

# **National Snow Leopard Ecosystem Protection Priorities (NSLEP)**

**Kyrgyz Republic**

**(2013 –2023)**



**Bichkek 2013**

## CONTENTS

Chapter 1. Assessment of the snow leopard ecosystem and its role in the economy, biodiversity, spirituality/culture, indicated in quantitative data.	3
Chapter 2. Raising awareness on the value of the ecosystems of the snow leopard and the mobilization of support for their conservation.	6
Chapter 3. Threat assessment, both traditional and new, coming from infrastructure development, market demand, tourism and climate change.	7
Chapter 4. Review of the above threats.	9
Chapter 5. The organization, empowerment and support.	11
Chapter 6. Research and training of personnel.	16
Chapter 7. Multistage implementation plan associated with understanding and protection.	17
Chapter 8. Monitoring of the implementation and results of monitoring.	19
Chapter 9. Summary of expenditures and funding opportunities	25
Sources of information	28

## **Chapter 1. Assessment of the snow leopard ecosystem and its role in the economy, biodiversity, spirituality/culture, indicated in quantitative data.**

### *a. For community.*

There are about 2% of world species of flora and more than 3% of the species of the world fauna in the Kyrgyz Republic. Taking into account that the country occupies 0.03% of the area of the planet or 0.13% of the terrestrial parts of the world it is quite a lot. [1]

Locality of snow leopard covers quite a large area of Central Asia. In the Kyrgyz Republic snow leopard covers all parts of the country, i.e. in the Tien Shan Mountains and the northern ranges of the Pamir-Alay (Alay, Trans Alay and Turkestan ranges).

The total area of suitable for the location of the snow leopard in the country is estimated at 54,000 square km, which is more than ¼ of the country. The total area of the country is 198.5 thousand square km, and more than 60% of which are dissected by mountains rising from 500 m to more than 7000 m above sea level. About 40% of the total land area occupied by glaciers, permanent snow, rocks, scree, alpine desert detritus, etc. Considering that 90% of the country lies at an altitude of over 1.500 meters above sea level, it is clear that the essential role of ecosystems of the snow leopard in the Kyrgyz Republic in its socio-economic status. [2]

A significant part of the mountain ecosystems areas is used as summer pastures in livestock, playing a significant role in the economy of the country. Some high-mountain areas, located in the lee, protected from heavy rainfall, areas of relief, are used as wintering, where part of the cattle are wintered. The diversity of natural conditions determines the development of various types of grassland ecosystems. Middle-altitude steppe and savannoids (6367 ha), are prevailed among them and have a high economic value. There are also alpine and sub-alpine meadows (3,363 and 1,773 hectares), and low-altitude steppe savannoids (1956 hectares), with a corresponding economic capacity [2]. In general, the area of natural pastures of the country is estimated to 8.9 million hectares, occupying 45% of the total territory. Gross margin of pasture forage by year ranges from 2.0 to 2.4 million tons of feed units [3].

352.5 thousand tons of meat in live weight were produced in 2012. Mainly, the increase of meat production related to an increase in the number of livestock – 300.6 thousand heads [4]. In many mountain areas livestock is the main or even the only source of income for the local population. Livestock gives meat, wool and dairy products. Sheep and cattle are the most developed areas of animal husbandry. Horse breeding is not too developed relatively to sheep and cattle breeding, recently yak breeding is being developed.

Highland and middle pasture provides forage not only for livestock, but are inhabited by wild animals such as argali, ibex, marmots and many other species.

### *a. For the country.*

The Kyrgyz Republic is an agrarian-industrial country. Agriculture and industry are profiling sectors of the economy. The share of agriculture for 2012 was 17.5% of GDP, the share of industry in the same period – 16.8% [5].

Exceptionally beautiful landscapes and peaks of the country attract climbers and tourists from all over the world. There are the world famous mountain peaks – Victory Peak (7439 m above sea level), Lenin Peak (7134 m above sea level), Khan Tengri Peak (6995 m above sea level) etc. The territory of the Tien Shan Mountains, which forms the several branches of the Great Silk Road, attracts a large number of tourists. Most of historical and architectural heritages, preserved in different parts of the

country, are a special cultural value. In 2012 the number of tourists, who visited Kyrgyzstan has exceeded 1.6 million. Tourism is one of the important sectors of the modern economy.

The license for trophy and sport hunting, brings to the country's treasury about half a million dollars a year. With a proper organization, hunting can actually be a sustainable source of income for the country and local communities.

In the recent past, the country exported marmot skins. Currently, this species of mammals are used for commercial trapping in limited restrictedly. The local population uses fat of the marmot in traditional medicine and for the production of skin headdresses.

High mountain ecosystems are rich in wild plants that have a certain economic value. There are more than 4,200 species of higher plants in the republic, about 10% of which are endemic and subendemics. Among them – 1.600 of cumulative species, which include food plants – 400 species, medicinal – 200, honey – 300, decorative – 250, essential oil – 60, food – 60, tanning – 30, dyeing – 20, resiniferous – 15 and others[2].

High-mountain ecosystems, which are the main areas of snow leopard habitat, play an important role in the accumulation of precipitation, the formation of the slope and runoff, their regulation within the year, and it is closely related to the provision of water to the population of the country and the region as a whole. At the same time, the rivers are the source of enormous hydroelectric capacity. A number of hydroelectric power stations (HEP), built in Soviet times on the Naryn River, provide electricity not only to the Kyrgyz Republic, but also they cover the needs of neighboring countries. HEPs produce more than 90% of the country's electricity. Present time according to some estimates the energy capacity of the country has adopted only by 10%.

**The cultural value.** The Kyrgyz people has a rich cultural heritage, which has been developed over the centuries. The nomadic culture of the hill tribes that have passed from generation to generation is still preserved fragments, which characterize the attitude of this ancient people to the animate and inanimate nature. This clearly evidences in regard to the snow leopard, which the local Kyrgyz name – Ilbirs. It is also called “Ak Ilbirs”, which means “white leopard”. Only Kyrgyz people names the snow leopard as Ilbirs, while the majority of the nations of post-Soviet countries names it - “Irbis”.

The people kept the legend about the Kyrgyz hero, collector of people– Barsbek. It was hero, who lived in the 7th century AD and joined the Kyrgyz people and preserved their independence, standing against external enemies. Present time the snow leopard has lost its sacred value. He is depicted as a symbol on the flag and municipal arms of the city of Bishkek.

In the last work of the world known Kyrgyz writer – AitmatovChyngyz “When Mountains Fall or eternal bride”he clearly describes the tragic fate of the snow leopard and the hunter for him. “A descendant of white leopard” film producedby Tolomush Okeev calls for respect for nature, preservation of balance among the components of the natural environment.

In the folk legends and fairy tales, ethnic and religious ceremonies and rituals moral motives, mobilizing people to respect for nature are also preserved.

Thus, the snow leopard lives in the vast territory across the country, wheredifferent economic activities are being developed. This is facilitated by the existing rich hydro capacity in the high parts of the rivers, which are planned to be used, deploying large-scale construction of HEP. In other words, the need for further economic use of natural capacityof the leopard habitat has no doubt. Considering that the state of the ecosystems of these areas determines the capabilities of this type in the future, requires the

development and introduction of measures to preserve the optimal number of the snow leopards in Kyrgyzstan.

*б. For the planet.*

The Kyrgyz Republic is located in the heart of Eurasia, its area is 198.5 thousand km<sup>2</sup> and has borders with Kazakhstan, China, Uzbekistan and Tajikistan. Kyrgyzstan is surrounded by arid and extraarid plains of Central Asia. Its natural environment is experiencing harsh impact of the desert zone, which extends to the eastern hemisphere, from the Sahara to the Gobi. The distance from the nearest ocean (about 3 thousand km) determines the overall aridity and continental climate [6].

The rivers of Kyrgyzstan belong to the Central Asian draining basins: Aral, Tarim, Issyk-Kul, Balkhash. From the north and south they border with vast deserts. Total annual runoff is about 50 km<sup>3</sup>, and the amplitude of the heights at which they formed and consumed items, ranging from 401 to 7.439 m above sea level. The well-being of the peoples of Central Asia are almost entirely depends on the rivers originating in the high mountains, and ecological well-being of rivers is totally depends on the preservation of natural ecosystems in the zones of runoffs' formation.

Glaciers and snowfields on the mountain tops are significantly important for the water provision and regulating the climate of the region have. Within Kyrgyzstan, there are 8,200 glaciers with a total area of 8169, 4 km<sup>2</sup>, occupying 4.2% of the country. The water capacity of glaciers in Kyrgyzstan is estimated at 650 km [7].

They are very important in forming the climate of the region, the country's economy, and in the preservation of biodiversity. Glaciers are also reservoirs and sources of fresh water and indicators of the environment.

The reservoirs of the country play a major role in providing water not only for our country's hydroelectric power plants, but also the agricultural lands of the Republic of Uzbekistan and the Republic of Kazakhstan, accumulating runoff and supplying fresh water during the irrigation season.

The streamhead beginning of the Syr Darya – one of the two tributaries of the Aral Sea is the Naryn River. The heads of the Naryn River are on the slopes of the mountain ranges of the Inner Tien Shan. The river flows from Kyrgyzstan into the Fergana Valley, and then, to the territory of the Republic of Uzbekistan merges with the Kara-Darya river, forming Syr Darya. These rivers provide irrigation water for cotton, rice and tobacco plantations in neighboring countries before reaching the Aral Sea. It should be noted that the growth of imports of cotton and tobacco is an important part of the economy of Uzbekistan. The Chu river, which heads are located in the highlands of the Inner Tien Shan, provides irrigation water for agricultural lands of the Republic of Kazakhstan.

The Sary-Zhaz river belongs to the Tarim Basin. It springs from the blanks of the Central Tien Shan mountain ranges. The entire flow of the river goes to the Chinese People's Republic.

The territory of Kyrgyzstan is a natural barrier between the flora and fauna of Kazakhstan, Uzbekistan and China, belonging to different biogeographic provinces. On the other side, the Tien Shan and Alay are the bridge between the fauna and flora of the Himalayas through the Pamir and Hindu Kush to the biota of Siberia, and in Junggar Ala Tau and Altay – with biota of Mongolia. These two factors determine the extraordinary and unique combination of elements of different floras and faunas, thereby defining the particular importance of biodiversity of Kyrgyzstan, and the necessity to conserve is obvious [8].

The Tien Shan and Pamir-Alay are included into the list of two hundred priority ecoregions of the planet. The highest concentration of species diversity, both plants and animals, is here [9]. Thus, the number of species of vascular plants amounts up to 2-3 thousand on the area of 10 thousand km<sup>2</sup>. This highest concentration of species and communities is a characteristic of high-systems, not only in the relatively low, but in the mid-latitudes [10].

The wealth of biodiversity of the Tien-Shan-Alay mountain system is much higher than the wealth of biodiversity of the surrounding plains.

Rare and endemic species and subspecies of animals are presented here, among which the main leopard (*Uncia uncia*), white-clawed bear (*Ursus arctos*), marmot (*Marmota menzbieri*), relict ground squirrel (*Spermophilus relictus*), Tien Shan birch mouse (*Sicista tianshanica*) etc.

There are a lot of plant communities and species, endemic and subendemic in mountain ecosystems of Tien Shan and Altay, which have a global significance. The western Tien Shan and South Prifergane are parts of the ancient Central Asian botanical and geographical center of cultivated plants origin. The specific populations of hexaploid wheat, small-seeded forms of pea (*Pisum*) and chickpea (*Cicer*) are appeared here. White and yellow carrots varietal (*Daucus*), onion and garlic (*Allium cepa* and *A. sativum*), alfalfa (*Medicago sativa*), tulips (*Tulipa*) have been domesticated and primary arisen. The Southern Kyrgyzstan is the center of diversity of the ancestral forms of fruit crops such as apple (*Malus*), pear (*Pyrus*), plum (*Prunus*), pistachio (*Pistacia*). There were cultivated apricot (*Armeniaca vulgaris*), almonds (*Amygdalus communis*), pistachio (*Pistacia vera*), walnut (*Juglans regia*), which form diversity, and at the present time a valuable raw material for plant breeding and the creation of new productive resistant to pests and diseases cultivars [2].

Terrain and natural resources, as well as the living natural communities, maintain the ecological balance define the natural wealth of the Kyrgyz Republic. The effect on the purity of water and air, soil conservation and erosion protection, the production of oxygen, absorption and neutralization of repugnant substance, and accumulation of precipitation and uniform flow distribution, recycling of dead organic matter – numerous species of living organisms perform all these necessary functions.

## **Chapter 2. Raising awareness on the value of the ecosystems of the snow leopard and the mobilization of support for their conservation:**

### *a. Past activities.*

In order to revive the traditional knowledge of the harmonious coexistence of man and nature, which were important in the past and contributes to the sustainable development of the nomadic Kyrgyz people since 1999 the inventory and distribution of the learned traditions and skills are being carried out. The pastures use system can be an example, i.e. traditionally, Kyrgyz people shared pastures used for seasons to outrun summer, winter village pastures and spring-autumn intense. At the same time, much attention is given to the study of the habits and seasonal characteristics of biodiversity, and even the hunting of wild animals was regulated by the seasonality of their biology (hunting is strictly prohibited at the time of reproduction and breeding.)

With the aim of environmental education of future generations the school clubs such as “Friends of WWF”, “Ak Ilbirs” were established and developed. Regular meetings and competitions for school clubs, as well organization of summer environmental camp, based on Sarychat Eertash Reserve, where children from different parts of the country share knowledge and skills of respect for nature are being

conducted. Thus, regular environmental festival “Land of Snow Leopard” with participation of local communities of the Central Tien Shan is initiated and holds.

*b. Future opportunities.*

As the issue of the snow leopard conservation in Kyrgyzstan has gained high interest of many donors and international organizations, there is an opportunity of a raising awareness of ideas, even at the level of sub-national ideology. Taking into account the forthcoming global summit on the snow leopard conservation on the Earth, to be held in August 2013 in Kyrgyzstan, there is great hope that it will provide an additional opportunity to attract attention to the issue of global importance of the specie of the world community and the local population.

There is a chance to develop a program to raise awareness about the importance of conservation of the snow leopard in the framework of the development of new programs for the conservation and study of the snow leopard,.

The activities on promotion of a network of conservation of the species can involve the State Agency on Environment Protection and Forestry under the Government of the Kyrgyz Republic (SAEPF), non-governmental environmental organizations in the Kyrgyz Republic, representatives of international environmental organizations, such as: NABU (Nature Protection Union of Germany) SLT (Snow Leopard Trust, an organization for the protection of snow leopards), WWF (World Wildlife Fund), FFI (Fauna and Flora International), UNDP and others.

**Chapter 3. Threat assessment, both traditional and new, coming from infrastructure development, market demand, tourism and climate change for:**

*a. Snow leopard.*

For humans, the snow leopard is not only a symbol of wildlife, but also the product of income, which leads to the direct threats to the existence of a snow leopard:

- direct destruction of the snow leopard furs and other derivatives;
- changes in prey due to uncontrolled hunting, increasing the number of hunting industry with capital structures for rest and overnight of hunters are a constant factor of concern;
- conflict with the interests of pastoralists when the traps snapped the leopards instead of wolves, dogs are in flocks contribute to finding a leopard, the mere presence of dogs act as a factor of concern;
- habitat destruction and fragmentation of habitats.

Kyrgyzstan held the hunting tours for foreign hunters, mostly for Pamir argali subspecies (Marco Polo sheep) and Siberian mountain goat.

It should be noted that for the successful conservation of the leopard it is necessary to save not only large hoofed animals, but also a sufficient number of marmots, hares and birds, which serve as additional feed.

The Governments strengthen their national borders, which in many cases go in high-altitude areas, covering leopard habitat. This increases the number of border posts and the number of employees at the borders, who are also involved in illegal hunting. In some cases, the strengthening of borders is achieved by installing anti barbed wire to prevent the migration of wild animals.

*b. Ecosystems (mainly the Himalayas and Karakoram mountain ranges of Central Asia, the Tien-Shan, Pamir-Altay, Altay-Sayan, Gobi, Eastern Himalayas, Tibetan Plateau)*

The main cause of degradation of mountain ecosystems is excessive overgrazing. Growth in the number of livestock leads to overgrazing and degradation of pastures, and to the growth of the conflict between man and predator, the transmission and distribution of diseases. Overgrazing has led to the degradation of pastures, competitive displacement of ungulates, whose numbers declined dramatically. Following the reduction in the population of wild ungulates sharply reduced the number of leopards, vultures and other birds of prey in the Red Data Book.

Since the 50's of the past century, in Kyrgyzstan the number of cattle has increased to 10-12 million head, the grazing culture was broken. Exceeding grazing standards increased by 3-8 times in the summer pastures and by 13 times on winter pastures. As a result, there are a degeneration of pastures and development of erosion processes everywhere. After a sharp decline in the number of livestock in the early 90s its numbers began to grow again and now exceeds 5 million heads [4]. Over the past twenty years distant pastures have not recovered to its original condition, and neighboring pastures were further exposed to grazing.

Currently the average productivity of pastures goes down to 40% of the norm, and of the middle pastures – to 10-20%. The structure and species composition of herds doesn't contribute to the rational use of pastures. The procedure established pasture lease when remote pastures are managed by the regional authorities, the intensive use of pastures – run by the district, and direct holders of cattle are only village pastures, destroys the system of transhumance, allowing more steady use of various pastures categories and more relevant the fodder and seasonal characteristics rangeland ecosystems.

Kyrgyzstan is rich in mineral resources and has a developed mining industry. Most of the resources are located at a relatively high altitude (including copper and gold mines) and pose a direct threat to vulnerable mountain ecosystems, destroying the habitats of animals and plants, polluting streams and groundwater. Open mining's destroy the vegetation cover and blasting operations are a factor of concern of many animals.

The increase in value of mining is a potential threat to the ecosystem of the snow leopard. It is a threat to the integrity of the protected areas. For the development of the mining industry and the profit the Government started the practice of exclusion of the SPNAs in favor of mining. As an amendment to the Land Code of the country a new category of "land for the use of mineral resources" is included. This includes lands of protected areas, where explored mineral deposits. The appearance of this new category of land is not conducive to the preservation of ecosystems of the snow leopard, but rather creates great conditions for their destruction.

The development of the mining industry is accompanied by the construction of roads, power lines, bridges, etc. All this leads to an increase in fragmentation of wildlife habitats and to the growth of human disturbance. The development of the mining industry in the country leads to the development of infrastructure in remote areas. The most of private companies build new roads, bridges, power lines and improve old ones to carry out mining and geological survey. The private hunting reserves, tourism companies are also interested.

For the economic development of the country it is planned to build a railway connecting China, Kyrgyzstan and Uzbekistan. The railway will pass through the critical habitat of mountain ungulates. At

the same areas the Government plans to build several large-scale hydropower: Kambarata-1 (1900 MW) and Upper-Naryn cascade hydropower plant (101 MW) [11].

The most of the planned projects will be carried out in remote mountainous areas of the country, which have an adverse impact on the alpine ecosystem.

While natural ecosystems preserve the composition and structure similar to the original, they can respond flexibly to the heterogeneity of the mountain environment and climate variability. According to the prognosis of experts in the climate change sphere, it is expected an increase of annual temperature in the range 2,5-3,0 ° C and an increase in annual precipitation by 10-15% in comparison with their values in 1961-1990 in Kyrgyzstan by 2100 [12] .

The vegetation is the most vulnerable to the global climate change, i.e. plant species and communities that have small ecological amplitude – the species included into the Red Book, rare, endemic, with a shrinking habitat. According to the scenario assessments of climate change, developed by L.I.Titova (2002) on the territory of Kyrgyzstan, apparently, there will be a significant shift of the boundaries of natural belts due to expansion of desert and steppe ecosystems, including steppe meadow ecosystems.

Catastrophic changes in species composition of the biota will happen. Increase of temperatures will be offset by an increase in humidity and mountainous terrain. Many species of plants and dominants have a wide ecological area and in the course of evolution they have adapted to life with a minimal atmospheric moisture and high temperature contrasts. Almost all kinds of animals are characterized by natural, developed in the course of evolution adaptive capabilities, allowing them to either migrate to places with more favorable conditions, or change the terms of the daily or seasonal activity [13].

#### *c. The Publiccommunity.*

Construction of new roads will improve the living conditions of the local population, but it can have a negative impact on the environment. They can reduce the period of delivery of local products (agricultural products) to the central markets, improve the economy of local communities, but they also can contribute to the intensive penetration of hunters, shepherds and tourists deep into the mountain. Disturbance of animals will increase. Improvement of infrastructure in remote areas will give an impetus to the growth of the population of high mountains. Population growth may be accompanied by an increase in the number of livestock, pasture expansion of the boundaries, the spread of disease, etc. Growth in the number of cattle may lead to increase of conflict between humans and predators, livestock and wild ungulates.

### **Chapter 4. Review of the above threats:**

#### *a. Application of generally accepted best practices (mainly for traditional threats)*

In order to ensure the conservation of the unique biodiversity of the region and does not conflict with the objectives of socio-economic development of the country, it is necessary to increase the number of protected areas and to create a unified ecological network, the main components of which will not withdraw from nature, and combine the functions of nature protection and economic development. To solve this problem in the framework of GEF-UNEP-WWF “Econet-Central Asia” (2003 to 2006) GAP analysis was conducted and the scheme "Econet" for the countries of Central Asia and the Kyrgyz

Republic was designed, which is at the regional level was approved in 2007 during the meeting of the Intergovernmental Commission on Sustainable Development (ICSD).

For the first time as part of the GEF / UNDP “Sustainable Pasture Management in Suusamyry Valley” Project a plan of grazing was developed. It takes into account migratory corridors of wild animals.

The Snow Leopard Enterprises Programme, which started in the villages Enilchek and Ak-Shyyrak generated income to the local population and, at the same time, played a positive role in the conservation of the snow leopard. Participants of the program from the local population signed a contract and receive environmental material remuneration subject to the terms of the contract. The country began the study with the use of camera traps leopard and genetic methods. The monitoring with use of the international methodology SLIMS is conducted.

An inventory of hunting lands is conducted, the introduction of GIS data management monitoring in the framework of the GIZ project on sustainable management of mountain ungulates in the Kyrgyz Republic.

Such traditional threats as overgrazing, illegal hunting of ungulates and predators can be reduced through the implementation of programs aimed at work with local communities. The implementation of such incentive programs as pasture rotation, where local shepherds and people are rewarded for compliance with the terms of use of certain pastures and for compliance with the established limit on the number of livestock, can help to solve problems. Environmental programs such as the “local protected area” can be successfully and easily implemented with the support of the public or private donors. In order to reduce the negative attitude of the local population to the leopard associated with poor socio-economic development of the territory, it is necessary to make arrangements for its development. These measures should help to reduce poaching.

*b. Development, new responses (for new threats), where necessary, including pilot projects.*

The adoption of the law on SPNA, including migration corridors and transboundary protected areas, land transformation of SPNA in other categories. The Law on Protected Areas says that changing the status of protected land can be upward to conservation status, and there no way can be changed to the downside. Expanding the network of protected areas from 4% in 2005 reached 6% - in 2013.

In order to implement the signed agreement of intent on cross-border implementation of Econet, since 2009 WWF launched a model of creating an ecological network in the Syrt ecosystems of the Central Tien Shan. Under the design of Econet in Kyrgyzstan 8 significant natural landscapes and have been determined and approved at the national level. As the priority one of the most important eco-regions of Kyrgyzstan "Syrt of Central TienShan" was determined [2]. As part of this WWF / USAID project supports initiatives to protect the snow leopard and its prey in the Central Tien Shan. This support will continue until 2017, and its aim is to increase the capacity of protected areas and biodiversity monitoring, development and implementation of a mechanism for sustainable development of protected areas that support local communities in the development of environmentally-oriented income-generating activities, environmental education, and anti-poaching activities.

The project of creation of an ecological network of WWF in Central Tien Shan has been integrated into the mid-size project to improve the coverage of protected areas in the central Tien Shan, approved by the GEF. This project will be implemented by the UNDP. The project is expected to

support the creation of the Khan-Tengri natural park, improvement of management of protected areas of the Central TienShan and application of methodology for assessing management effectiveness (METT), a regime of migration corridors between them. Moreover, except of the above objectives, the project will draw attention to the improvement of the social situation of the population of nearby areas to protected areas.

With the support of FFI a management plan of Sary-Eertash public reserve and National Strategy for conservation of the snow leopard for 2013-2023 were developed.

Local communities in the framework of implementation of the above projects are actively involved in decision-making, especially when it comes to actions related to the places of their residence.

*c. Cross-border cooperation (the countries of involved areas). Parts to enable the corresponding NPCSL)*

The Kyrgyz Republic pays a special attention to issues of international cooperation aimed at effective cooperation with neighboring countries in the implementation of multilateral and bilateral agreements to address cross-border issues in the field of environmental protection and rational use of natural resources.

In 2007, an agreement of intent between the ICSD and the Central Asian Programme of the WWF's "Econet" in the region was signed (Decision of the ICSD number 3 from 16 November 2007, Bishkek). At present, in the framework of the WWF model projects in Central Asia, an ecological network that will include protected areas in the landscape of the region is being established. At the same time, the possibility of combining environmental concerns and the needs of economic development with the help of ecological corridors and the creation of areas with sustainable and environmentally friendly alternative of natural resources beyond the current system of protected areas is created.

In order to implement the Decision of the Parliament Committees of the Kyrgyz Republic [13] the last convocation of Issyk-Kul Oblast State Administration decided to organize the "Khan Tengri" natural park in szyrts of the Issyk-Kul area on more than 187.0 thousand hectares, which directly borders with the Republic of Kazakhstan and the People's Republic of China [14].

With the assistance of the Government of the Federal Republic of Germany (FRG) and the German Society for Nature Conservation (NABU) transborder project - protection of biodiversity "Mountains of Northern Tien Shan" for the period of 2013-2016 was developed and going to be launched. In the framework of this project it is planned to organize trans-border protected area at the junction of the existing state parks: "Chon-Kemin" (Kyrgyz Republic), the National Park "Chew-Or" and the Almaty Reserve (Republic of Kazakhstan).

The organization of the above-mentioned trans-border protected areas, as the main habitat of the snow leopard, have been included in the Programmes of intergovernmental cooperation between the Kyrgyz Republic and the Republic of Kazakhstan, to conserve the biodiversity.

## **Chapter 5. The organization, empowerment and support.**

*National institutions involved in activities on the Snow Leopard conservation: the advantages and disadvantages to be eliminated.*

State Agency on Environment Protection and Forestry under the Government of the Kyrgyz Republic and the SPNA.

## **Advantages**

According to the Regulation on the State Agency for Environmental Protection and Forestry under the Government of the Kyrgyz Republic, adopted by the Governmental Decree on February 20, 2012 No. 123, the State Agency on Environment Protection and Forestry under the Government of the Kyrgyz Republic is a state executive body for the implementation of the policy and regulation of relations in the field of environmental protection, environmental safety and environmental management.

SAEPF under the Government of the KR is an acting Administrative Authority of CITES, in accordance with Article IX (1) a) of CITES. This administrative authority has the responsibility for issuing permits, correspondence with the CITES Secretariat and other Parties to CITES compliance and reporting requirements. According to the provided information, the capacity of the authorized body is actually weak due to the lack of sufficient staff and poor command of foreign languages.

In addition, the Department of hunting of the SAEPP regulates the use of hunting resources and control over hunting. The Department maintains issues of all kinds of hunting permits and monitors compliance with both legal hunting and poaching prevention.

## **Disadvantages:**

The current status of the State Agency (under the Government) does not meet the requirements of international organizations and foreign partners - foreign donors to prioritize environmental issues in government policy, which may lead to reduction in investment grants for environment protection of the Republic.

Considering that environmental security is a strategic component of national security, as well as to strengthen coordination mechanisms for the integration of environmental aspects in cross-sectoral policies, observance of the ecosystem approach, it is recommended to give the State Agency for Environmental Protection and Forestry under the Government of the KR - the status of the State Committee for Environmental Protection and Forests Development.

## **State Inspectorate for Environmental and Technical Safety of the Government of the Kyrgyz Republic**

### **Advantages:**

According to the provisions of the State Inspectorate for Environmental and Technical Safety of the Government of the Kyrgyz Republic, approved by the Government of the Kyrgyz Republic of February 20, 2012 No. 136, the objective of the Inspectorate is to implement public monitoring to ensure compliance with the standards and requirements of safety of life and health of people, animals and plants, the environment and the prevention of negative impacts.

*Implements the control over:*

- Conservation, reproduction and restoration of flora and fauna, including the securities, as well as endangered and listed in the Red Book of the Kyrgyz Republic;
- Fulfillment of commitments under the Convention on International Trade in Endangered Species of Wild Fauna and Flora, CITES (CITES), in terms of import and export in (for) the limits of the Kyrgyz Republic;

- Identification, termination and prevention of violations of the rules, terms and methods of hunting, hunting products and the use of other illegal activities detrimental to the fauna and flora.

**Disadvantages:**

- Lack of inspectors and weak material and technical base;
- Corruption in law enforcement agencies, which are passed acts to arrest poaching;
- Weak environmental monitoring by the inspection.

**Biology and Soil Institute of the National Academy of Sciences of the Kyrgyz Republic**

**Advantages:**

- A large information base on wildlife species and their characteristics;
- Quick exchange of information with the structural departments of SAEPF.

**Disadvantages:**

- The outflow of skilled game managers and zoologists due to lack of funding;
- Lack of proper attention from the Government to the problems of environmental protection;
- Lack of laws coordinating inter-institutional action services.

*a. The legal framework for the protection of the snow leopard and its habitat, advantages and disadvantages to be eliminated.*

**Advantages:**

The Constitution of the Kyrgyz Republic is the basis for all the environmental legislation of the Republic, according to which the land, its subsoil, air, water, forests are used in order to maintain a single ecological system as the foundation of the life and work of the people of Kyrgyzstan, and are under the special protection of the Government.

The Kyrgyz Republic joined to 13 international environmental conventions, which fulfillment predetermines the review of national legislation and, in general, policies in the field of protection the environment and natural resource management.

Relations in the field of protection of the snow leopard and the rational use of natural resources are administrated by the laws of the Kyrgyz Republic "On Environmental Protection" (1999), "On Specially Protected Natural Areas" (2011), "On Environmental Impact Assessment", "On fauna ", "On the Protection and Use of Flora", "The Biosphere Territories in the Kyrgyz Republic", "On the rates of payment for use of animal and plant life" (2008) and other related and regulations of the Kyrgyz Republic.

**Disadvantages:**

Environmental legislation requires continuous improvement in order to stabilize and create an enabling legal and institutional environment for its compliance with the international commitments.

In the framework of existing laws and regulations in the country there is no clarity in the legal relations in the field of conservation of the snow leopard, which often hinders the full implementation of environmental activities.

In accordance with Article 42 of the Law of the Kyrgyz Republic as of August 9, 2012 No. 160 "On Subsoil".

**Organization of specially protected natural areas within the boundaries of the State Fund of mineral resources** and the State Reserve lands mineral deposits, without the consent of the authorized state body for the implementation of the state policy on subsoil use is not allowed.

In accordance with paragraphs 4 and 5 of Article 28 of the Land Code of the Kyrgyz Republic, in the case if on the land mineral reserves will be found, **the Government of the Kyrgyz Republic on the proposal of the authorized state agency on the implementation of the state policy on subsoil use, decides about the transfer of these lands to the category of land of government reserve of mineral deposits.** If the land on which a mineral deposit is found, and it is owned or used by the third parties, the Government in case of a decision on their mining and land withdrawal has **to compensate the owner or land losses or give other equivalent land.**

*c. Compliance with the law on the protection of wildlife and combating to violations: current activities and areas requiring improvement.*

The situation with the decreasing number of the snow leopards related to his illegal hunting, and today considered as critical. While the population is still able to largely compensate the damage done by poachers, but its reproductive potential is fully spent on keeping the number at current level. Illegal hunting of ungulates, in the habitat of the snow leopard, dramatically reduces their forage supply. Due to the lack of inspectors and weak material and technical base of anti-poaching activities of State Inspectorate on environmental and technical safety in this field is weak.

Department of hunting under the State Agency of Environment and Forestry, on average per year identifies 550 breaches of environmental legislation n the sum of more than one million Kyrgyz soms, and exempts 35 hunting weapons [15].

In Naryn and Issyk-Kul regions the public mobile anti-poaching “Bars” NABU and “WWF” teams function, they supported by international environmental organizations. Due to the corruption of law enforcement, not all cases are identified and disclosed poaching, illegal possession; sale and trafficking are brought to court.

The most effective way to combat poaching and the prevention of smuggling of biological resources is the establishment, jointly with representatives of international environmental organizations and representatives of local communities, of specialized mobile anti-poaching teams in 7 regions of the country. First of all, the established anti-poaching teams have to protect those habitats of the leopard, where there poaching mostly. The objectives of such an inspection should include not only the inspection activities, but also the involvement and coordination of the police, customs, special services, prosecution, involving civil society organizations and local communities. Considering that the most part of the area of the snow leopard in the territory of a special border regime, a special attention of the anti-poaching teams has to be concentrated jointly with the border guards. All cases of identified and disclosed poaching, illegal possession, sale and trafficking need to be brought to court and the results of trials should be informed through the media resources.

*d. The legal framework for the empowerment of local communities on joint management of wildlife and habitats; current activities and areas requiring improvement.*

Empowering local communities to joint management of wildlife and habitats are reflected in the decisions of committees of the Parliament of the Kyrgyz Republic: "On Agriculture and Ecology," "On regional development of local self-government" as of June 23, 2009 and in the draft law "On Hunting" which provides:

- Reinforcing the hunting areas on the basis of a local state administration in consultation with the local authorities
- In order to develop the structure of hunting with the involvement of the local population and its economic interest, the distribution of funds received from the hunting the following: 30% to the public budget, 20% to local governments at the place of hunting tours, 35% for conducting biotech and conservation measures by the hunting areas users , 15% to the Republican Fund for Nature and the development of forest ecosystems (RFN) to support the protected areas.

Local communities living in remote mountain areas should be aware of the environmental and socio-economic importance of living of rare animals, including the snow leopard.

Public employees of environmental organizations are obliged to work for the protection of these animals, to raise awareness among local administrations, local authorities, communities, entrepreneurs, businessmen, farmers, local non-governmental organizations and, especially, shepherds and hunters.

The Kyrgyz Republic actively cooperates with the Global Environmental Facility (GEF) at the expansion priorities and joint management of wildlife. Through the implementing agencies (UNDP, UNEP and the World Bank) there is an exchange of information and recommendations for changes to the regulatory framework of the Kyrgyz Republic and their changes as a whole. But the main function of the Global Environmental Fund is to support government initiatives aimed at the development and management of wildlife through the allocation of grant funds and co-financing of projects in the field of environment.

- e. *Support mechanism for the construction of public organizations: current activities and the need of their strengthening.*

In Kyrgyzstan, there is a system of public organizations working in the field of nature protection, protection of rare and endangered species of plants, including the protection of the snow leopard.

Current activities of these organizations are primarily concerned at the work of the local population, their training and environmental education. Thus, it is very important to conduct public awareness activities among local communities living near the habitat of the snow leopard.

To enhance the role of NGOs in the protection of the snow leopard, there is a need to create a network of environmental organizations, whose main objective will be coordination of the work of NGOs in the field of the snow leopard conservation, preservation of the quality of its habitat and forage resources. Moreover, there is a need to increase the capacity of civil society organizations in the field of protection of the snow leopard.

Thus, the consolidation of the efforts of the public in protection of the snow leopard is possible via:

- consolidation of the efforts of non-governmental organizations for the protection of the snow leopard, the territories of thier habitat and forage resources through the creation of the network;

- contribution to national and international policy on the protection of the snow leopards and other species included in the Red Book of Kyrgyzstan;
- distribution best experience on protection of the snow leopards and other species included in the Red Book of Kyrgyzstan.

## **Chapter 6. Research and training of personnel.**

*a. Development and implementation of programs for scientific and technical education and training on measures for the identification, conservation and sustainable use of ecosystems, their components and support in education and training to meet the specific needs of the snow leopard.*

Present time, the Kyrgyz Republic has 52 institutions of higher education, 31 of them are public and 21 - private. Universities such as the KNU named after Zh. Balasagyna, BHU named after K. Karasaeva, KRSU, KSU named after Sh. Arabaev, KNAU named after Skryabin and others prepare specialists in the field of environment and natural resources and related fields. In addition to government and commercial institutions, the international and non-profit organization contribute to the training of personnel in the field of biodiversity and nature conservation.

In the framework of this education students gain knowledge in the field of environmental management, protection of ecosystems, protection of rare and endangered species, including the snow leopard. Despite this there is a shortage of qualified staff in the public environmental and forestry institutions and its regional offices. The system of training of more specific profile, directly to areas of nature conservation in Kyrgyzstan is weak.

As part of a national strategy for the conservation of the snow leopard, one of the priorities is to train specialists in the field of "Management of Protected Areas" aimed at sustainable development and conservation of the unique biodiversity of protected areas.

*Cooperation in the use of scientific results, obtained during the research.*

The National Academy of Sciences of the Kyrgyz Republic is the leading scientific organization in the country, which institutes are engaged in the protection of the environment. On the initiative of the National Academy of Sciences the Council for Co-operation in the basic sciences of the CIS countries is established. Council helps to create the conditions for the legal, organizational and financial support of basic research and the effective implementation of any innovative research projects, regardless of their development [16]. Different universities, industrial research institutes, NGOs, and international organizations, projects also conduct studies and researches.

Scientific magazines published in the country are distributed to libraries, local and foreign subscribers. Scientific articles are mostly published in Russian and Kyrgyz languages. Unfortunately, scientific articles, which were published before the 2000, do not have electronic versions and were not preserved by certain databases. Until today, the country lacked an electronic library. Electronic Library, which is in the process of creation, has a small amount of data. The data stored in the electronic library of the country are mostly in Russian. Many reports of research projects carried out since the 2000 by

international donors are written in English. But unfortunately they are in limited edition and most of them are not available in many libraries in the country.

Most of international organizations and NGOs that are engaged in research have web pages that post their reports. Also, some of them engage in e-mailing the information to interested subscribers.

A huge database of literature on the snow leopard of the Snow Leopard Network (SLN) is available to all interested parties, but because of its lack in Russian language it is visited only by Russian-speaking readers. The Snow Leopard Network, where registered members receive a newsletter of published research materials on a leopard has only 4-5 active members of Kyrgyzstan.

### **Scientific cooperation includes the following types of interaction:**

- Extensive use of computer technology in the field of environmental protection;
- Exchange of experiences between the participants of the Regional Environmental Centre for Central Asia and its partners (UNDP, Asian Development Bank, European Bank for Reconstruction and Development, the World Wildlife Fund, etc.);
- The most accurate evaluation of the results of cooperation;
- Optimization of information processes;
- An analysis of the results;
- Creation of a unified electronic database for the assessment of natural resources, based on the available scientific results;
- Creation of web-site of the snow leopard (which will reflect the data of the various activities for the conservation the Leopard) [17];
- Equipping video observation technique of environmental positions that will operate in the on-line.

### **Chapter 7. Multistage implementation plan associated with understanding and protection.**

#### *a. Snow leopard population and / landscapes, which conservation is a priority.*

At present time population of the species has good quantitative indicators in the Central and Inner Tien Shan to compare with other parts of the country. Studies conducted in the Sary-Ertash Reserve revealed dense enough population figures. Survey data also give good results in other districts of the Central Tien Shan. The population of the snow leopard in the Teskey Ala Too has more or less satisfactory condition, while Kyungey Ala Too population status remains unknown. Perhaps, there we have an isolated local population that has lost contact with the rest population of the rest populations. Kyungey Ala Too has a relationship with the population of Kazakhstan Trans-Ili Alatau. To evaluate its relationship with the Central Tien Shan population or to the population of the Kyrgyz range it is necessary to study in the eastern part of the Northern Tien Shan and between Kyungey Ala Too and the Kyrgyz range.

According to survey data, the population of the species in the Kyrgyz range also has good quantitative indicators. It seems that the population of the snow leopard of the Kyrgyz range has a relationship with the West Tien Shan population through Talas Ala Too. Data from several Western Tien Shan SPNAs indicate the existence of a viable population of the leopard in the western Tien Shan.

For a more complete assessment of the number of population of the species it is necessary to conduct research in the Pamir-Alay, Ferghana, Chatkal, Chandalash, Talas Turkestan, Alay and Trans-Alay Range, as well as in the Inner Tien Shan.

*b. Ecosystems of the snow leopard.*

Ecosystem diversity is distributed unevenly across the country. It is represented mostly in the Western Tien Shan and the Central Tien Shan biogeographic regions, 16 out of 20 classes of ecosystems, or 72.7% of all their diversity. Among them the poorest are Fergana and South Kazakhstan regions, which represent only 3-5 classes of ecosystems, which is 22.7%. There are 13 classes of ecosystems - 59.1% in Alay, the North Tien Shan, Issyk-Kul and the Central Tien Shan regions have on 10 classes of ecosystems - 45.4%.

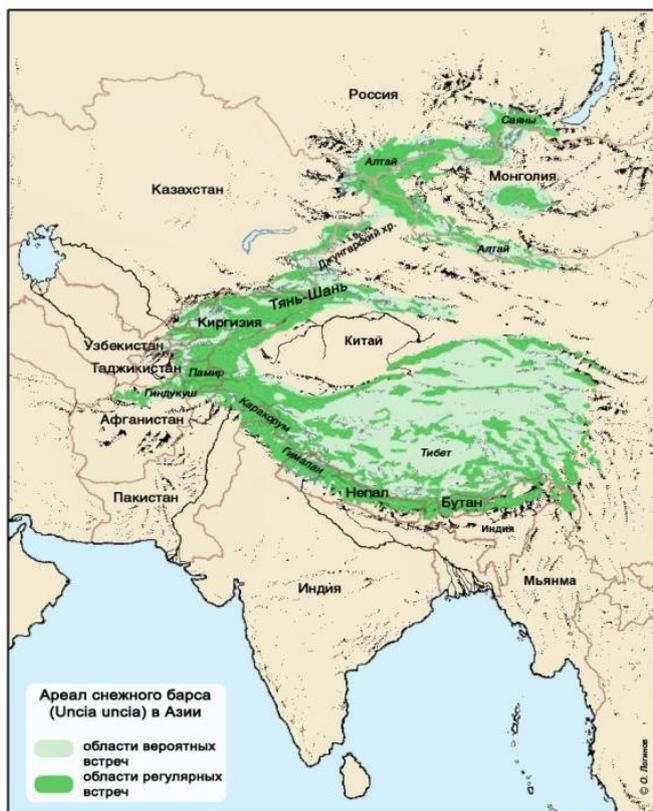
The snow leopard is a typical representative of the alpine fauna associated with the alpine and subalpine zones of the mountains of Central Asia. Ranges, where there are animals are characterized by the steepness of the slopes, deep gorges and rock outcrops. The Snow Leopard may occur on more relief areas, where there are convenient ways of movement along the ranges with shrubs and rock slides. Usually, the snow leopards remain above the timberline, but in the winter they may be found in the forests.

Table №1

**Table of the snow leopard population in the world [17]**

<b>Title</b>	<b>Year</b>	<b>Number thousands</b>	<b>Source</b>
<b>Worldwide data on the snow leopard</b>	1992	4510-7350	D.L. Fox 1994
	1999	4500-7500	P.Djekson1999
	2003	4500-7350	T.M. McCartney, and G.Chaparon 2003
<b>Kyrgyzstan</b>	1989	600-700	Koshkarev E.P.
	2000	150	Koshkarev E.P.

## Map of habitat of the snow leopard [18].



### *c. Community.*

In recent years, the efforts of communities, who live in the habitat of the snow leopard, in the field of protection of the environment and biodiversity have increased significantly. As an example, it can be mentioned the communities of Inner and Central Tien Shan, which created the Councils on the ecology and delegated them the authorities to control protect environment. In particular, the control is carried out over the companies organizing the trophy hunt and other hunting routes. They justify that they are the direct owners of these resources and have expressed interest in their preservation.

## **Chapter 8. Monitoring of the implementation and results of monitoring.**

### *a. Scientific monitoring of the snow leopard, its habitats and the threats to its existence: current activities and areas requiring improvement.*

Monitoring of the snow leopard population in the country covers only a small part of the total area. Annual data of SPNAs and hunters of country give an indication of occurrence of the species in different parts of the range. Unfortunately, these data do not provide reliable data on the population structure, abundance, habitat, etc. There is no uniform system for collecting information on the leopard. Collection of information is necessary to cover the key areas of distribution leopard. Thus it is necessary to develop a system of survey and data collection, identifying the data collection period, the area covered by the district, etc. It is necessary to establish a system to collect information and to connect it to all potential parties (students, graduate students, hunters, the committee pastures, shepherds, media, etc.).

It is important to start studies using new technologies such as camera traps, genetic research, radio telemetry, habitat mapping and database in GIS, etc. It is necessary to start work on the threats assessment. Unfortunately, the country has not yet assessed the threats.

According to the National Strategy for the Conservation of the snow leopard for 2013-2023 it is required to solve a number of problems in the field of scientific monitoring, including monitoring of the snow leopard:

- Train scientific staff of all SPNA and hunting areas located in the area of the snow leopard to the method of determining signs of habitat types. It is essential that all trained a single form used for logging;
- Establish a network for the survey to determine the presence of the species, the level of conflict between predator and a man of poaching against the leopard;
- Identify areas for questioning and to involve to survey students, teachers, pupils, chairmen of pasture committees and others;
- Identify key areas to conduct periodic studies on the snow leopard and its forage species;
- Develop a monitoring system supporting ecosystems;
- Launch study on the state of alpine pastures as supporting ecosystems;
- Identify key areas that serve as corridors and connecting the local population, and to restrict or prohibit the use of supportive resources (hunting, grazing, mining activities);
- Determine the minimum size of the hunting area. Reduce the number of private hunting leases by combining existing ones, determine the quiet zone on their territories, the timing and seasons visit and hunting;
- Involve independent experts in the activities on registration in hunting farms.

*b. Monitoring implementation using key indicators: the establishment of a functional system.*

The main agency responsible for the implementation of the National Strategy for the Conservation of the snow leopard in the Kyrgyz Republic for the period of 2013-2023 is the State Agency of Environment and Forestry, and the first objective of the agency is to consolidate and coordinate the efforts of all governmental, non-governmental and international organizations involved in conservation of the snow leopard. The Action Plan for the conservation of the snow leopard will be adjusted as performance, taking into account changes in the environmental and socio-economic situation in the country, funding opportunities for proposed projects, the emergence of new, more advanced technologies and approaches.

Evaluation of the results of the Strategy will be implemented in the course of its implementation and after completion of activities and projects based on the following criteria:

- indicators of the qualitative and quantitative changes in the state of the snow leopard;
- changes of legislation and economics, concepts and technologies for the use of natural resources, affecting the condition of the snow leopard;
- reducing the level of poaching in regard to the snow leopard and its forage resources;
- reducing the negative impact of mining on the environment;
- dissemination of information on the conservation of the snow leopard;
- development of study and monitoring programs of the status of the snow leopard and the creation of a common database on biodiversity in the country;
- expansion of the network and optimization of protected areas (hereinafter - SPNAs) for

reliable protection of the snow leopard;

- ensure adequate protection of the snow leopard in the period of his breeding and migration.

Main activities and their implementation indicators are shown in Table 2.

Table 2

№	Description of measures and dates of their implementation	Indicators
<b>I. Improvement of the legislative, regulatory and legal framework</b>		
1.1	Inventory of the regulatory framework to identify gaps to preserve red-listed species, including the snow leopard, 2013	Recommendations for changes and additions to the existing framework of regulations
1.2	Strengthening of administrative and criminal liability for illegal production and sale of specimens of the snow leopard and other red-listed species, regardless of their age, including derivatives. 2013-2015	Changes and amendments to the Criminal and Administrative Codes
1.3	On the Introduction of Amendments to the norms of Land Code, which prohibits the transfer of SPNA lands with habitat of the snow leopard in the category of land, "the State Reserve lands mineral deposits", 2013-2014	Changes and amendments to the Land Code of the KR
1.4	Organization of public hearings on proposed changes to the regulatory framework for the conservation of biodiversity, including the snow leopard 2013-2016	Resolutions adopted by the Public Hearings
1.5	Amendments to the Law of the Kyrgyz Republic "On Specially Protected Natural Areas", "On Biosphere Territories in the Kyrgyz Republic" and "On Fauna" norms measures to ensure the protection of habitats of globally threatened species 2013-2016	Changes and amendments to the laws of the Kyrgyz Republic "On Specially Protected Natural Areas", "On Biosphere Territories in the Kyrgyz Republic" and "On Fauna" and to norms to ensure the protection of habitats of globally threatened species
1.6	Develop and approve the Regulation on the Red Book of the Kyrgyz Republic 2013-2014	Regulations have been approved by the Government of the Kyrgyz
1.7	Make changes and amendments to the Regulations on arrangements for the use of land of protected area, recreation and health improving 2014-2016	Regulations have been approved by the Government of the Kyrgyz
1.8	Development and approval of regulations on the definition of the regime and the responsibility of migratory corridors and buffer zones 2014	Regulations have been approved by the Government of the Kyrgyz Republic to determine liability regime and migration corridors and buffer zones.

1.9	Revision of statistics system of number of individual species, including the snow leopard and the main objects of his forage resources 2013-2014	Established a single system of accounting and statistical data collection
1.10	The development and adoption of a unified monitoring methodology of the snow leopard 2013-2014	Approved single method of monitoring the snow leopard
<b>I. Improvement of the institutional framework</b>		
2.1	Optimize the management structure of the agency of environment protection towards the conservation of biodiversity and protected areas 2013	Special department of biodiversity and protected areas in Central Administration of SAEPF is established
2.2	Mainstreaming of an international system of evaluation the effectiveness of protected areas on the example of the Sary-Eertash State Natural Reserve and the proposed "Khan-Tengri" National Park 2014-2015	The International System of evaluation the effectiveness of protected area management (METT) is tested and approved by SAEPF for distribution in the SPNA of the Kyrgyz Republic
2.3	Organize the National Committee of the Kyrgyz Republic for the conservation of biodiversity and globally endangered species 2013	National Committee of the Kyrgyz Republic for the conservation of biodiversity and globally endangered species is established
2.4	Conducting zoning and develop documents of title on the Sary-Eertash State Nature Reserve 2013	Zoning is conducted and the state certificate is obtained
2.5	Organize the "Khan Tengri" National Nature Park, as the main habitat of the snow leopard 2013-2014	Government Resolution on the establishment of the "Khan Tengri" State Nature Park
2.6	Increase the effectiveness of combating to poaching 2014-2016	Increased capacity of anti-poaching teams of two protected areas in the Central Asian Tien Shan
2.7	Organize the "Alay" National Nature Park as part of the habitat of the snow leopard 2014-2015	the "Alay" National Park with the prospect of expansion in cross-border protected areas
<b>III. Study the snow leopard, its habitat and forage resources</b>		
3.1	Monitoring the population of the snow leopard in the territory of the Kyrgyz Republic 2013-2016	Current number of the Snow Leopard
3.2	Conducting study by questionnaire in conjunction with the local community to ascertain the key places of concentration of the snow leopard and other animals listed in the Red Book of	List of key places of concentration of the snow leopard

	Kyrgyzstan2013-2016	
3.3	Evaluation of population density in different parts of the area with the use of camera traps 2014-2016	Number of camera traps installed in different parts of the area
3.5	Study of daily and seasonal activity and tracking of migrating the snow leopards using GPS collars (cost collars and catching) at pilot SPNA 2013-2016	The number of the snow leopards with active collars
3.6	Identify key migration corridors linking the local population of the snow leopard2013-2016	Map of the migration corridors of the snow leopard
3.7	Study of the biology of the snow leopard and its forage resources	Monograph on the biology of the snow leopard
3.8	Raising funds for the analysis of the genetic information of the snow leopard 2014-2016	<b>Compiledbygeneticmap</b>
3.9	Creation of a common database on biodiversity of the Republic on the basis of GIS 2013-2015	Developed a database based on GIS
<b>IV. Training of the staff of public agencies and SPNAs</b>		
4.1	Conducting training sessions on monitoring of the snow leopard among staff of SPNAs 2013-2014	Number of trained SPNAs staff
4.2	Establishment and training of specialists in the field of "management of protected areas" in 2014-2015	Launch of the educational process
4.3	Implementation of measures to increase the capacity of representatives of government agencies and local government bodies2013- 2016	Numberofevents
4.4	Preparation of a manual for customs officers on CITES 2013	Approved and publishedtextbook
<b>V. Environmental education and raising awareness of the local population</b>		
5.1	Conducting environmental educational events for representatives of civil society and local communities 2013-2016	Numberofevents
5.2	Developandmakeadocumentaryfilm aboutthesnowleopardand to demonstrateattheForumof the SnowLeopard2013	Thefilmmade
5.3	Development of information and educational materials to the public on biodiversity 2013-2016	Number of information materials
5.4	Promotion of visual aids and museum corners in schools to develop solicitous attitude to the natural resources and	Number of schools covered

	improving environmental education for children 2013-2016	
5.5	Create teams of "Friends of the Leopard" in the villages, which will continue to conduct educational activities among schoolchildren and villagers 2013-2015	Number of groups "Friends of the Leopard"
5.6	Publication of popular materials about the snow leopard in Kyrgyzstan 2013-2016	Number of publications
5.7	Support of students researching the snow leopard and their forage resources 2013-2016	Number of studies
5.8	Conducting awareness campaigns in preschools 2013-2016	Number of campaigns
5.9	Introduction to the course "Nature studies" (elementary school), "Zoology", "Geo-ecology", "Geography" and "General Biology" (high school) the section on the importance of conservation of the snow leopard 2014	Approved textbooks
5.10	Conducting environmental competitions among students about propaganda conservation of the snow leopard	Number of campaigns
5.11	Introduction of the basic course "Protection of endangered species" in the educational standard of the natural faculties of universities 2014-2016	Course approved by MOS
5.12	Creation a series of postcards, brochures, postage stamps to promote the protection of endangered species 2013-2015	Number of materials
<b>VI. International cooperation</b>		
6.1	Support of the functioning of the Secretariat to organize the World Forum on the Conservation of the Snow Leopard, Bishkek 2013	The success of the World Forum of the Snow Leopard, Bishkek
6.2	Building and strengthening partnerships for the conservation of the snow leopard in the interstate and international level 2014-2016	Number of signed agreements and the adoption of the Bishkek Global Strategy of the Conservation of the Snow Leopard
6.3	The development of joint projects for the conservation of the snow leopard 2013-2016	Number of project proposals

## Chapter 9. Summary of expenditures and funding opportunities

### a) Capital expenditure on the components distributed over a 7-year term

According to the Law "On state budget of the Kyrgyz Republic for 2012 and forecast for 2013-2014" in 2012 were provided in the amount of 419.0 million soms were budgeted for Environment Protection (44.8 million soms or 9,7% lower than the revised budget in 2011), accounting for 0.1% of GDP or 0.4% of total expenditures of the republican budget.

Formation and use of environmental funds and the development of the forestry sector are carried out in accordance with the annual estimates of income and expenditure of funds approved by the board and approved by the Ministry of Finance of the Kyrgyz Republic. In recent years the income of the Conservation and Development of Forest Sector Funds increased by more than 2 times. There is an increase in funding of environmental activities: in 2006 allocated 19,525.6 thousand soms, in 2011 it was allocated 55,477.2 thousand soms or by 3.8 times higher (see Table 3.).

Table 3.

### Funding of environmental measures, thousands soms

Measures	2006	2007	2008	2009	2010	2011
Protection and management of water resources	5189,9	9556,1	10119,6	9806,4	10639,3	4416,8
Protection of flora and fauna	1571,4	1007,3	2923,2	-	88,7	2990,4
Biodiversity conservation, development of SPNAs	2444,6	3986,1	4625,0	21252,4	19393,8	17175,2
Increase the capacity of environmental management	-	-	-	1282,8	6356,7	8642,4
The monitoring of the environment and the capacity building of regional environmental authorities	1972,2	3688,7	7298,3	2730,7	2287,9	1210,7
Scientific-research works	-	-	102,5	-	225,0	-
Promotion of careful attitude and rational use of natural resources, education, and the harmonization of the legal regulations	2437,8	3068,2	3138,3	2359,3	889,3	3069,0

### b) Potential national and external sources of funding.

#### i. Traditional (budgets / grants / loans)

The main sources of funding for environmental activities are funded by international donors and the governmental and local environmental funds and the development of the forestry. Being a Party of 13 international environmental conventions, Kyrgyzstan joined the global process of environmental performance and became a full member of the world community, and receives technical and financial assistance from international donor organizations and developed countries (see table 4.).

**Environmental projects, implemented in the Kyrgyz Republic**

<b>№</b>	<b>Title</b>	<b>Dates of implementation</b>	<b>The implementing agency</b>	<b>Donor</b>
2	UNDP Environment Protection for Sustainable Development Programme	01.01.2007 - 31.10.201	SAEPF	United Nations Development Programme (UNDP)
3	Sustainable Pastures Management in Suusamyр Valley, Kyrgyzstan	01.01.2008 - 31.12.2013	Ministry of agriculture	Global Environmental Facility (GEF),/United Nations Development Programme (UNDP)
	WWFProgramme «Creation of Ecological Network in Central Tien Shan”	2009-2017	World Wildlife Fund (WWF)	Central Asian Programme of WWF andUSAID
	Programme “SnowLeopardEnterpises” in Ak Shyrak and Enelchek villages	2003-2013 and further	Snow Leopard Trust & Snow Leopard Foundation in Kyrgyzstan	Snow Leopard Trust
	Flora and Fauna International (FFI)	2004 to present	Division of FFI	Fauna and Flora International (FFI)

***i.i. Innovative mechanisms (payment of compensation, payment for environmental services (PES, markings)***

Taking into account that the population, living close to the habitat of the snow leopard does not have access to cheap credits, initiated by the government (10%), it is proposed to create a local development funds using funds of donors and that will make loans under the scheme adapted to local conditions with the corresponding percentages (5-7%). Administration of this fund shall be elected by a special body, which should include representatives of different sectors of the population (young people, women, members of protected areas, local government, etc.). Income from lending by the decision of the administration may be directed to increase the revolving fund, or to address social needs of the population. The decision to support such funds has already been taken by UNDP and WWF.

An example of the success of such a fund is in Toguz-Bulak AO of Tyup district, which was created with the support of the UNDP Democratic Governance and starting with a budget of U.S. \$ 10 000 for 5 years, today it amounts the sum of 30,000 U.S. dollars.

**c) The major gaps in funding.**

Despite the fact that the volume of financing of current expenditure on environmental protection (including the costs of business entities) increases annually, they are not enough to meet all the necessary environmental measures. For the preservation of natural systems and environmental safety it have to be adequately funded. Existing financing of environmental activities in the Kyrgyz Republic is a residual.

- [1] National Report on the State of Environment of the KR for 2006-2011
- [2] The fourth National Report on Biodiversity of the KR for 2008.
- [3] Dialogue at local and national levels – contribution to the sustainable development. Bishkek, 2006.
- [4] <http://www.agroprod.kg/modules.php?name=Pages&page=736>
- [5] **Information on results of socio-economic development of the KR 2012.**  
[http://www.mineconom.kg/index.php?option=com\\_content&view=category&layout=blog&id=66&Itemid=159&lang=ru](http://www.mineconom.kg/index.php?option=com_content&view=category&layout=blog&id=66&Itemid=159&lang=ru)
- [6] Atlas of the Kyrgyz SSR. Nature and resources. – T.1. – M.: ГИТК, 1987.
- [7] Alamanov S.K. and others. «Climate change and water problems in Central Asia», UNEP, WWF Russia, Moscow 2006.
- [8] Shukurov Э.Д., Balbakova F.N. SPNAs of Kyrgyzstan and biodiversity conservation of Tien Shan Alay range. // Collection of materials of environmental conferences. Bishkek, 2002. C. 43-41.
- [9] 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.
- [10] Jenik, J. The diversity of mountain life. // Mountains of the World. A Global Priority. New York – London, 1997.
- [11] The Law of the Kyrgyz Republic as of February 25, 2013 № 31 "On ratification of the Agreement between the Government of the Kyrgyz Republic and the Government of the Russian Federation on the construction and operation of the Upper-Naryn cascade hydropower stations and the Agreement between the Government of the Kyrgyz Republic and the Government of the Russian Federation on the construction and operation of Kambarata-1 signed September 20, 2012 in Bishkek"
- [12] Titova L.I. Climate change consequences for regions. Bishkek, 1997; Modern Kyrgyzstan, 2002.
- [13] First National Communication under UNFCCC. Bishkek, 2003.
- [14] Decisions of the committees of Issyk-Kul oblast with changes and amendments from 30 September 2009, №250; with changes and amendments as of 14 June 2010, №75.
- [15] www.nature.kg Annual year of the Department of Hunting from 2008 till 2012.
- [16] <http://www.nas.aknet.kg/index.php?menu=0>
- [17] <http://www.animalinfo.org/species/carnivor/unciunci.htm>
- [18] <http://bigcats.ru/index.php?bcif=irbises.shtml>
- [19] The national strategy for the conservation of the snow leopard in the Kyrgyz Republic for 2013-2023 has been approved by the Government of the Kyrgyz Republic dated 19.10.2012 N 732.