystems for welfare of population and in accordance with national plans and strategies of sustainable development of the country in a whole (see Annex II) it necessary to pay attention to support of these ecosystems' productivity. To provide needs of local population plantations of quick-growing trees are established. On the south of the republic community based management of forests are carried out, local communities rented forest plots to stocking nuts, fruits, berries and medicinal herbs. In the framework of implementation of Programme of agricultural complex development stimulating activities on use of distant pastures are conducted. With the aim to develop community based, rational use of pastures Associations of pastures users are established. In separate rural areas centres of processing of products of livestock and crop sectors are opened. Local population is trained agrotechnical skills and nature conservation technologies. Though due to the continuous land degradation ability of ecosystems to provide goods and services to population is decreasing.

Target 8.2. Conservation of biological resources, supporting sustainable of vital functions, local food provision and public health, especially poor population

For conservation of biological resources, supporting sustainable of vital functions, local food provision and public health traditional approaches of natural resources use are applied – distant cattle breeding, yak breeding and gathering. There is a legal basis for regulation and protection of all complex of natural and resources base (See Annex II).

There are species in Kyrgyzstan that have value from economic, medicinal, recreational, scientific, educational and aesthetic points of view. Wild flora includes about 600 species of plants, which can be used as medicinal herbs, technical, aromatic, craft and building materials.

Population gathers wild berries (sea-buckthorn, ashberry, barberries, currants, raspberries, haw), mushrooms (more than 10 of edible fungus), medicinal herbs (tens of species) on territory of 7-8%. On the south of the republic local population gather English walnut, wild apples, pears, apricots, plums, cherry plums, capers etc.

The most valuable are unique walnut forests of the Southern Kyrgyzstan. Mentioning significance of walnut massive as unique nature forming, it is necessary to highlight that here together with species diversity, forming diversity of English walnut, apple, almonds, pistachio, cherry plums, pears that allowed N.I.Vavilov to title the Southern Kyrgyzstan one of the centre of origin of cultural fruit trees. From this position massive represents value as keeper of huge genetic fund.

In walnut forests in good year for the crops, it can be get about 2,5 thousand tons of English walnut, 8,0 thousand tons of apples, 1,0 thousand tons of cherry plums, 30 thousand tons of pistachio and almonds. There are forest haying that can provide needs of forestry and agriculture. There are about 14,4 bee families in forestries. Honey from Saru-Chelek state reserve, Avletimsky and Arkit forestris is popular.

In 2002 under financial support of Swiss Agency on Development and Cooperation, Centre for Environment Development of Bern University and Central Asian Mountain Programme was developed Catalogue of mountain production of Central Asia. Description of traditional knowledge, used in production of the goods or services takes a special place in the publication. On initiative of CAMP in 2008 Forum on Sustainable Development of mountain regions of Central Asia “Mountain communities and business structures: Dialogue and ways of cooperation” devoted to problems of business development by mountain communities was hold.

In the framework of the GEF/WB Central Asian transboundary project on conservation of biodiversity of Western Tien Shan in 2002 the survey on medicinal herbs aimed at management of natural resources and poverty reduction was conducted. The following information was collected:

- Use of medicinal herbs by population;
- Sources of information on use of medicinal herbs;
- National traditions on use of medicinal herbs by population and their continuity;
- Participation of women in the process of herbs gathering and treatment;
- Interest of local population in gathering of medicinal herbs;
- Potential labor resources on collection of herbs;
- Marketing and Sale.

PROTECTION OF TRADITIONAL KNOWLEDGE, INNOVATIONS AND PRACTICE

Goal 9. Support of the social-cultural diversity of the indigenous and local communities

Target 9.1. Protection of traditional knowledge, innovations and practice

Kyrgyzstan is oriented towards implementation of the integrated policy aimed at respect, preservation and support of traditional knowledge, sustainable use of biological diversity through development of the state programmes and legislative act.

In terms of scientific and research area, work is conducted to create the registers and data base on traditional knowledge used in field of production of the medication based on natural raw material. Specialists organize meetings with the holders of traditional knowledge.

There are several projects in the country funded by the international donor agencies which cover theme of preservation of the traditional knowledge. The Central Asian Mountain Programme CAMP of the Swiss Agency on Development and Cooperation made substantial input in this area of activity. Under its financial support, surveys on production and marketing of products of the mountain regions were conducted – wool and felt in the Kochkor and At-Bashy rayons of the Naryn oblast of Kyrgyzstan. As a result of the survey, products and ways of their traditional production from wool and felt including use of natural dyes were described and economic calculations were made. In 2004, similar survey on production and marketing of the mountain honey has being conducted in the Jety-Oguz, Ton and Tyup rayons of the Issyk-Kul oblast of Kyrgyzstan. NGOs' activity in the Ton, Kochkor, At-Bashy rayons is aimed at conservation of the traditional knowledge connected with use of natural dyes to produce the felt products. Traditional experience and knowledge are used in yak breeding in the mountain pastures and breeding of the local mountain horse. Tradition of careful use of the pastures is restored. Local enthusiasts started breeding of the ancient Kyrgyz breed of dog – taigan.

Target 9.2. Protection of the rights of the indigenous and local communities on their traditional knowledge, innovations and practice including right on joint benefit use

In 2007, the Law of the Kyrgyz Republic “On protection of traditional knowledge” was approved. One of provisions of the Law is about capacity building in traditional knowledge area, which is associated with the genetic resources including implementation of the scientific-research works where traditional knowledge is used and all stakeholders are attracted.

In Kyrgyzstan, the legislation provides protection of traditional technologies and handicrafts. There are small business companies manufacturing beverages based on traditional old technologies (kumys, bozo, tan, maksym). Population uses traditional knowledge and technologies in domestic production of milk and meat products, particularly in rural area.

ENSURING THE JOINT BENEFIT USE ON FAIR BASE CAUSED BY USE OF GENETIC RESOURCES

Goal 10. Ensuring the joint benefit use on fair base caused by use of genetic resources

Target 10.1. Any access to genetic resources is made according to the Convention on Biodiversity and its relevant provisions.

The draft Law of the Kyrgyz Republic “On Biological Safety” and set of the regulatory and legal acts on biodiversity, biological safety and genetic engineering were developed as a result of implementation of the GEF/UNEP Project “Development of the framework documents on biological safety” and joining of Kyrgyzstan to the Cartagena Protocol. Also, data bases of the Botanical Geographic Center on origin of cultivated plants and the Center of Sorted Biodiversity where specific conditions of biological safety maintained were produced. The Law is in phase of consideration but due to limited funds, control of transportation (import and transit) of the live modified objects is not carried out. At the same time, products containing components of processed genetically modified objects (soy protein) are imported in the country. There is still a danger with regard to import of seeds of the genetically modified objects and potential of infection of the local sorts by the modified genetic component.

Target 10.2. Benefits of commercial and other use of the genetic resources are jointly used on fair base by the countries representing such resources according to the Convention on biological diversity and its relevant provisions.

Regulation of turnover of genetically modified objects and management of commercial use of the genetic resources according to provisions of the Cartagena Protocol is not developed in the country. International cooperation in area of exchange and trade of genetically resources is lacking.

ENSURING PROVISION OF THE ADEQUATE RESOURCES

Goal 11. The Parties shall strengthen financial, scientific, technical and technological capacity in order to implement the Convention on Biodiversity

Target 11.1. The Parties, which are the developing countries, receive new and additional financial resources according to the Article 20 that they are able to fulfill efficiently their commitments in a framework of the Convention

Component “environmental protection for sustainable development” was first time introduced in the country UNDP Programme for 2005-2010 in order to fulfill recommendations of the Global Summit on Sustainable Development in accordance with the Agreement between the Government of the Kyrgyz Republic and UNDP. Extension of cooperation between the stakeholders in environmental protection for sustainable development at the national and sub-regional levels is one of the key targets. Possibility to achieve goals of the Convention of Biodiversity is formulated by research UNDP Project “National self-assessment of capacity on implementation of the Global Environmental Conventions”. Up to 2005, certain activities have being conducted aimed at biodiversity resources management, agriculture development, training of the population on principles of renewable nature use and introduction of nature saving technologies in a framework of the international projects under support of the donor organizations.

Target 11.2. The Parties, which are the developing countries, receive technology in accordance with the paragraph 4, Article 20 that they are able fulfill efficiently their commitments in a framework of the Convention.

The Kyrgyz Republic undertakes a number of interventions to implement its commitments within the Convention of Biodiversity on access to technology and its transfer. Measures are undertaken both in the legislation (adoption of the regulatory-legal documents and design of appropriate programmes) and administration (establishing institutions, laboratories and etc.).

In particular, “List of priority directions in science development for 2003-2005” (See Annex II, item 50) was approved by the Resolution of the Government of the Kyrgyz Republic in order to implement the State Programme of science reforming in the Kyrgyz Republic.

B. RESULTS OF IMPLEMENTATION OF GOALS AND OBJECTIVES OF THE STRATEGIC PLAN OF THE CONVENTION ON BIODIVERSITY

Strategic goals and objectives	National input in implementation of goals and objectives
Goal 1. The Convention at international level plays leading role in addressing issues related to biodiversity	
1.1. The Convention defines the global agenda for protection and sustainable use of biodiversity	The Conference of the Parties in its decision VI/26 adopted the Convention's Strategic Plan up to 2010. To implement the Strategic Plan, the parties undertake commitment to ensure more effective and consistent achievement of three goals of the Convention in order to reach substantial reduction of rate of biodiversity loss to 2010. Goal of biodiversity conservation fixed towards 2010 was approved by the World Summit on Sustainable Development held in Johannesburg. The Conference of the parties clarified this goal at the 7 th and 8 th meetings and accepted a temporary structure of goals and targets formulated for 2010, and implementation of goals and targets of the programme on protected areas adopted in the decision VII/8, and Targets of the Global Strategy on Plants Conservation.
1.2. The Convention promotes cooperation between all relevant international documents and processes in order to ensure clearer harmonization of the policy.	
1.3 Other international processes actively support implementation of the Convention in accordance with their adequate structures.	
1.4. Large-scale implementation of the Kartakhena Protocol on biological safety.	The Kyrgyz Republic joined the Cartagena Protocol in 2005 and it participates in introduction of the mechanism of intermediation on biological safety. The National Framework Document on Biological Safety was developed in the country. Work is ongoing on development of the regulatory and legal basis on biological safety.
1.5. Interests of biodiversity are included in appropriate sectoral or intersectoral plans, programmes and policies at the regional and global levels.	Issues of biodiversity conservation were incorporated in the following sectoral and intersectoral plans and programmes: - Country Development Strategy for 2009-2011 (CDS). Strategic goal of CDS is to improve living standard through increasing of economic growth, improve quality of environment and biodiversity conservation. - Agenda XXI for the Kyrgyz Republic and the Conception of transition of Kyrgyzstan to sustainable development to 2010. Interconnection of economy and environment through formation of environmentally sound was strengthened. One of the strategic priorities to transit to sustainable development is biodiversity and ecosystem conservation through increase of the protected areas to 8% of total territory of the country. - Sub-regional sustainable development strategy (SSDS) of Central Asia. Principles of Agenda XXI, Millennium Development Goals and Plan of implementation of decisions of the World Summit on Sustainable Development were considered as a basis in preparation of the SSDS CA (Section III).
1.6. Cooperation of the parties at the regional and sub-regional levels in order to	To implement the Convention, Kyrgyzstan cooperates at the regional and sub-regional levels: - with CIS countries in a framework of the Interstate Environmental

implement the Convention.	Council (IEC); - with the Central Asian countries within the Interstate Sustainable Development Commission and CAREC. The Agreement on biodiversity conservation and sustainable development and the Agreement on intention of the Interstate Sustainable Development Commission (ISDC) and the Central Asian WWF Programme on implementation of “Econet” in the Central Asian region have been signed in a framework of cooperation at the regional and sub-regional levels. - Regional Action Plan on Environmental Protection in Central Asia, the National Framework Programme on Land Management (CACILM) and “EIA Guidelines for CIS and CA countries” were developed. Environmental Strategy of the countries of Eastern Europe, Caucuses and Central Asia (EECCA) was approved; “Alliance of Mountain Communities” was established.
Goal 2. The Parties strengthened financial, human, scientific and technical-technological capacity in order to implement the Convention	
2.1. All Parties have an adequate capacity to carry out priority activities within the national strategies and action plans on biodiversity conservation.	Kyrgyzstan has limited capacity to carry out priority activities as it faces with shortage of the financial and technical resources and qualified specialists. Priority measures on biodiversity conservation are conducted in a framework of the international projects (see Annex III).
2.2. The Parties, which are the developing countries (in particular, less developed countries and small islands) and countries in transition, have sufficient resources to implement three goals of the Convention.	Insufficient financing from the state budget is a major barrier for successful implementation of main planned actions on implementation of three goals of the Convention. Projects implemented in the country under financial support of the donors contribute to compliance of the Convention on Biodiversity. Projects’ activity is aimed to maintain infrastructure of the protected areas, implementation of the scientific studies of flora and fauna, data base development, public awareness and involvement of the local communities in the biodiversity conservation activities.
2.3. The Parties, which are the developing countries (in particular, less developed countries and small islands) and countries in transition, increased volume of resources and extended transfer of technologies available in order to implement the Kartakhena Protocol on Biological Safety.	Project on development of the Mechanism of intermediation on biological safety was launched in the republic under support of UNEP/GEF. Kyrgyzstan started to form the regulatory and legal base on biological safety. Republic continues search of ways of international cooperation in field of biological safety.
2.4. All Parties have an adequate capacity to fulfill the Kartakhena Protocol on Biological Safety.	At present, financial and material-technical capacity to fulfill the Cartagena Protocol in Kyrgyzstan is lacking.
2.5. Development of the scientific-technical cooperation	International scientific-technical cooperation in a framework of the Convention on Biodiversity is weak. Training events and transfer of

contributes substantially in capacity building.	nature saving technologies including training on processing methods are not enough. Kyrgyzstan needs support in field of technical cooperation, namely in capacity building of the country on biological safety.
Goal 3. National strategies and action plans on biodiversity conservation, and inclusion of interests on conservation and sustainable use of biodiversity in activity of the relevant sectors provide an efficient structure to achieve goals of the Convention	
3.1. Each Party introduced efficient national strategies, plans and programmes to develop national mechanisms of implementation of three goals of CBD and set clear national priorities.	The National Strategy and Action Plan on Biodiversity Conservation (1998-2005) developed in 1998, does not serve as a basis for design of the efficient national mechanism to achieve three CBC's goals because of shortage of financing (Section II). In 2002, the Strategy of biodiversity conservation of the Kyrgyz Republic (2002-2006) was approved by the Resolution of the Government of the Kyrgyz Republic. The National Strategy and Action Plan on Biodiversity Conservation of the Kyrgyz Republic for 2009-2019 shall be developed and approved by the Resolution of the Government of the Kyrgyz Republic with appropriate budget financing in order to develop efficient mechanism for achieving three CBC's goals and setting the national priorities.
3.2. Each Party of the Kartakghena Protocol on Biological Safety introduced the regulation base aimed towards achievement of goals of the Protocol.	Kyrgyzstan being one of the Parties of the Kartakghena Protocol, is still at stage of formulation of the regulatory-legal base: the draft national law "On biological safety" and the Concept on implementation and introduction of regulatory regime related to main requirements on procedures of turnover of modified objects. But these documents are not introduced yet, and procedures of their consideration are postponed.
3.3. Interests of conservation and use of biodiversity are included in the relevant national sectoral and intersectoral plans, programmes and policies.	Interests of conservation and sustainable use of biodiversity are reflected both in the sectoral plans (the National Framework Programme on Land Management, the Concept of Forestry Development), and in the intersectoral programmes on sustainable development of the country (the Country Development Strategy for 2009-2011). In other sectors (health, mining industry, trade and industry and rural development), issues of biodiversity conservation are considered insufficiently (Section III).
3.4. Active realization of priorities in the national strategies and action plans on biodiversity conservation as instrument in implementation of the Convention in the national scale, and substantial input in implementation of the global agenda on sustainable use of biodiversity.	Only some sections of the National Strategy and Action Plan on biodiversity conservation are implemented as the budget financing is limited, but they are supported by the international donor institutions within the international cooperation. Agenda XXI of the Kyrgyz Republic was developed and the Concept of transition of Kyrgyzstan to sustainable development to 2010 was adopted in order to implement decision of the World Summit on Sustainable Development. One of key direction of the Concept is environmental sustainability and rational use of natural resources through transition to efficient consumption of non-renewable and non-depleted use of renewable resources. Within this document, strategic priorities of Kyrgyzstan for transition to

	sustainable development and target indicators of biodiversity conservation to 2010 were identified (Section III).
Goal 4. There is deeper understanding of meaning of biodiversity and goals of the Convention, which led to broader involvement of different groups of the population in process of the Convention implementation	
4.1. All the Parties fulfill the strategy on communication, education and public awareness increase, stimulating public participation in implementation of the Convention.	In Kyrgyzstan according to the Aarhus Convention, work is conducted in field of education and public awareness. SAEPF places information on status of environment on website www.nature.kg and give an opportunity to the stakeholders to place their information. UNDP's website www.caresd.net and websites of the public organizations and international projects may serve as example of active informational portal used to increase public awareness on biodiversity conservation issues (Appendix II). NGOs also make their input and issue publications in a framework of the environmental and sustainable education and lawmaking. Since 1997, the Festival of environmental journalism is conducted annually (Section III).
4.2. Each Party of the Kartakhena Protocol on Biological Safety facilitates and promotes awareness, education and public participation in activity supporting the Protocol.	Public awareness, education and public participation activities are conducted mainly due to support of the donor agencies within specific projects. In a framework of UNEP/GEF Project "Development of the national framework document on biological safety of the Kyrgyz Republic", attention was paid to increase of awareness and education levels and public participation in order to support the protocol. Under support of UNEP/GEF Project, the project on development of intermediary mechanism on biological safety was launched. One of the goals of this project is to increase awareness and participation of the public in implementation of the Protocol's goals.
4.3. Indigenous and local communities are effectively involved in processes aimed to implement goals of the Convention at the national, regional and international levels.	In Kyrgyzstan, the local communities are poorly involved in processes of achieving goals of the Convention. The National Forestry Programme for 2005-2015 anticipates increase of independence of the forestry units, involvement of the local communities in the forest management, increase role of the private sector on forestry activity. Local active NGOs participate in implementation of the pilot GEF/UNDP SGP projects on biodiversity conservation (Annex III).
4.4. Main participants and entities including the private sector form the partner links in order to implement CBD and include interests on conservation and sustainable use of biodiversity in their sectoral and intersectoral plans, programmes and policies.	To implement the Convention on Biodiversity, the sector of forestry and agriculture (pastures) actively include issues on conservation and sustainable use of biodiversity in their sectoral and intersectoral plans, programmes and policies. Unfortunately, issues of biodiversity conservation are weakly reflected in other sectors of economy. Private sector, business structures and entities (farmers, cooperatives and local communities) relay on economic mechanisms in their policy ignoring environmental principles (Section III). Up to now, mechanisms of attraction of the private business and implementation of initiatives of sustainable biodiversity use are not

	developed in the country, which envisage protection and rehabilitation activities. In the private sector, mechanisms of protection and rehabilitation of biological resources (game and forestry units) are not identified.
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C. Conclusions

Activity on biodiversity conservation in Kyrgyzstan presented in IV National Report demonstrates positive impact of the country joining to the Convention on Biodiversity, integration in the international legal dimension. One of the priority directions in the Country Development Strategy for 2007-2011 is “ensuring environmental safety as a basis for sustainable development of the republic”. Measures aimed towards harmonization of nature protective legislation to implement commitments on other related environmental conventions are implemented to achieve set objectives. Today the following projects are implemented: UNDP/GEF Project “Strengthening of the policy and regulatory and legal structure to address problems of biodiversity conservation in the fishery sector” and “Demonstration of sustainable development of the mountain pastures in the Susamyr valley”, GEF/WB Project “Development of the Tien-Shan ecosystems”, ADB project “Initiative of the central Asian states on land management” (CACILM), the National Framework Programme on sustainable development of land resources to 2016 and other.

During preparation of III National Report on biodiversity conservation of the Kyrgyz Republic (2006) certain success was achieved:

1. National legislation is under improvement. Adoption of the Concept of environmental safety of the Kyrgyz Republic⁵⁹ (2007) and set of measures on its implementation⁶⁰ (2008) is very important achievement field of environmental protection and rational use of natural resources.
2. In November 2006, the Kyrgyz Republic joined the Convention on International Trade of Endangered Species (CITES).
3. In 2007, the Agreement on intention between the Interstate Sustainable Development Commission of Central Asia and the Central Asian WWF Programme on implementation of “Econet” in the region was signed.
4. In 200, the Law of the Kyrgyz Republic “On protection of traditional knowledge” was approved.
5. The Environmental Code was developed and approved by the Jogorku Kenesh of the KR in 2009.
6. Second edition of the Red Book of the Kyrgyz Republic was published in 2007.
7. In order to preserve and reproduce the forest ecosystems, the Concept of Forestry Development of the Kyrgyz Republic for 2005-2015 and the National action Plan of Forestry Development of the Kyrgyz Republic for 2006-2010 are implemented. In 2008, the National Forest Inventory of the Kyrgyz Republic was launched, the first one in CIS countries.
8. Moratorium on logging, processing and sale of especially valuable wood growing on territory of the forest fund of the Kyrgyz Republic was introduced through the Decree of the President of the Kyrgyz Republic (2006).

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⁵⁹ Approved by the Decree of the President of the Kyrgyz Republic as of 23.11.2007, № 506.

⁶⁰ Resolution of the Government of the Kyrgyz Republic as of 13.06.2008, №294.

9. In 2008, the Decree of the President of the Kyrgyz Republic “On measures on conservation and increase of fish stocks in the Issyk-Kul lake, Son-Kul lake and other water bodies” was issued.
10. Territory of protected areas was increased from 4,5% in 2006 to 5,2% in 2008.
11. In 2008, forestry enterprises planted forest on territory of 3021 hectares.
12. In the framework ISTC in Institute of biotechnologies of NAS of the KR genetic bank of endemic, rare and economically valuable plant species of the KR.
13. Since 2005, principles of sustainable development are integrated in the system of education of the Kyrgyz Republic within the Concept of transition of the Kyrgyz Republic to sustainable development up to 2010.
14. One of the priority directions of the Country development Strategy for 2007-2011 is “ensuring environmental security as a basis for sustainable development of the republic”.

At the same time, work under IV National Report of the Kyrgyz Republic figured out some alarming trends:

- Non-compliance of law on protected areas, protection and use of biological resources is observed;
- Problems of biodiversity conservation and protected areas are connected with low level of budget financing, which defines low material-technical, scientific and human capacity of the protected areas and effectiveness of biodiversity protection;
- Lack of system of the biological resources monitoring, account, assessment, forecast, control and management;
- State budget does not allocate funds to maintain state cadastre of the flora and fauna objects and monitoring of biodiversity status;
- Lack of the state programmes and plans on protection and sustainable use of wild plants;
- Lack of consistency in the legislation of the Kyrgyz Republic regarding definition of rates and norms of payments for wild resources use;
- Increased number of endangered species, poaching, illegal logging, destruction of the forest and village pasture ecosystems;
- Existing system of the personnel training does not match needs of the nature protection sector;
- Weak intersectoral and interagency interaction in field of biodiversity conservation;
- Insufficient level of public awareness on importance and significance of biodiversity conservation;
- Goals and objectives of the Strategic Plan of the Convention on Biodiversity, the Global Strategy of Plants Conservation and the Action Programme on the protected areas are not considered adequately.

In order to fulfill commitments of the Convention on Biological Diversity and other environmental conventions promoting environmental sustainability, the Kyrgyz Republic shall:

1. Develop the National Strategy and Action Plan on biodiversity conservation of the Kyrgyz Republic for 2009-2019 and approve them with appropriate budget financing through the Resolution of the Government of the Kyrgyz Republic;
2. Develop the Concept on ecological network development of the Kyrgyz Republic and approve it with appropriate budget financing through the Resolution of the Government of the Kyrgyz Republic;
3. Develop the Flora and Fauna Register of the Kyrgyz Republic;

4. Set up the National Center of biodiversity monitoring;
5. Set up the Center of Advanced Training of the specialists on biodiversity and protected areas;
6. Develop and introduce issues of biodiversity conservation in the state educational standards for schools and universities in a context of education for sustainable development;
7. Strengthen institutional capacity of the existing protection areas;
8. Conduct assessment of effectiveness of the protected area management based on ecosystem approach using mechanism of the strategic environmental assessment, environmental impact assessment, environmental audit through involvement of the and local self-governmental bodies/municipalities;
9. Create efficient mechanism of coordination of intersectoral interaction in field of biodiversity conservation;
10. Select and test the national indicators of biodiversity;
11. Develop unified methods for inventory and land survey of the protected areas;
12. Conduct inventory of all categories of the protected areas received the state acts;
13. Increase level of public awareness on environmental issues and involve local communities in nature protection activity;
14. Introduce processing technologies based on traditional knowledge;
15. Ensure regulatory mechanism to control turnover of the live modified objects;
16. Approve IV National Report on Biodiversity of the Kyrgyz Republic at level of the Government of the Kyrgyz Republic.

Appendix III A. Progress towards Targets of the Global Strategy for Plant Conservation

Targets of the Global Strategy on Plants Conservation

Target 1. Preparation of widely available operational list of known plants as a step towards compilation of the complete inventory of the worldwide flora

In 1952-1965, the book “Flora of the Kyrgyz SSR”⁶¹ was published with later editions 1967 and 1970.⁶² At present, this book does not provide full picture about species diversity of plants of the republic. In 1968-1993, “Key/identifier of the plants of Central Asia” was published.

At present, “Cadastre of the genetic fund of Kyrgyzstan” is prepared in the Institute of Biology and Mountain Forestry of the National Academy of Science of the Kyrgyz Republic. Recently, two monographs contained modern processing of *Umbelliferae*⁶³ and *Caryophyllaceae*⁶⁴ were issued. However, less than 10 % of the republic’s flora was described in the republic. Publication of these books is a personal initiative of individual researchers. Incomplete lists of flora of the individual protected areas were published as a result of implementation of the GEF/WB and EU projects (See Annex III, items 1, 2). Vegetation of the Sarychat-Ertash reserve⁶⁵ was described. There is incomplete list of the plants of the Besh-Aral⁶⁶ and Sary-Chelek reserves⁶⁷.

At present, the state inventory of biodiversity is conducted including the reserves’ flora. Survey of the Issyk-Kul and Kulun-Ata reserves was held within this programme coordinated by the State Agency on Environmental Protection and Forestry under the Government of the Kyrgyz Republic (SAEPF KR).

In 2008, the Atlas “Endemics and rare species of plants of Kyrgyzstan” was published in a framework of the ISTC Project (See Annex III, item 13)⁶⁸.

The personnel of the flora laboratory of the Institute of Biology and Mountain Forestry of the National Academy of Science studies flora of the republic in a framework of the scientific programmes. During last 15 years, about 40 new species of plants have being described. Approximately 100 species and about ten types of plants were discovered in Kyrgyzstan. Before, they were known only in the neighboring countries. Flora of Kyrgyzstan is less studied compare to other Central Asian republics, and they need further research⁶⁹.

Thus, data on composition of the plants of the republic are available; however, these data are not full. It is necessary to publish “Cadastre of Kyrgyzstan’s Flora”, later – “Flora of Kyrgyzstan” including required additions and amendments.

Target 2. Preliminary situation analysis related to conservation of all known species of plants at the national, regional and international levels

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⁶¹ Flora of the Kyrgyz SSR. Frunze, 1952-1965.

⁶² Flora of the Kyrgyz SSR. Addition. Issues 1-2. Frunze, 1967-1970.

⁶³ M.G. Pimenov, E.V. Kluikov. Umbeliferae of Kyrgyziya. M., 2002. P. 288

⁶⁴ G.A. Laz’kov. Caryophyllaceae in flora of Kyrgyzstan. M., 2006. P. 272.

⁶⁵ V.M. Shikhov, C.K. Dyikanova, A.N. Vereshagin. Vegetation and flora of the northern-western part of the Sarychat-Ertash reserve // Books on reserves of Kyrgyzstan. Bishkek, 2005. P. 246-249.

⁶⁶ G.A. Laz’kov, N.V. Kenzhebaeva, V.M. Shikhov, B.A. Sultanova. Materials about flora of the Besh-Aral reserve // Biological diversity of the Western Tien-Shan. Status and prospective. Bishkek, 2002. P. 176-199.

⁶⁷ H.U. Borlakov. Flora of flowering plants of the Sary-Chelek reserve // Materials of the Sary-Chelek reserve. V 2. Frunze, 1966. P. 45-93.

⁶⁸ A.R. Umralina, G.A.Laz’kov. Endemics of rare species of plants of Kyrgyzstan. Atlas. Bishkek, 2008. P. 164.

⁶⁹ R.V. Kamelin, M.G. Pimenov, E.V.Kluikov. Umbeliferae of Kyrgyzstan. M., 2002.

There are the laws and regulatory-legal acts on protection of vegetation of the Kyrgyz Republic (See Annex II, items 1, 2, 3, 6). According to studies of the specialists, about 400 species of plants must be protected⁷⁰. Plants are protected in the reserves, preserves and national parks. Outside territory of the protected areas, plants are protected by the forestries. But they protect mostly wood and shrubbery and forest communities. Protection of specific species of the plants like *Petilium eduardi*, various species of tulips (*Tulipa*) is conducted by initiative of the local population under support of the Small Grant Programme. However, this protection is not comprehensive and continue-based.

In 2007, the Red Book of the Kyrgyz Republic⁷¹ was published where 83 species of the highest plants (2 % of flora of the Kyrgyz Republic) and 4 species of mushrooms. Assessment of modern status of populations of some rare and endemic species was conducted within the ISTC project (See Annex III, item 13) and the monograph was published based on results of the assessment, which was dedicated to modern status of endemic and rare plants of Kyrgyzstan⁷².

On November 30, 2006, Kyrgyzstan signed the Convention on International Trade of Endangered Species (CITES). It was proposed to include 13 species of wild plants of Kyrgyzstan in the CITES List: *Corallorrhiza trifida* Chatel., *Listera ovata* (L.) R.Br., *Neottia camtschatea* (L.) Reichenb. fil., *Epipactis palustris* (L.) Crantz, *Epipactis helleborine* (L.) All., *Epipactis royleana* Lindl., *Cephalanthera longifolia* (L.) Fritsch, *Goodyera repens* (L.) R.Br., *Coeloglossum viride* (L.) C. Hartm., *Orchis pseudolaxiflora* Czerniak., *O. latifolia* L., *O. salina* Lindl., *O. umbrosa* Kar. et Kir.

At present, the list of rare species of woody plants of Central Asia was prepared for publication under support of FFI. The list contains also 39 species from Kyrgyzstan.

Target 3. Development of models and procedures of protection and sustainable use of the plants based on scientific studies and practical experience

The Kyrgyz-Swiss Programme (See Annex III, item 5) developed model of the community based forestry management (CBFM), which goal is to involve the local communities in sustainable use of the walnut. Basis of this model is lease of the forest sites by the local residents for 49 years. Unfortunately, problems occur under benefit sharing. Results of the study conducted by the Ecological Movement “BIOM” showed that uneven distribution of CBFM land would lead to the conflict of interests. In several cases, forest protection and forestation activities are not carried out on the sites allocated for CBFM⁷³.

Within implementation of the project «JUMP», integrated management plants for juniper forests were elaborated for State Nature Park “Kyrgyz-Ata” and 10 forestries of Osh and Batken oblasts considering needs of the stakeholders (See Annex III, item 8). Main goal of the integrated management plans – land management in juniper forests considering local economic and social conditions for sustainable use.

Rules on feedstock and gathering limits for 45 species of the wild medicinal and food herbs were developed and adopted through the SAEPP’s directive based on scientific studies and practical experience.

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⁷⁰ B.A. Sultanova, G.A.Laz’kov, L.P. Lebedeva, R.N. Ionov. Preliminary list of the highest plants for protection and inclusion in the Red Book // Science and new technologies. 1998, №2. P.119-127

⁷¹ Red Book of the Kyrgyz Republic. Edition 2. Bishkek, 2007. P. 544.

⁷² A.R. Umralina, S.L. Prokhod’ko, G.A. Laz’kov et al. Modern status of endemic and rare species of the plants of Kyrgyzstan. Bishkek, 2007. P. 184.

⁷³ Research in a framework of the FAO Project of the National Facility Programme “Implementation of the forestry policy of Kyrgyzstan through awareness campaign on attraction of the communities to participatory forest management”. Ecological movement “BIOM”. Bishkek, 2006.

Target 4. Efficient conservation at least of 10% of each environmental region of the world

At present, 9 state reserves with a territory of 377,7 thousand hectares, buffer zones of reserves – 139,2 thousand hectares, 8 national parks – 241,9 thousand hectares and 51 preserves – 289,4 thousand hectares are functioning for efficient conservation of the ecosystems. Total territory of the protected areas is 1048512 hectares or 5,2 % of territory of the republic at present⁷⁴. Protection of the forest ecosystems is carried out in 42 forestries having territory of 2492 thousand hectares or 12,4% of the republic's territory.

Thus, positive thing is that territory of the protected areas is increased. However, uneven coverage of the ecosystems is observed under establishing of the protected areas. Low upland ecosystems, which are rich of endemic and rare species are not covered by the protected areas (See Appendix III B).

Target 5. Ensuring protection of 50% of the most valuable regions in terms of biodiversity of the plants

Traditionally, the plants protection is carried out in the protected areas: reserves, national parks, reserves and forestries.

Areas which are rich of endemics and rare species of plants⁷⁵ were also discovered in the Western Tien-Shan. They are the upland of the Padysha-Ata – Sumsar interfluves, Bozbu-Too and Babash-Ata mountain massives, southern slopes of the Susamyr range, Moldo-Too, Kok-Irim-Too, Ak-Shiyirak roddges, areas of junction of the Fergana and Alai ranges, western part of the Talas and Kyrgyz ranges and small Ak-Tash and Echkily-Too ranges in western part of the Talas valley. Other regions with high concentration of rare and endemic species were investigated during implementation of the GEF/WB Project (See Annex III, item 1). Low upland sites where rare and endemic species grow were not considered under organization of the protected areas. Only 5 small botanic reserves: Ryazan-Sai, Minkush, Maimak, Sulukta, Khaidarkan are placed in the low upland part. Areal of the rare and endemic species were taken into account under design of scheme of the Ecological network of the Kyrgyz Republic in line with the GEF-UNEP-WWF project (See Annex III, item 3). As a result of the project implementation, it was proposed to organize a number of the protected areas in the low upland zone: forestry preserve in Kepely and botanic preserve in Kurp-Sai⁷⁶.

Thus, many sites the most valuable in terms of diversity of plants are not fully considered under organization of the protected areas. Low uplands which are rich with rare and endemic species shall be included in boundaries of new protected areas. It is necessary to clarify and specify borders of the most valuable sites in terms of diversity of the plants.

Target 6. Regulation of at least 30 percent of production land in accordance with goals of biodiversity conservation

In the republic, actually whole territory of the forests is under regime of regular use (864,9 thousand hectares or 4,32% of the country territory). Commercial logging is prohibited in the forests located on mountain slopes; they are attributed to category 1 – Protected Forests- where sanitary logging is only permitted.

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⁷⁴ F.N. Balbakova. Data base of the protected areas of the Kyrgyz Republic. Bishkek, 2007

⁷⁵ G.A. Laz'kov, B.A. Sultanova, N.V. Kenzhebaeva. Studied flora of the Western Tien-Shan and centers of its local endemism // Biological diversity of the Western Tien-Shan. Status and prospective. Bishkek, 2002. P. 172-175.

⁷⁶ F.N. Balbakova. Map of protected areas. Bishkek, 2006

Pastures covering about 45% of territory of the republic are attributed to production land. They are distinguished by seasonality (winter, spring-autumn, summer) and remoteness from the settlements (remote and village).

Total area of the pastures is about 9,1 million hectares including the summer pastures - 3,9 million hectares, spring-autumn - 2,8 million hectares and winter – 2,4 million hectares. Various types of pastures are administrated by different authorities what destructs outrun livestock-breeding system, which allows rational using of the pastures⁷⁷.

Target 7. Conservation in-situ of 60% of species existing in the world, which are endangered

At present, the rare and endemic species of plants are protected within borders of the protected areas (See: Addition III B).

These “Red Book” species of plants are protected in the reserves, national parks and preserves: *Abies semenovii* B. Fedtsch. (Sary-Chelek, Padysha-Ata reserves, Uzun-Akhmatsky and Chychkan preserves), *Allium dodecadontum* Vved., *Tulipa anadroma* Z.Botsch, *Malus niedzwetzkyana* Dieck, *Malus sieversii* (Ledeb.) M. Roem., *Hedysarum chaitocarpum* Regel et Schmalh, *Sorbus persica* Hedl. (Sary-Chelek reserve), *Tulipa kaufmanniana* Regel, *Thesium minkwitzianum* B.Fedtsch., *Allochrysa gypsophiloides* (Regel) Schischk., *Amygdalus petunnikovii* Litv., *Salvia korolkowii* Regel et Schmalh., *Sorbus persica* Hedl. (Besh-Aral reserve), *Tulipa tetraphylla* Regel (Issyk-Kul reserve).

Also, it is necessary to develop protection measures for species of plants growing outside the protected areas.

Target 8. Conservation in available collections ex-situ, preferably in the country of origin, 60 percent of the endangered species of plants and inclusion of 10 percent of such plants in the rehabilitation and reproduction programmes

Specific rare species, such as *Amygdalus petunnikowii* Litv., *Fritillaria eduardii* (A. Regel ex Losinsk.) Vved., *Iridodictyum kolpakowskianum* (Regel) Radionenko, *Juno orchiodes* (Carr.) Vved., *Malus niedzwetzkyana* Dieck, *M. sieversii* (Ledeb.) V. Roem., *Pyrus asiae-mediae* M.Pop., *Pyrus korshinskyi* Litv., *Sorbus persica* Hedl., *Tulipa anadroma* Z. Botsch., *Tulipa greigii* Regel, *Tulipa kaufmanniana* Regel, *Tulipa kolpakowskiana* Regel, *Tulipa ostrowskiana* Regel, *Tulipa zenaidae* Vved., *Vitis usunachmatica* Vass. - are available in the collection of the Botanic Garden of the National Academy of Science of the Kyrgyz Republic. There are insufficient funds to maintain in proper conditions this collection. Majority of these endemics have specific requirement to cultivation conditions. At the beginning of 1990-s, an attempt was made to create collection of the wild-growing tulips in the Botanic Garden of the National Academy of Science of the Kyrgyz Republic for their conservation and potential reproduction in nature; unfortunately most of these species did not survive.

Establishing of the bank of endemics' hermoplasma, i.e. rare and economically valuable species of plants of Kyrgyzstan in the Institute of Biotechnology of the National Academy of science of the Kyrgyz Republic was one of the successful cases of plants conservation under *ex-situ* conditions. Hermoplasma banks (seminal and meristem/tissue) were formed, and protocols of cryopreservation of seed and meristems of the rare and endemic vascular plants including 102 species (about 2,49 % of total number of flora species) of 23 family plants were designed.

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⁷⁷ Kyrgyzstan: Environment and natural resources for sustainable development. Bishkek, 2006. P. 92

In culture in vitro, collection of rare endangered plants are maintained; 11 of them belong to leguminous family and 9 species belong to labiate family (approximately 0,49 % of total number of flora species).

In the republic, the programme of rehabilitation of *Malus niedzwetzkyana* Dieck was launched, and apple preserve was founded in the Sary-Chelek reserve.

It is advisable to have all specific local endemics of Kyrgyzstan in the live collection of the Botanic Garden. It is required to organize a complex of nurseries in the regions of the republic under *ex-situ* conditions taking into account their growth conditions.

Target 9. Conservation of 70 percent of genetic diversity of the agricultural cultures and other basic species of plants having social-economic value, and maintain the indigenous and local knowledge associated with them

Since old time, the cultivated types of agricultural cultures, which were linked with traditional knowledge, are replaced today by imported and regionalized types, and partly they are substituted by new more productive types of plants.

Several regulatory acts were adopted in the country to preserve genetic diversity of existing agricultural cultures (See Annex II, items 12, 17, 37). The State Register of Cultivated Plants of Kyrgyzstan is the first step in protection of the genetic variety of the agricultural plants. In these register, 537 types of 99 species of cultivated plants are registered including 93 types of local originators, and different types (apple, apricot, peach and grape) of traditional selection (Table 7).

Table 7

State register of different kinds of cultivated plants

Classification of cultures	Number of species	Registered and mapped kinds of plants	
		total	Including local selection
Cereal crops	6	65	24
Pulse plants	5	18	-
Grain forage	3	16	2
Legumes and cereal grass	13	23	21
Forage roots	4	8	2
Oleiferous	4	10	-
Technical	4	18	4
Vegetable	15	96	13
Cucurbitaceous	6	23	-
Medicinal herbs	3	4	-
Fruit tree	10	99	10
Walnut	4	6	2
Baccate	7	59	3
Flower-fancy (brushwood, perennial plants, Hemerocallis)	15	92	12
TOTAL:	99	537	93

The Western Tien-Shan and Southern Fergana are integral part of the ancient Central Asian botanic and geographic center of cultivated plants origin. Specific populations of hexaploid wheat, *Picum*) and *Cicer* were innovated. Primary forms of white and yellow graded carrot (*Daucus*), onion and garlic (*Allium cepa* and *A. sativum*), alfalfa (*Medicago sativa*) were cultivated and planted. Southern Kyrgyzstan is center of diversity of ancient forms of fruit-growing plants, such as apple (*Malus*), pear (*Pyrus*), plum (*Prunus*), pistachios (*Pistacia*) and almond (*Amygdalus*). So, the wild species like *Malus sieversii*, *M. niedzweckyana* took part in formation of grade diversity of cultivated apple (*Malus domestica*), wild grades *Pyrus communis*, *P. asiatic-madiae*, *P. korschinskyi* - in formation of the pear (*Pyrus domestica*). Apricot (*Armeniaca vulgaris*), almond (*Amygdalus communis*), pistachios (*Pistacia vera*) and walnut (*Juglans regia*) were cultivated, which diversity is rich in the forests. Diversity of other fruit plants is also significant in nature: oleaster (*Elacagnus orientalis*, *E. angustifolia*), current (*Ribes*), grape (*Vitis*), wild forms and hybrids of alycha (*Prunus sogdiana*, *P. ferganica*), hawthorn (*Crataegus pontica*, *C. sogdiana*), sea-buckthorn (*Hippophaë rhamnoides*), mountain ash (*Sorbus tianschanica*, *S. persica*), cherry (*Cerasus erythrocarpa*, *C. verrucosa*, *C. tianschanica*), current (*Ribes nigrum*, *R. janczewskii*, *R. meyeri*) and raspberry (*Rubus idaeus*).

There is broad variety of the ornament plants – tulips (*Tulipa*), blueflags (*Iris*), onions (*Allium*), oxlips (*Primula*) and others. All of them are valuable initial materials for selection and creation of new productive and resistant to pests and diseases grades of cultivated plants.

132 species of ancient forms of congeners of the cultivated plants were identified in the Tien-Shan.

Not so much was done to protect whole diversity of the cultivated and commercially valuable plants. The UNEP-GEF Project (See Annex III, item 14) puts its goal to preserve local kinds of the fruit-growing cultivated plants and their wild congeners. Many ornamental and fruit-growing plants are included in the Red Book of the Kyrgyz Republic.

Target 10. Introduction of plans combating against 100 main alien species threatening the plants, plant associations and relevant localities and ecosystems

Special works on prevention of introduction, control or elimination of the species threatening to ecosystems and natural habitats are conducted in Kyrgyzstan based on the international and national legislations (See Annex II, items 9, 14, 40). It is necessary to harmonize requirements for import, export, release, colonization of the animals, import and cultivation of plants, which may cause damage to the flora and fauna on territory of the republic including health of the population. The State Inspection of Plants Quarantine of the Ministry of Agriculture, Water Resources and Processing Industry of the Kyrgyz Republic is obliged to prevent invasions of the adventitious plants, which may threaten the plants, plant associations, habitats, localities and ecosystems. 12 species were included in the list of the quarantine plants.

At present, it is planned to set up the working group to revise the list of quarantine plants. It is necessary to form the list of controlled species of plants. Uncontrolled generation and dissemination of some species is observed in the republic, such as *Sambucus nigra* L., *Thelycrania alba* (L.) Pojark., *T. australis* (C.A.Mey.) Sanadze, *Ailanthus altissimus* (Mill.) Swingle, *Acer negundo* L. They started to be introduced in some natural associations.

Natural and climate conditions of the republic do not allow to majority of alien species to be introduced in the natural localities and ecosystems. Major part of the adventitious species is more typical for urban areas.

Mechanism and programme of control related to management of live genetically modified objects including issues of prevention of consequences of their direct or indirect integration in nature were considered in the National Framework Document on Biological Safety⁷⁸.

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⁷⁸ Kyrgyzstan: environment and natural resources for sustainable development. Bishkek, 2006. P. 92.

Target 11. None of species of the wild-growing flora is a subject of danger due to the international trade

On November 30, 2006, the Kyrgyz Republic signed the Convention on International Trade of Endangered Species (CITES)⁷⁹.

13 species of wild-growing flora of Kyrgyzstan were included in the CITES list. At present, none of species of the wild-growing flora of Kyrgyzstan is a subject of the international trade. Department of state ecological control under the State Agency on Environmental Protection and Forestry under the Government of the Kyrgyz Republic controls the gathering and export of plants enlisted in the CITES List.

Target 12. Generation of 30 percent of vegetable products from sources, which are sustainably regulated

About 4200 species of plants grow in Kyrgyzstan, where 1600 species of them are useful including forage – 400, medicinal – 200, melliferous – 300, adornment – 250, essential oil plants – 60, food plants – 60, tanniferous – 30, dye plants – 20, resineferous – 15 and others.

Special permit to use plants for different purposes is issued by the department of state ecological control of the SAEPF KR.

Nature use through direct withdrawal of biodiversity resources does not have substantial economic impact, and it affects only at local level for specific categories of the population⁸⁰.

Target 13. Extinction of depletion process of the plant resources and lost of indigenous and local knowledge, innovations and practice supporting sustainable livelihoods, food security and health at local level

There are many traditions of sustainable biodiversity use in historical legacy of the Kyrgyz nation. For example, an alternate livestock-keeping in night – tyrla (“utek” in Kyrgyz language), and outrun livestock grazing, which allows pastures to be restored (so called extensive livestock-breeding). However, these traditions are not followed at present because of various reasons including economic reasons.

Under high poverty level, the rural population tries to get benefit immediately without thinking about resources restoration. Lack of regulated stock-keeping and control in use of medicinal herbs leads to excessive exploitation of one species and insufficient use of other species⁸¹.

Logging of wood species is the most harm caused to nature. During last half a century, the forest territory was half reduced. So, an objective was set to conserve the mountain forests through development of commercial plantations of rapid-growing species, which wood is used both as building and heating materials. The National Action Plan of Forestry Development of the Kyrgyz Republic for 2006-2010 approved by the Resolution of the Government of the Kyrgyz Republic as of September 27, 2006 anticipates development of the commercial plantations of rapid-growing types of poplar and saxaul on territory of 1650 hectares⁸².

Target 14. Demonstration of importance and need of plant diversity conservation in the communication, education and awareness programmes

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⁷⁹ The Law “On accession of the Kyrgyz Republic to the Convention on International Trade of Endangered Species” as of November 30, 2006, № 192

⁸⁰ Kyrgyzstan: environment and natural resources for sustainable development. Bishkek, 2006.

⁸¹ Kyrgyzstan: Environment and natural resources for sustainable development. Bishkek, 2006. P. 92

⁸² SAEPF’s materials, 2008

Importance of the plant diversity and its conservation is highlighted in a framework of school curriculum, i.e. Botany and General Biology. Innovation type schools have individual curriculum, which allows them to introduce following subjects like “Biodiversity Conservation” in educational process. Standard educational programmes of the most schools do not have specific programme to study theme “Biodiversity Conservation”, but such issues are considered fragmentary in some subjects. There is a process of formation of the school networks working in a sphere of environmental education and biodiversity conservation.

Environmental school teams, youth groups are formed in many schools having educational environmental component, which make input in increased level of public awareness on biodiversity conservation.

Shortage of text-books, visual aids on plants diversity, problems of translation of available literature into Russian, Kyrgyz and other languages affect on level of the public awareness in field of biological diversity conservation.

Role of the mass media is important in work with the public and information dissemination, however, proportion of information on biodiversity issues is about 1%. The international projects and programmes contribute a lot in increasing of the public awareness on biodiversity conservation (See Annex III, items 1-15).

Target 15. Increasing number of professionally educated specialists to implement targets of the current Strategy who are able to work in the institutions dealing with plant conservation issues considering national needs

Due to transition to new educational programmes for the bachelors and masters, discipline “Basic Ecology” was introduced as compulsory one in the block of natural-scientific disciplines. UNESCO’s Chair on Environmental Education was established in the Balasagyn Kyrgyz National University, which trains and retains specialists. The Education Academy under the Ministry of Education and Science of the Kyrgyz Republic is involved in training and retraining activity also.

Number of the specialists studied in the high educational institutes, specialty “Environment”, is reflected in the Table 8. The Kyrgyz Agricultural Academy also produces specialists by specialty “Forestry Engineer”.

Table 8

Graduation of the specialists-ecologists of the high educational institutes of the republic

Specialty /Year	2000	2001	2002	2003	2004	2005	2006	2007
Environment and nature use	81	138	108	107	135	54	57	73
Ecology	-	118	130	236	344	411	335	272
Nature use	-	-	-	15	2	-	32	-
Environmental protection	36	101	116	239	147	198	149	126
Forestry and landscape construction	79	108	121	107	83	11	91	88

Total number of graduated specialists-biologists and ecologists is high, however, quality of their education is not so good. Probably, shortage of qualified teaching staff, methodological manuals and visual aids, poor equipment in laboratories affect on quality of education. As a result, the gradutors

obtain weak knowledge and skills. At present, number of gradulators-ecologists is reduced⁸³. They are not able to find a job by specialty because of low knowledge level, and they go in other spheres of activity. Small salary is another factor affecting on outflow of the specialists dealing with plant conservation issues. So, number of the specialists directly involved in plant protection issues is insufficient.

Target 16. Development and enhancement of the plant conservation networks at the national, regional and international levels

There is a network of protected areas in the Kyrgyz Republic, which is involved in plant protection activity. It is composed of the protected areas belonging to various categories like the reserves, national parks and preserves. In the past, majority of protected areas was planed according to principle – “Island”, but now the networks are established where the protected areas are surrounded by buffer zones and connected through environmental corridors. From other hand, trend to integrated protected area management on participatory base is observed.

At present, this network became the international one due to planning of the transboundary protected areas such as the Pamir-Alai transboundary protected area and the Western Tien-Shan reserve. Republic is included in a network of various international agreements on environmental protection.

Creation of the unified ecological network combining functions of nature protection and economic development was designed within the GEF-UNEP-WWF Project (See Annex III, item 3). “Econet” scheme was developed for the Central Asian countries (Kazakhstan, Kyrgyzstan, Uzbekistan, Tajikistan and Turkmenistan).

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⁸³ Environmental protection in the Kyrgyz Republic in 2000-2006. Statistical compendium. Bishkek, 2008.

Addition III B. Progress towards Targets of the Programme of Work on Protected Areas

There are 85 different objects in the Kyrgyz Republic forming a network of the protected areas (PAs) with total territory of 1048512 hectares what is 5,2% of territory of the republic.

Programmes establishing systems of the protected areas fully respond to three goals of the Convention on Biological Diversity. These programmes provide broad range of benefits ensuring protection of the natural and cultural legacy, make input in fight against poverty, increase livelihood of the local communities along with initiatives on conservation, sustainable use and rehabilitation of biodiversity. Protected areas also contribute in development of counteractions and adaptation to negative processes of climate change and desertification.

Role of the protected areas is important in organization of research of dynamics of biodiversity and response of biosphere on climate change and development of desertification processes, and in organization of environmental education, development of recreation and tourism activity as well.

Protected areas in Kyrgyzstan represent an essential element of various state programmes of country development in general and working plans of key sectors including the forestry and agriculture, science and education in particular. Considering numerous benefits associated with existing protected areas, Kyrgyzstan undertakes measures on extension of coverage and representation of these areas. Conceptual measures related to three goals of the Convention of Biodiversity – fair benefit distribution of joint base associated with use of biodiversity resources and understanding of the local community participatory principle in management, decision-making and benefits sharing – are under development in Kyrgyzstan. They are linked with development of the principles of sustainable development and poverty alleviation in the national policy, especially under formulation of the programmes and plans implementing solutions of the World Summit on Sustainable Development and the Millennium Development Goals and Agenda XXI in Kyrgyzstan.

Conservation of biodiversity and ecosystems through extension of territory of protected areas to 8% of total territory of the country is one of the strategic priorities of Kyrgyzstan transiting to sustainable development mentioned in the Agenda XXI of the Kyrgyz Republic.

In all these directive documents including the concepts, strategies and action plans, principles of goals and targets are fully reflected; they were determined by decisions of the Secretariat of the Convention on Biodiversity including the Decision VIII/15 and Decision VII/28.

Plan's Component 1. Direct measures of planning, selection, introduction, strengthening of the system of protected areas and their management

Goal 1.1: Establishing and strengthening of the national and regional systems of protected areas incorporated in the global network as input in implementation of goals agreed in the global scale

Setting and extension of the global network of the comprehensive representative and efficiently manageable national system of protected areas is anticipated in NBSAP KR (1998). Targets of this plan are presented with consideration of global importance and international recognition of the formed network. So, in the Section "Increase effectiveness of the protection area network" (A.1), action plan aimed to coordinate transboundary protected areas of the Western Tien-Shan has global significance. In Kyrgyzstan, activity on inclusion of the globally significant protected areas in the world network was launched already in 1970-s. In 1975, the Issyk-Kul lake together with the Issyk-Kul state reserve were

included in the “A” List of wetlands having international significance⁸⁴. In 2002, the Chatyr-Kul lake was also included in that List. In 1979, the Sary-Chelek state reserve was included in the International network of biosphere reserves in accordance with the UNESCO’s certificate. In 2001, UNESCO’s certificate on inclusion in the World network of biosphere reserves was given to the Issyk-Kul biosphere reserve⁸⁵. However, development and functioning of this network of reserves having international significance had weak reflection on the national planning of budget allocations since environmental problems are not priority because of economic constraints.

Due to accepting of provisions of the Agenda XXI, Millennium Development Goals and Concept of Sustainable Development, main goals of the Convention on Biodiversity were promoted in Plans on management of the Sary-Chelek and Besh-Aral state reserves in 2003. In a framework of the GEF/WB Project and international EU/TACIS Project on conservation of biodiversity of the Western Tien-Shan, the bio-regional plan was designed, and proposals on organization of the transboundary biosphere reserve “Western Tien-Shan” (Kyrgyzstan, Kazakhstan and Uzbekistan) were elaborated.

Since 2007, works have been conducted in the republic regarding organization of the Pamir-Alai transboundary biosphere reserve in accordance with the Agreement between Kyrgyzstan and Tajikistan.

Development and formation of the global network of protected areas are supported by the donor agencies with involvement of the public associations and research institutions.

Goal 1.2: Inclusion of the protected areas in broader land landscapes, sea landscapes and sector to support their environmental structure and functions

Practical measures on improvement of integration of the protected areas into broad landscapes, development of tools ensuring environmental integrity based on ecosystem approach and promoting conservation of biodiversity and sustainable development of the protected areas in line with the national priorities, were anticipated in the NBSAP in following sections: “Increase of efficiency of the protected areas network” (A.2), “Extension of the protected areas network” (A.4), “Development of network of the small protected areas (micro-reserves)” (A.5), “Rehabilitation and sustainable use of significant landscapes and ecosystems” (A.6).

Task on secure of preservation of the unique biodiversity of the country and resolution of problem of the social-economic development including maintenance of decent life of the local population can be addressed through development of the unified ecological network, which main components are not withdrawn from nature use, but combine functions of nature protection and economic development. To address this task, WWF in cooperation with the governments of the Central Asian countries implemented the GEF-UNEP-WWF Project “Development of ECONET for long-term conservation of biodiversity in the Central Asian ecosystems” for 2003-2006.

ECONET project in the Kyrgyz Republic shall create basis for conservation of the ecosystems, populations of rare species of animals and plants, ensure inclusion of network of the protected area and environmental corridors within a context of social-economic development of the country taking into account interests of local population, combine solution of problems related to biodiversity conservation and sustainable development of the region and local communities.

Scheme of ecological network of Central Asia designed by WWF (See Annex 4.2) allows inclusion of the protected areas in landscapes of whole region, and combine nature protection interests and needs

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⁸⁴ UN Convention on Wetlands having international significance as the habitats of the waterfowls (the Ramsar Convention), 2002

⁸⁵ Resolution of the Government of the Kyrgyz Republic as of January 24, 2000, № 40 “On approval of the Regulation and the Biosphere Territory Issyk-Kul”

of economic development under support of environmental corridors and setting of valuable areas with sustainable alternative and ecologically safe nature use beyond existing system of protected areas.

Assessment of main natural ecosystems of the region by degree of man-made pressure was made during study and preparation of the bio-regional plan on conservation of biodiversity of the Western Tien-Shan using data of expedition survey, analysis of satellite images and GIS-technologies. Use of environmental and economic zoning method helped to distinguish zones with different use regimes.

Goal 1.3: Establishing and strengthening of the regional networks and transboundary protected areas through enhance cooperation between the neighboring areas outside national borders

Project related to organization of the transboundary protected area, the first in Central Asia, was prepared by results of implementation of the Central Asian Transboundary GEF/WB and EU/TACIS project on conservation of biodiversity of the Western Tien-Shan (2001-2006). Bio-regional plan and draft Agreement on establishing of the transboundary biosphere reserve were developed.

Since 2007, the European Commission's Project "Promoting the Pamir-Alai transboundary protected area" is implemented in Kyrgyzstan. Initiation of the interstate negotiations between Kyrgyzstan and Tajikistan on drafting of the Interstate Agreement on cooperation and organization of the Pamir-Alai transboundary protected area was a constructive moment of the project implementation. The Pamir National Park in northern-eastern part of Tajikistan and the Alai National Park in Kyrgyzstan will be component structures of the transboundary protected area. Situation analysis and outlining of the borders of new protected area are conducted.

In 2007, the Agreement on intention between ISDC and the Central Asian WWF programme on implementation of the ECONET in region was approved.

Goal 1.4: Improving of planning and management of the protected areas considering local specificity

Targets on improvement of planning and management of the protected areas, promotion of participation of the local communities in management and inclusion of capacity building of the protected areas in the local sectoral plans of sustainable development including improvement of social-economic situation of the local communities of surrounded territories are fully reflected in many sections of the National Biodiversity Strategy and Action Plan (NBSAP).

All reserves and national parks of the country design annual plans of their activity including protective measures and area development in accordance with amount of financing allocated for their implementation. Currently funds are provided only to protect areas due to reduction of financing of many reserves and national parks.

Management plans of the Sary-Chelek and Besh-Aral reserves were developed considering local conditions in a framework of the Central Asian transboundary GEF/WB project on conservation of the Western Tien-Shan biodiversity (1 Phase).

Management plan on development of tourism in buffer zone of the biosphere reserve "Issyk-Kul" considering participation of the local community in a framework of GTZ Project.

At present, due to development of new approach of community based forest management, a number of activities attracting the local communities to forest resources management were conducted in the forests referred to protected areas of VI categories (classification IUCN). 9,4 thousand hectares of productive walnut plantations were given to the private persons and local communities based on leasing conditions (See: Section II).

Goal 1.5: Prevention and mitigation of unfavorable consequences of main threats to the protected areas

NBSAP contains strategic component J “Impact assessment” composed of two targets. First target determines review of the impact assessment methods and requirements considering specific impact on biodiversity; second target – development of mechanisms controlling impact of all sectors on biodiversity. The Law of the Kyrgyz Republic “On Ecological Expertise” (See: Annex 2, paragraph 4) and the Convention on Environmental Impact Assessment in transboundary (See: Annex 1, paragraph 5) are legal instruments for impact assessment. Kyrgyzstan initiated development of the Guidelines on Environmental Impact Assessment in transboundary contexts for the Central Asian countries, which was prepared by the experts of five Central Asian republics under support of the Regional Environmental Center for Central Asian (CAREC), Swiss Government and OSCE in 2005. National legal acts regulating EIA were elaborated in Kyrgyzstan.

Detailed assessment of threats and evaluation of capacity were conducted in framework of the UNDP Project “Institutional capacity building and for sustainable development” based on survey of the protected areas – the Issyk-Kul, Sary-Chelek and Karabura reserves and the Karakol national park. As a result of the project implementation, strategies and action plans were developed to enhance capacity of these protected areas. These plans stipulate a number of measures to mitigate unfavorable impact on core zones of the protected areas, and compensation measures for the forest ecosystems.

Plan’s Component 2: Guidance, participation and fair benefit distribution

Goal 2.1: Promote fair benefit distribution

Principle of fairness and equality of benefit sharing under sustainable use of biological resources in the buffer zones and surrounding territories of the protected areas is reflected in NBSAP. Programmes implemented under support of the donor organizations in the Kyrgyz Republic carry out interventions introducing strategies and policies promoting fair benefit sharing in practice. Within the GEF/WB and TACIS SGP projects, required studies were conducted, trainings of local residents were held and grant-based support was provided to the local communities in biodiversity conservation based on fair benefit sharing in the Western Tien-Shan region. Principle of fairness in benefit sharing is considered under implementation of UNDP/GEF, FAO, ABD and other projects (See: Annex 3, paragraph 7, 18, 27, 31).

In general, the fairness and equal benefit sharing envisages orientation of the local communities towards following types of safe activity – bee-keeping, yak-breeding, rational gathering of medicinal herbs, wild-growing berries, fruits including their processing, use of alternative sources of energy. Ecotourism and active involvement of local communities in this type of activity (private guest-houses, guides, organization of horse-riding, national cuisine and drinks, production of national souvenirs and other services rendering) are recognised in all projects as prospective type of activity. But interview of the local residents of the buffer zones and impact zones shows that the local communities expect cash compensation for limitation of their activity. Thus, the projects engaging local communities in safe activity in order to get benefits will be ineffective and unsustainable because of lack of reliable monitoring mechanism and strategy of EIA of man-made activity, and lack of scientifically sound estimations of long-term perspective and effects of this impact.

Local communities not always receive benefits for resources available within their territories as they do not actively participate in their management.

Goal 2.2: Extention and ensuring participation of the local community and relevent entities in sustainable use and reproduction of of biodiversity resources

The National Forestry Programme for 2005-2015 stipulates increase of independence of the forestry units, involvement of the local communities in the forest management, increase of the private sector's role in the forestry activity. It is necessary to mention fact that the private sector is not always invited to manage nature use, and often decisions at local level are made without consideration of interests of the local residents.

Today, there are no mechanism attracting the private sector and fulfilling initiatives on sustainable use of biodiversity, especially anticipating protective and rehabilitating measures in the country. Also, if the private sector is involved in utilization of biological resources (game and forestry units), mechanisms of protection and rehabilitation are not identified.

However, some representatives of the local communities participate directly in management and planning of the protected areas. 90% of staff of the reserves, national natural parks and forestry units (forestries) are residents of the villages surrounding the protected areas. Local active NGOs take part in implementation of the GEF/UNDP SGP pilot projects on biodiversity conservation (See Annex III, item 7).

Plan's Component 3: Incentive actions

Goal 3.1: Implementation of the incentive policy, ensuring of organizational and social and economic environmnet favorable for the protected areas

Analysis of the stimulating policy on development of the protected areas within a context of social-economic development of the regions shows that the strategy of planed measures is composed of following motivating interests – involvement of the local community in management of the protected areas, allocation of small grants to the local communities, toughtening of sanction for violation of the nature protective legislation and etc.

Instruments of economic assessment and account of biological resources are not developed; mechanisms of assessment of input of the protected areas and their ecological and recreation services in economy and culture of the country are lacking. Work is not conducted to identify latent and obvious economic benefits received in variuous sectors, negative stimulus and introduction of positive ones as a system formulating incentive mechanisms. Both in the country in general and regions in particular, measures stimulating conservation and sustainable use of biodiversity componets are determined insufficiently in all adopted programmes of regional development. Some sectors of economy (forestry, agriculture, gaming and tourism) use values of biodiversity to a considerable degree. Measures of motivation and development of the private sector's initiatives are undertaken, but unfortunately, this direction of activity envisages support of economic and social development of the private sector without consideration of interest motivation aimed to conserve biodiversity.

Goal 3.2: Capacity building for planning, setting and management of the protected areas

At present, management of the protected areas faces a number of problems, such as a shortage of qualified specialists, insufficient technical equipping, and shortage of financing from the state, ineffective planning and management of the protected areas.

Reserves and national parks lost their human capacity because of low salary paid to the personnel. At present, they experience strong deficiency of the specialists in nature protection and reserve sphere

who are able to update protection performance and scientific studies. There is a lack of regular system of training and re-training of the personnel.

At present, existence of the management plans is main principle of management of the protected areas.

Management plans of the Sary-Chelek and Besh-Aral reserves were developed in a framework of the Central Asian Transboundary GEF/WB Project on biological diversity of the Western Tien-Shan region. These plans anticipate management and use of natural resources, research and monitoring, and administration of the reserves. Training of the reserve staff was held within the project.

Goal 3.3: Development, use and transfer of the relevant technologies of the protected areas

UNEP Project “Conservation and use *in situ/on farm* agricultural biodiversity in Central Asia” introduced new technologies for processing of medicinal herbs and producing valuable products in some protected areas and forestries. In nuciferous areas, technology on cultivation of planting stocks of some cultures – walnut, pistachios and almond was introduced also.

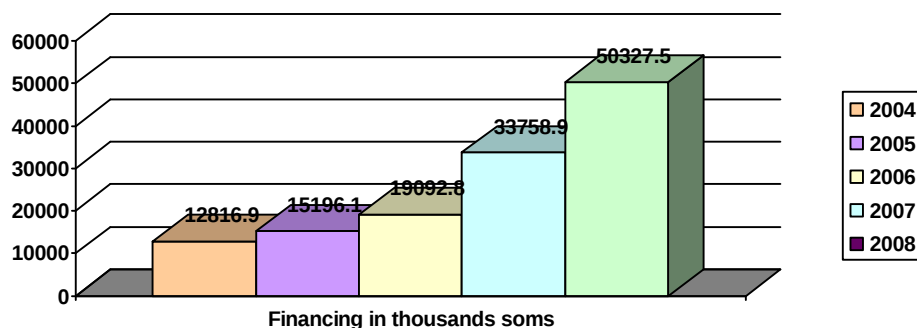
The most successful introduction of new technology in the protected area system was managed within the GEF/UNEP/WWF Project “Establishing ECONET for long-term conservation of biodiversity in ecosystems of Central Asia”. As a result, GIS analysis was made, and scheme of ecological network of the central Asian countries was developed. All findings of the project were delivered to the stakeholders in order to plan and create the ecological network.

Project “International Fund on conservation of the snow leopard” developed methodology to monitor snow leopard and ungulates of the Sarychat-Ertash reserve and held training of the personnel of the reserve staff how to conduct monitoring and combat against poachers with a help of GIS-technologies.

Goal 3.4: Ensuring financial sustainability of the protected areas and national and regional system of protected areas

Today, problem of financing of nature protection activity is one of the most important as it mainly defines sustainability of whole national system of the protected areas. Financing of the protected areas is formed from budget money and some small funds allocated from the Republican Fund for Nature Protection (RFNP), local funds of nature protection (LFNP) and special accounts of the protected areas.

Financing of the protected areas at the expenses of the state budget, RFNP, LFNP and special funds



In spite of annual growth of state financing, the protected areas do not have financial sustainability because of inflation processes.

The reserves and national parks are used to form their own budget from different sources under such severe conditions. Except budget funds, the reserves use funds of special accounts formed due to revenues gained from ecological tourism, bee-keeping, sale of wood, berries and fruits, payment for pasture renting in buffer zone, earnings from penalties and fees.

Willingness to form required budget using special accounts for sustainability of the protected areas is acceptable, however it leads to increased pressure on biodiversity.

Donor support is provided to the protected areas within the international programmes and projects (See Annex III, item 1, 3).

Goal 3.5: Strengthening of relations, education and public awareness

Environmental education activity of the reserves and national parks is purposed, first of all, to form understanding of modern role of the protected areas in biological and landscape diversity conservation as basis of the biosphere among the broad layers of the society. Also, it is important to recognize their role and place in social-economic development of the region. It will ensure practical public support of the reserves and national parks as the objects of national property.

Protected areas, except natural value, have marks of culture, time and nations. Actually, each of them has traces of the ancient settlements, cult burial places, worship sites, sacred natural objects associated with folk legends and stories. The protected areas have enduring cultural value.

During last decade, the international action “Park March” is conducted in order to highlight problems of the protected areas. Ecological NGOs, local population, students, scholars, local municipalities, business structures and mass media take active participation in these campaigns. Nature Museums were established in the Sary-Chelek, Issyk-Kul and Naryn reserves and the Ala-Archa National parks.

The personnel of the reserves works with the public, children ecological clubs-WWF’s friends, presents lectures, holds drawing contests and works with the mass media. Interactive game “Econet” was designed for secondary and high education within the GEF-UNEP-WWF project “Econet – Central Asia” (2003-2006).

Educational activity of the state natural reserves and national parks would bring to excellent results if it would have long-term, targeted, systematic and comprehensive nature. It is necessary to collect and analyze information about history, economic, cultural and spiritual traditions of the local population and use this information under planning of environmental and educational works.

Plan’s Component 4: Standards, assesment and monitoring

Goal 4.1: Development and adoption of the minimum stanadards and rational methods for the national and regional systems of protected areas

Whole system of protected arreas is under administration of three institutions – the State Agency on Environmental Protection and Forestry under the Government of the Kyrgyz Republic (reserves, national parks, preserves and forest lands), the President’s Administration (1 national parks and 2 preserves) and the State Agency on Geology and Mineral Resources (monuments of nature). New system of the regional protection – the bioshere reserves – is applied in the management policy of the protected areas.

The protected areas are transformed into a system of isolated “islands” due to intensive social-economic development of the region. They are not able to ensure sustainable conservation and functioning of the ecosystems in general; hence, they are not able to maintain optimal status of environment. At the same time, further substantial increase if the protected areas is in contradiction with

objectives of the social-economic development of the country. To ensure conservation of the unique biodiversity of the region and not enter in contradiction with objectives of the social-economic development of the country, it is required to create unified ecological network, which components are not withdrawn from nature use, and combine functions of nature protection and economic development. It is not sufficient to increase number of the protected areas only. Scheme “ECONET” for the Central Asian countries – Kyrgyzstan, Kazakhstan, Uzbekistan, Tajikistan and Turkmenistan was developed in framework of the GEF-UNEP-WWF Project “Econet – Central Asia” (2003-2006). The scheme was presented and approved at the meeting of the Interstate Sustainable Development Commission (ISDC).

Main goals of the project are design of unified development scheme of the econet of the Central Asian region and its integration in a context of regional and national plans of sustainable development to ensure conservation and sustainable development of biodiversity.

New standards, criteria and rational methods of planning, selection of the protected area system are not developed yet.

Goal 4.2: Assessment and increase of effective management of the protected areas

Methodological basis to carry out assessment on efficient management of the protected areas is not developed in Kyrgyzstan. Assessment of results of activity related to production of methodological manuals designed by N.R. Danilina, the Vice-chairman of WCPA Commission on the Northern Eurasia was conducted in the Sary-Chelek and Besh-Aral reserves in a framework of the GEF/WB Transboundary Project on conservation of biodiversity of the Western Tien-Shan.

Goal 4.3: Monitoring and evaluation of status of the protected areas and trends in this sphere

Mainly, monitoring programme for rare and endangered species of animals and plants (reserves and national parks), gaming animals (gaming units) and forest resources (forestries) was introduced in the country. Results of monitoring (data on population of gaming, endangered and rare species of animals) are summarized annually, but information is provided by individual users (gaming units) and this information does not cover the whole country. Monitoring of forest resources is conducted according to schedule, i.e. once in five years. Monitoring of status of vegetation cover on pastures is conducted annually but it is limited in sampling of model regions and small number of tested sites. National monitoring system is not applied for other objects of biodiversity, although legal regulation on mandatory keeping of the National Cadastre on Flora and Fauna exists. Methodologies of monitoring for mammals and birds were published within the GEF/WB Transboundary project on biodiversity conservation of the Western Tien-Shan.

Goal 4.4: Guarantee that scientific knowledge promotes establishing and support of efficiently protected areas and network of protected areas

Reserves and national parks are stationary bases to carry out scientific studies and researches of the institutes of the National Academy of Science and universities. Reserves have the scientific specialists – zoologists, silviculturists and botanists. Several scientific-research expeditions on assessment of biodiversity of existing and future protected areas of the Western Tien-Shan were completed in framework of the GEF/WB project; also atlas and data base of biological diversity of the Western Tien-Shan were produced (See: Annex 3, paragraph1).

Areals of rare and endangered species of flora and fauna were studied and mapped in order to create ecological network of the Central Asian countries in the GEF/ UNEP/WWF projects. Maps of protected

areas of Kyrgyzstan are published; scale is 1:500 000 and 1:100 000. Vector layers of above mentioned maps were published on CDs in format ArcGIS and disseminated among the interested institutions.

Goal 4.5: Analysis of barriers, needs and future priorities in management of the national system of the protected areas

Main barrier in management of the national system of protected areas is determined by complex economic situation of the country, unemployment, low living standard of the local population. Poverty alleviation programmes in rural areas are behind their needs. Violation of reserve regime is observed both in the protected areas and transboundary areas. Logging, haymaking, uncontrolled fishery and shooting of ungulates, grazing around protected areas are common business.

Unsufficient budget financing of the protected area system (only salaries are financed; size of salary paid to senior level is only 30% of living wage) and lack of material-technical provision do not allow to carry out efficient protection and monitoring of biodiversity. Professional level of the personnel of the protected areas and administrative structures is still low.

Corrupted controlling bodies are substantial obstacle in efficient solution of problems related to biodiversity conservation and reduction of threat of biodiversity loss.

Weak sectoral and intersectoral interaction in biodiversity conservation issues and poor development of procedures and mechanisms of efficient management of natural resources are observed.

Following priority measures can be recommended in order to overcome current situation:

- Set up the Interagency Coordination Council on management and control of the protected areas and protection of endangered species enlisted in the Red Book with involvement of the public organizations;
- Develop and approve the State Programme on establishing of ecological network of the Kyrgyz Republic with appropriate budget financing;
- Elaborate development plans and programmes of the protected areas and introduce them in plans of social-economic development at the rayon and oblast levels;
- Introduce eco-system approach in management and planning of the ecological network;
- Introduce the Strategic Environmental Assessment (SEA) and Environmental Impact Assessment (EIA), and procedures of environmental audit at all stages of development of the protected area network;
- Involve local communities, regional bodies of self-governance, users, representatives of the private sector and all stakeholders in mutually benefit partnership in order to conserve and use the biodiversity resources in sustainable manner;
- Develop intersectoral sustainable development programmes of individual regions delegating them rights of self-governance and efficient mechanisms of self-financing;
- Introduce efficient technologies and approaches to conserve biodiversity and sustainability of regional structures and compensation mechanisms and motivating systems related to biodiversity conservation problems;
- Increase environmental awareness, broad involvement of the public in decision-making; environmental will and activity of the society to be increased through methods of environmental education.

Appendix IV. National indicators used to prepare the report

In the Convention on Biodiversity (CBC), use of indicators – qualitative and quantitative characteristics of biota is recognized as important instrument to carry out monitoring. These indicators allow assessing of the biodiversity status and pressure caused by economic activity, carry out comparative analysis, identify trends of changes and make right political decisions. Need to develop indicators for monitoring of biodiversity components was pointed out often in documents of various programmes implemented in cause of fulfillment of the Convention on Biodiversity (CBC)^{86, 87}.

In 2004, meeting of the Task Force (TF) on indicators was held in Montreal (Canada). These indicators help to assess a progress on way to achieve goals in biodiversity conservation area targeted to 2010.

Guidelines for national testing of sustainable development indicators were developed in a framework of the UN Commission on Sustainable Development (SDC)⁸⁸. These guidelines can be used to test indicators of biodiversity. The Commission admits that procedures and processes of indicator testing vary in different countries depending on the national goals and objectives, infrastructure, expertise, available data and other information for decision-making.

In 2006, important decisions related to selection, identification and testing of indicators and monitoring procedures adequately reflecting status of biodiversity in key ecosystems in specific states and transboundary contexts were made at the 7th meeting of the Convention's Parties (Kuala-Lumpur, Malaysia). Priorities were identified and the most urgent issues regarding monitoring of biodiversity were discussed in order to develop list of indicators and introduce monitoring system at different levels.

Indicators shall serve to improve quality of information, data collection and processing, comparative analysis for whole complex of measures to implement all goals of the Convention on Biodiversity. More than 150 indicators for 211 actions were defined under preparation of NBSAP, i.e. almost one indicator for each action. Definitely, it is impossible to assess effectiveness of implemented actions through these indicators as they characterize action formally (available report, training held, size of financing and etc.), and quality and effect of action are not evaluated.

In Kyrgyzstan, assessment of status and trends of biodiversity change and ecosystem protection was launched only at the end of 1980-s through set of various indicators. Up to that time, efficiency of measures on nature protection was assessed through small set of the reference indicators, which do not lose their relevance at present:^{89, 90, 91}

- Territory under protection including the protected areas in general and percentage of the country's territory;
- Population of gaming fauna and endangered species in indicator of density of population (in heads/km²);
- Number of flora and fauna species in the Red Book, and included in the programmes on restoration and reproduction including *ex-situ*;

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⁸⁶ WCMC: Biodiversity indicators for integrated environmental assessments at the regional and global level: feasibility study on data availability of six biodiversity indicators. Project report prepared for RIVM. – Cambridge, World Conservation Monitoring Centre, 1996.

⁸⁷ CBD indicators of biological diversity (UNEP 1997, 1999).

⁸⁸ <http://www.un.org/esa/sustdev/natlinfo/indicators/indi8.htm>

⁸⁹ E.M. Rodina. Sustainable development of environmental and economic systems. Bishkek, 2003.

⁹⁰ Global environmental conventions: capacities of Kyrgyzstan. GEF/UNDP. Bishkek, 2004.

⁹¹ F.N. Balbakova, E.J. Shukurov. Biodiversity as indicator of sustainable development. Newsletter (Vestnik) of the Kyrgyz-Russian (Slavic) University, Volume 4. Bishkek, 2004. Pages 103-106.

- Number of offences related to nature protection investigated and satisfied by the authorized bodies (administration commissions, arbitration, courts and etc.);
- Number of the personnel of protection service (inspectors, gamekeepers, foresters) in the country in general and by each category individually (reserves, national parks, forestries, preserves and gaming units);
- Annual volume of financing allocated from the state budget for nature protection measures: biodiversity conservation in general and by structures including realization of bio-technical, forestation and reproduction measures (in som per 1 km²).

These indicators were served as a basis to analyze effectiveness of biodiversity conservation in the country under preparation of this report.

Above mentioned six key indicators are basic indicators in the state reports on biodiversity conservation including informational documents of the National Statistical Committee. However, these indicators do not meet requirements, and they are weakly integrated in analytical process. So, effectiveness of the protection service less depends on number of the personnel as efficiency is defined by the professional characteristics of the employees and improved skills. Territory of the protected areas does not define effectiveness of biodiversity conservation if these areas are not protected properly. Number of registered animals is not always reliable; it depends on proportion of territories relevant to species and covered by records. Indicator on discovered offences often leads to attempts to produce fictitious protocols. As to number of flora and fauna species included in the national Red Book, their number is increased due to studied new groups (moss, algae, arachnoids and etc.).

In Kyrgyzstan, new universal indicators, which could be more relevant to effectiveness or non-effectiveness of biodiversity management, are under search. Last years, some monitoring methodologies and direct indicators of status of flora and fauna population were developed in the country^{92,93,94}.

Testing phase for a set of key indicators of sustainable development elaborated by SDC was implemented in the Central Asian region. Only 6 indicators of 134 indicators proposed by the UN Commission on Sustainable Development were selected as the key indicators as a result of testing by 11 selection criteria.

Thus, certain work was made on development of the biodiversity indicators in Kyrgyzstan. Biodiversity indicators are important instruments of monitoring on status and trends of biodiversity development at various levels. They are required to summarize data on complex issues of biodiversity, and they can be used to identify key issues required to address with help of political or administrative measures.

Biodiversity indicators have great capacity to assess effectiveness of biodiversity management of Kyrgyzstan in order to define efficiency of the national strategies and policies, assess intersectoral cooperation, statistical reporting and awareness. However, majority of indicators proposed by the Task Force requires their testing and adaptation to national conditions and local environmental standards.

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⁹² A.T. Davletbakov, E.J. Shukurov. Mammals and birds – indicators of status of the Western Tien-Shan's ecosystems. Methodological Handbook. Bishkek. 2003.

⁹³ R.N. Ionov, L.P. Lebedev. Plants-indicators of status of the Western Tien-Shan's ecosystems. Methodological Handbook. Bishkek, 2003.

⁹⁴ D.A. Milko. Fauna's inventory in the reserve "Baidamtal". Part 2. Thesis on selection of indicators for monitoring and characteristics of general status of biota. Biosphere reserve "Issyk-Kul". Issue 3. Bishkek: GTZ, 2005.

Appendix II – Additional sources of information

1. <http://www.undp.kg>
2. <http://www.nature.kg>
3. <http://www.donors.kg>
4. <http://www.wwf.ru>
5. <http://www.unep.org>
6. <http://www.caresd.net>
7. <http://www.plant.biotech.kg>
8. <http://www.unece.org/env/pp>
9. <http://www.centralasia.kg>
10. <http://www.eco-portal.kz>
11. <http://www.eco-expertise.org>
12. <http://www.camp.kg>
13. <http://www.biom.org.kg>

INTERNATIONAL CONVENTIONS AND AGREEMENTS

Conventions:

1. Convention on protection of the World Cultural and Natural Heritage (1995)
2. Convention on Biological Diversity (1996)
3. Convention on Combating Desertification in the countries facing severe draught and/or desertification especially in Africa (1999)
4. Convention on transboundary air pollution on long distances (2000)
5. Convention on Environmental Impact Assessment in transboundary context (2001)
6. Convention on access to information, public participation in decision-making process and access to justice on issues related to environment (2001)
7. Convention on Wetlands having international importance mainly as habitats of the waterfowl (Ramsar) (2002)
8. UN Framework Convention on Climate Change (2000)
9. Kyoto Protocol to the UN Framework Convention on Climate Change (2003)
10. Cartagena Protocol on Biological Diversity to the UN Convention on Biological Diversity (2005)
11. UN Convention on International Trade of Endangered Species (CITES) (1973)
12. Stockholm Convention on Persistent Organic Pollutants (2002)
13. Rotterdam Convention on procedure of preliminary sound agreement in terms of specific hazardous chemicals and pesticides in international trade (2002)
14. UN Convention on protection new sorts of plants (2000)
15. Basel Convention on control of transboundary transportation of hazardous waste and its removal (1996)
16. Convention of the European and Mediterranean organization on plants protection (ratified by the Resolution of the Government of the Kyrgyz Republic as of April 12, 1999, № 214)
17. Vienna Convention on ozone layer protection and Montreal Protocol on depleting substances (2000)

Agreements:

18. Agreement on partnership and cooperation between the European Community and its states-members from one hand and the Kyrgyz Republic from other hand as of 09.02.1995, Brussels (ratified by Law of the Kyrgyz Republic as of 05.07.1997, № 43);
19. Agreement between the Government of the Kyrgyz Republic, the Government of the Republic of Uzbekistan and the Government of the Republic of Kazakhstan on Cooperation in field of conservation of biodiversity of the Western Tien-Shan as of 17.03.1998, Bishkek (signed by the Prime-Minister of the Kyrgyz Republic on 17.03.1998);
20. Agreement on Intention between the Interstate Sustainable Development Commission (ISDC) and the Central Asian WWF Programme on implementation of “Econet” in the region. ISDC’s decision №3 as of November 16, 2007, Bishkek.
21. Agreement between the CIS countries on cooperation in field of plant quarantine as of November 13, 1992, Moscow (signed by the Prime-Minister of the Kyrgyz Republic on November 13, 1992);
22. Agreement between the Ministry of Agriculture, Water Resources and Processing Industry of the Kyrgyz Republic and the Ministry of Agricultural Policy of Ukraine on Cooperation in field of testing and protection of the plant sorts (Kiev, March 28, 2003).
23. Agreement between the Government of the Republic of Kazakhstan, the Government of the Kyrgyz Republic, the Government of the Republic of Tajikistan and the Government of the

- Republic of Uzbekistan on Cooperation in field of plant quarantine as of June 8, 2000, Astana (signed by the Prime-Minister of the Kyrgyz Republic on June 8, 2000).
24. Agreement on Cooperation in field of environmental protection (the Almaty's Declaration of the Presidents of Central Asia, 1997; the Tashkent's Declaration of the Special UN Programme for Central Asia, 1998; the Dushanbe's Declaration, 2002).
 25. Agreement between the Republic of Kazakhstan, the Kyrgyz Republic, the Republic of Tajikistan and the Republic of Uzbekistan on Cooperation in field of integrated management in use and protection of interstate water resources (1992).
 26. Agreement on Cooperation in emergency prevention and mitigation between the Republic of Kazakhstan, the Kyrgyz Republic, the Republic of Tajikistan and republic of Turkmenistan (1997).
 27. Agreement TRIPS within WTO (1998)
 28. Agreement on Sanitary and Phytosanitary control within WTO (1998)

LEGAL BASIS OF BIODIVERSITY CONSERVATION

1. The Law of the Kyrgyz Republic “On Environment Protection” as of June 16, 1999, № 53.
2. The Law of the Kyrgyz Republic “On Protected Areas” as of May 28, 1994, № 1561-XII.
3. The Law of the Kyrgyz Republic “On protection and use of the vegetation” as of June 20, 2001, № 53.
4. The Law of the Kyrgyz Republic “On Environmental Expertise” as of June 16, 1999, № 54.
5. The Law of the Kyrgyz Republic “On sustainable development of environmental and economic system of the Issyk-Kul” as of August 13, 2004, № 115.
6. The Law of the Kyrgyz Republic “On Biosphere Reserves in the Kyrgyz Republic” as of June 9, 1999, № 48.
7. The Law of the Kyrgyz Republic “On Veterinary” as of March 6, 1992, № 805-XII.
8. The Law of the Kyrgyz Republic “On Fauna” as of June 17, 1999, № 59.
9. The Law of the Kyrgyz Republic “On Plant Quarantine” as of June 2, 1998, №26
10. The Law of the Kyrgyz Republic “On Licensing” as of March 3, 1997, № 12.
11. The Law of the Kyrgyz Republic “On Legal protection of selection achievements” as of June 13, 1998, № 79.
12. The Law of the Kyrgyz Republic “On Accession to the International Convention on protection of the new sorts of plants” as of January 14, 2000, № 10.
13. The Law of the Kyrgyz Republic “On Accession of the Kyrgyz Republic to the Convention on Biological Diversity” as of July 26, 1996, № 40.
14. The Law of the Kyrgyz Republic “On Accession of the Kyrgyz Republic to the Kartakhena Protocol on Biological Safety to the UN Convention on Biological Diversity” as of August 6, 2005, № 140.
15. The Law of the Kyrgyz Republic “On ratification of the UN Convention on Environmental Impact Assessment in transboundary context” as of January 15, 2001.
16. The Law of the Kyrgyz Republic “On Fishery” as of June 25, 1997, № 39.
17. The Law of the Kyrgyz Republic “On Seeds” as of June 19, 1997, № 38.
18. The Law of the Kyrgyz Republic “On Chemicalization and Plant Protection” as of January 25, 1999, № 12.
19. The Law of the Kyrgyz Republic “On basics of technical regulation” as of May 22, 2004, №67.
20. The Law of the Kyrgyz Republic “On Breeding in the livestock-breeding of the Kyrgyz Republic” as of December 18, 1992, № 1124-XII.
21. The Law of the Kyrgyz Republic “On tariffs paid for use of natural flora and fauna objects in the Kyrgyz Republic” as of August 11, 2008, №200.
22. The Law of the Kyrgyz Republic “On ban of capture, transportation, buying, selling and withdrawal of the valuable and endemic species of fish in the Issyk-Kul and Son-Kul Lakes” as of August 7, 2008.
23. The Law of the Kyrgyz Republic “On Air Protection” as of June 12, 1999, №51
24. The Law of the Kyrgyz Republic “On traditional knowledge protection” as of July 31, 2007, №116
25. The Law of the Kyrgyz Republic “On Public Associations” as of October 15, 1999, №111.
26. The Law of the Kyrgyz Republic “On Jaamats (communities) and their associations” as of February 21, 2005, №36.
27. “Code of the Kyrgyz Republic on Administrative Liability” as of August 4, 1998, №114.
28. Forestry Code of the Kyrgyz Republic as of July 8, 1999, № 66 (in version of the Laws of the Kyrgyz Republic as of June 28, 2003, № 119, June 28, 2003, № 120, March 3, 2005, № 41).

29. Land Code of the Kyrgyz Republic as of June 2, 1999, №45 with amendments made in the Law of the Kyrgyz Republic as of October 17, 200, №231.
30. Criminal Code of the Kyrgyz Republic as of October 1, 1997, №68 with amendments made by the Law of the Kyrgyz Republic as of October 17, 2008, №231.
31. Decree of the President of the Kyrgyz Republic “On Introduction of the moratorium on logging, processing and selling of the valuable wood growing on territory of the forestry fund of the Kyrgyz Republic” as of November 22, 2006, VII №565.
32. Decree of the President of the Kyrgyz Republic “On Measures protecting and increasing fish stocks in the Issyk-Kul, Son-Kul Lakes and other water bodies of the Kyrgyz Republic” as of January 10, 2008, VII №.
33. Decree of the President of the Kyrgyz Republic “On Measures on extension, legal support and introduction of interaction of the state bodies, municipalities and civil society in practice in the Kyrgyz Republic” as of May 11, 2006, VII №241.
34. Decree of the President of the Kyrgyz Republic №255 as of September 4, 2000 on approval of “Concept of development of tourism sector of the Kyrgyz Republic to 2010”.
35. Decree of the President of the Kyrgyz Republic as of April 30, 2005, №149 “On institutional and structural transformations in field of technical regulation in the Kyrgyz Republic”.
36. Decree of the President of the Kyrgyz Republic “On improving the public administration structure of the Kyrgyz Republic” as of October 15, 2005, № 462.
37. Resolution of the Government of the Kyrgyz Republic as of September 27, 2006, №693 (in version of the Resolution of the Government of the Kyrgyz Republic as of April 11, 2008, №145) “National Action Plan of the Forestry of the Kyrgyz Republic for 2006-2010”.
38. Concept of the Forestry Sector Development of the Kyrgyz Republic approved by the Government of the Kyrgyz Republic as of April 14, 2004, № 256.
39. Concept of agriculture development of the Kyrgyz Republic for 1998-2001 approved by the Resolution of the Government of the Kyrgyz Republic as of July 8, 1998, № 450.
40. Resolution of the Government “On Concept of Education Development in the Kyrgyz Republic till 2010” as of April 29, 200, №259.
41. National Programme “Jashtyk” on youth development in Kyrgyzstan till 2010. (approved by the Decree of the President of the Kyrgyz Republic as of July 18, 2000, №152)
42. The Decree of the President of the Kyrgyz Republic “On Amendments made in the Decree of the President of the Kyrgyz Republic “On Presidential Educational Programme “Personnel of XXI century” as of August 28, 2004, VII №277.
43. Concept of Environmental Safety as basic strategic document to conduct state policy on environment protection and rational nature use. Resolution of the Government of the Kyrgyz Republic as of October 16, 2007, №469.
44. Action Plan to 2010. Agenda XXI of the Kyrgyz Republic approved by the Resolution of the Government of the Kyrgyz Republic as of August 2, 2002, № 411-r.
45. National Framework Programme within the Central Asian Countries Initiative on Land Management (CACILM), 2006.
46. Concept of continue-based environmental education of the Kyrgyz Republic approved by both ministries – Education and Environment. Resolution of the Government of the Kyrgyz Republic “On Setting up the Coordination Council on Education for Sustainable Development” (11.02.2005, №74).
47. Decree of the President of the Kyrgyz Republic “On state education doctrine” as of August 27, 2000, VII №244.
48. Resolution of the Government of the Kyrgyz Republic as of June 22, 2004, № 465 “Concept of agricultural policy of the Kyrgyz Republic till 2010”.

49. Regulation on State Forest Protection of the Kyrgyz Republic approved by the Resolution of the Government of the Kyrgyz Republic as of June 24, 1997, № 371.
50. Resolution of the Government of the Kyrgyz Republic “On approval of the list of priority directions of science development of the Kyrgyz Republic for 2003-2005” as of August 13, 2003, № 511.
51. Resolution of the Government of the Kyrgyz Republic “On Setting up the Coordination Council on Education for Sustainable Development” (11.02.2005, №74).
52. Resolution of the Government of the Kyrgyz Republic as of June 23, 2003, №374 “On set up of the Interagency Commission under the Government of the Kyrgyz Republic on WTO issues”.
53. Resolution of the Government of the Kyrgyz Republic №369 as of July 21, 2001 “On measures on implementation of the Framework Convention on Climate Change”.
54. Resolution of the Government of the Kyrgyz Republic №24 as of January 23, 1997 “On the National Commission of the Government of the Kyrgyz Republic on UNESCO matters”.
55. Resolution of the Government of the Kyrgyz Republic “On Measures on use of outrun pastures of the Kyrgyz Republic” as of November 30, 1998, № 775.
56. Resolution of the Government of the Kyrgyz Republic “On approval of the regulation on leasing and use of the pastures” as of September 27, 2004, №718.
57. Resolution of the Government of the Kyrgyz Republic “On National Plan of the Kyrgyz Republic on Environment Protection of the Kyrgyz Republic” as of January 29, 1996, № 43.
58. Resolution of the Government of the Kyrgyz Republic “On implementation of the Cartagena Protocol on Biological Safety to the UN Convention on Biological Diversity” as of September 15, 2005, № 433.
59. Resolution of the Government of the Kyrgyz Republic “Concept of cooperation between the public associations, public funds, non-governmental organizations and state bodies of the Kyrgyz Republic”.
60. Resolution of the Government of the Kyrgyz Republic as of April 14, 2004, №256 “On approval of the Concept of Forestry Development of the Kyrgyz Republic till 2025”.
61. Resolution of the Government of the Kyrgyz Republic №161 as of April 22, 2008 “On approval of the Fishery Development Programme of the Kyrgyz Republic for 2008-2012”.
62. Resolution of the Government of the Kyrgyz Republic №310 as of July 25, 2005 “On status of the Chatyr-Kul Lake as a wetland having international importance”.
63. Resolution of the Government of the Kyrgyz Republic №901 as of December 30, 2006 “On control and surveillance of safety measures in field of veterinary, plant quarantine, epidemiology, sanitary and environment conducted by the state authorities”.
64. Resolution of the Government of the Kyrgyz Republic “On Country Development Strategy for 2007-2010” as of March 23, 2007, №84.
65. Resolution of the Government of the Kyrgyz Republic as of February 2, 2001, №33 and Resolution of the Government of the Kyrgyz Republic as of January 28, 2003, №38 “programme on Tourism Development in the Kyrgyz Republic to 2010”.
66. Resolution of the Government of the Kyrgyz Republic №802 as of November 25, 2002 “Action Plan on implementation of proposals on comprehensive tourism development in the Issyk-Kul region”.
67. Resolution of the Government of the Kyrgyz Republic as of October 18, 1996, №332 “Concept of environmental safety of the Kyrgyz Republic”.
68. Resolution of the Government of the Kyrgyz Republic as of August 3, 2002, № 524 “On approval of the Biodiversity Conservation Strategy of the Kyrgyz Republic”.
69. Resolution of the Government of the Kyrgyz Republic as of January 24, 2000, №40 “On approval of the regulation on the Biosphere Reserve Issyk-Kul”.

70. Resolution of the Government of the Kyrgyz Republic as of September 27, 2006, №693 On approval of the National Action Plan of the Forestry Development of the Republic for 2006-2010”.
71. Resolution of the Government of the Kyrgyz Republic as of November 17, 2001, №715 “On approval of the State Programme “Forest” for 2001-2005”.
72. Resolution of the Government of the Kyrgyz Republic as of April 28, 2005, №170 “On approval of the list of rare and endangered species of animals and plants for their inclusion in the Red Book of the Kyrgyz Republic”.
73. Resolution of the Government of the Kyrgyz Republic as of April 11, 2008, № 145 “On the National Forest Inventory”.
74. Decision of the Security Council of the Kyrgyz Republic “On status, draft concept and measures ensuring environmental safety of the Kyrgyz Republic” as of August 4, 1997.
75. Directive of the State Agency on Environmental Protection and Forestry under the Government of the Kyrgyz Republic as of August 6, 2007, №01-13/180 “On approval of the Strategy and Action Plan on development of the electronic informational resources in the forestry sector of the Kyrgyz Republic”.
76. Directive of the Ministry of Agriculture, Water Resources and Processing Industry of the Kyrgyz Republic “On import procedure of the agricultural culture seeds, which are not included in the State Register of the Kyrgyz Republic, sorts and hybrids zoned and allowed to be seeded” as of February 19, 1998, № 42.

International environmental projects in the range of biodiversity conservation in Kyrgyz Republic

№	Project title Project duration	Project goals and objectives	Project results
1.	GEF/WB Central Asian Project on Conservation of Biodiversity of Western Tien Shan (Kazakhstan, Kyrgyzstan and Uzbekistan). 2001-2006	Legal and financial reforms; Strengthening of SPNA Network; Sustainable Use of Biodiversity; Public awareness and education; Public participation in biodiversity conservation.	Management Plans of development of Sary-Chelek and Besh-Aral reserves. Reserves were equipped. Established Ecological and Informational Centers of Reserves. Expeditions on assessment of Western Tien Shan biodiversity were conducted. Methodic of biodiversity monitoring and Nature Chronicle are published. Project of Bioregional plan on biodiversity conservation of Transboundary Nature Park of Western Tien Shan was developed.
2.	Intergovernmental project EuropeAid/TACIS on Conservation of Biodiversity of Western Tien Shan (Kazakhstan, Kyrgyzstan and Uzbekistan). Phase I: 2001-2003 Phase II: 2004-2006	Assistance in Conservation of Biodiversity of Western Tien Shan; Establishment of transboundary nature park and socio-economic development of communities, living in SPNA buffer zone; Reducing dependence on natural resources and threats of biodiversity through socio-economic development and more effective self-governance within and close to (future) Western Tien Shan Transboundary Nature Park	Draft of Intergovernmental Agreement on establishment of transboundary nature park on the territory of Western Tien Shan and submitted to Executive Committees of Kazakhstan, Kyrgyzstan and Uzbekistan to prepare for signing. A line of educational actions on ecological education, ecotourism etc. was hold. Tours to protected areas of Western Tien Shan were developed.
3.	GEF-UNEP-WWF «Establishment ECONET for long-term conservation of biodiversity in ecoregions of Central Asia» Project	Establishment of integrated “Ecological network” of Central Asian region and its integration into content of regional and national plans of sustainable development, and development and mainstreaming of reliable mechanisms for long-term intergovernmental	Developed scheme of Ecological network on basis of integrated informational system of management (GIS) for region, which was approved by Order of SAEPP as of 6 July 2006. Map of SPNA of the KR was developed and published. Within WWF Project there were established 3 State Reserves (Padysha-Ata, Kulun-Ata and Karabuura) and 2 National Parks

		cooperation and actions coordination for provision of conservation and sustainable development of biodiversity	(Salkyn-Tor and Saymaluu-Tash). Financing for abovementioned SPANs and 3 reserves (Besh-Aral, Naryn and Yssyk-Kul) was provided. By Decision of ICSD No. 3 as of 16 November 2007 in Bishkek “Agreement on intensions between ICSD and WWF Central Asian Programme on ECONET implementation in the region”. Issues on implementation of ECONET are included into the project of Framework Convention on Environment Protection in Central Asia”. Environmental Code of the Kyrgyz Republic is developed.
4.	FAO Project on revision and harmonization legislation in the field of SPNA in Kazakhstan, Kyrgyzstan and Uzbekistan 2003-2004	FAO provides technical and financial assistance to Governments of Kazakhstan, Kyrgyzstan and Uzbekistan to revise and harmonize legal standards relating to protected areas.	Two projects were implemented – the first one is in the filed of SPNA legislation (October 2003-October 2004), the second on legal aspects, related to forests, wild nature and hunting (July 2003 – July 2004).
5.	“Central Asian Mountain Partnership” Project under support of Swiss Government 2002-2005 гг.	Sustainable development of mountain territories of Central Asia	Measures supported of high mountain villages were conducted, bulletins were published, educational trainings on use of alternative energy of sun, biosafety were hold, and research on medicinal herbs was conducted.
6.	UNEP/GEF “Development of framework documents on biosafety in the Kyrgyz Republic” 2003-2005	Assistance to more than 100 countries-participants in creation of national structures for management of living changed organisms to implement requirements of Cartagena Protocol.	Workshops with participation of interest groups were hold. National review “Biological safety in the Kyrgyz Republic” was prepared. National framework document on biological safety was developed. Law-in draft “On biological safety” was developed. A number of articles on biosafety problems were published in mass media.
7.	UNDP/GEF Small Grants Programme 2007-2008	Programme grants noncommercial juridical entity (NGOs), mainly who live in rural area to implement small sustainable environmental projects,	4 projects were supported: One Project in the prioritized Western Tien Shan zone, One Project in the prioritized Kyrgyz-Ata-Fergana zone, two projects out of prioritized zones. Total sum of budget is USD 75 000.

		which developed by local communities according to set criteria	
8.	EU-JUMP – «Support of sustainable management of juniper forests of the South Kyrgyzstan» 2004-2007	Development of integrated management plans of juniper forests on the South of Kyrgyzstan with participation of local population.	Integrated management plans aimed at sustainable management of juniper forests for 11 forestries of the south region were developed.
9.	GTZ Project on Biosphere territory “Yssyk-Kul” 1997-2004	Creation of cultural and natural heritage, models and stimulus for sustainable environmental and economic development of the region.	Developed the legal basis of biosphere territory’s development; Zoning of Issyk-Kul oblast with different regimes of land management was made; A number of maps with on a scale 1:200 000 was developed and translated, «Main trends of ecologically oriented planning of land use on Biosphere territory “Yssyk-Kul” Survey was conducted; General Administration on development of Biosphere territory “Yssyk-Kul” was established.
10.	Kyrgyz-Norwegian “Forest Sector and Environment” Programme Phase I 2004 - 2005 Phase I 2005 – 2006	Monitoring of forest ecosystems of Kyrgyzstan. Phase I – Monitoring of environment; Phase II - Institutional strengthening of State Forest Service.	Methodology for filed works are studied and developed, State of Forest systems are studied, Monitoring plots are selected and set; Project of mechanism of transfer of economic functions to private sector on basis of data on study of state of forest of Djalal-Abad, Osh and Batken oblasts Reforms of forests management systems in different countries (Norway, Russia, Lithuania, Kazakhstan, Uzbekistan and Tadjikistan) and were studied; Different models were developed; these models can be used in forest sector.
11.	Project of German Society of nature Protection (NABU) "Conservation of snow leopard"	Protection of snow leopard and other animals, which are included into the Red Book	Special Operative Group “Bars” to protect Red Book animals was established.

	1999 г.		
12.	Kyrgyz-German “Impact of transformation process on relation of human and environment in nut-bearing forests of the South of Kyrgyzstan» Project under support of Volkswagen Foundation Phase I: 2003-2005 Phase II: 2006-2007	Researches on landscape ecology of nut-bearing forests.	Socio-economic researches and researches on landscape ecology in 3 forestries (Arslanbap, Kyzyl-Unkur, Kara-Alma) were conducted. As result new methods of researches on landscape ecology of nut-bearing forests.
13.	Project of International Scientific and Technique Centre (ISTC) – grant KP-973 «Conservation and use of hermoplasma of wild flora of Kyrgyzstan to solve genetic, selection and economic objectives» 2004-2007	Creation of bank of hermoplasma of endemics, rare and economically valuable plants of Kyrgyzstan. Objectives: - Inventory and assessment of the current state of endemic populations, sub-endemics, rare and economically valuable plants of wild flora of Kyrgyzstan. - Development of methods of conservation of genetic bank of ex-situ and in vitro endemics, sub-endemics, rare and economically valuable plants of wild flora of Kyrgyzstan. - Study of economically valuable indications – identification of substances of repeated exchange of endemics, rare and practically valuable plants. - Establishing geographic informational system (GIS) of the project and digital data base for automation of the information storage and processing ;	Established basis of hermoplasma (seed and meristem); Developed protocols of cryoconservation of seeds and meristem; Selected more perspective species – producers of active materials; Methodic of quick-growing genetically transformed root cultures of perspective species was developed. Methodic of artificial seeds of some species, including endemics and rare species form hairy roots as alternative approach of conservation of genetically immutable plat material in a line with cryoconservation and microclonal reproduction. Inventory and assessment of endemic, sub-endemic and rare plant species was conducted, herbal fund is established. Geographic national system is established. Digital data base for automation of the information storage and processing was established.

14.	Central Asian UNEP-GEF/ Biodiversity International «In situ/On farm” (fruit culture and their wild congeners) 2003-2006	Conservation and use of agrodiversity (fruit culture and their wild relative)	Providing farmers, NGOs, scientific institutions, local communities and decision makers with knowledge, methodologies and recommendations allowing improving activities on conservation of fruit cultures and their wild congeners.
15.	TA RETA 5878-REG: “Regional Partnership on sustainable development of mountain territories in Central Asia” Project under support of ADB and Swiss Government 2000 – 2001	Stimulating regional partnership on sustainable development of mountain territories in Central Asia and SUAR CNR. Develop regional cooperation on issues of sustainable development of mountain territories and use information more effectively.	Built mechanisms of information and data exchange in the area of mountain ecosystems and management practice in Central Asian countries (Kazakhstan, Uzbekistan, Kyrgyzstan and Tajikistan) and neighboring China. Analyzed information on mountain ecosystems and management practice, assessment of their sustainability. Recommendations on sustainable management of agro- ecosystems and natural resources are developed. Developed regional approach to promote sustainable management practice.
16.	Kyrgyz-Swiss Programme on Support of Foerst Sector (Les-IC) under support Swiss Agency on Development and Cooperation and Intercooperation Phase I - 1995-1997 Phase II - 1998-2000 Phase III – 2001-2003 Phase IV – 2004-2007 Phase Y – 2008-2009	The project's main goal is to establish the necessary conditions for institutions and private persons in the forestry sector, to ensure the conservation of forests and their biodiversity, increase the forest cover and the use of forest resources in a sustainable way.	Developed and adopted National Action Plan of Forest sector development and Land Code of the KR. The components of the Programme: • Reform of forest sector • Development of modern tools in forest management • Giving production opportunities to private sector: • Development of community based forest management Support of science in the area of forests

17.	FAO/UNDP “Capacity strengthening of national assessment and monitoring of forest and wood resources” Project 2007 -2009	Assistance to conservation and sustainable use of forest and wood resources taking into account environmental, socio-economic functions. Implementations of principles of international process into innovative policy and programme of national level and local practices under joint planning and implementation of national programmes.	National Steering Committee on project implementation was established, National Coordinator from SAEPF was appointed. Cross-sectoral Commission (National Statistic Committee, MAWRPI, SAEPF, and Agency on Local self-governance) was established. The first project “Guidelines of field works) was developed and was adopted in 2008. 8 field works on laying highways in Batken, Osh, Djalal-Abad, Talas, Chui and Issyk-Kul oblasts.
18.	CIDA/GM/UNDP “Community based pastures management in Temir Aiyl Okmotu” Project 2004-2007	Capacity building of local communities in the field of sustainable pasture management; Poverty alleviation through improvement of pasture management	Capacity building of local communities through trainings and workshops in Temir village on issues of effective development of livestock sector, legal aspects of farming, marketing etc. “Mukambet” PF is established to achieve project objectives and continuing of activities. . Veterinary Service in Temir village and thanks to this in spring of 2007 mass vaccination of cattle. Reconstruction of 1 farm was made. 2 biogas installations and micrhydropower units were purchased and installed with the aim to decrease greenhouses emissions.
19.	UNDP/GEF “Demonstration of sustainable pasture management in Suusamyr Valley” Project 2007 – 2012	Functional integrity of high mountain pastures of Kyrgyzstan as contribution to sustainability of ecosystems through reduction of soil erosion and ensuring food security. Development of economically beneficial and reproductive mechanisms of pasture management in Suusamyr valley which will reduce negative impact of cattle breeding and improve living conditions of population	Project just launched
20.	UNDP/GEF “Strengthening	Conservation of endemic ichtyofauna	Project just launched

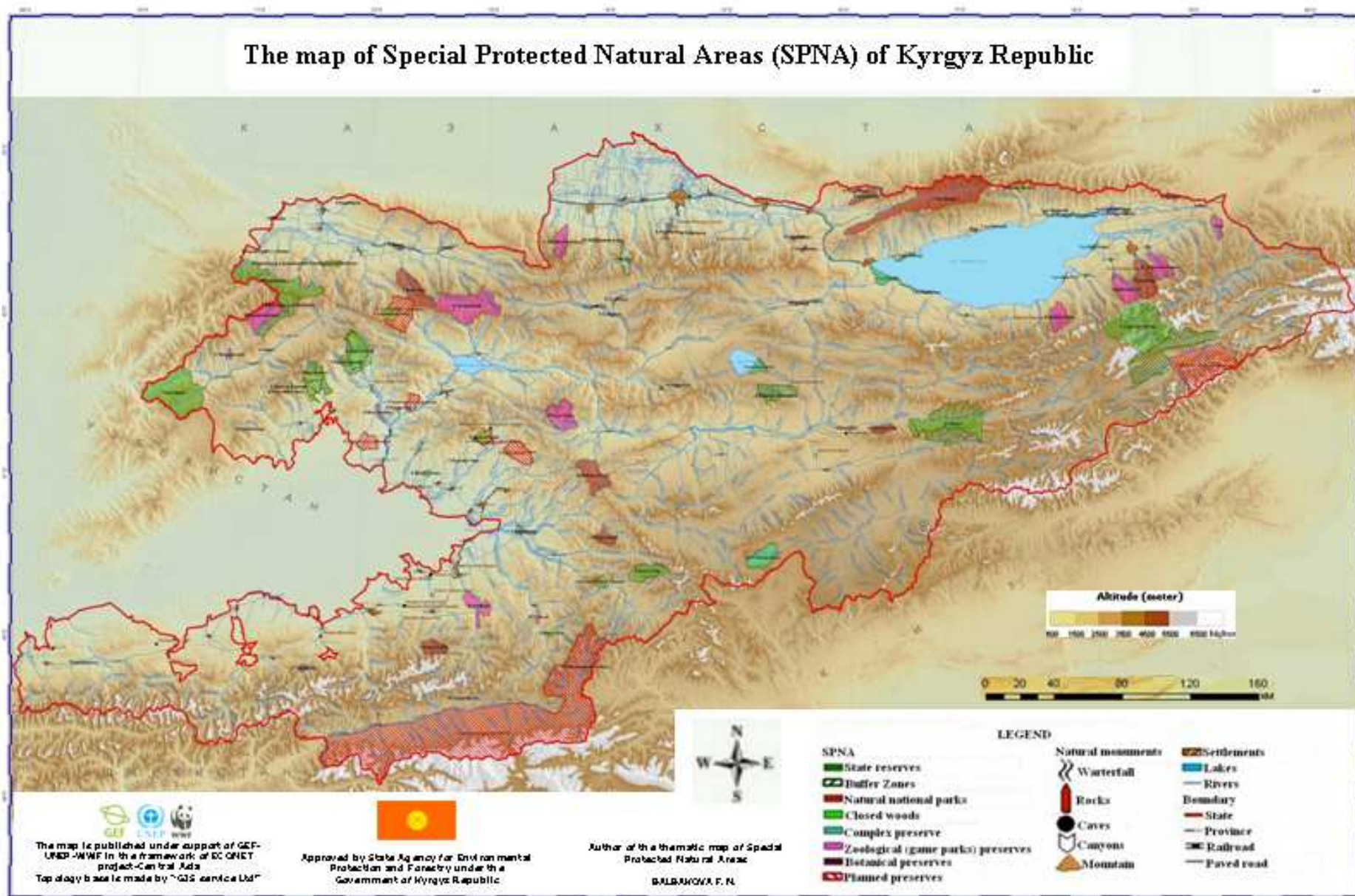
	policy and regulatory framework for mainstreaming biodiversity into fishery sector” Project 2007 – 2010	of the Issyk-Kul lake	
21.	EU “Assistance to Pamir-Alai Transboundary Protected Territory” Project 2007-2008	<i>Improved transboundary protection of biodiversity in Kyrgyzstan and Tajikistan</i> <i>Assist to Pamir-Alai Transboundary Protected Territory</i>	Inception workshop is held. Members of Steering Committee are defined and the first meeting of the committee is held. Workshops on set objective of the research are held. Territory of the project is identified. Researches on biodiversity are completed, and socio-economic assessment is made.
22.	FLOG Process under support of Intercooperation Проект «National action plan to strengthen enforcement and management in forest sector of Kyrgyzstan” SDC 2005-2007	FLEG Process – dialogue process, directed to mobilization of international efforts of Governments, organizations and donors on activation of measures to combat illegal cut, trade and corruption in forest sector .	Cross-sectoral working group was established. Workshops in Djalal-Abad, Issyk-Kul, Naryn, Osh and Talas oblasts and opinions gathering and their views of different interest groups on activation of measures to combat illegal cut, trade and corruption in forest sector. Results of the project will be considered in KIRLES projects on reforming of forest sector (Land code review), and project on transition of production functions to private sector. National Action Plan on enforcement and management in forest sector with aim to launch mechanisms of its implementation and control of unsanctioned cut of forests in the country.
23.	UNEP “Development of ecotourism in high mountain part of Issyk-Kul oblast» 2006- 2007	Involvement of population of in high mountain part of Issyk-Kul oblast in the process of rational natural resources use and alternative profitable activities.	Developed 2 CBT (community based tourism) and included into the Kyrgyz Tourism Association based on communities. Trainings for CBT members are held. Provided technical and marketing support of CBT.
24.	«Central Asian Countries Imitative of Land Management” Project (CACILM) 2006 -2016	Sustainable management of land and water resources for rational use, recovery and prevention of land degradation, improvement live level of rural population of Central Asia.	Improvement of legal basis for sustainable use of land resources. Built capacity of key ministries and institutions of CA, responsible for planning and implementation activities on land management. Built capacity of rural population with the aim of sustainable land management. Invested regions to improve living conditions and welfare of

			rural population and conserve and recover stability and functions of ecosystems.
25.	UNDP/GEF “Enabling activities for the preparation of the Kyrgyz Republic’s Second National Communication to the UN Framework Convention on Climate Change” Project 2005 – 2008	The second national communication is following the activities undertaken in the framework of preparation of the First national Communication on climate change and needs assessment. Strengthening of technical and institutional capacity of Kyrgyzstan for including objectives related to climate change into sectoral and national policies.	Drawing up a greenhouse gas cadastre for 2000-2004; Analyzing climate change impacts in provinces; Developing adaptation measures to climate change; and Preparing a Second National Communication to the UNFCCC.
26.	TICA “Rehabilitation of Ton fish factory” Project 2008	Establishment of incubation on production of fish materials and conservation of biological diversity and balance	Turkish International Cooperation Agency (TICA) jointly with Fish management Department of MAWRPI work on rehabilitation of Tonn Fish Factory in Issyk-Kul oblast
27.	Project of Asian Centre of Permaculture and PF “ECoOi” “Rehabilitation of agrarian programme directed to reforming of agrarian sector” 2008	Implementation of Programme on distribution of permaculture. Implementation of technology of environmental management, allowing population to overcome poverty.	The work on establishing of demonstration zones, build on permaculture principles and are profitable under minimal manhours and does not impact on environment and biodiversity.
28.	UNDP/GEF “National capacity self-assessment for global environmental management” Project (NCSA-Kyrgyzstan) 2004-2005	Identification and analysis of priorities and needs on capacity building for implementation of three environmental conventions: - UNCBD; - UNCCD; - UNFCCC.	Inventory – review of state and previous national actions on implementation of commitments under three global environmental conventions was conducted. Analysis of cross-sectoral interaction for implementation of three environmental conventions was made.
29.	UNDP “Capacity building and environmental governance strengthening for	Support to SAEPF in improvement of environment management system in the KR through: (i) supporting the	Global environmental principles integrated into grass roots poverty reduction efforts. The Coordination Body on Sustainable Development (CBSD)

	sustainable development” Project 2005 – 2007	establishment and functioning of National Commission for Sustainable Development to strengthen the inter-sectoral cooperation with a view to implement the principles of sustainable development; (ii) enhancing the institutional and stakeholders capacity to deliver GEF supported projects; supporting the Kyrgyz Republic’s participation in Environment and Security Initiative and Regional Environmental Action Plan (REAP) implementation and other existing strategies and plans related to this sphere; (iii) strengthening coordination among different stakeholders, strengthening partnership and involving civil society participation in environmental management and sustainable development decision-making process and raising the awareness of the mass media in compliance with Aarhus Convention, and (iv) assisting in resource mobilization through strengthening capacity and development of the mechanisms and tools for implementation of the environmental strategy, improving environmental legislation by bringing it into correspondence with the international environmental agreements, Conventions, pacts, ratified by the Kyrgyz Republic	is able to design and implement priority environmental management and sustainable development initiatives. Expanded collaboration between key stakeholders in the area of environmental management for sustainable development on national and sub-regional levels. Integrated conservation and development policies based on successful GEF projects in biodiversity, land degradation, energy and international waters. There are new resources mobilization mechanisms for presentation of the environment and sustainable development introduced.
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31.	FAO/NLP Facility «Assistance in implementation of forest policy» Project 2006 – 2008 r	Increasing awareness of staff of regional administrations of forest sector, forestries and local communities in the area of joint forests management through development and publication of informational materials and holding a line of trainings for local communities in zones of flood-plain forests (Naryn oblast), fir forests (Issyk-Kul oblast) and nut-bearing forests (Djalal-Abad oblast)	Study on assessment of state and a perspective of joint forests management in Kyrgyzstan is conducted. Review of state of forests management in Kyrgyzstan is conducted. .
32.	UNEP/GEF “Building Mechanism of mediation of Cartagena Protocol on biological security” 2007-2009	Building Mechanism of mediation of Cartagena Protocol on biological security	The inception workshop was held with involvement of representatives of state structures on Mechanism of mediation on biosecurity. The Law “On biological security” is lobbying.

The map of Special Protected Natural Areas (SPNA) of Kyrgyz Republic



The map of Ecological network of the Kyrgyz Republic

