



Achieving the  
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Biodiversity  
Target

**Convention on Biological Diversity**

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CBD

**Republic of Kazakhstan  
Ministry of Environmental protection**

**THE FOURTH NATIONAL REPORT  
ON PROGRESS IN IMPLEMENTATION OF THE CONVENTION ON  
BIOLOGICAL DIVERSITY**

**REPUBLIC OF KAZAKHSTAN**

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## Chapter I - Overview of Biodiversity Status, Trends and Threats

Republic of Kazakhstan is situated in the depth of Euroasian continent, it takes central and south latitudes of a temperate zone from 55°26' n.l. to 40°59' n.l. and from 46°05' to 87°03' e.l. Length of the territory of the country – 1600 km from the north to the south and 3000km from the west to the east, the area is 2,7 million km<sup>2</sup>.

The territory of Kazakhstan has a unique set of landscapes: from deserts to mountains and ecosystems of inland seas. Dry and sub-humid lands occupy more than 75% of the territory of the Republic of Kazakhstan. They concentrate more than 40% of the species composition of all biological diversity. In the face of increasing speed of economic development of the country and enhancement of the use of natural resources the issue on further improvement of the territorial nature protection system is becoming important. Those conditions define the need for further development of specially protected natural territories of the Republic of Kazakhstan (hereinafter - SPNT), as a workable system of conservation of biological diversity in the state.

*Flora of Kazakhstan* on a range of assessments includes more than 13 thousand species, including - more than 5754 species of higher vascular plants, about 5000 - of mushrooms, 485 - lichens, 2000 - algae, around 500 - bryophytic. Species of mushrooms and subjected to higher plants went through the most complete inventory. 14% of plant species are endemics. And there are a lot of relics among them.

*Vegetation of Kazakhstan* is very diverse. Above all, types of vegetation, widespread in Eurasia should be named. The largest area is occupied by steppe and desert types of vegetation. In addition to these tundra, prairie, forest, bush and marsh types are typical. Among the few distinctive types related to the arid regions of Central Asia it is necessary to name juniper woodlands, umbellates, savanna and phryganoid (thorn and mountain wormwood) types, and with mountains of continental Asia – cryophite and cushion plant types.

Centers of endemism of the flora are located in Kazakhstan (Karatau Mountains, Western Tien Shan), unique natural ecosystems - pine forests on sand (Ara-and Aman-Karagan, Naurzum); forest and steppe complexes of low mountains of Central Kazakhstan; Betpak-Dala eremium with original floristic composition, South Pribalhashje, Ili basin, a set of xyliums, shrub and steppe communities of the Southern Altai and Kalbinskyi and Tarbagatay mountains, middle land Jungar Alatau and Tien Shan with spruce forest and fragments of apple forests; wetland ecosystems of Lower Ural, Torgay hollows, Tengiz, Alakol lakes; floodplain forests (tugai) of SyrDarya, Ili, Charyn.

According to the data of the forest fund as of 1 January, 2008 the State Forest Fund (hereinafter - SFF) of the RK makes 27783,0 hectares or 10,2% of the territory of the republic. Land covered by forest takes 12289,7 ha or 44.2% of the total land area of SFF, forest cover - 4.5%.

Forest plant associations are represented by wide species composition of tree species (20 species) and shrubs (40 species).

Kazakhstan's forests are divided into birch pins on northern areas, island forests on the north-west, pine forests of Kazakh melkosopchnika, banded forests of the right-bank of the river Irtysh, mountain forests of Altai and Saura, the Jungar Alatau and Tien Shan mountains, saxaul, tugai, floodplain intrazonal forests.

The unique plant genetic resources of agro-biodiversity (ABD) of the universal importance are focused in Kazakhstan. They include 194 species of plants, determining the genetic potential of 24 crops. Some of them represent significant value both to the development of agriculture, and to expand export capacity.

The fruit of ABD, and above all, the wild apple trees (Sivers' apple tree - *Malus sieversii* (Ledeb.) M. Roem., Nedzvetskyi's apple tree - *Malus niedzwetzkyana* Dieck.) and an ordinary apricot (*Armeniaca vulgaris* Lam.) received an international recognition. They grow in the mountain forests of Western Tien-Shan, Karatau, Kirghiz Alatau, Zaili Alatau, Ketmen, Jungar Alatau and Tarbagatay. Recent studies have shown that the genes of wild apple trees are present in almost all modern effective commercial cultivars of this crop.

Kazakhstan genetic resources of the natural pistachio (*Pistacia Vera* L.), an ordinary almond (*Amygdalus communis* L.) and wine grapes (*Vitis vinifera* L.) have the far-reaching (primarily economic) importance. The most northern areas of the range of these species are

located in Kazakhstan. This leads to the existence of the genetic bases of winter hardiness and cold tolerance in their natural populations.

Kazakhstan has 10 kinds of currant (*Ribes spp.*) and a type of gooseberry (*Glossularia spp.*), which can and must provide expanded efficient use of these fruit crops in fruit farming that experiences the lack of production of berry products.

Vegetable ABD of Kazakhstan includes carrot (*Daucus carota L.*), purslane (*Portulaca oleracea L.*), asparagus (*Asparagus*), onion and garlic (*Alliums pp.*). Particular attention should be paid to onion and garlic. 120 species of wild relatives of these crop species, including their ancestors, grow in the republic. This genetic material is valuable both on national and global levels.

Development of natural agrobiodiversity of floral-ornamental plants has a big future. Holland is known as the country of tulips. However, species and genetic diversity of these plants are concentrated in Kazakhstan. 31 species of tulips (*Tulipa spp*) grow here.

Natural ABD of technical plants (flax - *Linum spp.*, Safflower - *Carthamnus spp.*, arucola - *Eruca spp.*, summer rape, mustard - *Brassica spp.*) and fodder (primarily alfalfa - *Medicago spp.*) has prospects.

More than 70 varieties of grain, 68 varieties of fruit and berries, more than 60 varieties of vegetable and melon crops, 23 varieties of potatoes were nurtured and districted in the republic.

*Fauna of Kazakhstan* is represented by a variety of species both strictly protected and widely used in commercial and business purposes. 835 species of vertebrate animals, including mammals - 178 birds - 489 (396 nesting), reptiles - 49, amphibians - 12, fish - 104 and cyclostomata - 3 species inhabit here. 34 species of mammals and 59 species of birds are objects of hunting.

The inventory of the fauna of invertebrates has not completed and, apparently, only half of actually existing species were found. However, it is found that no less than 80 000 invertebrates, including at least 60 000 species of insects inhabit in Kazakhstan.

To date, only about 100 out of 550 families of insects represented in the fauna of Kazakhstan were adequately studied and no more than 40% of species composition was found, not to mention a very poor knowledge of biological, ecological characteristics of species and their expansion.

Agrobiodiversity of fauna (wild relatives of domestic animals) in Kazakhstan understudied and is not used in breeding work at present.

Vertebrate species, which belong to the wild relatives of domestic animals inhabit on the territory of the republic. Mammals - mouflon (*Ovis orientalis*), mountain sheep (*O.am-mon*), wild boar (*Sus scrofa*), kulan (*Equus hemionus*), jackal (*Canis aureus*), wolf (*C.lupus*), spotted cat (*Felis lybica*) and some others. Among the birds - it is, first of all, duck (*Anatidae - ducks, geese*) and chicken (*Gallidae*).

One example of successful use of the genetic material of wild animals to improve the quality of domestic animals is creation of a breed of sheep in Kazakhstan "wild ram-merino", in breeding of which the wild mountain sheep (*Ovis ammori*) was used. These hybrids have the valuable qualities of the breed «merino» and resistance to climate factors and diseases peculiar to wild sheep.

On the territory of the Republic local breeds of domestic animals are used, including Kazakh breeding: cattle - 4 (Alatauskaya, Aulieatinskaya, Kalmyk, Kazahskaya white), sheep - 9 (Edilbekskaya, Kazakh fat-tail coarse-wool and semi-coarse wool, Tsygayskaya, Kazakhstan fine wool, the South-Kazakhstan and North Kazakhstan merino, Kazahs wild ram-merinos, Karakul sheep), goats - 3 (Local coarse wool, woolly and downy), horses - 2 (Adaevskaya, Kazakh horse of Zhabe line).

It should be noted that a number of wild animals are used without breeding of agricultural species, because they have the necessary consumer properties, do not require zoning and adaptation to the conditions of Kazakhstan and can reproduce in captivity. One of the most successful examples of this is an artificial breeding of marals (*Cervus elaphus*) in conditions of East and Central Kazakhstan.

Diversity of wild fur-bearing animals, part of which have been successfully grown in captivity are being actively used: mink (*Mustela vison*, *M.lutreola*), sable (*Marieszibelina*), fox (*Vulpes vulpes*). Use of selection and genetic potential of other species of high-value wild fur-bearing animals inhabiting the territory of Kazakhstan is perspective: ermine (*Mustela erminea*), bobac marmot (*Marmota bobac*), muskrat (*Ondatra zibethina*), otters (*Lutra lutra*), the process of domestication of which are quite successful.

During development of appropriate biotechnological activities semi-free and yard keeping of saiga (*Saiga tatarica*), experiments on the domestication, which have been performed for many years in Kalmykia become possible.

Species of wild avifauna such as the mallard (*Anas platyrhynchos*), gray duck (*A.strepera*), quail (*Coturnix coturnix*), pheasant (*Phasianus colchicus*), grey goose (*Anser anser*) can be the objects of close selection-genetic studies.

There are great prospects for the breeding of popular hunting species at farms, especially the bustard *Otis*, *Tetrax* and *Chamidotis* genera, pheasants (*Phasianus colchicus*) and other raptors.

Popular species such as ringed (*Streptopelia decaocto*), mild (*S.turtur*), large (*S.orientalis*) and small (*S.senegalensis*) turtledoves, black lark (*Melanocorypha jetoniensis*), black thrush (*Turdus merula*), fieldfare (*T.p. / aris*), variegated stone thrush (*Monticola saxatilis*), mynah (*Acridotheres tristis*) and other passerine birds can be bred and exported as "exotic" ones.

Out of the total species diversity of fish and cyclostomes (about 140 species), currently around 5-8 forms, including hybrids are being bred in artificial way. Those are sturgeon (*Acipenseridae*) in the Caspian Sea, whitefish (*Coregonidae*) in the North and East Kazakhstan, Far East plant feeders (white amur - *Ctenopharyngodon idella* and silver carps - *Hypophthalmichthys molitrix*, *Aristichthys nobilis*) mainly in the southern regions, almost universally - carp (*Surshsh carpio*) (actually a mixture of wild and domestic forms of carp), as well as some hybrids.

Herrings (*Clupeidae*), Siberian white salmon (*Stenodus l.nelma*), white salmon (*Sleucivhthys*), Grayling (*Thymalus arcticus*), trout (*Huso taimen*), pike (*Esox lucius*), Caspian roach (*Rutilus rutilus caspius*), Kutum (*R.frisii*), tench (*Tinea tinea*), barbels (*Barbus brachycephalus* and *V.capita*) marinka (*Schizothorax spp.*), Balkhash perch (*Perca schrenkx*) are interesting as the genetic fish resources. These types can be used in pure breeding, and in genetic view to improve productivity of wild populations, but the risk of changing of the genetic structure of the latter should be taken into account.

Small species of cyprinid (*Cyprinidae*) and loach (*Cobitidae*), which have endemic and subendemic forms, make interest as objects of aquarium breeding among species of Kazakh ichthyofauna. Loach (*Noemacheilus conipterus*, *N.strauchi*, *N.kuschakewichi* etc.), adequate to the South-East Asian representatives of the genus *Acanthopthalmus*, and limnofil endemic species minnows (*Phoxinus brachyurus*, *Ph.poljakowi*, *Ph.percunus ignatowi*) are the most interesting in this regard. Potentially, this group may include the tench (*Tinea tinea*) and stickleback (*Pmgitius*).

Above all kinds of poisonous snakes: vipers steppe and plain, lebetina viper, copperhead snake (*Vipera ursinu*, *V.berus*, *V.libethina* and *Arkistrodon halys*) are important as genetic resources out of the amphibians and reptiles. Also species used in traditional eastern medicine: Semirechje lyagush-kozub (*Ranodon sibiricus*), east boa (*Eguh tataricus*) and others. Originality of types herpetofauna gives an opportunity for breeding and export it as exotic ones. Different types of lizards (*Sauria*) of the genera of *Teratoscincus*, *Crossobamon*, *Alsophylax*, *Tenuidactylus*, *Trapelus*, *Phrynocephalus*, *Ablepharus* and *Eremias*, snakes (*Serpentes*) of genera of *Coluber*, *Spalerosophis* and *Elaphe* are notable among them. Central Asian tortoise (*Agrionemys horsfieldi*), which is an important article of export can be the example of commercial demand for reptiles.

Kazakhstan, due to geographical location in the heart of the Eurasia continent, and a unique combination of natural complexes of steppes, deserts, mountains, large inland water bodies with rivers draining into them and the vast delta is characterized by great diversity of ecosystems and corresponding vegetation types. Full range of underzone options for vegetation of steppes, deserts and mountain zones typical for Central Asia, are available in Kazakhstan.

## PLAIN ECOSYSTEMS

The distribution of ecosystems on the plains comply the law of latitudinal zones, which leads to consecutive change of 3-zone ecosystem types: forest, steppe and desert.

### Steppe

Forest ecosystems. Forest area occupies 5.8 million hectares. Vegetation is represented by forest (0.7 million) and rich grassland transformed steppes. Birch and Aspen-birch forests on gray forest soils in treeless areas, which in the northern part are occupied by grain-grassland and grassland and cereal meadow steppes on leached black earth are typical for forest ecosystems, presented only in the north of Kazakhstan. Kolochnyi forest-steppe ecosystems dominate in the southern part. Aspen-birch (*Populus tremula*, *Betula pendula*) forest depression on malt alternate with rich grassland-red feather grass and meadow saxifrage-red feather grass (*Stipa zalesskyi*, *Peucedanum morisonii*) steppes.

Meadow and forest-steppe areas plowed to 60-90%. The fauna of the forest zone include 48 species of mammals. The greatest number of species belongs to the group of rodents (*Rodentia*) - 21, followed by predators (*Carnivora*) - 10,1, insectivores (*Insectivora*) - 7, cheiroptera (*Chiroptera*) - 5, cloven-hoofed (*Artiodactyla*) -3 and duplicidentates (Lagomorpha) - 2. Only the red forest vole (*Clethrionomys glareolus*) is met only in steppe-forest, the remaining species distributed in the territory of two or more natural areas. Along with the forest forms, such as roe deer (*Capreolus pygargus*), moose (*Alces alces*), common hedgehog (*Erinaceus europaeus*), Forest birch mouse (*Sicista betulina*), residents of open (steppe) landscape are also met in the forest-steppe: the steppe polecat (*Mustela eversmanni*), corsac (*Vulpes corsac*), etc.

The most common amphibians are the green toad (*Bufo viridis*) and moor frog (*Rana arvalis*). Siberian oriental salamanders (*Hynobius keuserlingii*) and herbaceous frog (*Rana temporaria*) are specific to the forest-steppe zone.

Snakes dominate in number of species of reptiles (7 species).

About 3500 species of insects were found, but probable number is at least 5-7 thousand species. In the forest and steppe area there are 167 species of nesting birds or 42,9% of the total number of nesting species (389) in the republic. Systematically, these birds belong to 9 orders: shore birds (*Charadriiformes*), ratorial (*Galliformes*), of prey (*Falconiformes*), owl type (*Strigiformes*), pigeon type (*Columbiformes*), cuculiformes (*Cuculiformes*), goat suckers (*Caprimulgiformes*), piciformes (*Piciformes*) and passerine (*Passeriformes*). Most of these are forest birds associated with trees and shrubs.

Woodland Aman-Karagan and Ara-Karagan, as well as some well-preserved steppe areas should be considered as the key ornithological territories. Forest-steppe lakes and coniferous-deciduous forests of Kokchetav uplift lakes on them - Borovoye, Shchuchye, Big and Small Chebache, Shalkar, Imantau, Zerendinskoe, Seletyteniz, Shaglyteniz, teke, Ulken Kara and others are also key ornithological territories.

Steppe ecosystem. Steppe ecosystems in Kazakhstan occupy an extensive area (110.2 million ha, about 28% of the RK) covering the entire northern half of the Republic.

Steppe ecosystems are distinguished by the dominance in plant communities of plant life forms - tussock grasses, and in the soil - the type of soil, resulting in a special structure of the soil profile with a maximum accumulation of organic matter in its upper part (sod horizon).

In a north-south direction, due to changes in hydrothermal regime there is a gradual change in land cover ecosystems. These changes manifest as a change in the ecological groups of species from weak drought-tolerant to drought-tolerant, and in general reduce of sward density, as well as changes in the activity of the main genetic characteristics of soil - humus horizon capacity and content of organic matter. All this determines underzone partition of steppe ecosystem in latitudinal range.

Kazakhstan has allocated the following underzone types of steppe ecosystem:

- **Ecosystems of dry steppes** (moderately dry rich grassland-feather grass steppes, arid, grass and feather grass steppes);
- **Dry steppe ecosystems** (moderately dry bunchgrass steppe; dry xerophytic-bunchgrass);
- **Desert-steppe ecosystem** (deserts, sagebrush-bunchgrass).

Currently, due to intensive economic activity, arid and dry steppes on the plains of Kazakhstan are almost entirely plowed.

**Ecosystems of dry steppes** (area 20.1 ha) are located in the spur of the Common Syrt, Podurale, Zauralie, the plains of the West Siberian Plain, the northern margin of Turgay mesa and Central Kazakhstan melkosopochnika.

Natural plant communities are rich grassland-red feather grass, meadow saxifrage-red feather grass. They are notable for the rich floristic composition and a large density of grass. Tussock grasses red feather grass (*Stipa zaleskyi*), fescue (*Festuca valesica*), oat grass (*Helictotrichon desertorum*), less mat-grass (*Stipa lessingiana*) dominate and are characterized by high diversity of herbs as hygrophilous, and dry.

During the period of mass development of virgin lands arid steppe in plains were completely plowed.

**Dry-steppe ecosystems** (area of 57.2 hectares) cover the General Syrt, (the southern part of the so-called pre-Syrt shoulder), part of the Caspian lowlands, under-Ural plateau, Mugodzhar, Turgay Plateau, including pre-Turgay Plain, Central Kazakhstan melkosopochnik, as well as the southern outskirts of the West Siberian lowland (Prelrtysh plains).

Natural communities of dry ecosystems are represented by fescue and feather grass steppes and xerophyte grass and feather grass steppes, on which tussock grasses (feather grass of Lessing or feather grass (*Stipa lessingiana*), fescue (*Festuca valesiaca*) dominate on loamy, often calcareous soils; on soils of light mechanical composition (light and sabulous) tyrsa (*Stipa capillata*), a stony underdeveloped - kirgiz feather grass (*Stipa kirghisorum*), oat grass (*Helictotrichon desertorum*). Herbs play a subordinate role in building communities and their participation does not exceed 10-15%. Only drought-xerophytic steppe species plants prevail in herbage. Herbs in dry ecosystems are represented only by environmental group of steppe xerophytes, which are characterized by high abundance of Tatar *goldylocks* (*Galatella tatarica*) and pyrethrum (*Tanacetum achillaefolium*).

**Desert-steppe ecosystems** are common from the western borders of Kazakhstan to the Altai foothills, Saura and Tarbagatay for more than 2500 km and cover the plains of the Caspian lowlands, and Under-Ural and Turgai plateau, as well as a significant portion of the south Central Kazakhstan melkosopochnika (area 32.9 million ha).

Desert-steppe ecosystems are confined to a low plain, folded marine sediments, basement plains and plateaus, folded Cretaceous and tertiary deposits, as well as large areas of melkosopochnikov.

Plant communities are characterized by dominance of sagebrush and feather grass steppes. Feather grass (Lessing feather grass, *Stipa lessingiana*), tyrsik (*Stipa sareptana*) and oat grass (*Festuca valesiaca*) dominate among the tussock grasses. Mandatory co-dominants are suffrutescent desert-steppe and desert species of wormwood: Lessing wormwood (*Artemisia lessingiana*), in the west - Lerch wormwood (*Artemisia lercheana*) (on the west), fine wormwood (*Artemisia gracilescens*), in the east – semi-lessing wormwood (*Artemisia sublessingiana*), on saline soils everywhere - black sagebrush (*Artemisia pauciflora*). Herbs are few and represented only by xerophytes. The early-spring growing season: ephemeroids and ephemers play a more active role here than in dry ecosystems.

The fauna of the steppe zone is represented by 73 species of mammals, 35 of them belong to rodents (Rodentia), carnivorous mammals (Carnivora) - 13, Chiroptera - 9, Insectivora - 7, Artiodactyla - 5, Lagomorpha - 4 types, 6 species of amphibians and 14 species of reptiles.

The main core of the population of animals of steppes are formed by a meadow-steppe herbivorous birds, feeding mostly herbs and broad cereals - orthoptera insects (grass hopper, garden spider, etc.), common and gregarious vole, ground squirrels, steppe marmot (baybak).

There are 156 species (40.2% of the total number in the republic) of birds nesting in the steppe zone. Representatives of 12 groups are among them, mostly *Anseriformes*, *Falconiformes*, *Strigiformes*, *Galliformes*, *Gruiformes*, *Caprimulgiformes* and *Passeriformes*.

Background species: *Gruidae*, *Otis tarda*, *Aquila nipalensis*, *Circus macrourus*, *Nyctea scandiaca*, *Caprimulgus europaeus*, *Motacillidae*, *Alaudidae*, *Anthus spp.*

Specific types: *Chettusia gregaria*, *Melanokoryphayeltoniensis* and *M.leucopterd*.

In recent times the number of little bustards and the bustards is slowly increasing. The monotony of steppe habitats and ornithological population such as larks and steppe demoiselle

cranes are well diversified with lowland melkosopchnikom, populated by species petrophyle - from the steppe kestrel and pied chat up to the real inhabitants of mountains, such as rock thrush, trumpeter bullfinch, or the Indian chiffchaff. Golden eagles and steppe eagles also nest there. Each of the mountain group of Kazakh melkosopchnik is a separate key ornithological territory.

Objects of amateur hunting are – *Lepus europaeus*, *L. timidus*, *Sus scrofa*, *Capreolus pygargus*, *Alces alces*; objects of fur trade are – *Vulpes vulpes*, *V. corsac*, *Canis lupus*, *Mustela erminea*, *M. nivalis*, *M. eversmanni*, *Meles meles*, *Sciurus vulgaris*, *Marmota bobac*.

Several species of birds, which inhabit in the steppe zone, are the traditional objects of sport and amateur hunting. These are: gray partridge, wood grouse, black grouse, pigeons, migrant ducks and geese, the major types of sandpipers.

#### DESERT ECOSYSTEMS

Deserts (area of 124.6 hectares) cover regions of the Caspian lowlands, Mangyshlak peninsula, Ustyurt plateau, southern Turgay mesa and Kazakh melkosopchnik (Eastern Betpak-dala and Pribalhashe), Turan lowland (Aral), Kyzyl-Kum, Moin-Kum deserts, Alakol depression and Ili hollow and reach the foot of the Northern Tien Shan, Alatau and Jungar Tarbagatay mountains in the south.

The vegetable component of ecosystems (the major) are presented by dwarf semishrubs and desert shrubs, and differ by small diversity of species, small projective cover and an absolute dominance of drought-tolerant species of xerophytes and hyper-xerophytes.

On the plains of Kazakhstan the following 3 under-zone climate-caused types of desert ecosystem: the northern, middle and south, as well as special climate type of highland deserts.

**The northern (desert steppe)** in the brown desert soils (area 40.0 ha). They are characterized by semishrub community, primarily wormwood, less perennial halophytic. The peculiarity of plant communities is the presence of *Stipa sareptana*, *Stipa kirgisorum*, *Stipa richteriana*, and *Agropyron fragile* on the sands.

**Middle deserts** (area of 51.2 hectares) on the gray-brown desert, frozen soils.

Perennial glasswort dominate in middle deserts – *Anabasis salsa*, *Salsola arbusculiformis*, *Nanophyton erinaceum*, *Salsola orientalis*, and from the wormwood - such as *Artemisia terrae-albae* and *Artemisia turanica*. White saxaul (*Haloxylon persicicum*) and black (*H. aphyllum*) are widespread in deserts and also psammophilous shrubs and semi shrubs (species of *Calligonum*, *Ephedra*, *Ammodendron*) are very typical.

Southern Desert (area 30.3 ha) occupied the southern part of the arid-denudation Ustyurt plateau built of limestone and marl, and sand massif of Kyzyl-Kum.

Climatic indicators show a sharp change in the hydrothermal regime to the heat and dryness. Soil - gray-brown, briefly frozen or non-freezing. Semi shrubs and shrubs dominate in the southern deserts, but their species composition is changing. There is domination of the communities of *Salsola gemascons* and *Artemisia kemrudica*. On the sands in saxaulnik and dzhuzgunniks the phytocenotic role of ephemers and ephemerooids, especially *Carex physodes* have significantly increased.

**Submountain desert** (area 14.8 ha). Mountain systems bring significant violations to distribution of desert communities caused by latitudinal changes of hydrothermal conditions due to their barrier role.

As we approach the mountains, the rainfalls in the foothills increase due to strengthening of thermal convection and activation of atmospheric fronts. The leading factor in forming ecosystems of submountain areas (plains, melkosopchnikov, sand massifs) is a significant increase of rainfall due to effects of pre-wetting, forming the «humid submountain» zone.

Rain falls 2-3 times more on submountain areas than on the plains outside the influence of the mountains. Mountain ranges are significant barriers – traps for the north-west air masses.

Foothill deserts are found in the foothills of all mountain systems of Kazakhstan from Tarbagatay to Karatau and Western Tien Shan.

The main types of soils in ecosystems of submountain deserts are light grey desert soil (northern and southern).

The vegetation of submountain deserts is characterized by presence of communities of semishrubs and shrubs and well-defined layer of ephemerooids formed from bulbous meadow grass (*Poa bulbosa*), sedge (*Carex pachystilis*).



Due to differences in the composition of soil and vegetable cover of foothill ecosystems caused by climate, there are foothill deserts of western and eastern parts.

**Intermountain hollow-desert ecosystems.** A special concentric pattern of shifts of underzone ecosystem, the so-called ring inversion structure of zoning is typical for the intermountain hollows (Ili, Zaysan).

Typically, the central and lowest part of basin is occupied by the most arid desert ecosystem; the median part is represented by ecosystems indicating zonal position of the hollow. Territories adjacent to the mountains are usually represented by less arid foothill types of communities.

The main dominants of desert ecosystems communities in Kazakhstan are the wormwood and glasswort. In the sands – psammophyte shrubs and saxaul. On alkali soil – halophyte succulent glassworts both annual or perennial. Large space with predominance of *b. Artemisia* are found mainly in the northern foothills and deserts.

Fauna in the desert area is represented by 119 species of mammals, including orders: *Rodentia* - 53, *Carnivora* - 21, *Chiroptera* - 20, *Insectivora* - 12, *Artiodactyla* - 7, *Lagomorpha* - 5, *Perissodactyla* - 1 species.

Only the desert area is characterized by 36 species, the most typical representatives of which are *Spermophilus leptodactylus*, *S.fulvus*, most of Meriones, and *Allactaga*, etc., *Diplomesodonpulgchellum*, *Erinaceus auritus* and *E.aethyopicus*, *Lepus tolai*, *Gazella subgutturoza*, *Saiga tatarica*, *Ovis vignei* - in the low desert mountains of Mangyshlak and Ustyurt, *Felis margarita*, *F.caracal*. Endemics of deserts of the south-east Kazakhstan is *Selevinia betpacdalensis*.

About 200 nesting bird species - 51.4% of the total in Kazakhstan are known in the desert area.

Background species: *Buteo rufinus*, *Caprimulgus eiyuraesh*, *Melanocorypha calandra*, *Calandrella rufescens*, *Oenanthe isabellina*, *Emberiza bruniceps*.

Specific types: *Chlamydotis undulata*, *Falco cherrug*, *Charadrius asiaticus*, *Pterocles orientalis* and *Palchata*, *Syrrhaptes paradoxus*, *Caprimulgus aegyptius*, *Sylvia Pope*, *Passer ammodendri*.

65.2% of all reptile species and 25% of amphibian species of Kazakhstan inhabit in the deserts.

The most extensive collection of reptiles - 20 species of lizards and 7 species of snakes are found in sandy desert. However, the species composition of amphibians is poor - only 2 species. 10 species of lizards, 3 species of snakes and one specie of amphibians are found in stone deserts, in the clay desert – 13 species of lizards, 7 species of snakes and 2 species of amphibians. Many amphibians and reptiles avoid saline deserts. The exceptions are lined desert lacerta, *Eremias intermedia*, *Elaphe dione*.

In the desert zone of Kazakhstan 2448 species of insects were found: *Orthopterd* - 187, *Homopterd* - 879, *Coleoptera* - 931, *Hymenoptera* - 840, *Diptera* - 482. The scientists of the Institute of Zoology of MES RK described 378 new species and 22 new kinds of insects in the deserts of Kazakhstan.

The most diverse population of insects is in the desert clay (about 2000 species).

The objects of amateur hunting are Tolai hare (*Lepus tolai*) and, in some places, hare (*L.europaeus*) and mountain hare (*L.timidus*), as well as wild boar (*Sus scrofa*), roe (*Capreoluspygargus*), elk (*Alces alces*) - in the valley of Ural river; objects of fur trade - fox (*Vulpes vulpes*), corsac (*V.corsac*), wolf (*Canis lupus*), jackal (*Canis aureus*), raccoon dog (*Nyctorentes procyonoides*), ermine (*Mustela erminea*), weasel (*M.nivalis*), steppe polecat (*M.eversmanni*), solongoy (*Mustela altaica*), badger (*Meles meles*), spotted cat (*Felis bujbica*), the yellow ground squirrel (*Spermophilus fulvus*). The main trade animals until the end of 90-ies of XX century was saiga (*Saiga tataricd*) (100-300 thousand in 70-ies, in some years - to 500 thousands of animals per year), but because of the decrease of their quantity hunting them is prohibited since 1999.

Economically valuable species are the green toad (*Bufo viridis*), gray monitor lizard (*Varanus griseus*), yellow (*Ophisaurus apodus*), racer, steppe viper and a copperhead snake.

#### MOUNTAIN ECOSYSTEMS

**Mountain ecosystems** of Kazakhstan (18.6 mln. ha) is much more complicated in structure and diverse in set of ecosystems than plain.

Zonality structure of ecosystems in the mountains is conditioned by many factors, among which the most important are:

- Zonal position of Plains (pedestals), surrounding this mountain system.
- The nature of mountain terrain, the orientation of ridges, the relative and absolute amplitude of heights.
- Peculiarities of the climate (the transformation of air masses depending on the orientation of mountain ranges, climatic inversion in the mountains, changes of climatic parameters with the height and location as we move from west to east).
- Specificity and characteristics of land cover.

According to the nature of the structure and a set of (range) zonality mountain ecosystems of Kazakhstan at the highest level can be divided into 3 groups of zonality types:

- Tarbagatay – Saura – Altai, which is typical for the mountains located in the foothill steppe ecosystem.
- Dzhungar – North Tien Shan group of zonality types typical for mountain ridges, located within the ecosystems of medium (moderately cold) desert.
- West Tyanshans group of zonality types typical for the mountains located in the warm-temperate southern deserts.

### ***Main types of vegetation in mountain ecosystems***

Plant communities of mountain ecosystems are very diverse and belong to different types of vegetation. The main types are widespread in Eurasia: tundra, prairie, forest (dark coniferous, light, small-leaved and deciduous forests), bush, steppe, as well as rare, distinct, typical for mountains of Central Asia, found only in the mountains of Western Tien-Shan: arid juniper woodlands, umbellates, savanna and phryganoid (thorn and mountain wormwood) types of vegetation.

Only in the highlands of Central and Southern Altai vegetation of mountain tundra is represented: moss, lichen, grass-moss, grass-dwarf-birch and dryad tundras.

Meadow communities formed by mesophytic hygrophilous cereals and herbs form alpine and subalpine vegetation belts in the mountains of Kazakhstan, as well as widespread in the middle, which alternate with forests. Alpine low grass, colorful cereal herbs meadows are spread in humid highlands (northern Altai, Western Tien Shan). A special type of cryophyte low grass alpine wasteland meadows are found in dry and cold highlands (southern Altai, Saur, Tarbagatay, Jungar Alatau). Subalpine middle grass meadows are spread in all mountain ranges below the Alpine meadows. Among them are a variety of herbs-cereals, as well as lady's mantle and Geranium meadows, which often alternate with thickets of juniper. In the mountain system of Kazakhstan both conifer and deciduous forests are spread.

Dark-Conifer fir and cedar forests with green moss and herb are found only in north-west Altai. Dark-Conifer fir forests of Shrenka spruce are spread in the North Tien Shan on the middle slopes. In the upper part of the forest belt – it is elfin wood-fir and spruce in the central part of the forest with grass and moss cover. In the lower part of the forest belt hardwood-spruce forests are common.

Light larch forests with the domination of Siberian larch are common in moderately wet conditions of Central and Southern Altai. South Altai and Saur mountains are represented by park larches.

Pine forests (dead soil, green moss, lichen, grass, shrubs-grass) and woodlands with petrophyte-steppe species are found in Kalbinskie mountains in Altai and lowland granite massifs of Central Kazakhstan. In addition to the mountainous regions, pine forests on sand are found in the Turgay region and Irtysh. Wet pine forests are the repository of the northern (boreal) elements of the flora. Birch and aspen forests are found in all regions.

Diversity of mesophytic hygrophilous shrubs is extremely high in different mountain ranges. The most widely distributed are rosaries, spiraeic, pea shrubs (from Karagan tree in the Altai and Tarbagatae and multifoliate Karagan in Terskey Ala-Tau), visharnik. Shrub bushes formed by Ledebur almond and Hoven kalofaka are the attraction of Tarbagatay.

Mountain steppes are found in all of the mountains of Kazakhstan from Altai to Karatau. They are represented by three subtypes: cryophyte steppes in the highlands, bunchgrass steppes in the middle, and original composition of ephemeral and bunchgrass, savanna and

bunchgrass (with barley, couch grass, ferule) and mountain xerophytes cereal (with types of cousins, prickly thirt, rhafidophytum) in lowlands of Tien Shan and Karatau.

Juniper woodlands occur only in the middle lands of Western Tien-Shan and Kyrgyz Range canyons. Archevniki of Zeravshan juniper is associated with warmer conditions, but the semi-ball type juniper – to moderately cold habitats. On grass cover there are junipers with savanna, meadow, meadow-steppe covers.

A special type of forest plantations of the heat-loving woodland hawthorn Pontian is spread on high submountain ridges and lower parts of the mountains along the perimeter of ridges of the West Tien Shan. Woodlands of the hawthorn Pontian (the so-called foothill semi-savannas) dominated in the plain-foothill areas before agricultural period and at present they are destroyed in large areas.

In Karatau mountain there is domination of a particular distinctive types of vegetation - mountain wormwood and Karatau wormwood. They form a particular vegetation zone in Karatau. Floral composition of them is original, and includes low grass ephemeroïds and savanna high grass, steppe grasses and mountain xerophyte elements (types of r. Lepidolef, prickly thirt).

Savanna high grass occupies vast high foothills of Western Tyan-Shan. They are distinguished by high dominance of cereals ephemera hairy coach grass, bulbous barley and participation of high grass (species of ferule, althea, desert-candle, Jerusalem sage). On the slopes of lowlands there are usually shrubs (almond, rose, cherry).

Low grass savanna (with dominance of bulbous meadow grass, ephemeroids and ephemeroïds) occur at low foothills of Western Tyan-Shan.

Vegetation of river valleys, shores of lakes and reservoirs are very diverse. Deciduous poplar forests (black and white poplar), fragments of oak (r.Ural) and the small Aspen-birch forest and the osier-bed are met in the steppes in river valleys. In the desert on river valleys there are special mesoterm floodplain forests - tugai (poplar, heterophyllous and warm grey oleaster), green (mostly osier) and scrub (of Chingi and Grebenshikov species). Relict ashen forests were found in the deep canyons (r. Charyn). Valleys and deltas, shores of the lakes are represented by grassy marshes (from cane reedmace, canes, club-rush) and a variety of these grasslands (coach-grass, reedgrass, a camp fire, foxtail) halophyte (azhrekovye, beskilitsevye, wild rye, barley). In the southern steppes and deserts spread coarse-cereals meadows of chiya.

**The fauna of mountain ecosystems** represented 110 species of mammals, the group of rodents *Rodentid* – 45, *Chiroptera* - 22, *Carnivora* - 20, *Insectivord* - 10, *Artiodactylid* - 7, *Lagomorphd* - 6 species. Actually mountains are characterized by 14 species, the rest are found in other areas. Mountain forests are inhabited by the representatives of forest fauna - *Ursus arctos*, *Lynx lynx*, *Gulo gulo*, *Martes zibellina*, *Moschus moschiferus*, *Alces alces*, *Cervus elaphus sibiricus*, *Eutamias sibiricus*, *Sciurus vulgaris*, *Lepus timidus*, etc. Typical inhabitants of the mountain steppes - *Marmota menzbieri*, *M.caudata*, *M.baibacina*, *Spermophilus rehitus*, *Ovis attop*; residents of rocky habitats - *Ochotona rutila*, *O.macrotis*, *AShok argentatus*, *Martes foina*, *Capra sibirica*, *Uncia uncia*.

255 species of nesting birds, or 65.6% of the fauna of the cluster nest in the mountainous area. There are more representatives of groups of *Falconiformes*, *Galliformes*, *Columhiformes*, *Piciformes* and *Passeriformes*.

Background species: *Lagorus mutus*, *Tetrao urogallus*, *Tetrastes bonasia*, *Tetraogallus altaicus*, *Gallinago gallinago*, *G.megala*, *G.stenura*, *G.solitaria*, *Picus canus*, *Perisoreus infaustus* (for the Siberian mountain type), *Gypaetus barbatus*, *Aegypius monachus* and *Gyps fulvus*, *Tetraogallus himalayensis*, *Alectoris kakelik*, *Perdix dauuricae*, *Pyrrhocorax graculus*, *Ppyrrhocorax*, *Monticola saxatilis*, and *Turdus meruld*, *Terpsiphone paradisi*, *Leptopoeck sophiae* (for the Central Asian mountain type).

Specific species: *Gypaetus barbatus*, *Aegypius*, *Gyps fulvus*, *Tetraogallus*, *Ibidorhyncha struthersii*, *Pyrrhocorax pyrrhocorax*, *Myophonus coeruleus*, *Leucosticte brandti*, *Leucosticte nemoricola*, *Sitta europaea*, *Tichodroma muraria* etc.

In the Altai, which is largely covered with taiga forests, a large proportion of forest species are - *Tetrao urogallus*, *Tetrastes bonasia*, *Lyrurus tetricus*, *Passeriformes*, including *Aegithalos caudatus*, *Pyrrhulapyrrhula*, *Uragus sibiricus*, *Pinicola enucleator*. At the Tien Shan, where deciduous forests and treeless mountain foundations dominate, the

main background is represented by large birds of prey - *Gypaetus barbatus*, *Agula chrysaetos*, scavengers, as well as *Alectoris kakelik*, *Perdix dauuricae*, and lots of *Passeriformes*.

Markakol and West-Altai reserves are sufficiently representative key ornithological territories for the Southern and Western Altai. Tarbagatay, Sauri, Manrak Ridges have a high concentration of birds of the mountain complex. Fauna of Kalbinskyi highlands along the left bank of the Irtysh is very peculiar. Among the elements of the desert landscape there are areas of a sandy desert - Aygyrkum and Bukonskie sands. Apart from the Aksu-Dzhabaglin reserve, the key ornithological territories are the upper parts of Syrdarya Karatau, full of relic flora and fauna (in particular, Boroldaysky Ridge, r. Kashkarata, Boroldaysky breakthrough, Mynzhilke mountain area in place of the newly created Karatau reserve).

Original key ornithological territory of «bottle neck» type is Chokpak pass as a place of flight of the mass of birds between the northern foot of the spine Dzhabaglytau (Talas Alatau spurs) and the southern foot of the Borolday spine (system Syrdarya Karatau).

Mountain systems of Kazakhstan are represented by 29 species of amphibians and reptiles, 7 species of amphibians and 22 species of reptiles.

In connection with peculiar biotopes each mountain system is characterized by a certain set of species. For example, viviparous lizard (*Zootoca vivipara*), quick lizard (*Lacerta agilis*), a common adder (*Vipera berus*), which raised up to 2500 meters, and an ordinary grass snake (*Natrix natrix*), occurring until 1800 m are met in Kazakhstan's Altai mountains. Endemic - (*Ranodon sihircus*), which inhabits in a rather narrow altitudinal limits, mainly in a belt of coniferous forests at altitudes from 1800 to 2500 m is met in Jungar Alatau. You can also find quick lizards and vipers in the ordinary altitudes up to 1000 m..

Arthropod fauna of the mountainous landscape of Kazakhstan features a large variety. It includes a lot of endemic and relict species, and subspecies. It is difficult to judge about the number of species of insects in the mountains of Kazakhstan. For example, in the territory of the reserve Aksu-Dzhabagly 906 species of only the coleopteran were found, 358 genera belonging to 41 families. At least 60 dominant species can be specified, changing each other in various biotopes and stationary. Among the beetles there are polyzonal species, the proliferation of virtually all economically altitudinal zones.

Objects of sports and amateur hunting out of mammals are Siberian mountain goat (*Capra sibirica*), Maral (*Cervus elaphus sibiricus*), roe deer (*Capreolus pygargus*), moose (*Alces alces*), musk deer (*Moschus moschiferus*), wild boar (*Sus scrofa*), brown bear (*Ursus arctos*), Tolai hare (*Lepus tolai*), (*L.timidus*); objects of fur trading: fox (*Vulpes vulpes*), wolf (*Canis lupus*), sable (*Martes zibellina*), ermine (*Mustela erminea*), weasel (*M.nivalis*), marmots (*M.sibirica*), badger (*Meles meles*), wolverine (*Gulo gulo*), lynx (*Lynx lynx*), squirrel (*Sciurus vulgaris*), parakeet marmot (*Marmota caudata*), gray marmot (*M.baibacina*), parakeet ground squirrel (*Spermophilus undulatus*), Tien Shan gopher (*S.relictus*), Altai mole rat (*Myospalax myospalax*). In the last 10 years the international hunting is developing, mainly on ungulates (for trophy).

Fishing and economically valuable species: black grouse (*Lyrurus tetrix*), Himalayan snowcock (*Tetraogallus himalayensis*), Altai snowcock (*T.altaicus*), capercaillie (*Tetrao urogallus*), hazel grouse (*Tetrastes bonasia*), keklik (*Alectoris kakelik*) and bearded partridge (*Perdix dauuricae*).

#### COASTAL AQUATIC ECOSYSTEMS AND PLANT COMMUNITIES.

**Hydromorphic ecosystems of the steppe zone.** Steppe zone of Kazakhstan has more than 9.5 thousands of lakes, their relative surface area is 2-4%. Sizes range from several dozens to hundreds km<sup>2</sup>, 72% of the total area accounted for the largest lakes (Tengiz, Shalkar, Kushmurun, Siletiteniz, Inder), their depth does not exceed 3-4 m.

Normally water area of lakes overgrow with wild reeds (*Phragmites australis*) (from 20 to 90%), lakes with open water surface are rarely found. Communities in conjunction with other air-water macrophytes are formed at the shallow reeds: *Typha angustifolia*, *T.laxmanii*, *Scirpus lacustris*, *S.tabernaemontanii*, *Butomus umbellatus*, *Alismaplantago aquatica*, *A.graminoides*, rarely *Sparganium stoloniferum*. In the lower-tier submerged aquatic macrophytes are typical: *Ceratophyllum demersum*, *C.submersum*, *Potamogeton perfoliatus*, *P.pectinatus*, *P.lucens*, *Myriophyllum spicatum*, *M.verticillatum*. On the reaches, and in the lagoon the

surface of water overgrow with *Lemna minor*, *L. trisulca*, *Polygonum amphibium*, sometimes *Chara foetida*, *Ch. contraria*, *Ch. fragilis*, *Ch. kirgisorum* and *Cladophora glomerata*.

Fresh lakes have the greatest botanical diversity (Bozshakol, Kaybagar - Tyuntyugur and Teniz-Karakamys system of lakes, etc.). Here, along with the listed species of macrophytes, there are also relic species met: *Nuphar luteum*, *Utricularia vulgaris*, *Straliotes aloides*.

Many lakes are characterized by quagmire in the water area. They include single individuals and groups of birch (*Betula pendula*), (*Salix cinerea*, *S. viminalis*), sedge (*Sageh*) and herbs (*Comarum palustre*, *Asparagus officinalis*), sometimes there are ferns.

In vegetation of the coastal area there is a diversity of species and communities. In summary, the belt around a number of environmental freshwater lakes is represented by the following set of communities: *Phragmites australis*; *Phalaroides arundinacea*, *Alopecurus arundinaceus*, *Beckmannia eruciformis*, *Sonchus arvensis*, *Mentha arvensis*, *Stachys palustris*, *Potentilla anserina*; *Calamagrostis epigeios*, *Elytrigia repens*, *Poa pratensis*, *P. angustifolia*, *Sanguisorba officinalis*, *Glycyrrhiza glabra*; *Artemisia nitrosa*, *A. proceriformis*.

Halophyte communities dominate on the shores of salt lakes: *Salicornia europaea*, *Suaeda prostrata*, *Phragmites australis*, *Saussurea salsa*, *Puccinellia hauptiana*, *Hordeum brevisubulatum*, *Limonium gmelinii*, *Halocnemum strobilaceum*, *Limonium suffruticosum*, *Atriplex* sap, *Camphorosma monspeliaca*, *C. lessingii*, sometimes involving *Kalidium foliatum*, *K. schrenkianum*.

Some parts of the coasts are often marshy and are represented by sedge (*Sageh omsniana*, *C. riparia*, *C. fusco-vaginata*) and species *Eleocharis* in freshwater lakes, *Bolboschoenus maritimus* and *Juncaceae* (*Juncus gerardii*) - around the salty area.

In the upper delta floodplain forests and bushlands dominate, in the medium - different types of grassland in combination with shrubs and grass swamps on deep downward, and at the bottom - grass marshes, reed smoothly in conjunction with the delta lakes. These patterns reflect the environmental series of ecosystems with the relevant plant communities.

In the valleys of large rivers (Ural, Ishim, Tobol, Irtysh) the following communities are presented: shrub-osier at the channel (*Salix triandra*, *S. alba*, *S. viminalis*, species *Rosa*, *Rhamnus cathartica*); (*Salix alba*) and (*Populus nigra*, *P. alba*) floodplain forests in combination with rich herbs cereal (*Elytrigia repens*, *Calamagrostis epigeios*, *Bromopsis inermis*, *Sanguisorba officinalis*, *Vicia cracca*, *Senecio jacobaea*), and these sedge-herbs cereal (*Phalaroides arundinacea*, *Alopecurus arundinaceus*, *Carex vulpina*, *Stachys palustris*, *Lythrum virgatum*) marshland meadows in the central floodplain, sagebrush herbs-cereals (*Artemisia dracunculoides*, *Medicago falcata*, *Astragalus longipetalus*, *Potentilla bifurca*, species *Leymus*, *Poa angustifolia*) steppe grasslands, combined with scrub (*Lonicera tatarica*, species *Rosa*, *Spiraea hypericifolia*) in terrace parts.

Despite the similarity of the spatial placement of communities and key elements of their floristic composition, there are significant differences in vegetation cover in the valleys of the rivers. Blackberry and silverbell oak (*Quercus robur*, *Rubus caesius*, *Convallaria majalis*) and European elm (*Ulmus laevis*) woodlands of floodplains Tobol, Ubagana, Ishim - birch-aspen pins (*Betula pendula*, *Populus tremula*, *Genista tinctoria*), and the Irtysh - thicket cherry (*Padus avium*), and raisin (*Viburnum opulus*) are also typical for the valley of the Ural River in the floodplain forests.

In the dry steppe subzone the generalized ecological series of floodplain communities are the following: *Salix triandra*, *S. alba*, *S. purpurea*, *S. rosmarinifolia*; *Elytrigia repens*, *Bromopsis inermis*, *Calamagrostis epigeios*, *Glycyrrhiza uralensis*, *Thalictrum simplex*, species *Puccinellia*, *Hordeum brevisubulatum*, *Triglochin maritima*, *Glaux maritima*; *Achnatherum splendens* and *Artemisia serotina*, *A. nitrosa*, *A. pauciflora*, *Psathyrostachys juncea*, species *Leymus* in conjunction with *Atriplex* / *ex sap*, *Halimione verrucifera*, *Camphorosma lessingif*. In the valleys of large rivers (Ural, Irtysh) *Populus nigra* trees are also common.

In the desert steppe in the channel there are most of the communities with the dominance of willows (*Salix alba*, *S. cinerea*) and desert shrub (*Tamarix ramosissima*, *Halimodendron halodendron*), while in the central floodplain – halophyte club-rush (*Bolboschoenus maritimus*) and *Juncaceae* (*Juncus gerardii*, *J. compressus*) meadows.

Floristic diversity of floodplain communities of the steppe zone has an average of 20-45 species. Flora steppe river valleys is poorly studied, the analysis of available data points to

their species richness: Ural - 627, Big Hobda - 546, Ilek - 432, Kaldygayty - 381, Irtysh - 698, Tobol - 583.

**Hydromorphic ecosystems of the desert zone.** In the desert zone of Kazakhstan the largest inland waters of Eurasia: The Caspian and Aral Sea, Lake Balkhash, and in intermountain basins - Lake Zaisan and Alakol-Sasykkol. A large area is also taken by Kapshagay, Tasutkol, Shardary and Bugun reservoirs. Composition and structure of the vegetation of these water bodies have both similarities and differences. Aquatic ecosystems have the most similarities. In communities of submerged aquatic macrophytes higher plant species of Potamogeton, Myriophyllum, Ceratophyllum dominate, in the Caspian Sea *Zostera marina*, *Oedogonium*, *Mougeotia*, *Cladophora* and *Polyisifonia*, *Ciramiurri* are also spread.

The highest species diversity is seen on avandelt areas where reed (*Phragmites australis*) is distributed smoothly. In the delta waters protected from wave activity, along with the listed species of submerged aquatic macrophytes, elodeya Canadian (*Elodea canadensis*), bur-reed (*Sparganium stoloniferum*), reedmace (*Typha latifolia*, *T. angustifolia*, *T. minima*) are usually found, as well as relict species such as salvinia floating fern (*Salvinia natans*), in the delta of the Ural - also a water nut (*Trapa kasachstanica*) and aldrovanda bubbly (*Aldrovanda vesiculosa*), in the Kazakh part of the delta of the Volga - *Lotus nuciferum* (*Nelumbo nucifera*), in river deltas of Balkhash - white water lily (*Nymphaea alba*), yellow spatter-dock (*Nuphar lutea*). Reservoirs are bordered with broad band of beds cane links (*Phragmites australis*), herbs are common in their composition in drying areas (*Sonchus arvensis*, *Aster tripolium*) and herbaceous lianas (*Cynanchum sibiricum*, *Calistegia sepium*).

All major water bodies are characterized by periods of transgression and regression, accompanied by complete restructuring of the composition and community structure of water area and the coast. In the past 10 years the level of the Caspian Sea increased to 2 m. Floristic and phytocenotic diversity is saved, changes are observed only in the spatial structure of benthic vegetation. Modern Caspian in origin is part of the ancient weak salted Pontic lake-sea, which existed 5-7 million years ago. Therefore, the most ancient inhabitants is the group of brackish species. Nearly 40 species of macrophytes (higher plants, and large algae), including flowering plants no more than 10 species are registered in the Kazakh part. Deep waters of the mid Caspian Sea do not have bottom vegetation, locally fragmented community of red algae: *Polysiphonia elongata*, *Pteridarioides* and *Ciramiurri* (*Ciramiurri graminea*) locally occur at the depth of 5-12 m. *Potamogeton pectinatus*, *P. perfoliatus* and *Myriophyllum spicatum*, *M. verticillatum* dominated at the depth ranging from 0.5 to 4 m, and from 3 to 10 meters - *Zostera marina*.

Drying of the Aral Sea is lasting for more than 40 years, during this period in the Big Aral salinity increased to 75‰ and it became an over salted reservoir. This reflected the biodiversity; there are only two of 25 species of previously encountered aquatic vegetation: *Zostera notlii* and *Cladophora rupestris*. Flora of Delta water is very poor and has only 12 species of higher plants, belonging to the family Typhaceae, Potamogetonaceae, Zosteraceae, Zannicheliaceae, Najadaceae, Cyperaceae. The once widely found

All kinds of aquatic and coastal fauna have a high resource value. Thickets of aquatic macrophytes and macro-algae of the genera *Potamogeton*, *Chara*, *Lamprothamnium*, *Turgilla* and others serve as a place of feeding and spawning of fish species. Aquatic plants are the main suppliers of oxygen in aquatic environments, but also play an important role in the purification of water from a variety of harmful impurities - oil waste, heavy metals and other toxic compounds.

180 species out of the total floristic diversity of terrestrial species are useful. Out of these, there are more than 120 species of forage plants, more than 50 species of medicinal plants and some 60 species are technical.

Reed bushes of transition zone that are nutrient filter between ecosystems of sea (lake) and land have the great biosphere importance, as well as a valuable fodder and technical materials.

**The fauna of aquatic ecosystems** is represented by 10 species of mammals, 2 of them belong to the group of Insectivora and include - *Desmana moschata*, *Neomysfodiens*;

*Carnivora* - 4: *Mustek lutreoid* and *Mustela vison*), *Lutra lutra*, *Phoca caspica*; to the group of rodents (*Rodentia*) - 4 species: *Castor fiber*, *Myocastor coypus*, *Ondatra zibethicus*, *Arvicola terrestris*.

About 115 species of nesting birds or 29,5% of the total number of nesting in Kazakhstan are met. Among them there are representatives of 9 orders: *Gaviformes*, *Podicpe-diformes*, *Pelecaniformes*, *Ciconiiformes*, *Threskiornithidae*, *Phoenicopteridae*, *Anseriformes*, *Ralliformes* and *Charadriiformes*.

Background species: *Podiceps cristatus*, *Phalacrocorax carbo*, *Ardea cinered* and *Egretta alba*, *Anser anser*, *Tadorna tadorna*, *T. ferruginea*, *Anas spp.*, *Aythya spp.*, *Charadriidae*.

Specific types: *Phoenicopus roseus*, *Aythya nyroka*, *Oxyura leucocephala*.

Reservoirs of the southern half is used by migratory birds in Asia and Africa as a place of rest, feeding, and partly molt.

On the waters of northern and central parts of the country, the birds take their young, fade, gain fat reserves for fall migration to their wintering grounds.

Native ichthyofauna of Kazakhstan initially consisted of no more than 100 species and subspecies of fish (*Pisces*) and *Cyclostomata*. It has been enriched by extensive work on acclimatization of new species. 65 fish species, including accidental invaders have been brought in the waters of Kazakhstan in the 30-80 biennium of the last century.

Currently, the diversity of fish and cyclostamata is at least 130-140 species and subspecies belonging to 24 families. A number of species (subspecies) of fish are endemic to individual basins and regions. Part of endemics (Balkhash perch - *Perca schrenki*, Aral salmon - *Salnw trutta aralensis*, Aral barbel - *Barbus brachycephalus brachycephalus* etc.) are carriers of the gene pool of global proportions. Ichthyofauna of the Caspian Sea is considered unique. 4 endemic genus, 31 endemic species and 45 endemic subspecies inhabit there. The Caspian Sea is the world's gene pool reserve and commercial stock of sturgeon.

Composition of bentofauna of the Caspian Sea includes 635 taxon of organisms from 11 types of animals: *Sarcomastigophora* - 13 taxon; *Ciliophora* - 330; *Porifera* - 1 type; *Coelenterata* - 5 species; *Plathelminthes* - 25 species; *Nemertini* - 1 species; *Nemathelminthes* - 8 taxon; *Annelida* - 31 species; *Arthropoda* - 143 species; *Mollnsca* - 71 taxon; *Tentaculata* - 7 species.

Invertebrates fauna of Balkhash is represented by 233 taxa of organisms from the 4 types of the animal kingdom: *Sarcomastigophora* -1 type; *Ciliophora* -73 taxon; *Nemathelminthes* -86 taxon; *Arthropoda* -73.

Zoobenthos of the Lake Balkhash is represented by 126 taxa from the 3 types of animals. 14 species of the *Annelida* are noted. The biggest variety of different types of *Arthropoda* is 100 taxon. The lake is also home for 12 species of gastropods and bivalves.

142 species and subspecies of 274 species of crustaceans and rotifers inhabit in the waters of the republic. Species composition of river crabs on the territory of the republic consists of 3 species with 2 subspecies. There are 139 species of water beetles, 35 species of faverels. 60 species of gastropods and bivalves are found in the fauna of mollusks of middle and lower course of Syr Darya.

Abounding in recent years and construction of Kok-Aral dam also resulted in lower salinity of the Small Aral Sea. Recovering of native fish fauna is beginning in the delta of the Syrdarya River, some species (pike, chehon) penetrate far into the depths of the Small Aral Sea, reaching even the district of Tastubek. The fact that at the present time, the Small Aral Sea plaice gloss of six generations, may indicate to stabilization of biological indicators of fish and flocks to the normal growth of the population.

#### AGROECOSYSTEM BIODIVERSITY.

**Agroecosystems** include established and human governed cultivated land, orchards and vineyards, forest and park plantations, soil and roadside forest, fallow, improved pasture, etc. Almost half the land in the country is used for agricultural purposes, which make up most of the pastures. 222.1 million hectares of the 272.49 million ha of the total area of agricultural land is occupied by the order, out of which 182.8 are pastures, 31.9 - arable land, 5.05 - hayfields, 2.8 million hectares - the deposit. Foundation of irrigated land is 2.3 million hectares of land, producing more than 30% of gross agricultural product, but is now actually irrigated, only 1.3 million hectares, while the remaining land is not used for reasons of removal from circulation of

saline land malfunction of the irrigation network, absence or scarcity, degradation of soil-reclamation conditions, institutional arrangements and, above all, lack of financial and logistical resources.

Due to extensive development and transformation of the whole landscape zones, the environmental situation has worsened in Kazakhstan in the recent decades. Plowing of virgin lands, degradation of pastures in the desert due to overgrazing, regulation of flow of most large rivers, especially in the southern regions, the depletion of plant resources as a result of a primitive point of harvesting, clear cutting of forests and uncontrolled plowing of the land, chemical and nuclear contamination - all of this has led to large distortions in biological systems in the region (Aral, Caspian, Balkhash, Irtysh, Rudny Altai, Southern Kazakhstan, etc.).

The environmental situation in Kazakhstan is characterized by a large extent of degradation of natural systems, leading to destabilization of the biosphere, the loss of its ability to maintain quality of the OS required for the life of society. The problem of desertification is of high importance. The critical state of biodiversity is connected with human activities, environmental pollution and natural disasters, as well as a small area of protected ecosystems. It was the depletion of biodiversity and degradation of 66% of the republic, especially in the area of deserts and steppes, while plowing the land, and overgrazing.

It is estimated that about 75% of the country is under the increased risk of ecological destabilization. As a result of the scarcity and uneven distribution of water, up to 30 million hectares were covered with sand, alkali and saline lands - more than 93 million hectares. Natural features of Kazakhstan condition the weak sustainability of environment to human impacts. As a result of anthropogenic factors, the most degraded pastures were ones adjacent to rural settlements and water sources. According to the information from AZR SC as of 2006 26.6 mln.ha of pasture were shot down in the middle and high degree out of 182.8 million hectares. The degradation of pastures tends to increase.

Dehumification part on irrigated lands makes 0.7 mln.ha.

*The Red Book of Kazakhstan is the main document that contains a set of information on the status of rare, declining in numbers and endangered animal species in the territory of the republic.*

At the beginning of 1988 "The Red Book of the Kazakh Soviet Socialist Republic, part 2. Plants" was published. It included 303 rare and endangered plant species.

The new edition of the Red Data Book of plants in Kazakhstan is being prepared at the moment. "The list of rare and endangered plant species" approved by Government Decision on 31 October, 2006 contains 387 plant species. All species placed in the Red Book are distributed to the IUCN categories of classification: (0) - probably extinct (1) - under threat, (2) - rare, and (3) - reduced; (4) - uncertain. According to the systematic groups of rare and endangered species of plants include: gymnosperms - 2; pteridophyte - 2, licopodium - 2, moss - 3 mushrooms - 13, lichens - 1, metasporm - 364 species.

Considering the global nature of the problem of biological diversity it is very important to protect not only individual species but also a number of unique plant communities, their diversity and sustainability - essential for the optimal environment for biological productivity. A minority of communities to some extent protected in reserves or preserves, but there is no common list of the background reports of endangered and rare plant communities, protection of which is crucial for the future. A number of them represent a unique interest as the standards of stable relations of species, as well as genetic fund of useful for breeding, especially for food and fodder plants. Many communities have a very narrow range and therefore have random deaths may lead to the loss of their nature. Saving these rare and endangered species is possible only by strengthening of safety measures of their communities.

Rare plant communities of natural origin, which need to be protected, will be included in the planned "Red Book of Kazakhstan. Volume 2, Part 2. Plant communities. Publication of the first" ("Green Book").

The model and the list of rare, endangered and common plant communities in the transition of excessive human activities that require complete protection, or restriction of use, or reduction of negative nature and human impacts was prepared and created for the first time in Kazakhstan.



The list of syntaxons, proposed for inclusion in the Red Book, includes 41 communities: Forest (Wood) communities - 4; desert-forest communities - 11; semi shrubs communities - 22; Meadow and marsh communities - 4. The description syntaxons has brief information about the relic, rare habitats and communities of the area, which need protection.

The difficult situation on the issue of ensuring the protection of forests from fires and illegal logging in the state forest fund still remains.

The state inspectors for the protection of flora and fauna, and employees of state forest protection held 27.9 thousand raids in 2008, during which 1643 cases of illegal logging, with the volume of 43,463 cubic meters was revealed.

The volume of illegal logging in 2008 reduced in comparison with 2007 by 5 times.

Thus, in the tape forests of Irtysh the volume of illegal logging in 2008 compared to the same period in 2007 decreased by 5,8 times and amounted to 5421 cubic meters.

During the fire season in 2008 in general 901 cases of forest fires, the area of which amounted to 7727 hectares, including 5913 hectares covered with forest were registered on the territory of SFF. 375 cases of fires in the area of 4599 hectares, including 3323 hectares of forest occurred in forests managed by region akimats and other state agencies, and 526 cases on over the area of 3128 ha, including 2590 ha forest in forests administered by the KLOH.

Loss from fires of 2008 in the republic amounted to 588.5 million tenge.

Analysis of forest fires for the year 2008 showed that compared to 2007 their area decreased to 18 times, while the middle class of fire danger in the fire dangerous period in 2008 was higher compared to 2007.

The main causes of forest fires are: natural factors (lightning level) - 39%, man-made (by the fault of the people, unknown causes) - 61%.

The main reasons of large forest fires were such factors as: the transition of steppe fires in the territory of the state forest fund, due to the inefficiency of the measures taken by akimats on prevention grassland fires (62%), lack of staffing logistics base of forest protection agencies, not staffing the state forest protection.

The inventory of the fauna of Kazakhstan was completed only for vertebrates, on individual classes of which the general faunistic reports were issued. 835 species of vertebrates inhabit on the territory of Kazakhstan, including: mammals – 178, birds - 489 (396 of which nest here, the rest arrive in winter, or fly in spring and autumn), reptiles - 49, amphibians, 12 fishes – 104, and cyclostomes - 3 species. Total 107 species of fauna of Kazakhstan are included in the Annexes of the Convention CITES in Appendix I - 20 species, and 87 species in Appendix II. 125 species and subspecies of vertebrate animals, including fish - 16, amphibians - 3, reptiles - 10 birds - 56, mammals – 40 are recorded in the Red Book of Kazakhstan (Vol. 1. Animals. Part 1. Vertebrates. 3rd edition, 1996).

PP RC dated 04.07. 2004, #622 approved the second part of the Red Book of Kazakhstan (Vol. 1. Animals. Part 2. Invertebrate Animals), which included 96 species of invertebrates, including: the ringed worms - 2, molluscs - 6, crustaceans - 1, spider - 2 insects - 85.

In general, it is believed that about 50 thousands of species of invertebrates, including not less than 30 thousand species of insects belonging to 550 families and 28 orders, some beetles are not only less than 10 thousand species inhabit on the territory of the Republic of Kazakhstan.

PP RK of 31.10.2006 № 1034 approved a list of rare and endangered species of animals: mammals – 40, birds – 57, reptiles - 10, amphibians - 3, aquatic animals - 18, ringed worms - 2, mollusks - 6, crustaceans 1, arachnids -2, insects - 85.

The problem of preserving biological diversity of animals and management of their resources has become a major global priority, because of the need to conserve biological diversity to ensure the existence and further development of humanity in relation to the growing global crisis of human biosphere. One of the most dangerous manifestations of this crisis is the tendency to irreparable loss of biodiversity (species and ecosystems), which is fraught with various violations of the stability of biosphere, lower quality of the environment, poor genetic fund of wildlife, especially animals. Increasing transformation of the living environment of animals leads to changes in their distribution and numbers change their role and importance in ecosystems and the economy. Every year a growing number of animal species threatened with

extinction. The whole biogeocenoses are under the threat. However, each type of animal is a unique result of evolution, the unique combination of hereditary qualities, which makes the loss of irreplaceable genotypes.

Analysis of trends of development of zoological science in the world for its major destinations showed that biodiversity conservation and sustainable use of animals is impossible without sufficient scientific information on the composition and the current state of biodiversity and patterns of its existence, as well as scientific and methodological developments related to its study, preservation and use. Despite the great advances in the study of the animal world, too many questions fauna study, systematics, zoogeography, ecology, biology and practical importance of animals have not yet been clarified, most of the species and genera of invertebrates are still unknown to science. In this regard, performing fundamental ecological-faunistic studies of animals, including studying the current state of biodiversity of animals and trends in the world, ecology and dynamics of individual groups of animals, rare and endangered species, the impact of human economic activity and high technogenic pollution of the environment on the number of and the viability of their populations, as well as the development on this basis of scientific methods of conservation and sustainable use of biological diversity.

In order to maintain biodiversity in Kazakhstan, it is necessary to implement measures to assess the status and inventory of biodiversity, expanding the network of specially protected areas and conservation of natural populations of rare species with the help of artificial reproduction and recovery of damaged areas in the light of modern natural and anthropogenic processes, inclusion of specially protected natural areas in the country's list of World Natural and Cultural Heritage and Biosphere Reserves under the "Man and the Biosphere Program"

In order to conserve biodiversity it is necessary to form a network of state of biosphere reserves, desertification of land, reducing traffic in genetically modified organisms and products and a decrease in household consumption and production of persistent organic pollutants. Prevention and rapid elimination of consequences of emergency situations of natural and technogenic nature play a big role.

The diversity of natural conditions in Kazakhstan has led to the richness and diversity of its biological resources. The biological resources of the country are essential to its economic and social development. Biological diversity is the heritage of great value for present and future generations. Irreplaceable loss of biological diversity (at the level of species and ecosystems) can lead to irreversible violations of the stability of the biosphere. Each type of living is a unique result of evolution, which makes the loss of irreplaceable genotypes.

The reduction of components of biodiversity may be caused by natural or human influences. Natural factors affecting the components of biodiversity are strong winds, creating wither and freezing effects; atmospheric drought, which leads to evaporation of water, burning of vegetation (soil drought) and the death of animals alternating with severe frost thaws, and the volatility blow out of snow cover, resulting in the frost tree, freezing of roots of herbaceous plants, education, multi-layer ice crust on the snow cover, which occasionally leads to fodder shortage, sometimes - to the death of animals in the lowland areas, the full freezing of lakes and mass suffocation of fish in the lakes, fires, pests and disease.

Today, as never before, there is a great threat to the existence of species and ecosystems, which continue n alarming rate of species extinction due to human activities. Examples of human impacts are the destruction of natural ecosystems, unsustainable use of biological resources, unsustainable agricultural practices (overgrazing, irrational hay cutting), chemical and radioactive contamination of soil and water, violation of the hydrological regime of rivers and lakes caused by regulation of river flow, poaching, trading of species under the threat of disappearing, uncontrolled introduction of alien species of plants and animals, unauthorized felling of trees and shrubs.

The process of desertification of productive land, leading to loss of biological diversity under the influence of natural and anthropogenic factors is continuously progressing. This process is accompanied by steady deterioration of living conditions of the population and ends with the forced displacement of people in other regions. Increasing levels of poverty in society aggravates further irrational use of components of biodiversity, increased poaching and excessive logging.

## Chapter II - Current Status of National Biodiversity Strategies and Action Plans

Republic of Kazakhstan signed in 1992 and ratified the 1994 UN Convention on Biological Diversity, and in 1998 completed the development of a National Plan of Action for the Protection of the Environment (NEAP), in which biodiversity is an essential component.

National Strategy and Action Plan on Conservation and Sustainable Use of Biological Diversity of the Republic of Kazakhstan were prepared within the international Convention on Biological Diversity, its vision, goals and objectives, with financial support from the UN Development Program (UNDP) and the Global Ecology Fund (GEF).

Developing a national strategy to implement the objectives of the Convention on Biological Diversity is based on the «Strategy of Development of Kazakhstan up to 2030», which clearly identified the priority objectives and related tasks.

Overview of the components of biodiversity includes analysis of the trends of their changes under anthropogenic impact and the criteria for selection of priority protection of species and ecosystems that are endangered to disappear.

Strategic objectives were considered in the context of the priority problems of conservation in-situ, ex-situ, balanced utilization and reproduction of components of biological diversity, evaluate the existing prerequisites in the Republic for solving the tasks.

The strategy focuses on the need to improve the regulatory base, governance structure and control over the use of biological resources and organization of OOPT network.

### ***The main objectives of the National Strategy are:***

- Conservation of biological diversity in natural conditions (in-situ).
- Accounting and socio-economic assessment of bio-resource potential of the country and its balanced use according to the regulatory and legal base.
- Expanding the genetic fund, providing the genetic independence and biological security of the country.
- Creating conditions for preserving the genetic fund of varieties of agricultural plants, the number of farm animals and to optimize land farming.

The strategic objectives are defined by the requirements of the Convention, but implementation of them depends on existing economic, political, legal and institutional prerequisites. In modern conditions of destabilization of the environment, environmental policies must provide sparing, optimally balanced mode of using bio-resources and creation of conditions for restoration of lost biodiversity.

In accordance with the provisions of the Convention, the State - Party of the Convention aims to improve environmental management strategy, to assess biodiversity, identify threats to survival of species and ecosystems under anthropogenic impact.

### ***The objectives of the National Strategy***

For fulfilling requirements of the Convention on Biological Diversity and in accordance with the strategic plan on sustainable development the National Strategy provides a number of priority tasks, among which there are:

- assessment of the state and the specifics of biological diversity, as passing values and common heritage of mankind;
- identification and elimination of threats to survival of species and ecosystems under anthropogenic impact;
- The use of the sovereign rights of the state over their resources, especially their unique objects, and the responsibility for maintenance;
- establishment of the traditional dependence of local population on conservation and rational use of biodiversity, including agrobiodiversity, in order to meet the needs of the population in food, health, fuel, construction, commodities, commercial, technical, recreational and other resources;
- Identification of optimal conditions for improving the environment and reduce greenhouse effects due to the increase of CO<sub>2</sub> (carbon emissions) during conservation of biological diversity;
- Development of legal basis of removal and protection of biological resources, definition of the balance of economic and social ecology benefits during non-exhaustible use of biological resources at the regional national and local levels;

- Reducing the threat and providing conservation of biological diversity;
- Improving activities coordination system on biological diversity problems;
- environmental reconstruction and restoration of damaged ecosystems;
- providing of awareness and widespread education of local population, public non-governmental organizations about the problems of conservation and balanced use of biological diversity.

Objectives of the National Strategy on conservation and balanced use of biological diversity require a consistent, continuous action to address specific issues. According to them, action plans with fixed deadlines and work scope must be defined.

In order to improve the activities on conservation of biodiversity in a global context, it is necessary to develop and effectively participate in international programs and intergovernmental agreements.

Action Plan on Conservation of Biodiversity of Kazakhstan was developed based on the Convention on Biological Diversity, Strategy 2030 on environmental issues and methodology of the NPDOOS/UR. According to the purpose of the Strategy on Biodiversity the Action Plan aims to achieve three main objectives: conservation, balanced use and restoration of biological diversity and its resource potential. Accordingly, priority tasks were set: enforcing of protection and conservation of fragile biological diversity, improving the management system of its use, elimination of irreversible violations and restoration of ecosystems and biodiversity resources in-situ.

Immediate plans for the conservation of biological diversity provide a full inventory, monitoring of the state, improving governance, the normative and legal regulation, restoration and rehabilitation of degraded ecosystems and their components.

Strategy 2030 highlights a number of national priorities on environment, including conservation of biodiversity, also including agrobiodiversity. Action Plan on biodiversity is a necessary step towards the implementation of the Strategy 2030 considering identified biological and ecological problems of the country.

To solve the tasks on conserving biological diversity and its balanced use, it is necessary to make a specification of them on the regional and local levels, taking into account the natural and economic specifics of regions, assessment of local priorities and the risk of loss of biodiversity.

***The main criteria for identifying priority actions for conservation and sustainable use of biological diversity.***

Priority strategic objectives on Conservation and balanced use of biological diversity were determined on the basis of expert evaluation on a number of criteria:

- rare, economically valuable and ecologically important species and ecosystems, the need to complete the inventory of poorly studied parts of biological diversity;
- a high degree of biological diversity, vulnerability to external impact and degradation, resource and economic significance;
- richness of the genetic fund of potential resources for creation of stable varieties of cultivated plants and species of domestic animals (natural focus of genetic fund);
- the need to improve legal and economic preconditions for conservation of biodiversity.

Therefore during selection of specific projects for including in the action plan the preference was given to those, which met the priority strategic objectives identified by these criteria.

Belt and island pine forests, wild fruit and tugai forests, mountain woodlands, dry steppe on black soil, rare desert ecosystems, river and lake ecosystems.

The Action Plan focuses primarily on addressing common environmental transboundary and national issues, as well as the priority fundamental problems of completion of the inventory, improving management and organization of monitoring.

Action Plan on Conservation and Balanced Use of Biological Diversity in the coming period combines 27 projects in six sections: inventory, conservation, balanced use, control, the institutional basis and strengthening of international relations.

The National Strategy and Action Plan on conservation of biodiversity is an essential component of NPDOOS, which is a tool for implementing long-term strategy -2030 «Ecology and natural resources».

Adoption of the Strategy - 2030 creates objective prerequisites for successful implementation of the Convention on Biological Diversity.

The National Strategy and Action Plan on Conservation and Sustainable Use of Biodiversity of Kazakhstan was developed and approved in 1999 by the Ministry of Natural Resources and Environment of the Republic of Kazakhstan. However, this document was not considered directly by the Government of the Republic.

It is believed that many of the provisions in the National Strategy and Action Plan on Conservation and Sustainable Use of Biodiversity in Kazakhstan belong to the sphere of activities of various ministries and departments, not subordinate to the former Ministry of Natural Resources and Environment, therefore, recording of regulations of this document in the sectoral plans is weakly expressed.

Ministry of Environment of the Republic of Kazakhstan is a central executive body of the Republic of Kazakhstan, exercising leadership, cross-sectoral coordination and execution functions in the field of environmental protection. The Ministry has territorial authorities in the organization and legal form of public institutions - regional and Astana and Almaty cities Management of the Environment and the Republican Inspectorate.

Ministry of Agriculture of the Republic of Kazakhstan is a central executive body of the Republic of Kazakhstan, administers, as well as within the limits prescribed by law, cross-sectoral coordination and implementation of state policy in the sphere of agriculture, forestry, fishing and hunting, especially protected natural areas, water management, resources, flora and fauna of the country, in the field of agricultural engineering, veterinary, phytosanitary, livestock breeding, land reclamation, irrigation and drainage, the manufacturing industry in terms of food production.

Therefore, the issue on revising National Strategy and Action Plan on Conservation and Sustainable Use of Biological Diversity with the subsequent approval by the Government of Kazakhstan is brought up in the agenda.

The system of long-, medium-and short-term development priorities were formed during reforming years in the Republic of Kazakhstan. Environmental management and environmental protection are included in development priorities. It is vested in strategy documents - «Kazakhstan - 2030», «The scheme of development and deployment of productive forces of the Republic of Kazakhstan for the period up to 2015», «Strategic Plan for the Republic of Kazakhstan up to 2010», indicative five-year plans for socio-economic development of Kazakhstan, Government Action Plans and Programs, National Plan on Environment Protection, annual messages of the President.

A number of major national papers, such as: Strategic Plan for the Republic of Kazakhstan to 2010, The concept of ecological security of Kazakhstan for 2004-2015, «Concept of Transition of Kazakhstan to sustainable development in the years 2007-2024» cover the conservation and sustainable use of biological diversity.

Strategic planning is used by developed countries and large multinational companies to increase their competitiveness. Using their experience in surviving in the modern world, Kazakhstan should strengthen the role of the state and the strategic planning of its development. Without a clear strategic plan, the state loses the ability to realize its purpose.

However, strategic plans should not become a frozen dogma and be a flexible tool of state regulation of the socio-economic development. This means that the 10-year strategic plan should be reviewed annually in terms of implementation and adjusted to the evolving internal and external environment.

**«The Strategic Plan for the Republic of Kazakhstan to 2010»** is the base for the development of strategic plans of ministries and agencies, national companies, regions, cities of Astana and Almaty.

The purpose of the section «on Environment Protection and Natural Resources» is stabilization of the environment.

The Plan provides solving of the following strategic objectives in the field of environment and natural resources: reducing the deficit of water resources, improving water supply to improve existing legislation and to foster international cooperation to optimize the system of nature conservation and environmental protection, improving waste management, ensuring environmental education.

**«The concept of ecological security of the Republic of Kazakhstan for 2004-2015»**

(Approved by the Decree of the President of 3 December 2003, N 1241) has been developed on the basis of the priorities of the Strategy "Kazakhstan-2030" in accordance with the Strategic Plan of Development of Kazakhstan up to 2010 and taking into account the main provisions of Agenda of XXI century and the principles of the Rio Declaration on Environment and Development in 1992, as well as the World Summit on Sustainable Development in Johannesburg (2002). Providing an optimal level of environmental safety regulations with the achievement of environmental indicators suggests a phased implementation of the concept.

The first phase (2004-2007) - reduction of pollution of environment and development of an action plan on its stabilization.

The second phase (2008-2010) - stabilization of environmental quality indicators and improvement of environmental requirements to environmental management.

The third phase (2011-2015) - Improving the quality of the environment and achieving a favorable level of environmentally sustainable development of society.

The goal of public policy in the field of environmental security is to ensure protection of natural systems, vital interests of society and individual rights against threats arising from man-made and natural impacts on the environment.

To achieve this goal, it is necessary to solve the following tasks: reducing human impacts, leading to climate change and destruction of the ozone layer, biodiversity conservation and prevention of desertification and land degradation, rehabilitation of ecological disaster zones, ranges and military space and testing facilities, prevention of pollution of the Caspian Sea shelf, preventing depletion and pollution of water resources, elimination and prevention of historical pollution, air pollution, radioactive, bacteriological and chemical contamination, including cross-border; reduction in the accumulation of industrial and domestic waste; prevention of emergency situations of natural and technological character.

The task is achieved by: improving and systematizing legislation of the Republic of Kazakhstan, economic mechanisms of environment management, state ecology control and ecology monitoring, allowing optimization of natural resources and environmental expertise, development of scientific-research work in the field of environmental protection, environmental statistics, environmental education, environmental advocacy and public participation, enhanced international cooperation.

In order to maintain biological diversity in Kazakhstan it is necessary to implement measures to assess the status and inventory of biodiversity, expanding the network of specially protected areas and conservation of natural populations of rare species with the help of artificial reproduction and recovery of damaged areas in the light of modern natural and anthropogenic processes, particularly inclusion of protected natural territories of the country in the list of World Natural and Cultural Heritage and Biosphere Reserves under the "Man and the Biosphere" Program.

Considering the special ecological, scientific, recreational, aesthetic and cultural importance of forests in Kazakhstan, which cover the entire 4.2% of the territory of the republic, as well as their global role as a natural reserve of biological diversity urgent measures on transferring them to the system of specially protected natural areas should be taken.

Lately, delivery of genetically modified organisms and products widely spread in the world is a real external threat for Kazakhstan. Considering the risk of widespread dissemination throughout the world of genetically modified organisms and products, the Cartagena Protocol on Biosafety of the Convention on Biodiversity was opened for signing.

Implementation of the provisions of this concept will ensure the safety of the environment, the contents of it at a certain level of sustainability, capacity for self-preservation and the diversity of animate and inanimate nature, including the genetic fund of living organisms, on the verge of extinction.

**The Concept of Transition of Kazakhstan to Sustainable Development for 2007 - 2024 years** was approved by Decree of the President of the Republic of Kazakhstan dated 14 November 2006. The concept is an important tool to implement the long-term development strategy to 2030 and the task of joining one of the fifty most competitive countries in the world.

The main functional areas of sustainable development are: solution of global environmental issues (combating desertification, biodiversity, climate change and preserving the Earth's ozone layer), the use of new environmentally sound technologies, radiation and

chemical safety and waste management, access to drinking water and address transboundary environmental issues.

The concept would increase the environmental sustainability index to 10% by 2012, 15% by 2018, 25% by 2024

This target will be based on: implementing a transregional ecosystem on achieving sustainable development in the regions of Kazakhstan; setting targets for sustainable development for all major industrial and energy facilities in determining the timing and mechanisms of transition to the best available technology, combating desertification, conservation of ecological systems, landscape and biological diversity, and so on.

«Environmental sustainability» provides the following mechanisms for the transition to sustainable development: conservation and restoration of the natural environment of reducing the adverse effects of the environment on human health, prevention of environmental emergencies and environmental terrorism, control over the use and spread of genetically modified organisms, preventing the entry or penetration of self-quarantine and alien harmful organisms, economic instruments of environmental protection.

As of today the following state programs in the field of biological diversity were realized: the program «The forests of Kazakhstan» for 2004-2006, the program «Development of Fisheries of the RK» for 2004-2006; Program «Protection of the Environment of the Republic of Kazakhstan» 2005-2007; program «Preservation and restoration of rare and endangered species of wild ungulates and saigas», 2005-2007.

**«Program of the Government of the Republic of Kazakhstan for 2007 - 2009 years»**  
(Approved by the Decree of the President of the Republic of Kazakhstan dated April 6, 2007 #310)

Priorities of the Government of the Republic of Kazakhstan were formed on the basis of the messages of the President of Kazakhstan dated 1 March 2006 «Kazakhstan on the threshold of a new leap forward in its development» (strategy of Kazakhstan in the number of fifty most competitive countries in the world) and «New Kazakhstan in the new world» dated 28 February 2007, the Concept of Transition of Kazakhstan to Sustainable Development for 2007 - 2024 years.

The strategic objective of the Government in the medium term is to increase competitiveness of the country, based on principles of sustainable development.

Maximum government efforts will be directed at creating favorable institutional and economic conditions to improve the international competitiveness of Kazakhstan and the quality of life for its citizens.

Priority directions of the Government of the Republic of Kazakhstan for 2007 - 2009 years were determined for achieving this objective.

The purpose of the section «Environment management and protection» is on rational and efficient use of natural resources by creating conditions for the transition to sustainable development and environmental protection on the basis of the balance of economic, social and environmental aspects of improving the quality of life.

The objectives of the Program include: creating an effective mechanism for implementation in the planning of socio-economic development and sustainable development principles, to create conditions for sustainable management of natural resources, including water, forests, fisheries, flora and fauna, specially protected natural areas; reduction of emissions into the environment by establishing targets and quotas, implementation of provisions of the Environmental Code, introduction of environmental-economic incentives, enhance the role of Kazakhstan in promoting cross-border and international cooperation in environmental issues (land degradation, biodiversity, etc.) and save the environment.

To create conditions for sustainable and rational use of water, forest, fisheries, flora and fauna, specially protected natural areas the following will be implemented:

revision of the existing regulatory system and the distribution of flow of rivers, based on scientifically-based interstate, national and regional water resource management;

development based on existing and emerging policy instruments set up for the conservation and rational use of water resources, forests, flora and fauna;

development and promotion of introduction of water saving technologies, recycling and closed systems, water and waste water technology in basic industries and agriculture;

development of a system of specially protected natural areas with the establishment of three state parks, two state nature reserves, expansion of existing areas of the four nature reserves, three state national parks;

active involvement of private capital in the process of protection and reproduction of water, forests, fisheries and wildlife, increasing the responsibility of using natural resources in these areas, improving public access to environmental information, public participation in decision-making, strengthening cooperation with NGOs.

To enhance the role of Kazakhstan in promoting cross-border and international cooperation in matters of ecology and conservation of environment the cross-border area of sustainable development, inter-state agreements will be set up, and the program based on the principle of the basin will be implemented, primarily in the Balkhash-Alakol, Zhayik Caspian, Irtys area.

As a result, the access of the population of Kazakhstan to safe drinking water will increase to not less than 15% by 2009.

The territory of the state of nature-reserved fund of the Republic of Kazakhstan will increase to at least 1 232.6 thousand hectares.

The annual volume of work on reproduction of forests and forestation will reach 45 thousand hectares.

Emissions to the atmosphere will reduce by 20% per unit of GDP, in water bodies - 12%, placed waste - 14%.

The share of alternative and renewable energy sources will increase.

The index of environmental sustainability will reach 68 points

The relative rate of companies certified in compliance with standard ISO: 14001 companies will reach about 1 in 10 million dollars of GDP.

The average index of air pollution in major cities will fall by 21%.

The volume of toxic waste, placed in the environment, will decrease by 8%. Environmental situation will improve and conditions for the decision "historic" environmental problems will be created.

**Program “Protection of the Environment of the Republic of Kazakhstan in 2008 – 2010”** is designed in accordance with the concept of ecological security of the Republic of Kazakhstan for 2004 - 2015, as approved by the Decree of the President of the Republic of Kazakhstan on 3 December 2003, #1241.

The program held analysis of the current environmental situation in Kazakhstan and developed measures to improve it.

The program will be implemented in accordance with the basic priorities of the country's transition to sustainable development, including: prevention and reduction of environmental threats to human health, combating desertification, preserving biodiversity, reducing emissions, including greenhouse gases and ozone-depleting substances, access to safe drinking water , addressing transboundary environmental issues, radiation safety, waste management.

Currently, the most severe environmental problems in Kazakhstan are still problems associated with climate change and ozone depletion, biodiversity loss, desertification, water pollution, air, accumulation of waste production and consumption.

Problems of biodiversity conservation in the country are still relevant. Among the rare endemic and relict species that need protection, there are over 400 species of plants and 300 species of vertebrates, much of which is on the brink of extinction.

Extreme level of degradation is observed at 26.6 million hectares out of the 188.9 million pastures of the country. Pastures and hayfields adjacent to rural settlements undergo the greatest degradation, which results in the reduction of space, clogging with noxious plants, shrub invasion. Salinization of irrigated land is also a cause for the growth of saltmarsh areas in the inland desert basins and secondary salinization. The proportion of saline soils is 31.3% of the entire area of irrigated arable land. There is a steady deterioration in the quality of the land in the republic: reduction of humus, nutrients, species composition of vegetation, biological productivity.

As a result of the program on comprehensive solution of the problems of the Aral Sea region in 2004 - 2006, the level of the northern part of the Aral Sea reached 41.4 meters on the Baltic system, while prior to the start of the project it was 39 meters. In this area the water table has increased from 2606 to 3156.6 square km, the volume of water - from 17.7 to 25.2 cu. km,



and mineralization of water has decreased from 23 to 12 grams per liter. The capacity of Syr Darya River and the lower Kazalinsk Kyzylorda hydrosystem have increased.

In general, despite the measures taken by the environmental situation in the region still remains quite difficult, thus affecting the health of population. For addressing the problems of the Aral Sea region the program on solving the problems of the Aral Sea region for 2007 - 2009 was approved by the Decree of the Government of the Republic of Kazakhstan dated 26 September 2006.

Studies performed in *the Program "Protection of the Environment of the Republic of Kazakhstan for 2005 – 2007"* show that oil companies significantly worsened the environmental situation of several areas of the Caspian Sea during over a 100-year development of oil and gas fields in Kazakhstan. Contamination of soil, and numerous barns and oil wells on the coast, as well as the tanker fleet are the main sources of toxicants in waters of the Caspian Sea.

Health of population, four generations of whom reside permanently in the zone of active pollution of the atmosphere, soil and water with oil products cause a serious concern in oil production areas. There are studies on the relationship of several diseases with oil contamination, for example, the incidence of blood and blood-forming organs (2 - 4 times higher of the republican showings). There are also significant changes in the life of the ichthyofauna of the Northern Caspian Sea, which is one of the reasons of tree-times decline in output of sturgeon fish.

All these facts require the attention of public authorities to environmental problems of the Caspian Sea region of Kazakhstan. In the context of the ratification of the Framework Convention on Protection of the Marine Environment of the Caspian Sea (November 4, 2003) by Kazakhstan in accordance with the Law of the Republic of Kazakhstan dated 13 December 2005 and its entry into force on 12 August 2006, the responsibility of our country to stabilize and improve the environment of the Caspian Sea has significantly increased.

The process of reforming the law of the republic in the field of environmental protection is ongoing. *Environmental Code of Kazakhstan*, adopted on 9 January 2007, introduced significant changes to the environment protection system adopted in Kazakhstan. Effective economic levers, which are a powerful factor in the regulation of economic activity for the use and protection of natural resources, prevention of environmental violations, and promotion of the introduction of new technologies must replace command-and-control approaches, the old system of rationing, priority of penalties. Environmental Code defines the legal basis of public policy on environmental protection to ensure balanced socio-economic problems, preservation and restoration of the environment, biodiversity and environmental security.

As part of research to address issues of biodiversity conservation it is planned to perform a complete environmental research in the Shchuchinsk-Borovoye resort area to determine the ways of its sustainable development, to conduct a study to develop a model of protection of monuments of nature for sustainable development on the example of the object of paleontological monument of nature «Goose flight».

In order to preserve biological diversity synthesis of the Convention on Biological Diversity in the Republic of Kazakhstan for 1992 - 2009 years is planned, which will enable assessment of the impact of the conservation of living heritage of the country, develop a strategy for international cooperation in issues of conservation and sustainable use of biological resources.

Based on the assessment of the current status of rare, endemic, relic species of flora and fauna in Western Kazakhstan, endangered species, a set of measures for the conservation of the living heritage of Western Kazakhstan will be developed.

It is also planned to develop biotechnological methods of reproduction, recovery, long-term cultivation and reintroduction of wild apple trees to preserve the genetic fund of forest species of apples.

Environmental assessment of biodiversity in the Northern Kazakhstan will be performed and actions on its conservation will be developed.

Studies started in 2007 on the pyrogenic vegetation changes on the ground pine fire of Bayanaul State National Natural Park, landscape studies of Bayanaul State National Natural Park (geoecological assessment of the condition, management and protection), as well as research on sustainable development Bayanaul State National Park will continue.

With a projected increase in production the program will allow to work out and test the mechanisms of management of the environment, to slow its deterioration, stabilize the single most dangerous processes and trends. Planned achievement of the targets of sustainable development by 2010 will be provided in the area of reducing the environmental impact on the environment and the development of environmental infrastructure.

An analysis of experts (Project PRRON / GEF project «Evaluation of the national potential of Kazakhstan on implementation of international conventions») revealed the presence of 4 major groups of barriers to the implementation of the CBD in Kazakhstan, which is observed at all three levels: systemic, institutional and individual.

1. Imperfection of management of biodiversity.

At the system level – it is determined by the existence of gaps in legislation, adverse changes in legislation and inadequate enforcement.

Gaps in the legislation. At the system level it is determined by the lack of a number of areas for protection and use of biodiversity, in particular, the fauna and fishery resources.

Inadequate enforcement of legislation. Provides a general negative impact on the processes of conservation, study and use of biodiversity.

At the institutional level:

The lack of approval of the National Strategy and Action Plan for the BR (NBSAPs). Leads to non-development of the public policy in the field of conservation, restoration, study and sustainable use of biodiversity. As a consequence - the weakening of state influence on the processes associated with the use and protection of wildlife and agro-biodiversity.

The lack of a clear division of powers between the state authorities to create stalemate in some cases connected with the performance requirements of various nature managements.

The lack of inventory and monitoring of biodiversity. Entails a lack of information for decision-making at the state level. Written programs are not a shell of themselves and can not be a productive step, without content, deriving from the work of the monitoring system of biodiversity.

The lack of a proper level of specialized agencies for the protection and use of biodiversity. A weak influence of public authorities responsible for biodiversity conservation in the decisions taken by the Government, particularly in the field of fisheries and management of protected areas. Raising the status of the bodies responsible for these areas would more strenuously lobby the interests of these areas at the governmental level.

At the individual level:

The low level of managerial and scientific personnel. Finally results in taking a low quality level of the environmentally important decisions at the state level.

The reluctance of certain officers to perform duties for the implementation of the CBD. Influence in decision-making in specific cases. Brings to undermining of the trust to public bodies of the performers and nature users.

2. Business disinterest in implementing the CBD. There is a one barrier at the system level: Gaps in the legislation to attract private capital to the process of reproduction and protection of biological diversity. Lead to a significant reduction in financial resources for conservation, reproduction and restoration of biodiversity. The high tax collection, which does not comply with the importance of the problem, discourage businesses structures from development of activity in this field. Currently there is only one private nursery for breeding of wild species. Problems at the institutional level are identical to the first group of the second barrier (lack of clear lines of authority between the state bodies).

At the individual level:

Corruption among government officials. A nationwide problem, which leads to the undermining of trust in the state, and not only in the field. Results in braking of implementation of protection, restoration and use of biological diversity.

3. Weak participation of civil society in processes of preservation, restoration and use of biological diversity. At the system level there are two major barriers, severely limiting the capacity of civil society in the process of participation in the CBD: Weak public awareness on biodiversity issues. Failure of information by state bodies. Leads to environmental nihilism of population, reduces the effectiveness of the work of both government and public associations.

At the institutional level:

The absence of a body coordinating the efforts of state and civil society for biodiversity conservation. The present situation leads to differences in priorities, isolated actions and dispersion of funds between state and voluntary associations on conservation and use of biodiversity. Weak interaction within NGOs working in the field of biodiversity conservation. The lack of consolidation among public organizations do not allow them to more actively influence the processes of implementing the CBD in Kazakhstan.

#### 4. Problems of international cooperation.

At the system level, the prevalence of international cooperation in the Central Asian region. In this case, Kazakhstan is the only contributor to technologies and ideas that is not a win-win process and weakens the scientific, technical and research exchange. At the same time, mutual relations with the major technological powers-neighbors - the Russian Federation and China is not well-developed.

### **Chapter III - Sectoral and cross-sectoral integration or mainstreaming of biodiversity. Considerations**

Kazakhstan, as a party of the UN BR Convention ensures close collaboration of national and sectoral programs, as well as international conventions and agreements for successful execution of its obligations on conservation and sustainable use of biological diversity.

During 2006-2008 Kazakhstan has adopted a number of government documents, aimed at ensuring the environmental sustainability of the national economy, developing new environmental-balanced policy of the government, business and NGOs, enhancing cross-sectoral partnerships: The concept of transition to sustainable development of Kazakhstan up to 2024, the Environmental Code of the RK "On Specially Protected Areas" and others. International environmental conventions, which help to reduce environmental pollution and conserve biodiversity, were ratified.

MEP RK is the central executive body responsible for management, intersectoral coordination in development and implementation of state policy in the sphere of environmental protection and environmental management in the territory of Kazakhstan.

In order to strengthen inter-agency coordination among ministries and agencies in the field of environmental protection the Interdepartmental Commission on stabilization of the environment (hereinafter - Commission) was created and its position was approved by the Decision of the Government of the RK #777 dated 1 August, 2003. The Commission is an advisory body under the Government of the Republic of Kazakhstan. Its membership includes heads of Ministry of Agriculture, MEP, MEMR, KLOH and CWR MA, representatives of MH, MES, AUZR, AS RK. MEP RK is the working body of the Commission.

#### ***Information on implementation of the National Plan of the main directions (actions) for the implementation of the annual 2005-2007's messages of the Head of State to people of Kazakhstan and the Program of the Government of the Republic of Kazakhstan for 2007-2009.***

For the purpose of execution of the Concept on ecological safety of Kazakhstan for 2004-2015 and the Action Plan on its implementation, a draft of the Law of RK «On ratification of the Cartagena Protocol on Biosafety to the Convention on Biological Diversity» was developed.

The Cartagena Protocol applies to the transboundary movement, transit, handling and use of all living modified organisms, which may have a negative impact on biodiversity.

The Head of State signed the Law of the RK (# 43-IV dated 17.07.2008) "On ratification of the Cartagena Protocol on Biosafety".

Kazakhstan recognizes the biological safety as an essential component of the Convention on Biological Diversity. Due to this the Cartagena Protocol on Biosafety is evaluated positively.

Realizing that the development of biotechnology will allow solving a number of industrial-technological, environmental and socio-economic problems, as in the short term, and in the strategic plan, the government adopted and implemented a series of public programs on biotechnology (Development and improvement of biotechnology of saving genetic resources of high-productive breeds of sheep of Kazakhstan and creation of cryo-bank of germplasms; evaluation of biological diversity ex situ collections of local populations of species - congener of wheat, oats, barley tribe Triticeae Dum; Development of Biotechnology on creation of transgenic wheat plants with high photosynthetic activity and productivity basing on genetic engineering techniques, and etc.)

For the agriculture of Kazakhstan, with its many sharply contrasting ecological zones (high-risk farming) biotechnological approaches will play an increasingly important role in the selection process. This is worth noting that, despite the increasing level of development of modern biotechnology, as well as benefits of it, the basis of policies on biosafety in the Republic of Kazakhstan is the adoption of actions aimed at creating an adequate protection of the environment and public health from possible adverse effects, as well as guarantee the safe use of modern biotechnology.

In order to ensure food safety for human life, human health and consumer protection in the territory of the Republic of Kazakhstan the Law of the Republic of Kazakhstan «On food safety» dated 21.07.2007 #301-III ZRK was taken.

16 bylaws and over 20 technical regulations will be developed for implementing this Law. These regulations will be governed by mandatory rules on the security requirements of different types of food, feed and feed additives, agricultural machinery and equipment.

In terms of a system of risk assessment, safety and quality control of agricultural products in accordance with international requirements the Decree of the Government of the Republic of Kazakhstan «On approval of the action plan on creation of a system of risk assessment, safety and quality control of agro-industrial complex in accordance with international requirements» dated 24.09.2007, #828 was approved.

*Agriculture ministry held a preliminary analysis of measures of state support of agriculture and made recommendations on new mechanisms to stimulate development of agro-industrial enterprises.*

As new mechanisms to stimulate development agriculture complex the following measures of state support are recommended.

In order to prevent land degradation, enhance the efficient use of water, vegetation and other natural resources of the country, for improving the rangelands it is offered to develop an action plan on: the organization of territories and the introduction of pasture rotation; the radical and surficial improvement of low-productive rangelands; development of soil protection crop rotations and pasture rotations, which provide restoration of soil fertility while making optimal use of chemical and biological methods.

In this regard the following is required: an assessment of vulnerability of the territory of Kazakhstan to desertification processes with the mapping of desertification (with improved methods of determination) and land degradation (erosion, salinization, etc.), study and assessment of biodiversity on degraded lands. Implementation of these activities requires a many years' field survey on the basis of large-scale soil, geobotanical, soil reclamation and other surveys and studies.

More than 60% geobotanical surveys were done before 1986. Volume of exploration work performed in recent years is clearly insufficient to maintain the necessary information base in order to conduct a full inventory on quality of soil and forage land. In this respect, extensive use of modern distance methods and technologies in the study and mapping of land, with the use of space survey is required.

In order to guarantee water supply and improve water use efficiency, it is necessary to adopt and implement a set of measures for water conservation, rehabilitation of water resources and minimize unproductive water losses in all fields of the economy, introduction of a revolving water supply at industrial enterprises, improve technology and equipment, bringing the ratio of water use per unit of production to the level of developed countries in the world.

For comparison, the ratio of the efficiency of irrigation systems in the Republic of Kazakhstan does not exceed 50%, while in developed countries; it is within 75-80%. Irrigation norms of crops, on average, in the southern areas are 10-12 thousand cubic meters per hectare, and rice – 25-30 thousand cubic meters per hectare. For irrigation of these crops not more than 5 thousand cubic meters per hectare is spent in the developed countries. This shows the large reserves and unused opportunities in water supply for agriculture of the country.

Currently, the Ministry is taking steps to improve the efficiency of water use, for example: the first phase of the project «Regulation of the course of Syr-Darya river and the preservation of the northern part of the Aral Sea - Phase 1 (RRSSAM-1) was implemented in 2008.

Total cost of the project RRSSAM (Phase-1) is 85.79 million U.S. dollars. Financing of the project is being funded at the cost of the World Bank loan (64.5 million dollars) and co-financing from the national budget in amount of 21.29 million U.S. dollars.

The first phase of the restoration of the Aral Sea began in 2002. First, the Aral Sea was divided into northern and southern parts. Then several dams and hydrosystems were reconstructed, Syrdarya river course was strengthened. The main task was completed - a network of modern storage bands to regulate the water level was made.

At the stage of implementation of the project (Phase 1) significant environmental and socio-economic effect was achieved. Thus, with completion of the dam in the northern Aral Sea, in April 2006, the water level raised reaching up to 42.0 meters, additional 870 sq km of dried seabed was covered with water, volume of water in the Small Aral increased to 11.5 km<sup>3</sup> and the accumulation of the project volume (27.1 km<sup>3</sup>) of water, salt water has decreased from 23 to 17 grams per liter. Besides, the effect of industrial fishing will increase from 0.4 to 11.7 thousand tons, while in 2006, the fishing was close to 2.0 tonnes. Also, reserves of local fish species will increase, and favorable conditions for the breeding of sturgeon species will be created.

Due to the reconstruction of hydrosystem Aklak the capacity of the facility increased from 60 to 400 m<sup>3</sup> / s; water production in the northern Aral Sea will increase; the area of flooded lake systems will reach 6260 hectares, hayfields - 7000 hectares, erosion of the course of Syr Darya river will be suspended; wetlands and biodiversity of Aral Sea will recover.

Fulfillment of works on the hydrosystem Aitek helped to increase the capacity of the river Syr Darya in the winter period from 300 to 800 m<sup>3</sup> / s, increase water supply to 15,3 thousand hectares of irrigated land, the Aral Sea water inflow, stabilize the course of Syr-Darya river and reduce the risk of flooding of Kyzylorda city and rural settlements.

The second phase of the program, the aim of which is preservation and restoration of the Aral Sea will start in 2009. Works are being conducted in collaboration with the World Bank. International structure will provide a loan of 85% of expenses. It is planned to raise the water level of the sea to 46 meters (according to the Baltic system) with sea water summing to the city of Aral, to proceed with the construction of protective dikes in the second phase of the project.

As a result of the second phase the threat of flooding of human settlements will be removed by increasing the capacity of the river up to 700 cubic meters per second. This means that the lake system of the region and the small Aral will be provided with water. In addition, implementation of the project will provide sustainable development of fishing industry and agriculture. As a consequence, this will serve to further improvement of the environment, mitigating the negative impact of the environment and improving the socio-economic situation in the Aral Sea region.

#### *Proposals on improving the efficiency of utilization of natural resources.*

State Forest Fund (hereinafter - SFF) of the RK on the data of the Forest Fund as of 01.01.2008 year is 27,783.0 hectares or 10.2% of the territory of the republic. Land covered by forest takes 12,289.7 ha or 44.2% of the total land area of SFF, forest cover - 4.5%. According to this figure Kazakhstan is referred to forest-poor countries.

The Decision of the Government of the Republic of Kazakhstan dated 23 April 2004, #460 prohibit felling of primary use in saxaul and softwood plantations on sites of State Forest Fund of Kazakhstan for 10 years.

According to article 31 of the Forest Code of the Republic of Kazakhstan, forest resources shall be transferred to forest managers on the area, which does not exceed the area of forestry. When lands of the state forest fund is allocated for logging activities, the forest manager shall have fixed forest felling volumes to provide continuous and sustainable use of wood resources.

Forest resources in lands of state forest fund were transferred for the long-term forest management for timber harvesting in the East Kazakhstan, Kostanai, West Kazakhstan, North Kazakhstan oblasts.

Forest resources in areas of state forest fund in the specified regions were transferred to 88 forest managers for the long-term forest management for timber harvesting in the area of 105,8 thousand hectares with a volume of 361,840 cubic meters.

On the basis of Article 18 of the Forestry Code of the Republic of Kazakhstan, the main task of public institutions of Forestry (hereinafter - state forest owners) is to implement actions on protection, reproduction of forests and forestation.

Felling in the lands of state forest fund by state forest owners is carried out in forestry purposes, i.e. to improve the health of forests and care for them (other fellings), increase productivity, protective and other useful properties of forests (inter - use felling).

In this regard, in volumes of forest fellings of 1709452 cubic meters were approved for state forest owners. Meanwhile 1060653 cubic meters were cut.

Providing local population with fuel wood by state forest owners is carried out at the cost of inter-use cuts and other cuttings.

The Republic of Kazakhstan has huge potential of natural resources, great variety of species of fauna. 34 species of mammals and 59 species of birds are the object of hunting on the territory of Kazakhstan.

Hunting grounds in the Republic of Kazakhstan take the 243.7 million hectares, 105.7 million hectares (43.3%) of which were assigned to the 608 hunting farms on 1 November 2007, the remaining land is for common use.

The issue on preservation of the unique fauna of Kazakhstan is becoming more important year by year; meanwhile the important meaning is given to the development of hunting farms, in order to attract private capital for the protection and reproduction of animals.

In this purpose a legal base on protection and reproduction of animals was created in the republic. A Law of the Republic of Kazakhstan «On protection, reproduction and use of animal life» (hereinafter - Law) was taken, for implementation of which 30 legal acts were developed and adopted.

During 2004-2005 works on the inter-farm hunting and hunting economics survey in all 14 areas were performed for the first time in the latest 20 years and materials, on which the regional territorial management of forest and hunting economy, together with the regional executive bodies hold contests to secure the reserve fund of hunting ground. As a result, more than 200 hunting farms were assigned on a competitive basis in 2006-2007.

With the adoption of the Law the system of long-term assigning of hunting grounds from 10 to 49 years was changed. This provision allows hunting users to invest funds and to attract investment in the development of hunting.

Protection of animal life in the hunting grounds was strengthened by hunters' service. Determination of legal status of hunters' service organizations, giving them the right to make protocols on poachers, gave a new direction in ensuring protection of animals.

Steps to streamline the system of accounting of the number of wild animals were taken in 2005. Distribution of animals seizure limits is carried out only on the basis of records of hunting management organizations on assigned hunting grounds, eliminating the previous approval system of limits on hunting animals and in the reserve fund.

Committee of the Fish Industry of the Agriculture Ministry continues to reform the industry, transformation of the approach to development of fish resources, introduction of market relations and approximation of them to the requirements of international standards.

According to the results of competitions almost a thousand users of fish resources were assigned 1 466 reservoirs and sites of international, national and local importance for 10 years period during 2006-2007. This is more than 90 percent of their total number. These sites are protected by more than 1 400 rangers fisheries management organizations. This kind of arrangement allows involving the tenants in the development of farms and guarantee access to fish resources for the long term. As a result users have already allocated some 130 million tenge for the activities on reproduction of fish resources, for the research - more than 50, for technical and technological rearmament - one billion 751 million tenge. These figures show that the chosen direction is correct.

With increasing investment in the fishing industry the level of development of the approved limit of fishing has dramatically increased. For example, in 2007 tons were caught 49.2 tons, while the limit was 50.5 thousand. For the first time since getting the independence, the development was 97 percent.

Development Institute - JSC "KazAgroFinance", "Agrarian Credit Corporation" and "The Development Fund for small business" - funded 19 projects in this area in 2006-2007. Loans in amount of more than 2.5 billion tenge were given to enterprises of the fishing industry.

Improving the competitiveness of the industry based on sustainable functioning of fisheries complex at the cost of conservation, reproduction and rational use of water biological resources of natural water reserves, creation of conditions for development of commercial fish farming were identified as the concept of development of fish farms for 2007-2015 with the purpose of development of fisheries. The objective is to achieve the volume of the cultivation of sturgeon up to 10 thousand tons by 2015.

Experts believe that it is promising to develop aquaculture in Kazakhstan. Commercial fish farms are located in five zones, which allows growing both cold and warm fish species in different areas of the country.

Government Decision #57 dated 25 January 2007, approved the “Republican scheme of acclimatization and growth of fish number in small waters». Along with increase of fish number in major reservoirs, ponds and facilities, water reservoirs and acclimatization and fish number increased objects of small ponds are also identified in the scheme. In addition, funds for development of recommendations on development of commercial sturgeon breeding were allocated in the budget for 2008. Biological ground for construction of new sturgeon plant will be developed. As soon as it is started the prospect of development of one of the important commercial fish breeding will appear.

Fish-reclamation works were held in the Kigach River mouth in 2007 in view of creating conditions for conservation and development of valuable fish species in reservoirs and replenish their fishery stocks. Fish was able to get to spawning and feeding grounds. As part of the budgetary program “Reproduction of fish resources” stocks of fish were replenished by increasing the number of fish in 35 fisheries reservoirs of the country with valuable fish species. Seven million sturgeon, 55 million larvae of carp, 70 million of whitefish, nearly 37 million cyprinids were bred and released.

For improving the efficiency of work of the sector enterprises, equipment amounting to 83 million tenge was purchased. The budget allocated more than 326 million tenge for strengthening of the basis of the regional bodies on protection of fishery resources. Annual studies on the state registration of fish resources and other aquatic animals, as well as inter-state studies of fish stocks of the Caspian Sea were performed.

Currently the draft of the Law of the Republic of Kazakhstan «On amendments and addenda to some legislative acts of the Republic of Kazakhstan on issues of fisheries», developed in accordance with the concept of fisheries development was brought to the Majilis of the Parliament of the Republic of Kazakhstan.

The draft of the Law provides a legal basis for the marine, coastal, recreational, sporting, scientific, reclamation and other types and methods of fishing and other aquatic animals, the improvement of the rules governing the use of animal world, development of aquaculture, as well as more efficient use of water and other natural resources.

In this regard, for the successful development of the fishery it is necessary to create conditions for the development of fishing, fish processing enterprises.

One of the main tasks in the field of environment protection and nature management is increasing the forest area, preservation and rational use of flora and fauna.

Due to this specialized program on greening the country was developed. It identifies the main objectives and tasks to increase tree-planting activities, planting of settlements, and ultimately increase of the forest area with the involvement of youth in these processes.

*“Zhasyl el” program for 2005-2007* (Decision of the Government of the RK dated 25 June 2005 #632) has been developed in pursuance of paragraph 16.1.2. of network schedule of execution of activities of the National Plan on implementation of the Message of the President of Kazakhstan, dated 18 February 2005.

Relevance of program development is conditional to the presence of the priorities identified by the Strategic Plan of Development of Kazakhstan till 2010, approved by Decree of the President of the Republic of Kazakhstan dated 4 December 2001 #735 “On further measures for implementation of the Strategy of Development of Kazakhstan up to 2030”, where the following strategic objectives relating to forest conservation are determined for the next ten years in the field environment protection: improvement of existing legislation, optimization of nature management and environment protection systems, providing environmental education, as well as challenges in stabilizing the socio-political situation, as the consolidation of the Kazakhstan society.

In view of preserving forests and biological diversity within the program two international projects were realized.

*The project of the Global Ecology Fund “Conservation of biodiversity of Western Tien-Shan”* provide strengthening the protection of unique biological communities and expansion of extra-protected natural areas in the South Kazakhstan region.



The project aims at solving problems in the field of conservation of biodiversity through the establishment of an integrated system of protected areas using an ecosystem approach. The territory of Aksu-Zhabaglinskyi state nature reserves and other protected areas of the West Tien Shan regard to the part of the project area in Kazakhstan.

The contribution of this project in the long-term economic and social development of Kazakhstan is to reduce the rate of deterioration of the important, unique, endangered (Red Book) species, communities and ecosystems directly inside and outside the protected area of Western Tien-Shan.

International Bank for Reconstruction and Development (IBRD) allocated a grant in the amount of 410.6 thousand U.S. dollars to prepare a full-scale project "Conservation of forests and increase of forest cover on the territory of the republic."

A full-scale *project "Conservation of forests and increase of forest cover on territory of the republic"*, which aims at preserving and restoring tape pine forests of Irtysh and saxaul plants in Kyzylorda oblast', support of the forestry industry of the republic, development and implementation of environmental norms of the use of rangelands in saxaul forests.

During the implementation of the Program in 2005-2006, work on reproduction of forests and forestation was carried out on the area of over 67.6 thousand hectares, including the method of planting and sowing on 55.3 thousand hectares. In 2007, work on the reproduction of forests and forestation was carried out on the an area of over 41.1 thousand hectares, which is 23% above the planned volume on the Program "Zhasyl el"

Over the entire period of establishment of the green zone of Astana, planting was performed on the area of 40.0 hectares, 14.0 hectares of which are within the border of the city and 26 hectares on suburban area.

For providing sylvula works there are 143 forest nurseries in the republic at present, on which 150-200 million pieces of standard seedlings of different species can be grown each year.

A Forest Seed Database is being formed on a selection base, it has 270 plus trees, 45 hectares of plus plantations, permanent forest seed plots and forest seed plantations over an area exceeding 850 hectares.

There are two Republican state government enterprises – Almaty and Kokshetau forest breeding centers functioning for its further development.

Development of plantation grown trees for various purposes is one of the most important directions in the forestry sector in Kazakhstan. The priority is given to engaging in the process of private investments, i.e. development of private forest ownership, which should be have the government support. This work will continue.

In addition to establishing plantations around the city, trees will be planted along roads and railways in the five areas of the capital.

Work on strengthening the material-technical base of public institutions of forestry and environmental agencies is being carried out; fire and forest protection activities were performed.

Work on creation and maintenance of protective plantation in the right of way of roads of national importance was performed, 353 thousand seedlings were planted.

On the right of way of railways a protective plantation on the area of 0.15 thousand hectares were created and a set of activities for the care of protective forests in the area of 62.4 thousand hectares were taken.

Actions on the creation and maintenance of water stands on the area of 1.25 thousand hectares were made.

Parks and squares on the total area of 430 hectares were established in the regional centers.

Fighters of student environmental orders participated in the greening of settlements, they planted 2.0885 million seedlings.

During 2005-2007 the akimat of Astana city implemented the program of construction of parks, squares, boulevards. The total area of newly planted gardens and parks is 34.51 hectares.

To ensure the activities of youth labor brigades "Zhasyl el" the Republican headquarters of youth labor brigades "Zhasyl el" was created. In all regions and Astana and Almaty cities school orders were created with a number of 28 thousand people in 2005 and 32 thousand in 2006.

At the present *the program "Zhaysyl el" for 2008-2010*, approved by the Government of the Republic of Kazakhstan dated 16 October 2007 #958 is being implemented.

Works on the reproduction of forests and forestation was carried out over an area of 44.7 thousand hectares in 2008. Extent of forest crops, established in 2008 by planting, is 15.1 hectares.

Kazakh Republican Forest Seed agency conducted laboratory studies to determine the quality of seeds for providing the work on reproduction of forests and forest seeds of high germination. Sowing quality of 25373.5 kg of forest seeds were checked in 2008. 12459.4 kg of them are conifers and 12914.1 kg - deciduous.

The following amount of seeds is planned to be planted on the area: coniferous - 29 ha, deciduous - 32 ha.

Planned withdrawal of planting material is planned in the amount of 33.0 million, which is enough to create 8.5 hectares of forest crops.

Along with the analysis on the definition of class quality, forest seeds go through phytopathological and entomological expertise. Phytopathological expertise involves 1038.8 kg of forest seeds, entomological expertise covers the whole seed fund.

Formation of a permanent forest seed base through the identification of objects of selection and seed-growing and selection and genetic purpose is provided by two companies - RGKP «Almaty forest selection center» and RGKP «Kokshetau forest breeding center» (hereinafter - KLSC).

These events will allow getting a seeding and planting material of improved breeding quality.

In addition, laboratory of mikroclonal breeding of tree species was created on the basis of KLSTS, which also aims on getting a plant material with improved genetic characteristics.

The territory of Kazakhstan has a unique set of landscapes: from deserts to mountains and inland seas ecosystems. In the face of increasing tempo of economic growth and enhancement of the use of natural resources, the issue on further improvement of the territorial nature protection has become important. Those conditions determine the need for further development of specially protected natural territories of Kazakhstan, as a workable system of conservation of biological diversity of the state.

Kazakhstan as a party of the Convention on conservation of biological diversity, has its commitment to conserve biological diversity. Legislation in the sphere of protected areas is based on the Constitution of the Republic of Kazakhstan, Law of the RK «On specially protected natural territories», the Concept of development and deployment of specially protected natural areas by 2030».

Parliamentary hearings on «Problems and prospects of development of the state of nature-reserve fund» held in March 2004, where the issues on development of the territorial nature reserves in Kazakhstan and the ways of their solution were discussed, have great importance for the development of the reserves management.

Analysis of the nature-reserve fund of the Republic of Kazakhstan shows that, out of 178 mammals, 140 (78.6%) are protected, including 22 species listed in the Red Book of the Republic of Kazakhstan (1991 release), or 61.1% of the total list of mammals in this Paper, 346 bird species (87.4%), 31 species of reptiles (63.2%), 23 species of fish (22.1%), but they are far from providing the conservation of unique floristic and faunal diversity in Kazakhstan, and supporting sustainable state of the whole complex natural ecosystems.

There is a need for a securely protected area of habitats of Altai, Kazakh, Karatau and Kyzylkum arhars. There are not enough protected areas for desert mammals - gazelle, kulan, manul, caracal, marbled polecat. Even saiga is not securely protected; there is not a big enough protected reserve in lambling areas of these valuable ungulates. 37 species (21.1%) of mammals, including 12 species listed in the Red Data Book of Kazakhstan are not found in the protected territories. Those are the ones inhabiting in the valley of the Ural – desman, forest marten, the European mink, giant mole-rat inhabiting in the Volga-Ural sands, etc. Red endemic of the Western Tien-Shan - marmot Menzbira located in this region is not found in the territory of Aksu-Dzhabagly Reserve.

The speed of creating reserves in the country is very low: for the 1978 - 2005 only 5 reserves were organized - Usturt, Markakol West-Altai, Alakol and Karatau.

The absence of the typical desert dwellers, such as many species of jerboa on protected areas out of the mammals that are not included in the Red Data Book of the Republic of Kazakhstan is significant.

For conservation of biological diversity of the class of mammals in Kazakhstan it is necessary to establish securely protected reserves in different types of deserts (of sand, clay, loessial, gravel and stone, saline), each of which has its own set of background mammals. Particular attention should be given to the western region, including the valley of the Ural River. One of the tools for achieving these goals is creation of protected areas. The main task of forming the optimal system of protected areas is to ensure their inseparability, when the kernel reserves (reserves and national parks) are interconnected areas with less strict protection (nature reserves, protected areas) as well as with elements of ecological network - of ecological corridors, forests, water zones and stripes and other protected natural areas.

The list of protected areas of national importance are approved by the Government Decision dated 10 November 2006, #1074. It includes 107 objects of nature-reserve fund. As of January 1, 2006 10 state nature reserves, 9 state national natural parks, 2 state nature reserves, 55 state nature reserves, 5 of public protected areas, 26 natural monuments of national importance functioned in Kazakhstan.

The total area of protected areas of national importance was 21118.7 thousand hectares, including the status of legal entity of 3769.1 thousand hectares - 1.4% of the entire State. According to this showing the Republic of Kazakhstan is far behind the average world level (with the universally recognized world standards - 10-12).

At the present stage deployment of protected areas in the territory of the Republic of Kazakhstan can hardly be classified as an «ecological network» in its global sense. However, intra-regional ecological networks in Zaili Alatau, Zhongars Alatau and the Altai region are being formed at present. Elements of ecological networks are being formed; at the international level those are the West Tien Shan and Altai-Sayan ecological regions. Initiated works and developed approaches must be continued on all natural complexes (forests, prairie, forest and steppe, desert, semi-desert, coastal and aquatic ecosystems), for which the organization of ecological networks is also relevant, as well as for mountainous areas.

These tasks have to be solved in the condition of a high anthropogenic pressure. Conservation of rare and unique species of flora and fauna, abiocoen in these conditions is possible only through organizing a representative system of protected natural areas.

In accordance with the article 7 of the Law «On Specially Protected Natural Areas» dated 7 July 2006, the Government of the Republic of Kazakhstan approved the «*Program of development of specially protected natural territories of the Republic of Kazakhstan for 2007 - 2009 years*» by Government Decision dated October 13, 2006 #990.

The purpose of the program is Conservation of biological diversity of nature-reserve fund, natural and cultural heritage through the development of specially protected natural areas in all climatic zones of Kazakhstan.

The Program tasks – identify priority natural systems to give them the status of specially protected natural areas basing on the analysis of the current state of the territorial protection of biological diversity in the Republic of Kazakhstan; establish a phase order of expanded and re-created specially protected natural areas of various categories and types for 2007 - 2009 years. Timeline for implementation of the Program for 2007 - 2009 years.

Estimated financial costs for realization of the Program: from the national budget - 147.81 mln, at the expense of international grants: - 9.3 million tenge.

This program aims to identify priority areas for the development of protected areas, to avoid spontaneous decisions in the use of natural resources, to ensure their representation, both of their area, and the spectrum of coverage of natural areas and landscapes.

These measures will increase the area of nature reserve fund of the Republic of Kazakhstan to 1258.66 thousand hectares, and bring the proportion of specially protected areas to 1.8% of the territory in 2009. This will ensure the protection of landscape and biological diversity of the state, development of eco-tourism; improvement of the environment and public health.

The work on organizing the new and expanding existing specially protected natural areas was performed.

The National Nature Park “Kolsay lakes” in the Almaty region in the area of 161,045 hectares was established in February 2007 to preserve the natural systems, and Irgiz-Turgay State Nature Reserve in Aktyubinsk region was created on the area 711,549 ha to enhance the effectiveness of the protection of saiga. Also, the territory of Bayanaul State National Natural Park was expanded to 17,764.8 hectares, the West Altai State Nature Reserve to 30,044 hectares and Markakol State Natural Reserve to 27,931 hectares.

Resolution of the Government of the Republic of Kazakhstan “On several issues on expansion of the territory of public institution Korgalzhly State Nature Reserve” dated December 18, 2008; the reserve area was expanded to 284,208 hectares. At present the official area of Korgalzhly reserve is 543,171 hectares.

Tengiz-Korgalzhly lake systems are one of the most important wetlands for migratory birds in Kazakhstan and throughout Asia. In 1974, wetlands of Tenghiz-Korgalzhly system lakes were included in the Ramsar List. In 2000, the Tengiz lake was included in the international network "Living Lakes", which includes the most famous lakes in the world. At present this area is included in the UNESCO World Heritage List, and in the future, a Biosphere Reserve can be created there.

The reserve in the delta of the Ural River and the northern Caspian Sea was created by the decision of the Government of the Republic of Kazakhstan “On some questions of a public institution “State Nature Reserve “Akzhaiyk” dated February 6, 2009. The area of the reserve is 111,500 hectares.

Wetlands of the Ural River Delta and adjacent coast of the Caspian Sea are the most important lands on the Eurasian continent, which provide support to the millions of waterfowl and coastal birds during breeding, molt, seasonal migrations and wintering.

#### ***International conventions and agreements on Biological Diversity.***

The last three decades witnessed the emergence of a coherent response to the crisis of biodiversity. International conventions aimed at preserving endangered species have been developed. They include the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) of 1973 and the Convention on Conservation of Migratory Species of Wild Animals (Bonn Convention) of 1979. In 90-ies the adoption of the Convention on Biological Diversity (CBD) has been one of the most important responses to the problem of extinction. It was the first global agreement on conservation and sustainable use of biological diversity. The Cartagena Protocol on Biosafety, ratified by Kazakhstan in July 2008 and directed to reduce the potential risk of cross-border trade and accidental releases of living genetically modified organisms, became a supplementary agreement to the Convention.

The Republic of Kazakhstan, as a subject of international relations, after achieving the sovereignty and independence, as many other CIS countries, has acceded to many international legal instruments on environmental protection and has a number of commitments to the international community aimed at the rational, efficient and safe use of natural environment. Thus, the Republic joined, signed, approved and / or ratified the five priorities of international treaties on conservation and sustainable use of biodiversity: the Convention on Biological Diversity (approved on August 19, 1994); Convention on Protection of World Cultural and Natural Heritage (ratified on 29 July 1994); the Convention on Conservation of Migratory Species of Wild Animals (joined on 13 December 2005); The Convention on Wetlands (joined on 13 December 2005), the Convention on International Trade in Endangered Species of Wild Fauna and Flora (6 April 1999).

Ratification of the Bonn and Ramsar Conventions positioned Kazakhstan as an active participant in the field of biodiversity conservation and in the international multilateral agreements.

Despite the fact that our country is located in the arid part of Eurasia, a substantial part of natural ecosystems are represented by VBU complexes, beginning from the Caspian Sea and the major lake systems and ending with thousands of freshwater and saline lakes scattered on the vast grassland plains. Two world flight routes meet at the Kazakh part of Wetlands of the Eurasian continent - Central Asian-Indian and Siberian-Eastern African. Kazakhstan is an international harbor on the passage of migratory birds. Wetlands of Kazakhstan are the place for nesting and feeding of birds from Western Europe, Southeast Asia, Africa and the Arctic coast. Kazakhstan has the largest population of waterfowl in Asia, more than 130 species.

Every six months, more than 50 million birds migrate through Kazakhstan. 20 percent of them nest in the territory of Kazakhstan.

The main mechanism for wetland conservation at the international level at present is the Convention on wetlands of international importance, especially as waterfowl habitat (Ramsar Convention). The List of Wetlands of International Importance under the special protection of the convention was created within its frames. One of the conditions of accession to the Ramsar Convention is declaration of at least one Ramsar sites in their territory by Government of participating country.

As of today 157 countries joined the Convention, and the total number of Ramsar sites exceeded 1708. Kazakhstan formally joined the Convention on 2 May 2007 after being included in the list of Tengiz-Korgalzhyn system of lakes.

*Kazakhstan currently operates a number of international projects that directly or indirectly relate to conservation of wetlands as habitats for migratory birds, or directly to the conservation of birds.*

As a result of UNDP efforts to support sustainable development in Kazakhstan and to improve environmental management system, in cooperation with the Ministry of Environment (MoE) in 1998, the Council for Sustainable Development of Kazakhstan (RMS) was created in 2005. The Concept of transition of Kazakhstan to Sustainable Development for 2007-2024 was developed and adopted in 2006, the Parliament enacted the Environment Code, poverty reduction programs were carried out together with MEBP, evaluation of implementation of international environmental conventions was completed, and action plans on capacity-building of the country in the implementation of commitments under these conventions was prepared.

These achievements have helped in promotion of Kazakhstan to sustainable development and grounding for future efforts, including strengthening the role of the Concept of Sustainable Development (CSD) in the development and implementation of sustainable policies, introduction of principles of SD in the individual regions and sectors of the economy, expanding the capacity of the MEP as a working body of SD and strengthening its role in international processes for SD.

In accordance with state programs and priorities of the Government of the Republic of Kazakhstan, the United Nations Development Program was developed by the **project «Support to the implementation of the Concept of Transition of Kazakhstan to Sustainable Development»**

The project aims to assist in implementation of the Concept of Transition of Kazakhstan (RK) for Sustainable Development (SD) for the years 2007-2024, adopted in November 2006

This goal will be achieved through the implementation of two specific tasks:

1) assistance to the Council on Sustainable Development of Kazakhstan and the Environment Protection Ministry as the Secretariat of the CSD to build capacity for the effective operation of the CSD,

2) to demonstrate application of the principles of sustainable development in the strategy of development of the energy sector through the introduction of strategic environmental assessment and improvement of showings of energy efficiency and integration of sustainable development indicators in the national statistics system for effective monitoring of SD.

Project Duration: April, 2007 – October, 2008.

Project Budget: 195 000 USD

The project provides the actions on strengthening the capacity of stakeholders from key government agencies responsible for implementing the concept of SD, including the MoE, Ministry of Economy and Budget Planning (MEBP), Ministry of Energy and Mineral Resources (MEMR), the Agency for Statistics, etc.

In view of implementing the priorities of the Concept of SD partnerships with national and regional projects of UNDP in Kazakhstan and Central Asia will be set up.

Assistance in coordination activities of sectoral ministries and strengthening of capacity in implementing the UN Convention on protection of biodiversity; preparing proposals for strategic planning to ensure sustainable conservation of wetland resources in mountain and grassland systems and mountain agro-biodiversity in Kazakhstan; Assistance in coordination with the regional mining center (Bishkek).

Preparation of proposals on strategic planning for sustainable conservation of mountain ecosystems in Kazakhstan.

The following projects were developed and implemented for realizing the priority of concept of SD in conservation of biodiversity:

1. In-situ conservation of Kazakhstan's mountain agrobiodiversity (GEF).
2. Conservation and sustainable use of biodiversity in the Kazakhstani sector of the Altai-Sayan mountain ecoregion (GEF).
3. Integrated conservation of globally significant species as waterfowl habitat (GEF).

### ***Project In-situ conservation of Kazakhstan's mountain agrobiodiversity***

The wild fruit forests ecosystems in the Zailiyskiy and Dzhungar Alatau project sites are the habitat for the agrobiodiversity plant variety that have global significance. At least about 100 varieties exist in the sites and these species are identified as wild ancestors of 24 agricultural crops that constitute more than 75% of the plant agrobiodiversity of Kazakhstan. Wild relatives of domesticated plants found here include wild apple, apricot, gooseberry, saw-toothed hawthorn, grape, currant, onion and garlic, lucerne and tulips. Mountain relief and ecological factors have caused the apple and apricot genetic variety and its species polymorphism which is the source of their cultivated species selection. It is believed by scientists that the European cultivated apple (*Malus domestica*) arose in the Tien Shan mountains of Kazakhstan from the wild apple (*Malus sieversii*), which seeds spread throughout Europe owing to the famous Silk Road. The wild fruit forests represent the unique gene pool source which is of the mountain agrobiodiversity global significance. By now the project sites wild forests area have decreased for almost 60%-70%, and the wild apple sorts are degrading. The threat of the progressing degradation of mountain agrobiodiversity is observed as a result of cutting, overgrazing, fires, as well as the construction of country estates, tourism facilities and inappropriate concurrent land-use, genetic erosion, introduction of aggressive alien varieties, the population insufficient socio-economic living conditions.

Thematic area: Biodiversity, Environment.

Objective:

The objective of this project is the in-situ conservation and sustainable use of biological diversity of global importance to agriculture in two sites in Kazakhstan's Tien Shan Mountains.

Main partners: State authorities - Forestry and Hunting Committee of the Ministry of Agriculture of RK, Almaty Oblast Akimat, Almaty Oblast Territorial Administration of the Forestry and Hunting Committee, Almaty Oblast Territorial Administration of the Environmental Protection (Ministry of Environmental Protection of RK), Almaty Oblast Regional Akimats (Alakol, Sarkand, Talgar, Enbekshikazakhskiy).

Length of the project: 1 March, 2006 – 28 February, 2012.

Total budget \$22,569,877

GEF: FP \$2,770,000; PDF A \$22,000; PDF B \$230,967. Total: \$3,022,967

Parallel-financing: Ministry of Agriculture \$17,244,710; Almaty Oblast Akimat \$300,000; LTD "Plodex" \$960,000; LTD "Zhibek-Joly" \$800,000; LTD "Agroinprof-service" \$108,000; Kazakhstan Community Loan Fund \$70,000; Green Salvation \$18,000; ACDI/VOCA \$30,000; Farmer of Kazakhstan \$16,200. Total: \$19,546,910

Achievements:

Inclusion of wild apple trees and apple trees of Nedzvedskiy Sivers, as well as ordinary apricot in a preliminary list of the IUCN Red Data Book, section «Woody plants» Central Asia region.

The final list of categories assigned to each plant will produce FAUNA & FLORA International and sent to the country to verify and then to the IUCN;

Completed survey and inventory of forest wild fruit trees, formed an information database, completed work on preparation of documentation for creating Zhongar-Alatau State National Natural Park and reconstruction of the forest nursery of Lepsinskiy state forestry agencies.

State environmental expertise approved the draft scientific justification for establishing a new Zhongar-Alatau State National Natural Park of Kazakhstan

Ongoing activities to improve the management capacity of protected project areas, development of alternative activities and informing the local population. Completed work on the popular science video on the mountain fruit forest «Precious necklace of mountains».

Started experimental work to develop methods of growing seedlings of natural genotypes of globally significant Sivers apple and an ordinary apricot, as well as the establishment of living collections of form diversity of these species. Improved communication and interaction with local communities in rural areas of the project and non-governmental organizations working in the field of biodiversity, which contributes to a better understanding of the problems in the field of mountain agro-biodiversity conservation.

Forestry and Hunting Ministry of Agriculture approved the new structure of Ile-Alatau State National Natural Park (GNPP), which will create a new department of research works and a mountain agrobiodiversity (GABR).

### ***Project Conservation and sustainable use of biodiversity in the Kazakhstani sector of the Altai-Sayan mountain ecoregion***

Mountain-forest territories of East Kazakhstan make the integral component of globally important Altai - Sayan ecoregion. The area is a concentration of a considerable number of rare animals and endemic species of plants. In spite of the fact that wood areas are under official protection, management of the given territories leaves much to be desired.

Reserves and national parks of Kazakhstan border on the territories located in Russia and Chinese People's Republic, having various forms of use. The uniform approach to region natural resources conservation and also conservation of migrating species of animals demands development and introduction of new trans-boundary cooperation actions. It is also necessary to reconsider present wood and biological resources management inside each of the countries.

Thematic area: Biodiversity, Environment

Objectives:

The goal of the project is to help secure the globally significant biodiversity values in the Kazakhstani sector of the Altai-Sayan mountain ecoregion. The project's objective is to enhance the sustainability and conservation effectiveness of Kazakhstan's national PA system by demonstrating sustainable and replicable approaches to conservation management in the protected areas in the Kazakhstani sector of Altai-Sayan ecoregion.

Partners:

- Forestry and Hunting Committee of the Ministry of Agriculture of the Republic of Kazakhstan, the Ministry of Environmental Protection
- Eastern Kazakhstan Oblast Akimat
- Markakolskyi State Reserve Administration
- Katon-Karagaiskyi National Park Administration
- Non-governmental organizations and local communities
- Representatives of a private sector engaged in tourism, forestry, beekeeping, maral (Siberian deer) keeping, craftsmanship, food stuffs manufacturing, etc.

Length of the project: 01 February 2007 – 01 February 2012

Budget of the project:

Budget of the project: \$18 734 400

Funds: GEF \$2 395 700; UNDP \$40 000; Government \$9 213 200; NGO \$12 000;

Private sector \$45 000

Investment: UNDP \$10 000; Government \$6 400 000; NGO \$250 000; Private sector \$368 500

Achievements:

The project will produce the following outcomes:

- The protected area network will be expanded and PA management effectiveness will be enhanced;
- Awareness of and support for biodiversity conservation and PAs will be increased among all stakeholders;
- The enabling environment for strengthening the national protected area system will be enhanced, community involvement in biodiversity conservation will be increased and opportunities for sustainable alternative livelihoods within PAs and buffer zones will be facilitated;

- Networking and collaboration among protected areas will be improved;
- The best practices and lessons learned are supposed to be disseminated and replicated in other locations within the national protected area system.

***Project Integrated conservation of globally significant migratory bird wetland habitat: a demonstration on three sites***

Kazakhstan's wetland areas are important habitats for migratory birds and rare/endemic plant species. Although under official protection, these areas are not managed adequately and are in dire need of human and institutional strengthening. Dramatic social and economic reforms have created new challenges for sustainable land and water resources management. New land ownership patterns, reduced funding for protected areas management, narrowly focused water management policies and lack of experience in cooperative management of public resources with private landowners claim urgent reorientation in management, strengthened financing mechanisms and new relationship with stakeholders.

Thematic area: Environment Management and Human Security.

Objectives:

To create a basis for the development, integrated and joint approach to conservation and sustainable development of biological diversity at the priority significant migratory bird wetland habitat:

- Improve regulatory framework for biodiversity integrated conservation and management;
- Strengthening protected area management;
- Public awareness rising about wetlands global significance;
- Participatory demonstration of methods and experience of sustainable use of biodiversity at productive landscapes;

Establish Biodiversity Conservation Trust Fund.

Partners:

Committee on Forestry, Fishery and Hunting under Ministry of Agriculture, Ministry of Environmental Protection and communities in areas surrounding the three wetland sites; the private sector in sit areas involved in fishery, agriculture and tourism.

Length of the project:

20 August, 2003 – 20 August, 2010

Budget and Donors: GEF (\$ 8,710,000)

Government of Kazakhstan (\$ 24,270,000)

Third party: parallel financing (UNDP, Zhybek-Zholy National Private Company, NABU German NGO and etc.) (\$ 2,965,000)

Achievements to date:

- The project has multi-direction activities for improvement of regulatory base of wetland biodiversity and meeting the commitments of Ramsar and Bonn Conventions;
- Management plans of Alakol and Korgalzhyn reserves are developed and being implemented;
- Scale scientific analyses were carried out with the use of new modern GIS technologies following ecosystem approach;
- Natural and feasibility studies for expansion of borders of Alakol and Korgalzhyn Reserves and establishment of State Nature Reserve "Akzhaiyk" in Ural River Delta were developed;
- Series of trainings on ecotourism development and environmental education for the staff of state bodies (Ministry of Agriculture, Ministry of Industry and Trade), executive power (Akimats of Atyrau, Almaty and Akmola oblasts) and public institutions were carried out;
- At the project sites series of trainings on felt handicrafts and milk production for local communities were carried out;
- The project developed the Concept of establishment of modern Visitor-Centers at Korgalzhyn and Alakol State Nature Reserves, as an alternative to the existing nature museums;
- The school programmes of additional lessons to improve knowledge in wetlands conservation are prepared;
- The project Web site has been launched at [www.wetlands.kz](http://www.wetlands.kz)



- The Review on agriculture, fishery and hunting management and Assessment Analysis of modern state of oil sector at Ural River Delta site was prepared;
- The developed Concepts of Ecotourism Development at Alakol Sasykkol project site and Ural River Delta is under implementation;
- International workshop on establishment of Biodiversity Conservation Fund of Kazakhstan;
- The Concept of establishment of Biodiversity Conservation Fund of Kazakhstan, draft regulations of the Fund, regulations of Trustee Council, organizational chart of the Fund, and constituent agreement were elaborated.

The Fund on conservation of biodiversity of Kazakhstan, which is the first specialized non-governmental environmental fund not only for Kazakhstan but also for the CIS countries, was established within the project.

It is aimed at establishing the mechanism for additional financing of projects aimed at conserving of biological diversity and sustainable use of natural resources of Kazakhstan through provision of the grant support to legal entities.

The fund was established on the basis of the study and analysis of international experience, in accordance with generally recognized international norms and standards. At the stage of its development the UNDP and SFF will provide financial, organizational and technical assistance fund (GEF provides funding of \$ 1.5 million).

This non-governmental organization provides a unique mechanism and an example of social partnership, which brings together government, business and society to address environmental issues, particularly biodiversity conservation and sustainable use of natural resources.

Three-part monograph “The Globally significant wetlands of Kazakhstan” was published. Results of surveys on water and earth ecosystems held by the project, and also, assessment of ecology and environment protection meaning of wetlands of Kazakhstan: Ural river delta, Teniz-Korgalzhyn and Alakol-Sasykkol lake systems are included in the book.

The agreement on cooperation was signed between the Ministry of Agriculture, the MEP and UNDP in Kazakhstan under the project on VBU.

The purpose of the Agreement is implementation of joint activities of the Project and subdivisions of public authorities (in particular RSE “Kazgidromet”) on the program of systematic monitoring of the aquatic habitat for the delta of the Ural River with the adjacent coast of the Caspian Sea, Alakol-Sasykkol and Tengiz-Korgalzhyn systems of lakes.

*Microcredit program for 2008-2011. «Microcrediting of rural entrepreneurs, living close to specially protected natural areas».*

The program is being implemented jointly by JSC «Fund on Financial Support of Agriculture», SFF KLOH MA RK, Fund on conservation of biodiversity of Kazakhstan and UNDP within the project on conservation of wetlands in Kazakhstan on three project areas: the delta of the Ural River, Tengiz-Korgalzhyn and Alakol – Sasykkol system of lakes.

Socio-economic studies have shown high level of unemployment, weak rural infrastructure, low incomes and other socio-economic problems in the project areas. Local people living in project areas maintain intensive nature use of productive landscapes as the source for their livelihood, use unsustainable methods of economic activities, largely exacerbating the situation on conservation of ecosystems.

Realizing the situation, the rural population has shown a great interest in developing their own business and receiving ongoing access to microcredit and grant funding sources. Despite the diversity and large number of microfinance organizations operating in Kazakhstan, the demand for microcredit remains unsatisfied. The conditions and requirements of second level banks and microcredit organizations to documents are fairly rigid and have a definite impact on attracting the majority of potential borrowers.

Benefit conditions of microcrediting of the developed program compared to existing conditions of crediting in Kazakhstan are the key components, because the program will stimulate the development of rural businesses on the basis of nature saving activities and technologies, as well as the development of alternative activities.

Priority areas of funding of projects: 1) Sustainable fisheries management, 2) sustainable hunting management, 3) Sustainable tourism: a) development of ecological routes and tourism infrastructure, c) rural tourism, 4) Sustainable use of natural energy sources (renewable energy)

as means of improving efficiency of energy and energy conservation, 5) sustainable agriculture (possibly co-financing): 5.1. Crop production: a) fruit b) horticulture, refining of agroproducts 5.2. Livestock: a) processing of livestock products and development of beekeeping 6. Sustainable forest management.

Types of economic activities, which do not damage the biodiversity of VBU and allow reducing the pressure on natural resources of wetlands are: production and sale of handicrafts products, production of local building materials.

Implementation of alternative types of economic activities will improve the living standards of local population in project areas, socio-economic situation in the region through involvement in conservation of biodiversity of the native land. Improving the living conditions of local communities will reduce the threat to the biodiversity of wetlands.

At the same time, the received positive experience in microcrediting of environmentally-oriented types of activities as an alternative to inefficient management of economic activities will also be the important result of the activities, which can be replicated in other regions of the country and is useful for other projects.

In addition, the program will promote the development of microfinancing sector as a tool to influence conservation of environment through involvement of the rural population in development of alternative types of activities.

The main part of modern habitats and resources of saiga represented by three separate populations – Bekpakdala, Usturt and Ural are located in the territory of Kazakhstan. In the fifties of the last century the number of saiga in the country was 1.5 million. However, repeated snowy winters, diseases, pressure of predators (wolf), the collapse of the system of public service wildlife protection in the nineties of the last century, and as a consequence, the emergence of mass poaching, put the saiga to the brink of extinction; its quantity reduced to 21.1 thousands in 2003.

Non-regulated hunting after animals and other anthropogenic factors cause the depletion of the animal world. Kazakh kulan and Turan tiger, and most likely the cheetah disappeared from the territory of Kazakhstan in the middle of 20<sup>th</sup> century.

At present 9 species and subspecies of ungulates were recorded in the Red Book of the Republic of Kazakhstan: Karatau mountain sheep - 110, Tien Shan mountain sheep - 675, Kazakhstan mountain sheep - 11000, Kyzylkum mountain sheep - 25, Altai mountain sheep - the single, Usturt mountain sheep - 1000, gazelle - 22186, tugai red deer - 358, Turkmen kulan - 1872 specimens.

Three subspecies of mountain sheep and the red tugai deer are on the verge of extinction, and the rest are regarded to reducing and rare species. Distribution of all species and subspecies are mosaic and few. The state of their population is currently very vulnerable due to the poachers.

***The program on conservation and restoration of rare and endangered species of wild ungulates and saiga for 2005-2007***, approved by Government Decision dated 25 March 2005 #267 was developed in purpose of saving the animal world of Kazakhstan.

Protection of rare and endangered species of wild ungulates and saiga is being performed within this program.

Budget - 844551000.0 tenge.

In view of execution of the Program by the Ministry of Agriculture the first international meeting on conservation, restoration and sustainable use of saiga was held in Almaty on 25 September 2006 with support from the secretariat of Bonn Convention and CITES Convention. On the meeting, Kazakhstan signed a Memorandum of Understanding and an Action Plan on conservation, restoration and sustainable use of saiga antelope, prepared by the Secretariat of the Bonn Convention.

In May 2007, Kazakhstan and Turkmenistan signed an intergovernmental agreement on conservation of saiga.

Implementation of the program affects the efficiency of actions on conservation of saiga, and will contribute to conservation of rare wild ungulates and the saiga in the area of their distribution.

Accounting of saigas, conducted in 2005-2007 with participation of employees of the Zoology Institute of MOES of the RK has shown that the dynamics of reducing the number of

animals is stopped, and the increase is observed. In 2005, the number of saiga was 39.6 thousand specimens; in 2006 - 49.3 thousand. Revival of the special saiga protection department on the basis of RGKP "PO "Ohotzoprom" of the Committee of Forestry and Hunting Management of the Ministry of Agriculture of Kazakhstan, increasing of public financing of environmental activities, have radically reversed the situation. In 2007, the number of steppe antelopes has increased to 54.8 thousand specimens, against 21.2 thousand in 2003.

It is prohibited to remove saiga throughout the territory of the Republic of Kazakhstan till 2011.

In accordance with the Government Decision dated October 9, 2006 #970 "PO "Ohotzoprom" implemented the introduction of 30 specimen of kulans on the territory of Andasay State Natural Reserve of Republican values in the Zhambyl region. Also, 7 species of tugai deer were displaced to State National Park "Altyn-Emel".

To increase the efficiency of protection of saiga within performance of activities of the Program Turgay-Irgiz State Nature Reserve, intended to protect and restore saiga was created by the Government Decision dated February 14, 2007 #109.

In accordance with paragraph 58.3 Action Plan on implementation of the National Plan of the main directions (actions) for implementation of 2005-2007 annual message of the Head of the State to people and the Program of Government of the Republic of Kazakhstan for 2007-2009. ***The program for the conservation and rational use of water resources, wildlife and the development of a network of specially protected natural areas to 2010***

Aim of the Program: Conservation and management of water resources, wildlife, development of a network of specially protected natural areas.

Expected results of implementation of the Program:

improving conditions for the artificial and natural reproduction of fish, reclamation work on the 2 fisheries waters of Kazakhstan;

making suggestions for: reclamation (dredging) works in the rivers of Karatal and Almaty region, a new sturgeon fish hatcheries to produce juvenile sturgeon species capacity to 20 million fry per year in the Ural-Caspian basin, selection and breeding work, preservation of the genetic fund of cyprinid fish species, development of biotechnology and aquaculture facilities;

increase areas of protection of rare and endangered species of wild ungulates and saiga;

stabilization of the number of tugai red deer, gazelle, mountain sheep, kulan, restoring their population on historic range to sustainable development and annual increase of the number of saiga to 10%;

increase the area of specially protected natural territories of the Republic of Kazakhstan to 1258.7 thousand hectares (percentage of protected natural areas will make 8.5% of the territory of the State);

strengthening the protection of landscape and biological diversity of the state, wetlands, steppe and semidesert zones of the plain of Kazakhstan, which have global significance for conservation and restoration of populations of rare and endangered species of large mammals (saiga, kulan) and birds (bustard, sociable plover, predators and water wading birds);

expanding areas of protection of rare animal species (snow leopard, argali, Tien-Shan brown bear, the Central Asian (Turkestan) lynx, Central Asian otter, manul, marbled polecat, stone marten), habitat and reproduction of salmon fishes;

protection of endemic and rare representatives of flora, the unique sub-alpine vegetation (apple Sivers, maykaragan, Ledeburov almond, Altai rhubarb, pale hazel grouse, prickly oxytrope, Altai daphne, Tarbagatai stelleropsis, Popov's mertenziya, pink radiola, maral root)

creation of protected natural areas in the priority areas, ensuring long-term conservation of biological diversity and sustainable environment.

To restore population of saker falcon in the south-east of Kazakhstan 70 specimens of saker falcons, which were grown in Falcon Cattery of LLP "Sunkar" (Almaty) were released to the nature.

The number of rare and endangered species of wild ungulates and saiga were recorded in 2008 within the Program. As a result of aerovisual and the ground record the number of saiga in 2008 amounted to 61,0 thousand heads, the general increase in livestock of saigas compared to 2007 was 11.3%.

About 300 game farms were created during 2006-2008, and the total number as of 1 November 2008 is 655 households. Protection of animal life in the hunting grounds was strengthened by hunting services. According to information of local offices number of hunters reached 2272 people in 655 hunting farms, which have about 1411 vehicles assigned.

Work on increasing the area of assigned hunting grounds for hunting organizations is ongoing.

State inspectors of territorial bodies of the Forestry and Hunting Committee of the Ministry of Agriculture, the inspectors of security department of specially protected natural areas, security inspectors of RGKP "PO "Ohotzooptom" hunting service and hunting organizations are involved in protection of wildlife.

Joint meeting of State Committee for Nature Protection of Uzbekistan and Forestry and Hunting Committee of the Ministry of Agriculture of Kazakhstan was held in February 2008 in Tashkent. As a result of the meeting the "Plan of joint actions on conservation of Usturt saiga population in 2008-2010 years" was signed.

Forestry and Wildlife Management take actions on organization of joint activities with the Uzbek side on protection and accounting.

Mobile units equipped with a motor-road, sport bikes, government-issue weapons, means of communication, video and photographic apparatus operate in the system of RGKP "PO Ohotzooptom" to protect the saiga, as well as rare and endangered species of wild ungulates.

Government inspectors of the regional territorial inspections of Forestry and Hunting departments, employees of law-enforcement and environmental agencies are also involved in protection of saiga.

In view of enhancing measures of responsibility for illegal catching of saigas there were changes and additions made in the rules of the Criminal Code and the Code of Administrative Offenses, which, particularly provide penalties for purchase or sale of animals, hunting of which is completely prohibited, or products made from them. This rule prevents the possibility of evading responsibility by poachers. Order of Forestry and Hunting Ministry of Agriculture prohibits the seizure of saiga, as well as collection, preparation, acquisition or sale of their horns and products throughout the Republic of Kazakhstan till 2011.

Existence of the local saiga meat and horns market and smuggling them abroad, as well as evading of detained persons from responsibility, constitute a risk factor for conservation of saiga, thereby reducing the efficiency of government measures on their conservation.

Works on regulating the number of wolves, with the assistance of experienced wolf-hunters in shooting 800 predators were performed for reducing the pressure of predators in the habitat, lambing area and routes of migration of saiga.

Work on counting the number and defining the range of population of rare and endangered species of wild ungulates in Kazakhstan is ongoing.

The natural potential of Kazakhstan offers great opportunities to develop ecotourism in protected areas, because it has a great diversity, uniqueness and attraction of landscapes that are not yet covered by the processes of urbanization and intensive agricultural production.

The republican system of protected areas included: 10 state nature reserves, 10 state national natural parks, 3 state forest natural reserves, 50 state nature reserves, 26 natural monuments, 5 public botanical gardens in the cities of Almaty, Karaganda, Ridder, Zhezkazgan, Bakanas village, 5 public conservation areas in 2008.

Eco-tourism can be developed in all types of protected areas, but the treatment of reserves, which is the most stringent in comparison with other types of specially protected natural areas, respectively, imposes maximum limits on organization of eco-tourism, with strict observance of environmental regime and a clear setting of the number of visitors. Specificity of reserves was also established for solving many of the scientific and research tasks, which makes it possible to use them for scientific tourism. The state national natural parks (SNNP) have the greatest potential for developing eco-tourism as a special type of specially protected natural areas, one of the directions of which is the development of recreational and tourist activities. In view of this, the state national natural parks continue organization of routes in tourist and recreational areas on strictly defined environmental routes to examine picturesque landscapes, natural monuments and other notable sites.

9 SNNPs out of 10 are administered by the Forestry and Hunting Committee of the Agriculture Ministry of the Republic of Kazakhstan.

State national natural parks are: in Almaty region: 1. SNNP «Altyn-Emel» 2. Ile-Alatau SNNP 3. Charyn SNNP 4. SNNP “Kolsai lakes”; in Akmola region: 5. SNNP “Burabai” (administered by the Office of the President of the Republic of Kazakhstan); in the North-Kazakhstan and Akmola regions: 6. SNNP “Kokshetau”; in Pavlodar region: 7. Bayanaul SNNP; in Karaganda region: 8. Karkaraly SNNP; in the East Kazakhstan region: 9. Katon-Karagai SNNP; South Kazakhstan Region: 10. Sairam-Ugam SNNP.

In order to develop ecological tourism in the specially protected natural territories a Memorandum of understanding was signed between the Committee on tourism industry of the Ministry of Tourism and Sports of the Republic of Kazakhstan (CTI MTS RK), FHC AM RK, the Environmental Forum of non-governmental organizations, Kazakhstan Tourism Association.

As of today, the general plans, which allow optimal determining of planned location of major tourist facilities on the territory of the national parks considering the environmental requirements and peculiarities of nature, were developed within the state order for four national parks (“Ile-Alatau”, “Bayanaul”, “Kokshetau”, “Altyn-Emel”).

It is planned to develop general plans for additional 4 Specially Protected Natural Areas, which provides the development of infrastructure for development of ecotourism.

There are environmental education and tourism departments operating in these establishments, the main task of which is to develop eco-tourism, organization, conducting and management of cultural, educational, recreational and tourist activities in the parks. 84 tours and sightseeing routes, the length of which are more than 2 thousand kilometers were organized on designated areas of national parks; 36 observation platforms, 58 bivouac areas and camps were equipped, 750 banners, information stands and signs were installed.

In order to promote ecotourism in the territory of SNNP, TIC MTS RK officer was included in the Scientific and Technical Council of FHC AM RK, where the issues of ecotourism development in specially protected areas and creation of tourism infrastructure are considered.

In accordance with ***the Action Plan for 2007-2009 on realization of the State program on development of tourism in the Republic of Kazakhstan for 2007-2011***, approved by Decree of the Government of the Republic of Kazakhstan dated 28 February 2007, #156, CTI MTS RK works on implementation of investment projects on construction of tourist complex in the village Akmaral of Katon-Karagai District in the East Kazakhstan region, mining and ski resorts in Almaty region, according to master plans on development of tourism infrastructure of Katon-Karagai and Ile-Alatau SNNP and establishment of national parks for the development of ecological tourism.

Under the new provisions of the Law of the Republic of Kazakhstan «On Specially Protected Natural Areas» the new procedure of the development of ecological tourism in the state national parks was established.

Allocation of land on specially protected natural areas to physical and legal persons for using in purpose of regulated tourism and recreation will be made only in accordance with the master plan for infrastructure development. This will allow to plan and implement regulated tourism in protected areas with the lowest pressure on natural systems.

For further development of ecological tourism in the specially protected natural areas, the following activities are being performed: development of master plans for infrastructure development of state national natural parks and state forest natural reserves that are of interest for the development of ecological tourism; - processing of the system of regulating the flow of visitors to protected areas through the selection of tour operators; - development of a network tourist itineraries of various directions, followed by their establishment and certification; - ensuring the safety and security of visitors and maintenance of tourist resources of protected areas; - development of infrastructure for tourism activities by attracting additional investors and interested business entities, tourism organizations, local people; - improvement of tourist routes (settlement of recreation facilities, shelters, construction and installation of small architectural forms, etc.); - advertising and information activities.

## **Chapter IV - Conclusions: Progress Towards the 2010 Target and Implementation of the Strategic Plan**

### **A. The results of the goals set for 2010**

*In this part the goals set for 2010 were evaluated on the national level, using the temporal structure of goals and targets, approved in decision VIII/15, and contained in Annex II of the guidelines.*

Expert Group on preparation of the third national report in accordance with the global goals and objectives of the National Strategy and Action Plan on biodiversity conservation developed the proposals to the Target tasks of the country until 2010.

#### **PROTECTION OF BIODIVERSITY COMPONENTS**

**Goal 1. Assistance in conservation of biological diversity of ecosystems, habitats and biomes.**

**Target 1.1. Efficient conservation of at least 10% of each of the ecological regions of the world.**

Targets for Kazakhstan to 2010

**1.1. Extend the area of PAs to 8.5% of the territory of a country by 2010, protecting critical ecosystems.**

The main task of forming the optimal system of protected areas is to ensure their inseparability, when the reserve kernels (reserves and national parks) are interconnected with territories with the less strict protection (nature reserves, protected areas) as well as with elements of ecological network - ecological corridors, forests, water zones and other protected natural areas.

At the present stage it is difficult to classify the allocation of PAs in the territory of the Republic of Kazakhstan as the "ecological network" in its global sense. At the same time inter-state ecological networks in Zaili Alatau, Zhongar Alatau and the Altai region are being formed. Elements of ecological networks are being formed; on the State level those are the West Tien Shan and Altai-Sayan ecological regions.

Kazakhstan has adopted a number of laws aimed at protecting ecosystems: the Constitution of the Republic of Kazakhstan, the Environmental Code of the RK, Forest Code, Water Code, Land Code, the Law "On protection, reproduction and use of fauna", the Law "On specially protected natural territories" and etc.

The targets were included in the sectoral and cross-sectoral strategies and programs. Strategic Plan of Development of the Republic of Kazakhstan to 2010, the Concept of development and deployment of specially protected natural territories of the Republic of Kazakhstan to 2030, the Concept of ecological security of Kazakhstan for 2004-2015, the Concept of Transition of Kazakhstan to sustainable development during the years 2007-2024, plans and programs of the government actions, the National Plan on Environmental Protection, the annual messages of the President of the country to people, the Program on development of the system of specially protected natural territories of the Republic of Kazakhstan for 2007 - 2009 years, the Program on conservation and rational use of water resources, wildlife and development of the network of specially protected natural areas to 2010.

The list of protected areas of national importance was approved by the Government Decision #1074 dated 10 November 2006. It includes 107 objects of the nature and reserve fund.

10 state nature reserves, 9 state national natural parks, 2 state nature reservations, 55 state nature preserves, 5 of public protected areas, 26 natural monuments of national importance functioned in Kazakhstan as of January 1, 2006.

The total area of protected areas of national importance was 21118.7 thousand hectares, including the ones with the status of legal person 3769.1 thousand hectares, which makes 1.4% of the territory of the country.

Over the past three years the area protected areas of national importance has increased due to expansion of existing and creation of new protected areas. In 2007, the total area of protected areas of national importance was 22 038.7 thousand hectares - 8.1% of the territory, including the ones with the status of legal person - 4 689.1 thousand hectares, or 1.7% of the territory of the country. (1.44% of protected areas are state reserves and national parks); In

2008, the total area of protected areas of national importance was 22.2 million hectares, out of which 4.8 million hectares of protected areas had the status of legal person.

10 state nature preserves, 10 state national natural parks, 3 state nature reservations, 50 state nature reserves, 127 geological, 58 geomorphological and 19 hydro-geological facilities of the state nature-reserve fund of national importance, 5 public protected areas, 26 monuments of nature, 5 state botanic gardens of national significance, and 2 public natural park of local significance functioned in Kazakhstan in 2007.

In accordance with the program on conservation and rational use of water resources, wildlife and development of a network of specially protected areas to 2010 it is planned to increase the area of protected areas of Kazakhstan to 1 258.7 thousand hectares (total area of protected areas will be 23,297.4 ha, or 8.5% of the territory of the country).

Increasing of protected areas will allow conserving landscape and biological diversity, wetlands of global importance, increasing the protected territories of rare species of animals, and taking under protection of endemic and rare representatives of flora.

Initiated works and developed approaches must be continued on all natural complexes (forests, steppes, forest and steppes, deserts, semi-deserts, coastal and aquatic ecosystems), for which organization of ecological networks are also relevant, as well as for mountainous areas.

Protection of rare and endangered species of flora and fauna is the important element in the functioning of protected areas. 126 species of vertebrates, 96 species of invertebrates and 207 species of plants are now officially under the threat of extinction in Kazakhstan.

These difficult tasks have to be solved in conditions of high anthropogenic pressure. Under these conditions, conservation of rare and unique species of flora and fauna, sites of natural beauty is possible only through organizing a representative system of specially protected natural areas.

### ***Target 1.2. Protection of areas of particular importance for biodiversity.***

Targets for Kazakhstan to 2010

#### ***1.2.1. Continue research and design work on giving the status of protected areas to areas of particular importance to the BR, including public and private lands.***

In accordance with the Program on development of specially protected natural territories of the Republic of Kazakhstan for 2007 - 2009 years, SNNP "Kolsay lakes" in the Almaty region on the area of 161,045 hectares was created on February 2007 for conservation of natural complexes. Also, the territory of Bayanaul SNNP was expanded to 17764.8 ha.

The Agreement on cooperation between the Ministry of Agriculture, the MoE and UNDP in Kazakhstan was signed in 2007 within the project on VBU on implementation of joint activities under the program of systematic monitoring of the aquatic habitat for the delta of the Ural River with the adjacent coast of the Caspian Sea, Alakol-Sasykkol and Tengiz - Korgalzhyn lakes.

Kazakhstan formally joined the Ramsar Convention on 2 May 2007 following the inclusion of Tengiz-Korgalzhyn system of lakes, the first key ornithological territories of Kazakhstan and Central Asia in the List of Wetlands of International Importance under the special protection of the convention.

The program on conservation and rational use of water resources, wildlife and development of the network of specially protected natural areas to the year 2010 provides submission of proposals on establishing of SNNP "Buyratau" in Akmola and Karaganda region and Zhongar-Alatau (Zhetysu) SNNP in Almaty region, SNNP "Merke" and state natural reserve (complex) "Zhaysan" in Zhambyl region, as well as a new GNP – Tarbagatay GNP in Eastern Kazakhstan region - an area where nature is preserved in its original form, has a high level of biodiversity and regard to the Eurasian continent territories of priority importance for fauna.

Program provides creation of the State Zoological Reserve "Semirechje frog tooth" and the natural park "Kyzyl zhide" in Almaty region in order to preserve biodiversity and its sustainable development.

According to the Resolution of the Government of the Republic of Kazakhstan "On several issues on expansion of the territory of the public institution "Korgalzhyn State Nature Reserve" dated December 18, 2008, the reservation was expanded to 284,208 hectares. Korgalzhyn reserve area is now officially 543,171 hectares.

In view of conservation of the grassland, wetland and coastal ecosystems, the reservation in the delta of the Ural River and on the northern water area of Caspian Sea was created on February 6, 2009 by Decision of the Government of the Republic of Kazakhstan "On some issues of a public institution "State Nature Reserve "Akzhayyk". In general, more than 460 species of vertebrates, including 76 species of fish, 20 species of reptiles, 292 species birds and 48 species of mammals inhabit on the territory of the newly created SNR "Akzhayyk", total area of which is 111,500 hectares (46 58' n.l. 51 45' e.l.).

1 April 2009 - The territory of the delta of the Ural River (DUR) and the adjacent coast of the Caspian Sea is included in the list of wetlands of international importance. This is the second Kazakh territory included in this list.

Work on preparing the documents for nomination to the list of the Ramsar Convention was initiated in 2005 within the framework of the project SFF/UNDP/Government of Kazakhstan on conservation of globally significant wetlands in Kazakhstan. The main reasons for this have been intensive fishing, enforced navigation and permanent oil exploration in the northern coast of the Caspian Sea.

### **1.2.2. Continue work on the study and protection of transboundary ecosystems.**

Establishment of SNR "Altyn Dala" is planned within the framework of international agreements on biodiversity of wetlands and the UNDP project on the environment and the SFF "Development of migration routes and wetlands for conservation of crane and water birds". Funds of the international grant for developing EN and Feasibility Study, which will consider landscape and biological diversity securing, preservation and restoration modes, will be raised for this purpose.

The main part of modern habitats and resources of saiga represented by three separate populations - bekpakdala, Usturt and Ural, are located on the territory of Kazakhstan

30 individuals of kulans were introduced to the territory Andasay State nature reserve of national importance in the Zhambyl region in 2006 within the Convention on Conservation of migratory species of wild animals and implementation of the Program on conservation and restoration of rare and endangered species of wild ungulates and saiga in 2005-2007. Also, a 7 species of Tugai deer were moved to SNNP "Altyn-Emel".

For increasing the efficiency of protection of saiga within the actions on the Program the Irgiz-Turgai SNR was created by the Government Decision #109 dated February 14, 2007 in Aktobe region on the area of 711,549 hectares, which is designated for protection and restoration of saiga.

Removal of saiga throughout the Republic of Kazakhstan is prohibited up to 2011, except for use in research purposes.

In accordance with the Program on development of specially protected natural territories of the Republic of Kazakhstan for 2007 - 2009 years, and with the assistance of the Project (SFF) "Conservation and sustainable use of biological diversity in the Kazakhstan part of Altai-Sayan region", the territory of the West Altai SNP was expanded to 30,044 ha and Markakol SNP – to 27,931 hectares in February, 2007.

## **Goal 2. Assistance in conservation of species diversity**

### **Target 2.1. Restoration, conservation or reduction limitation of populations of taxonomic groups' species.**

Targets for Kazakhstan to 2010

#### **2.1. Development and implementation of the Program on conservation of species, which are prone to reduce the ranges of growth or number as a result of overexploitation, anthropogenic impact or natural conditions.**

The Program "Zhasyl el" for 2005-2007. Relevance of the program development is attributable to the presence of the priorities identified by the Strategic Plan of Development of Kazakhstan up to 2010, where the following strategic objectives relating to forest conservation were identified for the next ten years in the field of environment: improvement of existing legislation; optimization of nature management and environmental protection, ensuring environmental education, as well as challenges in stabilizing the socio-political situation, such as consolidation of the Kazakh society.



In order to preserve the forests and biological diversity two international projects were implemented within the program.

The Project of the Global Ecology Fund "Conservation of biodiversity of Western Tien-Shan" provides strengthening of protection of unique biological communities and expansion of protected natural areas in South Kazakhstan region.

A full-scale project "Conservation of forests and increasing forest cover of the territory of the republic" was developed; it aims at preserving and restoring belt forests of Irtysh and saxaul plantations of Kyzylorda area, support of the forestry industry, development and implementation of environmental norms of use of rangelands in saxaul forests.

During the implementation of the Program, the work on reproduction of forests and forestation were performed on an area of over 108.7 thousand hectares in 2005-2007.

In view of saving the animal world of Kazakhstan to the Program on conservation and restoration of rare and endangered species of wild ungulates and the saiga for 2005-2007 was developed.

Implementation of the program, of course, affects the efficiency of measures on conservation of saiga, and will contribute to conservation of rare wild ungulates and the saiga in the area of their distribution.

Accounting of saigas conducted in 2005-2007, with participation of the Institute of Zoology of the MES RK has shown that the dynamics of reduction of the number of animals is stopped, and there is an increase. In 2005, the number of saiga was 39.6 thousand individuals, in 2007, the number of steppe antelopes has increased to 54.8 thousand individuals, against 21.2 thousand in 2003.

Removal of saiga throughout the Republic of Kazakhstan up to 2011 is prohibited, except for use in research purposes.

## ***Target 2.2 Improved status of species under the threat of extinction***

Targets for Kazakhstan to 2010

### ***2.2.1. Monitoring the status and number of species under the threat of extinction.***

The Red Book of Kazakhstan is the main document that contains a set of information on the status of rare, declining in numbers and endangered animal species in the territory of the republic.

At the beginning of 1988 "The Red Book of the Kazakh Soviet Socialist Republic, part 2. Plants." was published. It included 303 rare and endangered plant species.

A new edition of the Red Book of plants in Kazakhstan is currently being prepared for publication. "The list of rare and endangered plant species", approved by the Government Decision dated 31 October, 2006, contains 387 plant species.

The planned "Red Book of Kazakhstan. Volume 2, Part 2. Plant communities. First publication." ("The Green Book") will include rare plant communities of natural origin, which need protection.

The list of sintaksons proposed for inclusion in the Red Book includes 41 communities: Forest (Wood) communities - 4; Desert-forest communities - 11; Semi-shrub communities - 22, Meadow and marsh community - 4.

The Red Book of Kazakhstan (Vol. 1. Animals. Part 1. Vertebrates. 3rd edition, 1996) includes 125 species and subspecies of vertebrate animals, including birds - 56, mammals - 40 and the second part of the Red Book of Kazakhstan (Vol. 1. Animals. Part 2. Invertebrates) includes 96 species of invertebrates.

The most important issue is preservation of 16 rare and endangered species of fish listed in the Red Book of the Republic of Kazakhstan, which make 11,5% of the fish biodiversity of the country.

Sturgeons are included in the list of objects of the Convention on International Trading endangered species of wild fauna and flora (CITES).

Non-regulated hunting after animals, and other anthropogenic factors cause depletion of the animal world of the republic. Kazakhstan kulan, Turan tiger and most likely a cheetah have disappeared on the territory of Kazakhstan since mid-20<sup>th</sup> century.

### ***2.2.2. Taking legislation acts on protection of species under the threat of extinction.***

The Law of the President dated 06 April, 1999 #372-1 "On joining of Kazakhstan the Convention on International Trading endangered species of wild fauna and flora".

The Law dated 9 July, 2004 #593-II "On the protection, reproduction and use of fauna".

Government Decision dated 15 December, 2004 #1330 "On Approval of Regulations on the Red Book of the Republic of Kazakhstan".

Government Decision dated 31 October, 2006 #1034 "The list of rare and endangered plant species".

Decree of the Government dated 5 January, 2005, #1. "Terms of reference of public accounting, inventory and monitoring of animal life in the Republic of Kazakhstan".

Government Decision dated 04 July, 2004, # 622 approved the second part of the Red Book of Kazakhstan (Vol. 1. Animals. Part 2. Invertebrates).

Government Decision dated 31 October, 2006, #1034 approved the list of rare and endangered animal species:

Among the problems on conservation of rare and endangered species of flora in Kazakhstan the three most important ones are noted.

Plants were not included in the list of endangered species by MSOP, which creates an information vacuum and does not allow international organizations to pay due attention to conservation through their programs and projects.

Secondly, due to that Kazakhstan's rare plants are also not included in the Annex to the CITES Convention, which regulates the rules of trading objects of fauna. The plants, raw materials and derivatives are exported abroad freely, that threatens the existence of rare and endemic species.

And, thirdly, authorized bodies and scientific communities are not familiar with procedures of providing the lists of rare and endangered plants for the lists of the MSOP and CITES, which greatly hinders the process of conservation of flora and prevention of destruction of its valuable species.

### ***2.2.3. Development of the state Program on of conservation of rare and endangered species.***

The Program on conservation and rational use of water resources, wildlife and development of the network of specially protected natural territories to 2010.

Rational and efficient use of natural resources based on a balance of economic, social and environmental aspects, and several other measures provided by the program will allow to:

Create the investment attractiveness of fishery; improve conditions for artificial and natural reproduction of fish; perform reclamation work on the 2 fisheries waters of Kazakhstan;

stabilize the number of red tugai deer, gazelle, mountain sheep, kulan, restoring their populations to historic habitats to sustainable development and the annual increase of the number of saiga to 10%, recorded in number increase data;

protect endemic and rare representatives of flora, the unique sub-alpine vegetation;

create a system of protected natural areas in priority regions, ensuring long-term conservation of biological diversity and sustainable environment.

### ***2.2.4. Assist in conservation of species in conditions of non-governmental protected areas and hunting places.***

Hunting grounds in the Republic of Kazakhstan take 243.7 million hectares, of which 105.7 million hectares (43.3%) were assigned to the 608 hunting farms in 1 November 2007, the remaining land is common.

The issue of conservation of the unique fauna of Kazakhstan is becoming year by year more important, and the importance is given to development of hunting farms in order to attract private capital for protection and reproduction of animals.

For this purpose, a legal basis in the field of protection and reproduction of animals was created in the republic. The Law of the Republic of Kazakhstan "On protection, reproduction and use of animal life" was taken, for implementation of which about 30 legal acts were developed and adopted.

During 2004-2005, for the first time in 20 years the work on the inter-farm hunting development and hunting and economic research in all 14 areas was carried out and materials were prepared, on which the regional territorial management of forest and hunting economy,

together with the regional executive bodies hold contests for assigning the reserve fund of hunting grounds. As a result, about 300 game farms were assigned on a competitive basis during 2006-2008, and the total number as of 1 November 2008 is 655 households. Protection of animal life in the hunting grounds is strengthened by hunting management. According to the data of the local offices the number of hunters in 655 hunting farms reached 2272 people, they have about 1411 assigned vehicles.

Work on increasing the area of assigned hunting grounds for hunting organizations is ongoing.

With the adoption of the Law the system of assigning the hunting grounds has changed to long-term basis from 10 to 49 years. This provision allows hunters to invest funds and attract investment in the development of hunting.

Protection of animal life in the hunting grounds is strengthened by hunting management. Determination of the legal status hunting departments of hunting management organizations, providing them with the right to protocol the poachers has given the new direction to providing security of the animal world.

In accordance with the new redaction of the Law of the Republic of Kazakhstan "On specially protected natural areas" the new procedure of development of ecological tourism in the territory SNNP was established.

Allocation of lands for the specially protected natural areas to physical and legal persons for use in regulated tourism and recreation will be made only in accordance with the master plan on infrastructure development. This will allow to plan and carry out controlled tourism in protected areas with the lowest pressure on natural systems.

### **Goal 3. Promote the conservation of genetic diversity**

**Target 3.1. Genetic diversity of crops, livestock, and of harvested species of trees, fish and wildlife and other valuable species conserved, and associated indigenous and local knowledge maintained.**

Targets for Kazakhstan to 2010

***3.1. To develop and implement the Programme for conservation and rational use of genetic resources of valuable, indigenous and perspective wild and domestic (species, breeds) of plants and animals.***

The following programs were developed and implemented in the Republic:

Action Plan on execution of the National Plan of main directions (actions) on implementation of the annual messages of the Head of the State in 2005 - 2007 to people of Kazakhstan and the Program of the Government of the Republic of Kazakhstan for 2007 - 2009 years.

Strategic objectives of the State are: taking effective measures on rational use of natural resources, investment of private capital in protection and reproduction of forest resources and the animal world, increasing its liability for the state of activities in these spheres.

The program of priority measures for 2006-2008 on realization of the Concept of Sustainable Development of the agroindustrial complex of Kazakhstan for 2006-2010.

The set of measures on sustainable development of the agroindustrial complex of Kazakhstan for 2009-2011.

Strategic Plan of the Ministry of Agriculture of the Republic of Kazakhstan for 2009 - 2011 years (Decree of the Government of Kazakhstan #1215 dated December 23, 2008).

The "Zhasyl el" program for 2005-2007.

Two international projects were implemented within the program in view of preservation of forests and biological diversity.

Project of the Global Environment Fund "Conservation of biodiversity of Western Tien-Shan".

A full-scale project "Conservation of forests and increasing of forest cover territory of the republic".

Ongoing implementation of the Program "Zhasyl el" for 2008-2010.

Formation of permanent Forest seed base through identification of objects for selection and seed, selection and genetic use, is provided by two companies - RGKP «Almaty timber breeding center» and RGKP «Kokshetau forest breeding center».

Activities of Aral Experimental Station of Genetic Resources of Plant are directed on mobilization, study and preservation of collections of genetic resources of agricultural plants.

Currently, the station has a collection of 10,765 samples of crops. Out of these, forage - 4539 samples of vegetables - 1634, cereal - 3994 and sorghum - 598. For 16 years the collection has increased by 2 times. The growth of the gene pool was achieved as a result of organizing expeditions and scientific exchange with scientific research institutions of other countries. The collection has the unique native forms, subjected to years of natural and artificial selection, as well as old and modern breeding varieties. They belong to 65 species belonging to 60 genera.

The new replenishment of the gene pool was studied in harsh desert conditions of Northern Aral Sea region. In the period from 2006 to 2008 selection evaluation was given to 1244 specimens of plants, including fodder crops - 480, vegetables – 200, grain - 500 and sorghum - 64 samples. 469 sources (heat-, drought-, salt- and winter resistance, high productivity, precocity, etc.) were detected. During this period, 1814 samples of crop-bearers of commercially valuable traits were transferred to research institutions of the country.

Currently, employees of Aral experimental station are implementing the project NIR for 2009-2011 “Save, replenish and study the genetic fund of forage, grains, vegetables and sorghum cultures in order to identify sources of high productivity and resistance to stress factors for use in plant breeding in the south-west of the republic”.

The program on conservation and restoration of rare and endangered species of wild ungulates and saiga for 2005-2007, approved by Government Decision #267 dated 25 March 2005.

The program on conservation and rational use of water resources, fauna and the development of a network of specially protected natural territories to 2010, developed in accordance with the Water, Forest Codes, the Laws of the Republic of Kazakhstan “On protection, reproduction and use of fauna”, “On specially protected natural territories”, the concept of development and deployment of specially protected natural territories of Kazakhstan up to 2030, the concept of development of water sector and water policy of Kazakhstan up to 2010, the Concept of Development of Fisheries of Kazakhstan for 2007-2015.

“Republican scheme of acclimatization and stocking of water reservoirs” was approved.

As part of the budgetary program “Reproduction of fish resources”, stocks of commercial flake was replenished by stocking of 35 fish reservoirs of the country with fry of valuable fish species. Seven million pieces of sturgeon, 55 million larvae of carp, 70 million of whitefish, nearly 37 million of cyprinids were produced and released.

The state program of tourism development in the Republic of Kazakhstan for 2007-2011 provides execution of commitments under the Conventions ratified by Kazakhstan in terms of biodiversity conservation and protection of monuments of world natural and cultural heritage, ensuring the implementation of recommendations of the Quebec Declaration on development of ecological tourism, adopted at the World Environmental Summit in May 2002: to develop a national, regional and local policies for the development of eco-tourism, taking into account the measures on protection of nature, local culture and national traditions and preservation of genetic resources, in partnership with local communities, private sector, non-governmental organizations.

Implementation of these recommendations and providing the specific needs of eco-tourism in protected natural areas, conservation of rare species of animals and plants, in conjunction with the unique culture and traditions of the population, as well as continued expansion of the geography of tours will allow to confidently predict the success of this type of tourism in Kazakhstan.

For implementation of the priority of SD concept in the part of preservation of biodiversity, the following projects were developed and implemented:

1. Conservation of agro-biodiversity in the places of the natural growth in Kazakhstan. (SEF);
2. Conservation and sustainable use of biodiversity of Altai-Sayan Ecoregion. (SEF);
3. Integrated conservation of globally significant wetlands as waterfowl habitat. (SEF).

#### PROMOTING SUSTAINABLE USE

#### **Goal 4. Promote sustainable use and consumption**

**Target 4.1. Biodiversity-based products derived from sources that are sustainably managed, and production areas managed consistent with the conservation of biodiversity.**

Targets for Kazakhstan to 2010

**4.1.1. To develop economic and regulatory mechanisms that will provide for government support (tax preferences, loans, programmes, credits, funds) for development of farms and enterprises producing local biodiversity-based resources.**

Messages of the President of the Republic of Kazakhstan of Kazakhstan: "Kazakhstan on the stage of accelerated economic, social and political modernization (of 18 February 2005)"; "The growth of the welfare of the citizens of Kazakhstan - the main objective of public policy" (6 February 2008).

Environmental Code of the RK, The Water Code of the RK, the Forest Code of the RK.

Laws of the RK: "On state regulation of agriculture and rural areas"; "Compulsory Insurance in plant growing"; "On protection, reproduction and use of fauna"; "On specially protected natural territories".

Program of the Government of the Republic of Kazakhstan for 2007 - 2009 years, approved by Decree of the President of the Republic of Kazakhstan dated April 6, 2007 #310 "On further actions on implementing the Strategy of Development of Kazakhstan up to 2030"; The concept of sustainable development of agro-industrial complex to 2010 and the Action Plan on its implementation.

The program of priority measures for 2006-2008 on realization of the Concept of Sustainable Development of the agroindustrial complex of Kazakhstan for 2006-2010.

Programs "Zhasyl el" for 2005-2007, "Zhasyl el" for 2008-2010.

The concept of fisheries development in the Republic of Kazakhstan during the years 2007-2015 is aimed at formation, preservation, reproduction and sustainable use of fish and other aquatic resources, water management, development of fishing and fish processing industries, commercial fish farming, applying the latest techniques and technology for development fisheries in the world.

The current situation in the agro-industrial complex of the republic is characterized by the growth of production efficiency, the market of financial services in rural areas, improving the quality of life of rural people.

In the end of 2007 the volume of gross agricultural output exceeded one trillion tenge and reached 1121.8 billion tenge, while output growth was more than 8%.

At present, the production of gross output per 1 employee in the industry is more than \$3800.

The unemployment rate in rural areas in 2007 was 6.2%.

Each year investments in fixed capital in agriculture are increasing. If in 2002 investments amounted to 17.3 billion tenge, in 2007 it was 55.9 billion or 3.2 times higher.

Dynamic development of agro-industrial complex promotes the effectiveness of government support. In 2002, 27.3 billion tenge was allocated for this purpose from the national budget, and in 2007 - 77,9 billion tenge or 2.8 times more, including the subsidies amounted to 21.5 billion tenge credits - 26,2 billion tenge.

In 2008, in general 137.0 billion was allocated, including subsidies - 21.6 billion, loans - 52,6 billion tenge.

**4.1.2. to provide economic and regulatory support for development of private game husbandries and fish farms, hatcheries and reserves aimed at rearing, reintroduction and sustainable use of biodiversity, including of rare, endemic and indigenous species**

Laws of the RK: "On Protection, Reproduction and Use of Fauna"; "On specially protected natural territories".

Resolution of the Government "On Approval of Rules of hunting in the Republic of Kazakhstan"; "Republican scheme of acclimatization and stocking of reservoirs".

Government Decision of 20 May 2002 #537 approved "The rules of lending in agricultural production through a system of rural credit cooperatives, which determine the procedure and conditions for lending to agricultural production through a system of rural credit cooperatives".

Action plan on implementation of the Concept of development of a network of micro-crediting institutions for lending to agricultural producers of Kazakhstan, approved by the Government Decision #675 dated 14 July 2006.

11370 microcredits to the amount of 2 249.7 million tenge were given during the period 2003-2007.

In general 161 rural credit cooperatives (including 8 in 2008) were created, which include more than 6,5 thousands of agricultural products producers.

Microcredit programs for the 2008-2011 – “Microcrediting of rural entrepreneurs living close to the specially protected natural areas”.

The program is being implemented jointly by JSC “Fund for Financial Support of Agriculture”, SEF, Forest and Hunting management Committee of the Ministry of Agriculture of the RK, Fund on conservation of biodiversity of Kazakhstan and UNDP within the project on conservation of wetlands in Kazakhstan on three project areas: the delta of the Ural River, Tengiz-Korgalzhyn and Alakol - Sasykkol system of lakes.

More than 2.5 billion tenge loans were allocated to enterprises of the fishing industry. Development institutes - JSC “KazAgroFinance”, “Agrarian Credit Corporation” and “The Fund on development of small business” - funded 19 projects in this area in 2006-2007.

***Target 4.2. Unsustainable consumption of biological resources, or consumption that impacts upon biodiversity, is reduced.***

Targets for Kazakhstan to 2010

***4.2.1 Withdrawal quotas are established in accordance with scientific recommendations and based on monitoring assessments of populations. Withdrawals of biological products are under public and social control.***

Steps to streamline the system of counting the number of wild animals were taken in 2005. Distribution of limits for seizure of animals is carried out only on the basis of records of hunting management organizations in established hunting grounds, eliminating the current system of approval of limits on the extraction of animals, and in reserve fund.

Government Decision #1364 dated 29 December 2007 “On approval of limits on removal of objects of fauna for 2008”.

In accordance with the Law of the RK “On protection, reproduction and use of fauna”, the Government of Kazakhstan decided to approve the limits on removal of animals each year. Forest and Hunting management committee of the Ministry of Agriculture allocates quotas for removing animals between users of fauna on the basis of approved limits.

Government Decision #73 dated 28 January 2008 “On Approval of fish and other aquatic animals catch limits in the fishery waters for 2008”.

In accordance with the Law of RK “On protection, reproduction and use of fauna”, the Government of Kazakhstan decided: to approve fish and other aquatic animals catch limits in the fishery waters each year, Fishery Management of the Ministry of Agriculture provides allocation of quotas of catch of fish and other aquatic animals between economic entities on the basis of approved limits in the order established by legislation.

During the 28<sup>th</sup> meeting of the commission on water biological resources of the Caspian Sea held in Ashgabat on 28 January - 2 February 2008, it was decided agreed to reduce a total quota for the catch of sturgeon fish species to the Caspian States in 2008 by 10 tons in comparison with last year, to 1061,02 tons. National quotas of the Caspian states were allocated as follows: Azerbaijan - 90 tons, Kazakhstan - 182,5 tons, Iran - 440 tons, Russia – 286,5 tons, Turkmenistan – 62,02 tons.

The quota for the export of caviar for 2008 for Azerbaijan is defined at the level of 6 660 kg, Kazakhstan - 13 270 kg, Iran - 42 200 kg, Russia - 24 200 kg, Turkey - 5 057 kg.

These quotas are approved by the Secretariat of the Convention CITES.

Kazakhstan has called for the revision of quotas on the catch of sturgeon in the Caspian Sea.

The current mechanism of allocation of quotas for sturgeon catch, when Iran gets 45 percent out of the total allowable catch, Russia - 27, and the remaining three countries - 28 percent, which is divided between Kazakhstan, Turkmenistan and Azerbaijan does not meet today's realities.

It is necessary to prepare a “scientific justification for the use of biological resources and resolve the matter by signing a pentilateral agreement”.

For over ten years, the Caspian countries are developing the Convention on the legal status of the Caspian Sea. Not in the least part the value of this document is related to the issue of ownership of natural and, above all, energy resources. Prior to the adoption of the Convention, Soviet-Iranian Treaties of 26 February 1921 and 25 March 1940 continue to operate.

#### **4.2.2. Reduction of poaching for all biodiversity resources (forests, fish, flora and fauna).**

##### *Legislative mechanisms.*

Criminal Code of the Republic of Kazakhstan #167-1 dated 16 July 1997 (amended in accordance with the Laws of the Republic of Kazakhstan dated 09.07.98, #583-II; dated 09.12.04, #10-III).

Code of the Republic of Kazakhstan on Administrative Violations dated 30 January 2001, #155-II (with amendments as of 13 December 2004).

Environmental Code of Kazakhstan, the Water Code of RK, the Forest Code of Kazakhstan.

Resolution of the Government of the Republic of Kazakhstan dated 23 December 2003 #1303 “On Approval of Rules regarding the use of wildlife in areas of state forest fund, including for hunting”.

Government Decision of the RK #460 dated 23 April 2004 prohibits felling of primary use in softwood and saxaul plantations on sites of State Forest Fund of Kazakhstan for 10 years.

Implementation of the logging in areas of state forest fund by state forest owners is carried out in forestry purposes.

Fuelwood for local population is provided by public forest owners at the cost of interim use and other felling.

A legal framework on protection and reproduction of fauna was set up in the Republic. The Law “On Protection, reproduction and use of fauna” was adopted, for implementation of which about 30 legal acts were developed and adopted.

Government Decision dated 31 December 2004 #1469 “On Approving the Rules of issuing permits for the use of fauna”.

Government Decision dated 30 December 2004 #1441 “On Approval of Rules of hunting in the Republic of Kazakhstan”.

Government Decision dated 15 April 2002 #429 “On approving rates for the use of fauna (with amendments according to the Government Decision #459 dated 23.04.04, #942 dated 08.09.04).

Government Decision #1034 dated 31.10.2006 “On Approving the List of rare and endangered species of animals and plants”.

Resolution of the Government of the Republic of Kazakhstan #267 dated 25 March 2005 “On approval of the conservation and restoration of rare and endangered species of wild ungulates and saigas for 2005 - 2007 years”.

Resolution of the Government of the Republic of Kazakhstan #914 dated 8 October 2007 “On approval of the Program on conservation and rational use of water resources, wildlife and development of a network of specially protected natural areas to the year 2010”.

Removal of saiga in the entire territory of the Republic is prohibited until 2011.

State inspectors of territorial agencies of the Forest and Hunting Committee of Agriculture Ministry, inspectors of departments of specially protected natural territories, security inspectors of RSE “Ohotzooptom” and hunting departments of hunting organizations are involved in protection of fauna.

Government inspectors of the regional territorial inspections of Forestry and Hunting management, employees of enforcement and environmental authorities are also involved in protection of saiga.

As a result of actions taken there is a stabilization of the number of observed Tugai red deer, gazelle, mountain sheep, kulan, restoration of their populations in historic habitats to sustainable development and the annual increase in the number of saiga to 10%;

Each year the state conducts special large-scale raids to suppress poaching fish and game, forest, spending a significant budget. Moratoriums on catching of certain species of animals (saiga, seal) and logging (saxaul, conifers) are being introduced.

#### **Target 4.3 No species of wild flora or fauna endangered by international trade**

Targets for Kazakhstan to 2010

**4.3.1. To include rare and endangered plant species growing in Kazakhstan into the International Red Book and to the list of CITES.**

**4.3.2. To develop modern criteria for including / excluding species into / from the Red Books**

The RK Government Decree #1994 dated December 28, 1999, On Kazakhstan's Actions to Meet Its Obligations under the Convention on the International Trade in Endangered Species of Wild Fauna and Flora (amended by the RoK Government Decree No 1239 dated November 22, 2002).

Wild animals inhabiting in the territory of Kazakhstan and included in the Appendices of CITES Convention and the rules of trade of European Union (EU).

Annex I: - 20 species. Annex II: - 87 species. Total 107 species of fauna of Kazakhstan are included in the Appendices of CITES Convention.

Species and populations included in Appendix III of CITES are not available in Kazakhstan.

Three most important problems are noted among the problems on conservation of rare and endangered species of flora in Kazakhstan.

Plants not included in the list of endangered species by IUCN Red List of Threatened Species. The absence of such a list has serious economic and environmental consequences for the country and does not allow international organizations to pay due attention to conservation through their programs and projects.

Secondly, due to that Kazakhstan's rare plants are also not included in the Annex to the CITES Convention, which regulate the rules of trading objects of fauna. Plants, raw materials and derivatives are exported abroad freely, that threatens the existence of rare and endemic species.

And, thirdly, authorized bodies and the scientific communities are not familiar with procedures of submitting the lists of rare and endangered plants for the lists of the IUCN Red List of Threatened Species and CITES, which greatly hinders the process of conservation of flora and preventing destruction of its valuable species.

#### THE REMOVAL OF THREAT TO BIODIVERSITY

**Goal 5 Pressures caused by loss of habitat, land-use change, land degradation and unsustainable water use, reduced.**

**Target 5.1 The rate of loss and degradation of natural habitats decreased**

Targets for Kazakhstan to 2010

**5.1.1. At the national and subnational levels identified important biodiversity sites (habitats, breeding sites, migration paths of rare, endemic and relic species), and included into the category of conservation land.**

In order to reduce the rate of loss and degradation of natural habitats, the following programs were developed: Environmental Protection of Kazakhstan for 2008 - 2010 years, "Zhasyl el" for 2005-2007, Reproduction of fish resources, the Program on development of specially protected natural territories of the Republic of Kazakhstan for 2007 - 2009 years, the Program on actions against desertification in the Republic of Kazakhstan for 2005-2015, the State Program on development of rural territories of the Republic of Kazakhstan for 2004-2010, the Program on Rational Use of Agricultural Land for 2005-2007, other government and industry programs on land relations, land management, use and protection.

Government Decision (10.11. 2006, #1074.) approves the List of protected areas of national importance.

**5.1.2. Sites are monitored.**

A monitoring of the sites within the program is being held: on struggling against desertification in the Republic of Kazakhstan for 2005-2015, on preservation and restoration of rare and endangered species of wild ungulates and the saiga for 2005-2007; on conservation



and management of water resources, wildlife and development of a network of specially protected areas to 2010; on environment protection in the Republic of Kazakhstan for 2005 - 2007 and 2008 - 2010.

In the framework of international projects: Conservation of agro-biodiversity in the natural growth in Kazakhstan, Conservation and sustainable use of biodiversity of Altai-Sayan Ecoregion; Integrated conservation of globally significant wetlands as waterfowl habitats.

### ***5.1.3. As required, national and subnational authorities set limits for some types of nature use***

Kazakhstan has adopted a number of laws aimed at protecting ecosystems: the Constitution of the Republic of Kazakhstan, the Environmental Code of the RK, Forest Code, Water Code, Land Code, the Law "On protection, reproduction and use of fauna", Law "On specially protected natural territories", Orders approved by the Government: Guidelines for state control over the use and protection of land; Rules on limited economic use of public natural-reservoir fund of national and international importance in the protected areas; the List of environmentally hazardous economic activities and the Rules on compulsory licensing of them, etc.

### ***5.1.4. The work for enlarging PA network of national and subnational importance is continued.***

Works on expansion of the protected areas network of republican and local importance is continued within the framework of the development of specially protected natural territories of the Republic of Kazakhstan for 2007 - 2009 and the Program for the conservation and rational use of water resources, fauna and development of a network of specially protected natural territories to 2010.

UNDP is starting implementation of the new environmental project "Conservation and sustainable management of steppe ecosystems". Its main efforts will be aimed at preserving the Kazakh steppe ecosystem. Conditions of steppe ecosystems are improving as a result of expansion of the network of protected natural areas, which will be managed on the basis of the logic of a single landscape.

### ***5.1.5. The legislative basis for organization and development of non-government PAs.***

The legislative framework on organization and development of non-state protected areas:

"On the Concept of Transition of Kazakhstan to sustainable development in the years 2007-2024"; Environmental Code of the RK, Forest Code, Water Code, Land Code, the Law "On protection, reproduction and use of fauna", Law "On Specially Protected Natural Areas".

In order to develop ecological tourism in protected areas a Memorandum of Understanding between the CIT TSM RK, FHC MA RK, the Environmental Forum of non-governmental organizations, Kazakhstan Tourism Association has been signed.

#### **Goal 6. Control threats from invasive alien species.**

**Target 6.1. Pathways for major potential alien invasive species controlled**

**Target 6.2. Management plans in place for major alien species that threaten ecosystems, habitats or species.**

Targets for Kazakhstan to 2010

#### ***6.1 The criteria for alien species are developed. The lists are prepared. Pathways of invasion and locations are identified. Control actions are developed.***

The scheme of phytosanitary risk analysis (FIA), prepared as a standard of the Secretariat of the International Plant Protection Convention (IPPC - International Plant Protection Convention) is recommended. It is a part of the global program of the World Food and Agricultural Organization (FAO - Food and Agricultural Organization) of UN in the field of plant quarantine. The ultimate goal of the analysis is to determine whether the selected harmful organism has a quarantine significance for the study area ("FIA habitat").

Alien species reach the territory of Kazakhstan through:

- natural movements associated with fluctuations in the number and climate change;

- introduction and reintroduction of organisms important in respect of economics (plants, insects, fish, birds, mammals);
- random drifts with ballast water, soil, imported agricultural products, with introductions, luggage, etc.

The list of plants and animals introduced into the territory of Kazakhstan and neighboring countries (former USSR) contains over 940 species. Most of them are marked for the territory of Northern Eurasia, a region through which the main flow of transport and goods (particularly timber and grain) from foreign countries has passed during a long time.

Kazakhstan has officially registered 13 species of quarantine objects, including 8 species of insects, including carp beetle, Komstok mealybug, black pine-leaf scale, eastern seedworm, four-spotted seed beetle, phylloxera, the American white butterfly, and 5 species of weeds (creeping bitterling (pink)), dodder, perennial ambrosia, sagebrush-leaf ambrosia, barbed nightshade).

A legislative framework was developed. Constant monitoring of the phytosanitary situation, including at the expense of the national budget is carried out on the territory of the republic. In 2008, actions against particularly dangerous harmful organisms were taken in the area of 3 369.8 thousand hectares, and on detection of the quarantine weeds – on the area of 1 655.9 thousand hectares, detection of quarantine pests – on 1 543.0 thousand hectares, chemical processing against quarantine weeds – on the area of 108.24 hectares and against quarantine pests – on 101,8 thousand hectares.

**Target 6.2. Management plans in place for major alien species that threaten ecosystems, habitats or species.**

Targets for Kazakhstan to 2010

***6.2. The programme has been developed and measures to control alien species threatening biodiversity and environmental safety are implemented. Alien species are monitored.***

Concept of Transition of Kazakhstan to sustainable development in the years 2007-2024 provides development of measures to prevent importing and spreading of quarantine and alien harmful organisms, by: ensuring the effective operation of services of Plant Quarantine, in accordance with international standards, development and implementation of interventions to prevent the infiltration of the country, identify, locate and eliminate spots of spreading of quarantine and alien harmful organisms; control over acclimatization works inside the country.

As part of the accession of Kazakhstan to the World Trade Organization (WTO), one of the most important tasks is the enforcement of quality control and assessment of security risks in agricultural production with the requirements of the WTO Agreement on the Application of Sanitary and phytosanitary standards.

Considering that one of the main requirements of entry to the WTO is joining of Kazakhstan of the International Convention on Quarantine and Plant Protection, the work on joining this Convention is being performed.

Agreements on cooperation in the field of quarantine and plant protection were signed with the CIS countries, Bulgaria, Turkey, Mongolia, Romania, the Republic of China, Jordan.

Creating a database on introductions of alien species into the territory of Kazakhstan is essential for effective monitoring of “biological pollution” of ecosystems and the international exchange of information.

Work on development of subsystems of the Unique Automated System of Management (UASM) has been performed by branches of the agroindustrial complex. In 2007, 14 subsystems on 4 main areas of agroindustrial complex have been created, including in the field of animal husbandry and veterinary, phytosanitary security. Forms of departmental statistical information were developed and integrated into UASM, patterns of input and output documents, references and classifications were developed.

**Goal 7. Address challenges to biodiversity from climate change, and pollution**

***Target 7.1. Maintain and enhance resilience of the components of biodiversity to adapt to climate change.***

Targets for Kazakhstan till 2010

**7.1. Expand the network of variety-and rock-testing facilities, which are working on zoning sorts \ rocks in accordance with the climatic conditions of different regions of Kazakhstan.**

Kazakhstan is characterized by pronounced horizontal and vertical zonation of soil and vegetation cover. The forest-steppe and steppe zones take 10%, semidesert and desert - about 60, in mountain areas - about 5% of the land.

Climate - is continental with long and cold winters and relatively short hot summers. The vegetative period lasts from 105 to 165 days, extended from north to south. The sum of positive temperatures (above 10 °C) in the forest of Northern Kazakhstan at 2500 ° and increases to the south up to 4500 °C.

All agricultural zones of Kazakhstan are characterized by low amount of annual precipitation - 150-320 mm. Only in the foothill steppe zone, middle and high mountain areas the average annual rainfall is higher - from 460 to 880 mm.

The diversity of soil-climatic zones and their bioclimatic potential, the genetic capacity of local breeding crop varieties allow the successful development of major industries - crop and livestock

Action Plan to implement the Concept of Sustainable Development of the agroindustrial complex of Kazakhstan for 2006-2010, and regional programs for sustainable development of agro-industrial complex for 2006-2010 provides the following measures for zoning sorts \ rocks in accordance with the climatic conditions:

- Stimulate the production of priority crops in climatic zones with the use of advanced technologies,
- Creation and introduction of new high-yielding plant varieties adapted to local conditions, resistance to stress;
- Continued use of state support for the breeding of livestock for the expansion of the network and strengthen the material and food supply actors livestock breeding, the allocation of grants to entities cheaper fodder breeding livestock;
- Improvement of scientific support to selection and breeding work, training and retraining of specialists for animal husbandry;
- Purposeful selection and breeding to improve the breeding and productive qualities of the local animals, including the use of a foreign gene pool.

To increase the livestock of the most productive animals and the number of households with middle and large production, the College of Agriculture Ministry of Kazakhstan have identified priority breeds of farm animals (Decree of Ministry of Agriculture of Kazakhstan dated 3. 08. 2008, #47).

In order to improve management of scientific and technological assets of the state in agrarian sphere JSC «KazAgroInnovatsiya» was created (Government Decision of May 22, 2007 № 409 «On the reorganization of the individual organizations of the Ministry of Agriculture»

Scientific organization JSC «KazAgroInnovatsiya» conducted research within the budget program 042 «Applied Research in the field of agro-industrial complex», 2006-2008.

In 2007, the Agricultural Science produced the following results.

In the area of crop and farming:

- Created and transferred 64 new varieties and hybrids of agricultural, fruits and berries and other crops to the State variety-test;
- A national information system on plant genetic resources;
- Improved forest management, developed guidelines for the adaptive-landscape system, agriculture, etc.

In the field of animal husbandry:

- Withdrawn and tested 3 types and 6 new lines of farm animals, including 4 lines of Edilbaevskaya breeds of sheep, 2 inter-breed types of karakul sheep, inter-breed type of brown dairy cattle «Akyrys», 2 factory line Auliekolsk breeds of cattle.
- 1 breed, 12 types, 5 lines and one cross of new farm animals and birds are at the stage of validation by RK Agriculture Ministry State Commission.

In 2009, Kazakhstan will start the construction of selection and technical complexes for the development of the domestic breeding of agricultural structures.

## **Target 7.2 Reduce levels of pollution and its impact on biodiversity**

Targets for Kazakhstan till 2010

### **7.2.1. Reducing emissions and improving the treatment of emissions into the environment.**

The Environmental Code of Kazakhstan (RK EC) was adopted in 2007. The Code is harmonized with all international conventions ratified by Kazakhstan. Its main feature and focus on sustainable development is that it is based on the principle of «address the causes rather than the consequences». There are also strategic documents such as the concept of ecological security of Kazakhstan, The concept of transition to a sustainable development program for environmental protection. In order to improve the industry The basic directions of sustainable development of environmental protection in the Republic of Kazakhstan for 2007-2012 years was developed.

In accordance with the EC RK the order of the Minister of the Republic of Kazakhstan approved the Rules of inclusion of nature using conditions in the permits for emissions into the environment.

In accordance with international experience, starting in 2008 the quotas on the emissions of the country were imposed. The environmental permits are being integrated by the experience of the European Union. Started the application of modern model of the state environmental control. Demands on the regime of specially protected natural areas increased everywhere. In addition, the new principles of ecological and economic incentive for environmental protection are being developed. Work on shift to environmental taxes on final products rather than pay for emissions into the environment is in progress.

There is a positive trend of reducing emissions per unit of GDP. This greatly facilitates the introduction of advanced technologies and measures to reduce pollutants in many enterprises. For example, the heat pumps used in East Kazakhstan, allow to significantly reduce the burden on the environment. A specialist from Germany is preparing a project to establish a small hydroelectric power station without retaining dams in the Balkhash-Alakol pool.

In order to prevent global climate change, which is already affecting the food resources of the earth and the stabilization of greenhouse gases in the atmosphere, Kazakhstan in 1995 ratified the UN Framework Convention on Climate Change. These issues are included in major policy documents. The Law «On ratification of the Kyoto Protocol to the United Nations Framework Convention on Climate Change» was adopted.

MEP RK completed domestic procedures for the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade. Convention has been ratified by the Law of the Republic of Kazakhstan dated 20 March 2007 № 239-III ZRK.

### **7.2.2. A procedure EIA and environmental expertise of built and existing public enterprises and public organizations on the basis of the ecosystem approach and the principles of conservation of BD is being conducted.**

The need to address environmental issues in the region and the country as a whole is not in doubt, the implementation of measures identified in the Concept of ecological safety of the Republic of Kazakhstan should lead to the establishment of environmental standards for sustainable development of society.

In connection with the introduction of the Environmental Code for the implementation of the expert work of the state ecological expertise (SEE), the MEP developed and adopted regulations.

SEE is conducted by an authorized body in the field of environmental protection and local executive bodies within their competence.

Environmental Impact Assessment (EIA) is mandatory for any kind of economic and other activities. The results of impact assessments are an integral part of pre-planning, planning, pre-project and project documentation.

Monitoring the compliance with the requirements of environmental legislation of Kazakhstan in the performance of the EIA procedure is performed by the authorized body on environmental protection.

Expert Group to prepare a national report 3 in accordance with the global goals and objectives of the National Strategy and Action Plan on biodiversity conservation proposals to the Target tasks of the country until 2010.

**Objective 8 Maintain capacity of ecosystems to deliver goods and services and provide means of livelihood**

**Target 8.1 Maintain capacity of ecosystems to deliver goods and services**

Targets for Kazakhstan till 2010

**8.1.1. Research has been conducted to assess the condition and productivity of ecosystems**

As part of the research program «Protection of the Environment of the Republic of Kazakhstan for 2008 - 2010 years» to meet the challenges of biodiversity conservation comprehensive ecological studies are carried out in the Shchuchinsk-Borovoye resort area to determine how its sustainable development assesses the current status of rare, endemic, relic species flora and fauna in Western Kazakhstan, endangered species, the assessment of biodiversity in Northern Kazakhstan, landscape studies Bayanaul SNNP.

Flora of Kazakhstan includes about 6000 species of medicinal plants, many of which have long been used in medicine, agriculture, industry, but most of the presents yet undiscovered reserves, and to the State Pharmacopoeia includes only 100 species of plants.

Identification of industrial stocks of medicinal plants, development of optimal schemes for the exploitation of beds and the organization of its industrial harvesting is conducted within the framework of scientific-technical program «Development and organization of the production of original export phytopreparations for the development of the pharmaceutical cluster in the Republic of Kazakhstan» for 2007-2009.

The Program for the conservation and rational use of water resources, wildlife and the development of a network of specially protected natural areas to the year 2010 provides carrying out research work in the field of conservation, reproduction and use of animal world and to make recommendations for its stabilization.

From 2004 to the present time a number of scientific studies on fish resources the Caspian Sea region are being conducted. In particular, annual operating assessment and forecasts of the status of the Caspian Sea biological resources, including sturgeon species are provided.

Within the framework of the Action Plan Phase II State Program of development of Kazakhstan's sector of the Caspian Sea for the period 2006-2010, the following actions are being taken:

- Functional zoning of the reserve zone of the Northern Caspian Sea in order to limit the impact of marine operations on biodiversity;
- The scientific study of the state of flora and fauna of the Caspian Sea and its coastal zone for public accounting, monitoring and inventory.

The project «Integrated conservation of globally-significant water and wetland as habitat of migratory birds: a demonstration in the three territories» conducted extensive research with the use of advanced technologies of geographic information systems (GIS) and the ecosystem approach is a review of the state of agriculture, fishing and hunting farms, the analysis to assess the current state of the oil sector in the project area of the delta of the Ural River.

Completed survey and inventory of wild-fruit forests research within the project «Conservation in-situ of mountain agrobiodiversity in Kazakhstan».

**8.1.2. Developed and submitted proposals on supporting the productivity of ecosystems to provide goods and services to the Government**

A draft of Law of the RK «On introducing amendments and addenda to some legislative acts of the Republic of Kazakhstan on issues of fisheries», developed in accordance with the concept of fisheries development was brought for Majilis of the Parliament.

The draft of the Law provides a legal framework for the marine, coastal, recreational, sporting, scientific, reclamation and other species and methods of fishing and other aquatic animals, the improvement of the rules governing the use of animal world, the development of aquaculture, as well as more efficient use of water and other natural resources.

### **8.1.3. Adoption of texts on the development of the tourism sector, including the development of ecological tourism**

State program of tourism development in the Republic of Kazakhstan for 2007-2011, approved by Government Decision of 28.02.2007, number 156.

### **Target 8.2 Preservation of biological resources that support sustainable harvesting of livelihoods, local food security and health, in particular for the poor people**

Targets for Kazakhstan till 2010

#### **8.2.1. The State encourages and provides economic support (credits, loans, programs) to the residents, farmers and tenants involved in the collection and processing of natural resources on the basis of careful use of local biological resources, development of ecological, ethnographic, hunting tourism and services associated with them.**

Consider principles of sustainable development, prudent and efficient use of natural resources, well-balanced population policy in all the sectoral and regional programs.

In accordance with the Law of RK «On state regulation of agriculture and rural areas», government regulation of agriculture and rural areas is aimed at ensuring food security, sustainable markets for products of agro-industrial complex, the formation of an effective system for businesses, support the competitive advantages of domestic products, as well as improving the living standards of rural populations through the creation of conditions for the development of crop, livestock, fisheries, processing of agricultural raw materials and food industries, the veterinary and sanitary and phytosanitary security, technical equipment and other related areas of social and physical infrastructure in rural areas. In doing so, one of the instruments of state regulation is the use of tax, fiscal, customs-tariff and technical regulation, including measures of state support.

In accordance with the laws of the Republic of Kazakhstan in the field of forestry, the state forest fund sites for timber harvesting, recreational, recreational, tourist and sports purposes is provided to individuals and legal entities in the long-term forest management for a period from 10 to 49 years, for collateral use – from 10 to 15 years.

Harvesting of the secondary wood resources, hay-mowing, grazing, maral-breeding, fur farming, placing beehives and apiaries, horticulture, melon-growing and cultivation of other crops, harvesting and collection of medicinal plants and technical raw materials, wild fruits, nuts, mushrooms, berries and other food products moss, forest litter and fallen leaves, canes carried out without causing harm to the forest.

Harvesting of bark and branches is permitted only with trees, cut in the manner of logging.

Lands of the state forest fund, where it is possible to mow hay and grazing, forest owners are established under state forest management projects.

#### **8.2.2. Rural population, the private sector with the support of the state carries out the protection and reproduction of BD on productive ecosystems on a sustainable source of bio-resources.**

During 2006-2008, about 300 game farms were created, and the total number as of 1 November 2008 was 655 households. Strengthened the protection of animal life in the hunting grounds set forth by hunting service. According to the local offices number rangers reached 2272 people in 655 hunting farms, they were assigned about 1411 vehicles.

Work on increasing the secured area of hunting grounds for hunting organizations continues.

Since 2006, a consolidation of long-term management of water bodies and sites for users is ongoing. This allows users to ensure access to fisheries resources in the long term, plan the work on the involvement of own funds and investments, including foreign, to the development of fisheries in reservoirs and fixed stations, protection and reproduction, as well as research.

At the end of 2008, 2163 fishing water bodies (sites) of international, national and local values assigned for 1105 users over the long term (10 years).

The program «Microcredit of rural entrepreneurs living close to the specially protected natural territories», the project for the conservation of wetlands in Kazakhstan on three project

areas: the delta of the Ural River, Tengiz-Korgalzhyn and Alakol-Sasykkol Lakes system contributes to the development of the microfinance sector as a tool to influence conservation through the involvement of rural people in the development of alternative activities.

Conditions have been created to involve local people in biodiversity conservation and development of alternative economic activities in protected areas and buffer zones in the course of the project «Conservation and sustainable use of biological diversity in the Kazakhstan part of Altai-Sayan region».

Action plan on implementation of the Concept of development of a network of micro-credit lending institutions to agricultural producers of Kazakhstan, approved by Decree of the Government of the Republic of Kazakhstan dated 14 July 2006 № 675 is being implemented.

In accordance with the Action Plan for 2007-2009 on realization of State program of tourism development in the Republic of Kazakhstan for 2007-2011, it is planned to develop the infrastructure for tourism activities, by attracting additional investors and interested economic agents, tourism organizations, the local population.

#### PROTECTION OF TRADITIONAL KNOWLEDGE, INNOVATIONS AND PRACTICES

### **Goal 9 The purpose of socio-cultural diversity of indigenous and local communities**

#### ***Target 9.1 Protect traditional knowledge, innovations and practices***

Ethnic equality in all spheres of society is enshrined in legislation and implemented in practice in Kazakhstan.

A socio-political institution - the Assembly of Peoples of Kazakhstan was created as the main mechanism of inter-ethnic interaction. There are more than 350 national and local national-cultural centers in the Republic.

At present, there are Kazakh, Russian, Uigur, German, Korean and Uzbek theaters and creative teams operating.

Television and radio broadcast in eleven languages of the ethnic groups; about two dozen national and regional print media is produced.

The program «Cultural Heritage of the Republic of Kazakhstan for 2007-2009» was approved by Government Decision of 10.12.2007 #1203

The first phase of the program "Cultural Heritage" in 2004-2006 assumed the work to identify, survey and collect historical materials. 2.7 billion tenge was allocated for execution of the program from the national budget. 30 archaeological and 17 applied research projects were implemented.

The second phase should become a new step, where the gathered materials will become the heritage of the people. It is planned to spend over four billion for the implementation of planned activities from the national budget.

Since independence, Kazakhstan has come a long way, has changed its economic and political realities, changed society as a whole. Kazakhstan in the sphere of preservation of their cultural heritage holds an extensive and interesting work. During the recent years valuable information was gathered and valuable experience in the study of the cultural past of the country was acquired.

During the years 2004-2006 218 volumes, and in 2007 - 74 volumes in the series of national and world scientific thought, literature and culture were published.

Fund «TÜRKSÖI-Kazakhstan» was presented on 09 August 2008 in Almaty. Fund «TÜRKSÖI» unites fourteen states (Kazakhstan, Azerbaijan, Kyrgyzstan, Turkmenistan, Uzbekistan and Turkey, as well as observers: Tatarstan, Bashkortostan, Northern Cyprus, the Republic of Tuva, Khakassia, and Gagauzia), and contributes to the development of culture and art of Turkic peoples. The nearest plans of the Kazakh fund «TÜRKSÖI» - the revival and popularization of folk traditions, crafts and trades, as well as increased cultural exchange between the countries participating organizations.

On the basis of a focused selection of works created by a tribal type of Aktobe Kazakh fat semu-coarse wool breeds of sheep and Kazakh Tsygai type of sheep, which have proved to breeding in arid and semi-arid zones, improved Kazakh white Auliekol breed. Work with sheep is fine in almost all regions of the country. Works on creation of the collection of groups of sheep and goats was performed.

Improvement of Kushum horse species that have no analogues with a high meat and milk productivity and suitability to annual pasture content is ongoing.

Selection and breeding work to improve the camels carried out by the Kazakh breed thoroughbred breeding.

As part of the international project «Integrated conservation of globally significant wetlands as waterfowl habitat»,. «Conservation of agro-biodiversity in the natural growth of Kazakhstan», «Conservation and sustainable use of biodiversity Altai-Sayan koregiona» activities on protection of traditional knowledge are taken.

***Target 9.2. Protecting the rights of indigenous and local communities over their traditional knowledge, innovations and practices, including the right to benefit sharing.***

Decree of the Government of the Republic Kazakhstan 11 July 2000, № 10510 approved the Concept of development of crafts in the Republic of Kazakhstan.

Principle of development is the revival of old handicraft traditions, the promotion of national culture, the freedom of creative personality.

Development Program of patent system in the Republic of Kazakhstan for 2007-2011 (Government Decision of 23.12.06g.) is expanding and improving the protection of innovative intellectual property: Varieties of Plants, traditional knowledge, folklore and genetic resources.

Eurasia Foundation of Central Asia (EFCA), EFCA, starting in 2006, with the support of the company «Chevron Munaigas Inc.» and collaboration with the Ministry of Culture and Information of Kazakhstan launched a three-year program «Development of arts and crafts and the revival of folk crafts in Kazakhstan».

Phase III of the program started in 2008. Set of activities aimed at the deliberate and systematic development of the Kazakhstan's sector of trade with the output in the future on the international stage was performed. With a view to localization efforts on the development of handicrafts two regional information and resource centers for crafts in the biennium were created in Aktau and Shymkent.

According to the EFCA, within two years, there have been multi-state study of handicraft sector in Kazakhstan, an electronic database of artisans across the country, conducted 13 training courses on applied art. During this time, 294 craftsmen Kazakhstan participated in training courses and seminars on the organization of small business in Russian and Kazakh.

ENSURE THE FAIR AND EQUITABLE SHARING OF BENEFITS ARISING OUT OF  
THE USE OF GENETIC RESOURCES

**Goal 10. Ensure the fair and equitable sharing of benefits arising out of the use of genetic Resources**

***Target 10.1. All access to genetic resources is in line with the Convention on Biological Diversity and its relevant provisions.***

***Target 10.2. Benefits arising from the commercial and other utilization of genetic resources shared in a fair and equitable way with the countries providing such resources in line with the Convention on Biological Diversity and its relevant provisions***

Law of the Republic of Kazakhstan dated June 17, 2008 N 43-IV on the ratification of the Cartagena Protocol on Biosafety to the Convention on Biological Diversity

Joining the Cartagena Protocol will increase the responsibility for implementation of activities related to transboundary movements of genetically modified organisms and products in the territory of our country, ensure international cooperation, including mutual assistance in the research and scientific and technical developments, to exchange information in the field of biotechnology. Ratification of the act provides an opportunity through the Biosafety Clearing-House to receive funding to assess the risks involved.

ENSURE PROVISION OF ADEQUATE RESOURCES

**Goal 11: Parties have improved financial, human, scientific, technical and technological capacity to implement the Convention**

**Target 11.1. New and additional financial resources are transferred to developing country Parties, to allow for the effective implementation of their commitments under the Convention, in accordance with Article 20.**

The Republic of Kazakhstan joined, signed, approved and / or ratified the five priorities of international treaties on conservation and sustainable use of biodiversity: the Convention on



Biological Diversity, the Convention for the Protection of World Cultural and Natural Heritage, the Convention on the Conservation of Migratory Species of Wild Animals, the Convention on Wetlands lands, the Convention on International Trade in Endangered Species of Wild Fauna and Flora in Endangered Species.

As a result of UNDP efforts to support sustainable development in Kazakhstan and to improve environmental management system, in cooperation MEP, the Board on Sustainable Development of Kazakhstan was established. In 2006, a concept of the transition of Kazakhstan to Sustainable Development for 2007-2024 biennium was developed and adopted, the Parliament passed the Environment Code, together with MEBP the poverty reduction programs was implemented, evaluation of implementation of international environmental conventions was completed, and plans of action for capacity-building countries in the implementation of commitments under these conventions was prepared.

In accordance with state programs and priorities of the Government of the Republic of Kazakhstan, the United Nations Development Program developed the project «Support to the implementation of the Concept of Transition of Kazakhstan to sustainable development».

To implement the priority concept of SD in the preservation of biodiversity the following projects (SEF) were developed and implemented:

- Integrated conservation of globally significant wetlands as waterfowl habitat;
- Conservation of agro-biodiversity in the natural growth in Kazakhstan;
- Conservation and sustainable use of biodiversity Altai-Sayan Ecoregion.

***Target 11.2. Technology is transferred to developing country Parties, to allow for the effective implementation of their commitments under the Convention, in accordance with its Article 20, paragraph 4.***

In order to fulfill its obligations under the Convention on access and technology transfer measures were undertaken by the Republic of Kazakhstan for the development of scientific, technical and technological capacity.

The State Program of development of science in the years 2007-2012 was adopted. In order to improve the organization and structure of management science the status of VNTK, led by the Prime Minister, was raised. Taking into account the views of international experts on the scientific potential of the country VNTK as a priority for Kazakhstan's breakthrough science, such areas as nanotechnology and new materials, biotechnologies, technologies for the hydrocarbon and mining and metallurgical sectors, and related service industries, nuclear technology and renewable energy technologies information and space technologies, and many others were approved.

MOES in collaboration with the World Bank developed a project «The commercialization of technology», which aims at raising the investment attractiveness of Kazakhstan's science. This is the independent evaluation of scientific and technical projects with the involvement of renowned foreign scientists, and monitoring their implementation, integration into the international academic environment, concentration of resources.

A Research Complex «The National Center for Biotechnology Kazakhstan» in Astana (Government Decision of 31 March 2006, number 222) was established;

Government Decision of 3 May 2006, #363 approved the Concept of Development of the National Center for Biotechnology Republic Kazakhstan for 2006-2008;

Resolution of the Government of the Republic of Kazakhstan dated 15 June 2006, #554 approved the Scientific and Technical Program «Development of modern technologies for the formation of a cluster of biotechnology in the Republic of Kazakhstan», 2006-2008.

**B. Goals and objectives of the Strategic Plan and provisional indicators  
for assessing progress**

| <i>Strategic goals and objectives</i>  | <i>Possible indicators</i>  |
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| <b>Goal 1: The Convention is fulfilling its leadership role in international biodiversity issues.</b>  |   |
| 1.1 The Convention is setting the global biodiversity agenda.  | Parties to the Convention on Biological Diversity, in adopting a Strategic Plan, have committed themselves to achieving, by 2010, a significant reduction in the rate of biodiversity loss at the global, national and regional levels, as a contribution to poverty alleviation and to the benefit of all life on earth.   |
| 1.2 The Convention is promoting cooperation between all relevant international instruments and processes to enhance policy coherence.                | The Conference of the Parties, in its decision VI/26, adopted the Strategic Plan of the Convention  |
| 1.3 Other international processes are actively supporting implementation of the Convention, in a manner consistent with their respective frameworks. | till 2010. In its mission, the Strategic Plan commits Parties to a more effective and coherent implementation of the three objectives of the Convention to achieve by 2010, a significant reduction in the rate of biodiversity loss. The 2010 Biodiversity Target was endorsed by the World Summit on Sustainable Development held in the same year in Johannesburg, South Africa. The Conference of the Parties elaborated this target at its seventh and eighth meetings and adopted in its decisions VII/30 and VIII/15 a provisional framework of goals and targets for the 2010 target.   |
| 1.4 The Cartagena Protocol on Biosafety is widely implemented.   | The Law of the RK #43-IV dated 17.06.2008 “On ratification of Cartagena protocol on biosafety to the Convention on biodiversity” was adopted; it is based on and considers the norms of the Ecology Code of the RK. In view of providing safety of food products the Law of the RK #301-III dated 21.07.2007 “On safety of food products” was adopted. In accordance with international requirements the Decree of the Government of the RK “On approval of the action plan on forming of the system of evaluating risk safety and agroindustrial products quality control in accordance with the international requirements” #828 dated 24.09.2007 was adopted. The work on creation of the normative-legislative basis on biological safety is ongoing. |

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| <p>1.5 Biodiversity concerns are being integrated into relevant sectoral or cross-sectoral plans, programmes and policies at the regional and global levels.</p> | <p>Key national strategy documents - Strategy «Kazakhstan-2030», the Strategic Plan of Development of Kazakhstan to 2010, the concept of development and deployment of specially protected natural areas to 2030, The concept of ecological security of Kazakhstan for 2004-2015, «Concept of Transition of Kazakhstan to sustainable Development for the years 2007-2024» cover the conservation and sustainable use of biological diversity.</p> <p>In the sectoral and regional programs the principles of sustainable development and conservation of biodiversity are considered.</p>   |
| <p>1.6 Parties are collaborating at the regional and subregional levels to implement the Convention.</p>   | <p>Kazakhstan has been actively involved in the process "Environment for Europe" (EfE) process and will participate in the Ministerial Conference EfE.</p> <p>As part of the country's approach with the European Community, the Republic of Kazakhstan was elected to the Bureau of the Ad Hoc Working Group on the implementation of the Action Plan on Environment Protection of the Organization on Economic Cooperation and Development (OECD).</p> <p>Cooperation with CIS countries is carried out within the framework of the Inter-State Environmental Council.</p> <p>Kazakhstan signed bilateral agreements on environmental protection with more than a dozen countries, including neighboring states, which are located in Central Asia.</p> <p>Cooperation with the countries of Central Asia is part of the Interstate Commission on Sustainable Development, the International Fund for Saving the Aral Sea and the Regional Environmental Center for Central Asia.</p> <p>Cooperation between the five Caspian Sea littoral states on environmental issues (Protocol on Protection of the Caspian biodiversity) within the Tehran Convention.</p> <p>The issues on cross-border facilities have particular importance for the regional cooperation.</p> <p>International cooperation in the field of conservation of natural and cultural heritage of the West Tien Shan, Altai-Sayan Ecoregion.</p> <p>The ratification of the Bonn and Ramsar Conventions positioned Kazakhstan as an active participant in the field of biodiversity conservation and in the international multilateral agreements.</p> <p>In Kazakhstan, there are several ongoing international projects on conservation of wetlands as habitats for migratory birds, or directly on conservation of birds.</p> <p>Kazakhstan signed a Memorandum of Understanding and an Action plan on</p> |

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|  | <p>conservation, restoration and sustainable use of saiga antelope, prepared by the Secretariat of the Bonn Convention.</p> <p>In May 2007, Kazakhstan and Turkmenistan signed the intergovernmental agreement on conservation of saiga.</p>  |
| <p><b>Goal 2: Parties have improved financial, human, scientific, technical, and technological capacity to implement the Convention.</b></p>   |   |
| <p>2.1 All Parties have adequate capacity for implementation of priority actions in national biodiversity strategy and action plans.</p>   | <p>In Kazakhstan, since the beginning of this decade, there has been a steady trend of growth of total expenditure on environmental protection of private and public sectors, even with a small base.</p> <p>Budgetary funds allocated by the State for the Environment (0.5% of the general state budget) are too small for a country with such a diverse and significant environmental problems.</p> <p>The country does not have adequate capacity to implement priority actions in the framework of national strategies and action plans on biodiversity conservation.</p>  |
| <p>2.2 Developing country Parties, in particular the least developed and the small island developing States amongst them, and other Parties with economies in transition, have sufficient resources available to implement the three objectives of the Convention.</p>                     | <p>RK does not have sufficient resources to implement the three objectives of the Convention.</p> <p>Initiatives to implement the objectives of the Convention have been incorporated into national and international projects. International financial and technical assistance to Kazakhstan has been multilateral. It was attended by: United Nations Development Program, Global Environment Facility, World Bank, Asian Development Bank, European Commission and others.</p>  |
| <p>2.3 Developing country Parties, in particular the least developed and the small island developing States amongst them, and other Parties with economies in transition, have increased resources and technology transfer available to implement the Cartagena Protocol on Biosafety.</p> | <p>Kazakhstan recognizes the biosecurity as an essential component of the Convention on Biological Diversity.</p> <p>There are programs for the biotechnology and production of biotechnology products.</p> <p>In the national legislation of Kazakhstan, some legal rules under the Cartagena Protocol were already included in existing laws (the Environment Code of Laws of the Republic of Kazakhstan on ratification of the Cartagena Protocol on food safety to protect the rights of consumers and others).</p> <p>Existing regulations do not cover most aspects of biosafety.</p> <p>The formation of the regulatory framework for biosafety is ongoing.</p> <p>It is planned to develop mechanisms for technology transfer available for implementation of the Cartagena Protocol on Biosafety</p> |
| <p>2.4 All Parties have adequate capacity to implement the Cartagena Protocol on Biosafety.</p>  | <p>At present the potential for full-scale implementation of Cartagena protocol on biosecurity is being formed.</p>   |

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| <p>2.5 Technical and scientific cooperation is making a significant contribution to building capacity.</p>   | <p>In accordance with the Strategy of Kazakhstan entering the 50 most competitive countries in the world, one of the priorities for implementation of «breakthrough» projects of international importance, which can be competitive in certain niches in the world market, is the development of biotechnological centers with active international participation.</p> <p>RSE “National Center for Biotechnology of the» MOES of the RK (hereinafter - NCB) was created.</p> <p>NCB is a head and coordinating organization on implementation of a number of applied science and technology programs: In a program involving 30 research organizations, including 6 foreign research centers (Auburn University, Texas University, University of California (USA), National Center for Scientific Research (France), Nagasaki University (Japan), State Research Center of Virology and Biotechnology “Vector” (Russia).</p>  |
| <p><b>Goal 3: National biodiversity strategies and action plans and the integration of biodiversity concerns into relevant sectors serve as an effective framework for the implementation of the objectives of the Convention.</b></p> |   |
| <p>3.1 Every Party has effective national strategies, plans and programmes in place to provide a national framework for implementing the three objectives of the Convention and to set clear national priorities.</p>                  | <p>The objectives of the Convention are included in the main strategic documents of the country.</p> <ul style="list-style-type: none"> <li>- National Strategy and Action Plan on Conservation and Sustainable Use of Biodiversity of Kazakhstan is a major component of NEAP, which is a tool for implementing a long-term strategy -2030 «Ecology and natural resources».</li> <li>- The concept of environmental security,</li> <li>- Concept development and deployment of specially protected natural areas by 2030.</li> <li>- Concept of transition of Kazakhstan to sustainable development in the years 2007-2024.</li> <li>- Concept Development of Fisheries of Kazakhstan for the period of 2007-2015.</li> </ul> <p>The programs being implemented:<br/> “Zhasyl EI”, “Preservation and restoration of rare and endangered species of wild ungulates and the saiga, 2005-2007”, “Development of the system of specially protected natural territories of Kazakhstan during 2007 – 2009”, “Conservation and sustainable use of water resources, fauna and development of a network of specially protected natural areas to the year 2010 ».</p> <p>(see parts2; 3)</p> |
| <p>3.2 Every Party to the Cartagena Protocol on Biosafety has a regulatory framework in place and functioning to implement the Protocol.</p>   | <p>Kazakhstan ratified Cartagena protocol and forms a regulation basis.</p>   |
| <p>3.3 Biodiversity concerns are being integrated into relevant national sectoral and cross-sectoral plans,</p>  | <p>The interests of biodiversity conservation and sustainable use are included in the following</p>   |

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| programmes and policies.   | national sectoral and cross-sectoral plans, programs and policies: “The concept of ecological safety of the Republic of Kazakhstan for 2004-2015”, “Concept of transition of the Republic of Kazakhstan to sustainable development in the years 2007-2024”, Strategic Plan of the Republic of Kazakhstan to 2010, Action Plan on implementation of the Concept of Sustainable Development of the agroindustrial complex of Kazakhstan for 2006-2010, the Program «Environment protection of the RK for 2005-2007 and 2008 – 2010”, “Zhasyl el” programs for 2005-2007 and 2010.  |
| 3.4 The priorities in national biodiversity strategies and action plans are being actively implemented, as a means to achieve national implementation of the Convention, and as a significant contribution towards the global biodiversity agenda. | Kazakhstan, as a part of the UN Convention on biodiversity provides close collaboration of national and sectoral programs, as well as international conventions and agreements, to successfully carry out its obligations on conservation and sustainable use of biological diversity<br>In the period of 2006-2008 Kazakhstan has adopted a number of government documents, aimed at ensuring the environmental sustainability of the national economy, develop new environmental-balanced policy of the government, business and NGOs, enhancing cross-sectoral partnerships: The concept of transition to sustainable development of Kazakhstan up to 2024, the Environmental Code of the RK, the Law of the RK “On Specially Protected Areas” and others. International environmental conventions, which assist to the reduction of environmental pollution and conservation of biodiversity, were ratified. (See parts 2; 3). |
| <b>Goal 4: There is a better understanding of the importance of biodiversity and of the Convention, and this has led to broader engagement across society in implementation.</b>   |  |
| 4.1 All Parties are implementing a communication, education, and public awareness strategy and promoting public participation in support of the Convention.  | In view of developing the institutions of civil society in Kazakhstan and the possibility of realization of civil initiatives, the Decree of the President of Kazakhstan dated 25.07. 2006, #154 adopted the concept of civil society development in the Republic of Kazakhstan for 2006-2011 (CCD) and the Action Plan on implementation of the CCD approved by the Government Decision dated 30.09.2006, #953, developed in accordance with the national program of democratic reforms.<br>MEP of the RK, adhering to basic democratic principles - formation of civil society institutions and involvement of the public to develop the legal framework, conducts the improvement of legislation in terms of ensuring the constitutional rights and freedoms.<br>In view of implementing the provisions of the Aarhus Convention, the CCD, and in   |

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|  | <p>accordance with Article 135 of the EC, a social control in the field of environmental protection is conducted in the territory of Kazakhstan. To date, 179 public associations in the field of environmental protection exercise social control.</p> <p>Public associations are involved in joint activities to improve the ecological situation in Kazakhstan, as well as promoting environmental education and awareness.</p> <p>In view of further development of non-governmental sector and its constructive engagement with public authorities, the Coordination council on cooperation with NGOs under the Government of the Republic of Kazakhstan was established.</p>  |
| <p>4.2 Every Party to the Cartagena Protocol on Biosafety is promoting and facilitating public awareness, education and participation in support of the Protocol.</p>          | <p>Within the framework of the state social order among environmental NGOs, the work on Informing the population on importance of Cartagena protocol; participation of public in creation of the national system of biosafety of the RK.</p>  |
| <p>4.3 Indigenous and local communities are effectively involved in implementation and in the processes of the Convention, at national, regional and international levels.</p> | <p>Issues on preservation of the unique fauna of Kazakhstan become more important year by year, at the same time the importance is given to development of game farms, for attracting private capital for protection and reproduction of animals. For this, the Republic created a legal framework for protection and reproduction of fauna.</p> <p>About 300 game farms were created during 2006-2008, and the total number at by 1 November 2008 amounted to 655 households. Protection of fauna in the forth hunting grounds was strengthened. The number of rangers there reached 2272 people; 1411 vehicles were assigned to them.</p> <p>1466 reservoirs and sites of international, national and local importance were assigned to users of fish resources during 2006-2007. This is more than 90 percent of their total amount. These sites are protected by over 1400 rangers of fisheries management organizations. Such an arrangement ensures long term access to fisheries resources and allows involving the means of tenants in the development of farms.</p> <p>More than 2.5 billion tenge loans were provided to the fishing industry enterprises.</p> <p>The program “Microcrediting of rural entrepreneurs living close to the specially protected natural areas” within the project on conservation of Kazakhstan VBU, contributes to development of microfinance sector as a tool to influence conservation of environment through involvement of the rural population in development of alternative types of activities.</p> |

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| <p>4.4 Key actors and stakeholders, including the private sector, are engaged in partnership to implement the Convention and are integrating biodiversity concerns into their relevant sectoral and cross-sectoral plans, programmes and policies.</p> | <p>Nature conservation and environmental protection are included in the priorities of development. This is enshrined in policy documents – “Kazakhstan – 2030”, “The scheme of development and deployment of the productive forces of the Republic of Kazakhstan for the period up to 2015”, “The Strategic Plan of the Republic of Kazakhstan to the year 2010”, the concept of development of fish farms for 2007-2015; Concept of transition of the Republic of Kazakhstan to sustainable development in the years 2007-2024, five-year indicative plans for socio-economic development of Kazakhstan, plans and actions of the Government, the National Plan for Environmental Protection, the annual message of the President of the country to people.</p> |
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### C. Conclusions

As a party to several international agreements (conventions) «On Biological Diversity», «on Wetlands of International Importance Especially as Waterfowl Habitat», «On the Conservation of Migratory Species of Wild Animals», «On International Trade in Endangered Species of Wild Fauna and Flora in Endangered Species », « On the Protection of World Cultural and Natural Heritage », Statements by the UN Conference on Environment and Development (Rio-92) on the principles of forestry, etc., Kazakhstan conducts a deliberate policy on conservation of biodiversity.

In recent years, mainly the national legislative framework aimed at ensuring the protection of state regulation, balanced utilization and restoration of forests, wildlife, specially protected natural areas was formed.

In order to maintain biological diversity in Kazakhstan, actions on assessment of the status and inventory of biodiversity, expanding the network of specially protected areas and conservation of natural populations of rare species with the help of artificial reproduction and recovery of damaged areas in the light of modern natural and anthropogenic processes, are carried out.

Ratification of the Cartagena Protocol will increase the responsibility for implementation on the territory of Kazakhstan of activities related to transboundary movements of genetically modified organisms and products, to take measures to prevent their importation into the country for close international cooperation, including mutual assistance in the research and scientific and technical developments, as well as exchange of information in the field of biotechnology.

Issues of biodiversity conservation, environmental education and promotion of the sustainable use of biological resources are included in major policy documents and international projects.

Research work of environmental and agricultural focus is ongoing.

Overall, Kazakhstan has been active in taking measures to implement their commitments made under international agreements on biodiversity conservation.

The country has received benefits from the international technical assistance in this area and has implemented policies and projects that have a positive impact.

#### Successful action taken:

1. The process of reforming the law of the republic in the field of environmental protection. Significant changes to the system of environment protection adopted in Kazakhstan are made by the Environment Code of the Republic of Kazakhstan, of 9 January 2007 N 212
2. The Head of country signed the Act (№ 43-IV of 17. 07. 2008) On ratification of the Cartagena Protocol on Biosafety.



3. The Law «On food safety» dated 21.07.2007 № 301-III was adopted.
4. In accordance with international standards the Resolution of the Government of the Republic of Kazakhstan «On approval of a plan of action to create a system of risk assessment, safety and quality control of agro-industrial complex in accordance with international standards» was adopted.
5. A Research Complex «The National Center for Biotechnology Kazakhstan» in Astana was created (Government Decision of 31 March 2006, number 222.);
6. Signed agreements on cooperation in quarantine and plant protection with the CIS countries, Bulgaria, Turkey, Mongolia, Romania, the People's Republic of China, Jordan
7. Government Decision of 3 May 2006, number 363 approved Concept of Development of the National Center on Biotechnology of the Republic Kazakhstan for 2006-2008.
8. The Republic set up a legal framework for the protection and reproduction of animals. The Law of the Republic of Kazakhstan dated July 9, 2004 № 593-II On protection, reproduction and use of animal world (as amended and supplemented as of 09.01.2007 town) was adopted.
9. Hunting grounds in the Republic of Kazakhstan take 235.3 million hectares, out of which 113.4 million hectares (48.2%) were assigned to the hunters.
10. The Law of the RK dated 7 July 2006 «On Specially Protected Natural Areas» was adopted by the Government decision dated 13 October 2006.
11. Key national policy documents - Strategy «Kazakhstan-2030», the Strategic Plan of Development of Kazakhstan till 2010, the concept of development and deployment of specially protected natural areas to 2030, The concept of ecological security of Kazakhstan for 2004-2015, «Concept of Transition of Kazakhstan to sustainable Development for the years 2007-2024» cover the issues on conservation and sustainable use of biological diversity.
12. The new edition of the Red Data Book of plants in Kazakhstan is prepared for publication. «The list of rare and endangered plant species», which contains 387 plant species was approved by the Government decision of the Republic of Kazakhstan dated 31 October 2006.
13. Government Decision of 31.10.2006 № 1034 approved a list of rare and endangered species of animals: mammals – 40, birds – 57, reptiles - 10, amphibians - 3, aquatic animals - 18, ringed worms - 2, molluscs - 6, crustaceans -1, arachnids –2, insects - 85.
14. Wild animals living in the territory of Kazakhstan are included in the Appendices of CITES Convention. Annex I: - 20 species. Annex II: - 87 species. Total 107 species.
15. In view of conservation of forests and biological diversity, two of the project were implemented within the framework of the “Zhasyl el” Program for 2005-2007:
  - Project SEF "Conservation of biodiversity of Western Tien-Shan" to strengthen the protection of unique biological communities and the expansion of protected natural areas in South Kazakhstan region.
  - A full-scale project "Conservation of forests and increase forest cover in the territory of the republic", which aims at preserving and restoring tape hog of Irtysh and Kyzylorda saxaul plantation area, the support of the forestry industry, the development and implementation of environmental norms in the practice of use of rangelands in saxaul forests.
16. During the implementation of the Program in 2005-2007, work on the reproduction of forests and afforestation was carried out on the area of over 108.7 thousand hectares.
17. Implementation of the Program «Zhasyl el» for 2008 - 2010 years is ongoing. In 2008, work on the reproduction of forests and afforestation was carried out on the area of over 44.7 thousand hectares. Extent of forest crops, established in 2008 by planting, is 15.1 hectares.
18. The program formed a permanent Forest Seed base, through the identification of selection and seed and genetic selection use, provided by two companies - RGKP «Almaty timber breeding center» and RGKP «Kokshetau forest breeding center».
19. Government Decision dated 10 November 2006, #1074 approved the list of protected areas of national importance. It includes 107 objects of nature-reserve fund.
20. During the years 2006-2008 the area of protected areas of national importance has increased due to expanding of the existing and creating new protected areas. The total area of protected

areas of national importance was 21118.7 thousand hectares, including the status of legal entity 3769.1 thousand hectares - 1.4% of the entire State.

In 2007, the total area of protected areas of national importance was 22 038.7 thousand hectares, including the status of legal person - 4 689.1 thousand hectares, or 1.7% of the territory. (1.44% protected areas - national parks and national parks), in 2008, 22.2 million hectares of protected areas with the status of the area of legal persons - 4.8 million hectares.

The total area of protected areas of different status in 2008 was about 8.1% of the entire territory of the republic.

21. In February 2007, for preservation of natural complexes the GNPP «Kolsay lakes» was created in Almaty region in the area of 161,045 hectares, also the territory of Bayanaul GNPP was expanded to 17764.8 ha.

22. Within the frame of the Convention on Conservation of Migratory Species of Wild Animals and implementing programs to conserve and restore rare and endangered species of wild ungulates and the saiga in 2006, the introduction of 30 individuals of kulan to the territory Andasay SPP was implemented, 7 species of tugai deer were displaced in SNPP «Altyn Emel».

23. Irgiz Turgay GPR on the area of 711,549 ha was established by the Government decision dated February 14, 2007 № 109-a for increasing the efficiency of saiga protection.

24. It also prohibits the removal of saiga throughout the Republic of Kazakhstan till 2011.

25. In 2005, the number of saiga was 39.6 thousand individuals in 2008 increased to 61.0 thousand individuals, against 21.2 thousand in 2003.

26. Decree of the Government of the Republic of Kazakhstan dated 8 October 2007 № 914 approving the program for the conservation and rational use of water resources, wildlife and the development of a network of specially protected natural areas before 2010

27. For implementation of the priority concept of SD in the part of preservation of biodiversity the following projects are developed and implemented: 1. Conservation of agro-biodiversity in the natural growth in Kazakhstan. (SEF) 2. Conservation and sustainable use of biodiversity Altai-Sayan Ecoregion. (SEF) 3. Integrated conservation of globally significant wetlands as waterfowl habitat. (SEF).

28. With the assistance of the project «Conservation and sustainable use of biological diversity in the Kazakhstan part of Altai-Sayan region», in February 2007, expanded the territory of the West Altai GPP at 30,044 hectares and Markakol GPP at 27,931 hectares.

29. In 2007, an Agreement was signed on cooperation between the Ministry of Agriculture, the MoE and UNDP in Kazakhstan under the project on VBU to implement joint activities under the program of systematic monitoring of the aquatic habitat for the delta of r. Ural with the adjacent coast of the Caspian Sea, Alakol-Sasykkol and Tengiz - Korgalzhyn lakes.

30. Kazakhstan formally acceded to the Ramsar Convention on 2 May 2007 following the inclusion in the List of Wetlands of International Importance under the special protection of the convention Tengiz-Korgalzhyn lakes, the first key ornithological territories of Kazakhstan and Central Asia

31. The decision of the Government of the Republic of Kazakhstan "On expansion of the territory of public institution "Korgalzhyn State Nature Reserve" dated December 18, 2008 has expanded the reserve to 284.208 hectares. Area of Korgalzhyn reserve is now officially 543.171 hectares.

32. On 32 session of the World Heritage Committee on 7 July, 2008 the decision #1102 on inclusion of the category «Sary Arka - Steppe and Lakes of Northern Kazakhstan» in the UNESCO World Heritage List was taken.

33. Within the framework of international agreements on biodiversity of wetlands and the UNDP project on the environment and the SEF «The development of migration routes and wetlands for the conservation of Crane and other wetland birds» establishment of the state nature reserve «Altyn Dala» is planned.

34. JSC «KazAgroInnovatsiya» was created for more efficient management of scientific and technological assets of the state in agrarian sphere (Government Decision of May 22, 2007 № 409 «On reorganization of the individual organizations of the Ministry of Agriculture»

35. Currently, the JSC «KazAgroInnovatsiya» includes 22 research organizations from all sectors of agriculture, part of which has its own branch network.

36. Scientific organization JSC «KazAgroInnovatsiya» conducted research within the budget program 042 «Applied Research in the field of agro-industrial complex», 2006-2008. In 2007, the Agricultural Science produced the following results.

In the area of crop and farming:

- Created and transferred 64 new varieties and hybrids of agricultural, fruits and berries and other crops to the State variety-test;
- A national information system on plant genetic resources;
- Improved forest management, developed guidelines for the adaptive-landscape system, agriculture, etc.

In the field of animal husbandry:

- Withdrawn and tested 3 types and 6 new lines of farm animals, including 4 lines of Edilbaevskaya breeds of sheep, 2 inter-breed types of karakul sheep, inter-breed type of brown dairy cattle «Akyrys», 2 factory line Auliekolsk breeds of cattle.
- 1 breed, 12 types, 5 lines and one cross of new farm animals and birds are at the stage of validation by RK Agriculture Ministry State Commission.

37. In 2009, Kazakhstan will start the construction of selection and technical complexes for the development of the domestic breeding of agricultural structures.

#### **Priorities for capacity building for the further implementation of the Convention at national level.**

Kazakhstan will carry out scientifically based conservation measures and restoration of landscape and biological diversity, sufficient to maintain the capacity of natural systems to self-regulation and the effects of human activities.

Measures to preserve and restore the natural environment will be implemented through:

- Creating conditions for sustainable use and management of water resources, flora and fauna, specially protected natural areas.
- Expanding the area of specially protected areas by 2008 to 8.5% of the country;
- Establishment of the system of protected natural areas in priority areas, ensuring long-term conservation of biological diversity and sustainable environment.
- Enhancing the protection of landscape and biological diversity of the state, wetlands steppe and semidesert zones of the plain of Kazakhstan, of global significance for conservation and restoration of populations of rare and endangered plant species, large mammals and birds.
- Development of international cooperation to coordinate the dissemination of the range States of animals, joint action to safeguard the animals upon arrival of migratory animals to the territory of neighboring countries.

Scientific support of environmental protection in the Republic is an important element in enhancing the effectiveness of the state to identify ways for sustainable development

The science in the conservation and sustainable use of biological diversity in the Republic of Kazakhstan must develop in the following areas:

- Development of scientific principles and technologies of renewable biological resources (forest, water, hunting, medicine, etc.) to ensure their sustainable reproduction;
- Development of the effective methods of conserving biological diversity;
- Analysis of the spreading of alien and genetically modified species of living organisms and the development of appropriate methods to control and reduce the negative effects of these processes.

Rational and efficient use of natural resources based on a balance of economic, social and environmental aspects, and several other measures.

**Appendix I - Information concerning reporting Party and preparation of national report**

**A. Reporting Party**

|  |   |
|--|---|
| Contracting Party  |   |
| <b>NATIONAL FOCAL POINT</b>  |   |
| Full name of the institution   | <b>Ministry of Environment Protection of the Republic of Kazakhstan</b>                     |
| Name and title of contact officer                                    | <b>Alexandr Bragin</b>  |
| Mailing address  | Entry 14, bld. 8, Orynbor str., left bank, Astana, Kazakhstan                               |
| Telephone  | +7 (7172) 74-00-65  |
| Fax  | +7 (7172) 74-00-58  |
| E-mail   | a_bragin@eco.gov.kz   |
| <b>CONTACT OFFICER FOR NATIONAL REPORT (IF DIFFERENT FROM ABOVE)</b> |   |
| Full name of the institution   | Republican State Enterprise «Informational and analytical center of environment protection» |
| Name and title of contact officer                                    | Lyudmila Shabanova  |
| Mailing address  | Entry 14, bld. 8, Orynbor str., left bank, Astana, Kazakhstan                               |
| Telephone  | +7 (7172) 79-83-97  |
| Fax  | +7 (7172) 79-83-90  |
| E-mail   | lvshabanova@mail.ru   |
| <b>SUBMISSION</b>  |   |
| Signature of officer responsible for submitting national report      |   |
| Date of submission   |   |

## Appendix II - Further sources of information

### Web sites

- <http://www.oopt.kz> - website of specially protected natural territories of the Republic of Kazakhstan
- <http://www.ecoidea.kz> - website of public fund «EcoIDEA» - Agency for the Development of Environmental Initiatives
- [www.greensalvation.org](http://www.greensalvation.org) - website of Ecological Society «Green Salvation»
- [www.acbk.kz](http://www.acbk.kz) - website of the Association of Biodiversity Conservation in Kazakhstan
- [www.ecomuseum.kz](http://www.ecomuseum.kz) - website of GS “Karaganda Regional Ecological Museum”
- [www.ecoforum.kz](http://www.ecoforum.kz) - Environmental Forum of non-governmental organizations in Kazakhstan
- [www.earthwire.org/kz](http://www.earthwire.org/kz) - Monitoring of environmental news in Kazakhstan
- [www.redbookkz.info](http://www.redbookkz.info) - website of the Red Book of Kazakhstan
- [www.birds.kz](http://www.birds.kz) - website of the Birds of Kazakhstan
- <http://www.scwpkaz.kepter.kz> - Project «Development of migration routes and wetlands for the conservation of Siberian Crane and other waterbirds in Asia»
- <http://www.wetlands.kz> - UNDP / GEF Project «Integrated conservation of priority globally significant wetlands as habitats for migratory birds: a demonstration in the three territories»
- <http://www.voda.kz> - UNDP / GEF Project «Integrated Water Resources Management»
- <http://www.altai-sayan.kz> - website of the project Conservation and sustainable use of biological diversity in the Kazakhstan part of Altai-Sayan Ecoregion
- [www.econavigator.com/ibpp](http://www.econavigator.com/ibpp) - Web-log of TACIS Project «Capacity-building for public participation in formulating and implementing of environmental programs in Kazakhstan»
- <http://www.climatesnc.kz> - website of the UNDP / GEF project on the preparation of second national communication of the Republic of Kazakhstan on the UN Framework Convention on Climate Change
- [www.carecnet.org](http://www.carecnet.org) - website of the Regional Environmental Center for Central Asia

### Official sites of state structures

- <http://www.government.kz> - the official portal of the Government of the Republic of Kazakhstan
- <http://www.eco.gov.kz> - official website of the Ministry of Environmental Protection
- <http://www.minagri.kz> - the official website of the Ministry of Agriculture
- <http://www.nit.kz/fish> - site of the Committee of Fisheries of Agriculture Ministry of the Republic of Kazakhstan
- <http://www.stat.kz> - Official site of the Agency on Statistics of RK
- <http://www.meteo.kz> - website of Kazhydromet

### Publications

- Landscape and biological diversity of the Republic of Kazakhstan. UNDP, Almaty 2005.
- Environment and Sustainable Development in Kazakhstan (Review). Almaty. Series of UNDP Kazakhstan publications.
- Environmental protection and sustainable development of Kazakhstan, Agency on Statistics of Kazakhstan, Astana, 2008 – 269p
- «Kazakhstan 2007» Statistical Yearbook of Kazakhstan. Astana, 2008.
- United Nations and Kazakhstan: 15 years of successful partnership. Astana, 2008.
- Millennium Development Goals in Kazakhstan. 2007.
- Environmental Performance Reviews. Kazakhstan, the second review. UN
- New York and Geneva, 2008.

## **Appendix III - Progress towards Targets of the Global Strategy for Plant Conservation and Programme of Work on Protected Areas**

### **A. Targets of the Global Strategy for Plant Conservation**

#### **Target 1: A widely accessible working list of known plant species, as a step towards a complete world flora**

The accumulated evidence on the flora shows that flora and vegetation of Kazakhstan is studied well enough as of today. Flora of vascular and lower plants of the Republic was published.

The most well-studied are: Flora of Central Kazakhstan, with 1453 species, flora of Tarbagatay - 1640, Flora of Southern Altai - 1400 species, Flora of Jungar Alatau 2168 species, Flora of the Northern Tien Shan contains almost 3000 species, Flora of the Ketmen Ridge - 1890 species, trees and shrubs Flora of Kyrgyz ridge - 206 species, Flora of Zaysan Depression - 1226 species.

Major publications: Flora of Kazakhstan (Vol I-IX, 1956-1966, Alma-Ata), Kazakhstan's Illustrated identification of plants (T. 1-2, 1969-1972, Alma-Ata), Vegetation of Kazakhstan (1988), Flora of Kazakhstan (T. 1.-2, 1999-2001), Flora of waters of Western-Kazakhstan steppe province (2007), etc.

At present research on clarification of the composition of regional flora, general taxonomy of plants, and development of the regional inventories of plants is being conducted.

#### **Target 2: A preliminary assessment of the conservation status of all known plant species, at national, regional and international levels**

Kazakhstan has the legal framework on protection of flora.

Protection of plants is carried out in protected areas and forestry.

The role of preserves, national parks, reserves and botanical gardens is great in saving of rare and vanishing kinds

Inclusion of the in the rare and endangered plants in the Red Book plays a great role in protecting them.

A new edition of the Red Book of Kazakhstan (Vol. 2. Part I. Plants) approved the «list of rare and endangered plant species».

Publication of the «Red Book of Kazakhstan. Volume 2, Part 2. Plant communities. Edition 1 (Green Book) is planned; it will include rare plant communities of natural origin, which need protection.

#### **Target 3: Development of models with protocols for plant conservation and sustainable use, based on research and practical experience**

Institute of Botany and Phytointroduction MOES of the RK provides achievement of not only national but also international priorities of the Global Strategy on Plant Conservation with their scientific developments. The basis of the Global Strategy for Plant Conservation, as well as the Convention on biological diversity, is the ecosystem approach. It is based on appropriate scientific methodologies focused on levels of organizations, which cover the major processes of interaction between organisms and their environment. These are the methods of identification and classification of ecological systems, how to map, monitor and assess their viability. The Institute has developed the concept of territorial assessment of botanical diversity, methodological foundation, basis of which is an ecosystem approach. Based on this concept the new methodical approaches of the regional assessment of botanical diversity using GIS-technologies and remote space sensing, was developed. A “Vegetation Map of Kazakhstan and Central Asia” (in the desert area) was created. Results of fundamental developments are the maps of Karatau and Jungar Alatau vegetation distribution ring.

Institute as an autonomous scientific field develops the botanical resource discipline. It aims at identification of medicinal and other useful plants for a human with the assessment of localization of natural stocks of plant material, allowed norms of its harvesting in natural ecosystems and the technology of artificial cultivation. The “Atlas of Medicinal Plants of

Kazakhstan”, which shows maps of distribution of valuable commodity plants in natural ecosystems, was published

**Target 4: At least 10 per cent of each of the world's ecological regions effectively conserved**

In accordance with the program for the conservation and rational use of water resources, wildlife and the development of a network of specially protected areas up to 2010, it is planned to increase the area of protected areas of Kazakhstan (the total area of protected areas will be 23,297.4 ha, or 8.5% of the territory).

**Target 5: Protection of 50 per cent of the most important areas for plant diversity assured**

The diversity of flora in Kazakhstan vary both in composition and number of different taxons (species, genera, etc.) and in geography, in particular, on natural-climatic zones and high-altitude zones. In the plain area of steppe and desert flora diversity and identity increases from west to east, and in mountain systems - from the north-east (Altay) to the south-west (West Tien-Shan, Karatau).

A variety of environmental conditions of the mountainous Altai served for the formation of the rich and diverse flora. Currently in the flora of the Kazakhstan Altai includes at least 1400 species of flowering plants belonging to 412 genera and 88 families (about ¼ of flora in Kazakhstan). In accordance with the Program on development of specially protected natural territories of the Republic of Kazakhstan for 2007 - 2009 years, with the assistance of the Project (GEF) «Conservation and sustainable use of biological diversity in the Kazakhstan part of Altai-Sayan region», in February 2007, the territory of the West Altai reserve was expanded to 30,044 ha and Markakol reserve to 27,931 hectares.

The ridge of Syrdarya Karatau, which has 1666 species is interesting floristically. Among them there are 150 endemics. Karatau Reserve was created in this area.

Ili-Alatau GNPP consists the whole set of unique and distinctive landscapes of the south-east of the country. Fir forests are a rare natural anomaly profound advancement of coniferous trees in the arid zone. And wild-fruit woods bordering with them still preserved the fragments of the wild Sivers apple groves.

UNDP will begin a new environmental project «Conservation and sustainable management of steppe ecosystems» in 2009. Its main efforts will be aimed at preserving the Kazakh steppe ecosystem. The need for the project was prompted by the under-representation of steppe natural zones in the system of specially protected territories of the country.

**Target 6: At least 30 per cent of production lands managed consistent with the conservation of plant diversity**

Of the 272.5 million hectares of land of Kazakhstan, the area of agricultural land takes about 222.1 million hectares, of which 182.8 are pastures and 5,05 are hayfields; forestland fund takes 27.8 million hectares or 10, 2% of the territory of the republic.

**Target 7: 60 per cent of the world's threatened species conserved in situ.**

In 2008, the republican system of protected areas included: 10 state nature reserves, 10 state national natural parks, 3 state forest natural reserves, 50 state nature reserves, 26 natural monuments, 5 public botanical gardens in the cities of Almaty, Karaganda, Ridder, Zhezkazgan, Bakanas village; 5 public conservation areas.

**Target 8: 60 per cent of threatened plant species in accessible ex situ collections, preferably in the country of origin, and 10 per cent of them included in recovery and restoration programmes**

Developments on the efficient conservation and development of the gene pool of the most valuable plants of natural flora of Kazakhstan include both measures for the conservation of natural populations ( «in-situ»), and the preservation of particularly valuable gene pool in the culture ( "ex-situ»). Introduction research is directed to attraction, research and economic development of the world's gene pool of plants.

In the main botanical garden collection funds include 720 taxons of wood and 2000 taxons of flower-ornamental plants of open ground, over 700 taxons of fruit plants, including a particularly valuable class-clones of apricot and apple trees, 250 species of medicinal plants, about 1000 species of tropical and subtropical plants grown in field.

Collection funds of Zhezkazgan botanical garden includes 808 taxons, of which 278 are trees and shrubs, over 100 varieties are fruit plants. 84 species of woody plants, about 20 varieties of fruit plants and more than 30 taxa of ornamental plants grow in the Ili botanical garden.

In DPP «Altai Botanical Gardens» of CBI MOES RK the collection funds include 200 species of plants and samples of natural flora of Altai, 320 specimens of rare plants, 1116 taxons of ornamental plants, 194 species, varieties of fruit plants, 637 species of trees and shrubs.

DPP «Mangyshlak pilot Botanical Garden» of CBI MOES has collection funds of woody plants (284 species and forms), ornamental plants (396 taxons), plants of natural flora of Mangyshlak (54 species), fruit plants (70 varieties).

**Target 9: 70 per cent of the genetic diversity of crops and other major socio-economically valuable plant species conserved, and associated indigenous and local knowledge maintained**

Kazakhstan has focused the unique genetic resources of plant agrobiodiversity of the world significance. They include 194 species of plants, determining the genetic potential of 24 crops. Some of them represent significant value both to the development of agriculture, and to expand export capacity.

In the Republic there are 120 species of wild relatives of crops, including their species, ancestors. This wealth of genetic material is valuable, both nationally and globally.

The international recognition of the fruit of ABD, and, above all, the wild apple trees (Sivers apple - *Mains sieversii* (Ledeb.) M. Roem., Apple Nedzvetskogo - *Ma / us niedzwetzkyana* Dieck.) and an ordinary apricot (*Armeniaca vulgaris* Lam.).

Kazakh genetic resources of this pistachio (*Pistacia vera* L.), an ordinary almond (*Amygdalus communis* L.) and wine grapes (*Vitis vinifera* L.) are considered economically perspective. Kazakhstan has the most northern areas of habitat for these species. This leads to the existence of the genetic bases of cold-resistance in their natural populations.

Kazakhstan has 10 kinds of currant (*Ribes* spp.) and a type of gooseberry (*Glossularia* spp.), which can and must ensure the development of effective use of these fruit crops in fruit industry that is experiencing shortages of production of berry products.

Vegetable ABD Kazakhstan include carrot (*Daucus carota* L.), purslane (*Portulaca oleracea* L), Asparagus (*Asparagus*), onion and garlic (*Alliums* pp.). Particular attention should be paid to onion and garlic. In the Republic there are 120 species of wild relatives of crops, including their species, ancestors. This wealth of genetic material is valuable, both nationally and globally.

Natural ABD of technical plants (flax - *Linum* spp., Soflor - *Carthamnus* spp., Indus - *Eruca* spp., Colza, mustard - *Brassica* spp.) and fodder (primarily alfalfa - *Medic ago* spp.) is prospective.

More than 70 varieties of cereals, 68 varieties of fruit and berries, 60 varieties of vegetable and melon crops, 23 varieties of potatoes were grown and distributed in the republic. Collection of Aral Experimental Station of Plant Genetic Resources has 10,765 samples of crops. Out of these, forage has 4539 samples, vegetables - 1634, cereal - 3994 and sorghum - 598.

**Target 10: Management plans in place for at least 100 major alien species that threaten plants, plant communities and associated habitats and ecosystems**

The list of introduced into the territory of Kazakhstan and neighboring countries (former USSR) contains over 940 species of plants and animals. Most of them are made for the territory of Northern Eurasia, a region which for a long time was the main flow and transport route of goods (particularly timber and grain) from foreign countries.

In Kazakhstan, 5 species of weeds are officially recorded (creeping Gorchakov (pink), dodder, multi ambrosia, ambrosia polynnolistnaya, prickly nightshade).



A legislative framework was developed. Constant monitoring of the phytosanitary situation, including and at the expense of the national budget is carried out on the territory of the republic.

**Target 11: No species of wild flora endangered by international trade**

Kazakhstan signed the CITES Convention on International Trade of Endangered Species of Wild Fauna and Flora, but the rare plants are not included in the Annex to the CITES Convention, which regulates the rules of trading objects of fauna and flora. The plants, raw materials and derivatives are being exported abroad freely, that threatens the existence of rare and endemic species.

**Target 12: 30 percent of plant-based products derived from sources that are sustainably managed**

Flora of Kazakhstan, numbering about 6000 species of vascular plants, includes a significant number plants used in the national economy of the technical, tanning, food, attar, medicinal and other plants.

Technical plants are numerous in species, and some of them occupy large areas of vegetation, and have large stocks of raw materials.

Tanning plants, containing the valuable substances, tannins with astringent properties. This group has more than 20 species of valuable tannin-containing plants. Among them are such plants as *Polygonum coriarium*, *P. bucharicum*, *Rumex tianschanicus*, *R. paulsenianus*, *Rheum tataricum*, *R. maximowiczii*, etc. Raw materials of these species exceed 200 thousand tons, including *Rheum tataricum* on the area of about 20 hectares, and *Rumex tianschanicus* on the area of about 700 hectares with a stock of dry raw materials more than 1.5 tons

Food plants - a large group of valuable species in the flora of Kazakhstan. The most important of these are Sivers apple (*Malus sieversii*), an ordinary apricot (*Armeniaca vulgaris*), as well as species of hawthorn (*Crataegus*), barberry (*Berberis*), etc. The reserves of the fruits of apple and apricot are defined in the amount of 1653 and 800 tonnes respectively.

100 species of Essential Oil plants are identified, which are perspective on the content and composition of essential oil. These plants are widely used in perfumery and cosmetics industry and the manufacture of medicinal and non-alcoholic beverages (balsam). The most widespread essential oil plants are: Sage (*Salvia*), mint (*Menta*), hyssop (*Hyssopus*), milfoil (*Achillea*), kotovnik (*Nepeta*), thyme (*Thymus*), etc.

Medicinal plants - one of the largest groups of useful plants in the flora of Kazakhstan, with more than 100 species. Among them there are several species of valuable medicinal properties and a thicket of fishing for large areas.

*Glycyrrhiza glabra* (*Glycyrrhiza glabra*) and Ural (*Gl. uralensis*) are widely used in medicine – they are the part of the 40 medical charges and teas and are the basis for the manufacture of more than 100 medical preparations and medicines. The resources of these plants are focused on 30 hectares of identifying stockpiles of dry raw materials of about 80 thousand tons.

Forest resources in areas of state forest fund in the East Kazakhstan, Kostanai, West Kazakhstan, North Kazakhstan oblasts were transferred to 88 long-term forest management for forest timber harvesting on the area of 105,8 thousand hectares with a volume of 361,840 m<sup>3</sup>.

**Target 13: The decline of plant resources, and associated indigenous and local knowledge innovations and practices, that support sustainable livelihoods, local food security and health care, halted.**

The following programs aimed at reversing the depletion of plant resources are being implemented: The program of priority measures for 2006-2008 on realization of the Concept of Sustainable Development of the agroindustrial complex of Kazakhstan for 2006-2010, A policy on sustainable development of agroindustrial complex of Kazakhstan for 2009-2011, “Zhasyly EI”, Conservation and management of water resources, wildlife, and development of the network of specially protected natural territories until 2010. Preservation of in-situ mountain agrobiodiversity in Kazakhstan, the integrated conservation of globally-significant water and

wetland as habitat of migratory birds: a demonstration on three areas, Conservation of forests and increase of forest cover of the territory of the republic, etc.

**Target 14: The importance of plant diversity and the need for its conservation incorporated into communication, education and public awareness programmes.**

Environmental education is carried out on a systematic basis in the Republic of Kazakhstan in educational institutions (schools, lyceums, grammar schools, secondary vocational institutions, universities) and in-school educational institutions. The main educational act is training on subjects: botany, zoology, biology and nature.

Ministry of Environment signed Memorandums of mutual trust and cooperation with 19 universities. The signing of the Memorandum provides an opportunity to develop practical measures for further development of environmental education and raising environmental awareness.

Education and training of personnel in the field of conservation and sustainable use of biodiversity is regulated directly or indirectly by relevant sections of «The concepts of environmental security of the Republic of Kazakhstan», articles 73, 74 of the Law «On Environmental Protection», Laws of the Republic of Kazakhstan «On education», «On the emergency situations», «On public service in the Republic of Kazakhstan» and a number of governmental decisions.

**Target 15: The number of trained people working with appropriate facilities in plant conservation increased, according to national needs, to achieve the targets of this Strategy.**

In accordance with article 181 of the Environmental Code, environmental education and advanced training of ecology specialists is developed in Kazakhstan as part of education for sustainable development. In April 2007, the Ministry sent the proposals to improve environmental education and promoting education for sustainable development in the general education system of Kazakhstan to the Ministry of Education and Science, in particular, suggested to include the subject “Environment and Sustainable Development” instead of the subject “Ecology” in the block of GS (general subjects) of all specialties of higher educational institutions, and change the name of the specialty Baccalaureate 050608 “Ecology” to “Environment and Sustainable Development” for more extensive study of environmental issues in relation to sustainable development.

**Target 16: Networks for plant conservation activities established or strengthened at national, regional and international levels**

Strategic Plan for Development of the Republic of Kazakhstan up to 2010 aims at promoting international cooperation, optimization of the system of nature management and environmental protection, provision of environmental education.

The Program «Conservation and sustainable use of water resources, wildlife, and development of the network of specially protected natural areas to the year 2010» provides creation of the system of protected areas in priority regions to guarantee the long-term conservation of biological diversity and sustainable environment, including protection of endemic and rare representatives of flora.

Activities in the field of conservation of vegetation are being carried out within the framework of international projects: Conservation of agro-biodiversity in the natural growth in Kazakhstan, Conservation and sustainable use of biodiversity of Altai-Sayan Ecoregion; integrated conservation of globally significant wetlands as waterfowl habitats; creation of Econet for long-term conservation of biodiversity in Central Asia ecoregions.

**B. Goals and objectives of the Strategic Plan and provisional indicators  
for assessing progress**

| Goals   | Target   |
|---|--|
| <p>1.1. To establish and strengthen national and regional systems of protected areas integrated into a global network as a contribution to globally agreed goals.</p> | <p>The third report of the Millennium Development Goals in Kazakhstan for 2007 was published. Republic has made some progress in fulfilling the stated commitment to move towards sustainable development. At the current stage of development, consolidation of achievements, improving the quality of lives of citizens and sustainable development are the focus of public policy.</p> <p>Kazakhstan has adopted a number of government documents, to ensure environmental sustainability of the National Economy: The Transition of Kazakhstan to sustainable development until 2024, the concept of fisheries development of RK for 2007-2015, the Environmental Code of the RK, Law of RK «On specially protected natural territories», and others. Ratified international environmental conventions to promote biodiversity and reduce environmental pollution. The country continues the work on protection and reproduction of water, forests, fisheries and wildlife. List of the state of nature-reserve fund of the national and international importance and the right to limit the economic use of public natural-reserved fund of the national and international importance in the PAs, as well as a list of subsoil sites of particular ecological, scientific, cultural and other value assigned to categories of protected areas of national importance were approved.</p> <p>Program for the conservation and rational use of water resources, wildlife and the development of a network of specially protected natural territories until 2010 was approved.</p> <p>In recent years there has been steady growth in the area of protected areas, the number of personnel, improvement of logistics. In early 2008, the total area of protected areas was more than 8.1% of the total area of the country. It is planned to increase the area of specially protected natural areas to 1258.7 thousand hectares (the proportion of protected areas will be 8.5% of the territory of a State), to strengthen the protection of landscape and biological diversity of the steppe and semidesert zones of the plain of Kazakhstan, of global significance for conservation and restoring populations of rare and endangered species of large mammals and birds, the protection of endemic and rare representatives of flora by 2010.</p> <p>Tengiz-Korgalzhyn system of lakes is included in the List of Wetlands of International Importance. The World Heritage Committee decided to include the nomination «Sary Arka - Steppe and Lakes of Northern Kazakhstan» in the UNESCO World Heritage List.</p> <p>Kazakhstan has not adopted the Global Strategy for Plant Conservation, however, an extensive work on plant</p> |

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|  | conservation in the framework of the UN Convention on the BR is carried out in the republic.  |
| <p>1.2. To integrate protected areas into broader land- and seascapes and sectors so as to maintain ecological structure and function.</p>   | <p>The Government adopted "The concept of development and deployment of specially protected natural territories of the Republic of Kazakhstan till 2030" to conserve and restore natural ecosystems in the country, maintain the ecological balance and the determination of the regularities of the natural development of natural systems and their components.</p> <p>Concept of transition of the Republic of Kazakhstan to sustainable development in the years 2007-2024 identified evidence-based measures for the conservation and restoration of landscape and biological diversity, sufficient to maintain the capacity of natural systems to self-regulation and the effects of human activities using an ecosystem approach to environmental management. Sustainable development at the territorial level in the RK can not be carried out only in the subjects of administrative-territorial division, since the nature of its resources and ecosystems in the context of Kazakhstan have expressed transregional character.</p> <p>At the present stage it is difficult to classify the deployment of PAs in the territory of Kazakhstan as an «ecological network» in its global sense. At the same time, formation of intra-regional ecological networks in Zaili Alatau, Zhongar Alatau and the Altai region is ongoing. Elements of ecological networks at the State level are being formed, which are the West Tien Shan and Altai-Sayan ecological regions. Initiated and developed approaches should be pursued on all natural complexes (forests, prairie, forest and steppe, desert, semi-desert, coastal and aquatic ecosystems), for which the organization of ecological networks are also relevant, as well as for mountainous areas.</p> <p>Kazakhstan has successfully implemented an international project aimed at development of an ecological network – Creation of ECONET Central Asia.</p> |
| <p>1.3. To establish and strengthen regional networks, transboundary protected areas (TBPAs) and collaboration between neighbouring protected areas across national boundaries..</p> | <p>In order to ensure more effective conservation and sustainable use of biological diversity, implementing an ecosystem approach, and improving international cooperation, the following international projects are ongoing in Kazakhstan:</p> <ul style="list-style-type: none"> <li>- Conservation and sustainable use of biological diversity in the Kazakhstan part of Altai-Sayan Ecoregion;</li> <li>- Integrated conservation of priority globally significant wetlands as habitats of migratory birds: a demonstration on three areas;</li> <li>- Improving the management of a network of protected wetlands, a key to crane and other water-habitat migratory birds in Asia.</li> </ul>  |
| <p>1.4. To substantially improve site-based protected area planning and</p>  | <p>In accordance with current legislation in the field of protected areas, the reason for the performance of the work</p>   |

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| management.  | <p>to establish protected areas is a program for the conservation and rational use of water resources, wildlife and the development of a network of specially protected natural territories until 2010.</p> <p>Documentary basis for PAs is the scientific and techno-economic justification for the establishment of protected areas. Organization of activities of protected areas is carried out in accordance with the plan of its administration.</p> <p>The process of establishing protected areas consists of three phases involving the development and approval of projects: scientific rationale, feasibility studies and land development project of creating protected areas.</p> <p>The Law of the RK «On Specially Protected Natural Areas» determined a new procedure for development of ecological tourism in the territory of SNNP, a new category of protected areas with the right of the legal entity is provided on the initiative of the NGO – the state natural reserves.</p> <p>In order to develop ecological tourism in protected areas a Memorandum of Understanding between the KIT MTS RK, Forestry Committee of Agriculture Ministry of the RK, the Environmental Forum of non-governmental organizations, Kazakhstan Tourism Association.</p> <p>To date, the state order for the four national parks («Ile-Alatau», «Bayanaul», «Kokshetau», «Altyn-Emel») has developed a master plan to determine the optimal planned location of major tourist facilities.</p> |
| 1.5. To prevent and mitigate the negative impacts of key threats to protected areas. | <p>Kazakhstan has adopted a number of laws aimed at protecting ecosystems: The Constitution of the Republic of Kazakhstan, the Environmental Code of Forest Code, Water Code, Land Code, the Law «On protection, reproduction and use of fauna», Law «On specially protected natural territories». and others.</p> <p>The recently adopted Environmental Code has attempted to harmonize the national environmental legislation and its harmonization with international norms and standards, in particular, with EU legislation. Thus, the EC of the RK took into account the provisions of 18 international conventions and the 30 EU directives. The priority areas of Kazakhstan are not only preserving the environment that is conducive to human life and health and to achieve sustainable development, but also the prevention, reduction and control of transboundary pollution.</p> <p>Drafts of protocols to the Framework Convention for the Protection of the Marine Environment of the Caspian Sea «on regional preparedness, response and cooperation in the event of accidents causing oil pollution» and «biodiversity» were approved.</p>   |
| 2.1. To promote equity and benefit-sharing.  | <p>One of the main tasks of the Concept of the development and deployment of specially protected natural territories of the Republic of Kazakhstan up to 2030 is to create conditions for regulated tourism and recreation in natural conditions, the</p>  |

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|  | <p>further development of tourism and recreation, taking into account the types of protected areas, the functional zones, socio-economic factors and interests of local people to organization of environmental education.</p> <p>One way of protecting ecosystems is the establishment of GNPP, in a position to maintain the ecological balance and, combining conservation of natural systems with the interests of environmental education, recreation and regulated economic activity.</p> <p>Projects and programs aimed at promoting the conservation and sustainable use of natural resources in productive landscapes, taking into account the principle of fairness and equity in the distribution of benefits in the sustainable use of biological resources in buffer zones and adjacent areas protected areas were developed and implemented. Local people are involved in activities to conserve biodiversity and support alternative economic activities in protected areas and buffer zones.</p>   |
| <p>2.2. To enhance and secure involvement of indigenous and local communities and relevant stakeholders</p>  | <p>According to the Law «On Specially Protected Natural Areas» limited and traditional economic activities and related forms of nature, handicrafts, and folk crafts are permitted in PAs, if it does not threaten the conservation and reproduction of the state of nature-reserve fund.</p> <p>Local people are involved in activities to conserve biodiversity and support alternative economic activities in protected areas and buffer zones.</p> <p>The implementation of SEF projects in biodiversity conservation of great importance to participation of the indigenous and local communities.</p> <p>A successful example of expanding and ensuring the participation of indigenous and local communities is the project on conservation of globally significant wetlands, funded by SEF and implemented by UNDP and the Government of Kazakhstan. The project developed a plan for the implementation of alternative activities (handicrafts, ecotourism, alternative sources) for the project areas. Assisted in obtaining grant funds from the SEF SGP projects: «The restoration of the traditional use of pastures around the village Korgalzhyn» in the amount of \$ 14533. (NGO «Atameken»), «Increased food supply through the creation of Lima and hayfields» in the amount of \$ 23,063 (NGO «Zhuma»).</p> <p>An agreement of the company «Agip KCO» on financing of the project «Prevention of viral hepatitis in rural areas» implemented in the project area by “Bolashak” Fund was achieved.</p> |
| <p>3.1. To provide an enabling policy, institutional and socio-economic environment for protected areas.</p> | <p>In Kazakhstan, the policy aimed at ensuring institutional and socio-economic environment is being conducted in protected areas, which reflected in key strategic documents of the country's development and legislation. The most effective measure for the conservation of endemic, rare and</p>   |

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|   | <p>endangered species, unique and reference sites, natural ecosystems, in general, is the establishment of protected areas. In recent years, there is a lot of work in the RK to further develop a network of protected areas. In 2007, the area of protected areas has increased by more than 1 million hectares due to establishment and expansion of existing protected areas. The local population is involved in the management of protected areas, micro-crediting of rural entrepreneurs living in the vicinity of protected natural areas is carried out, small grants to local communities are provided, etc.</p>   |
| <p>3.2. To build capacity for the planning, establishment and management of protected areas .</p> | <p>International experience, which is reflected in the new edition of the Law «On Specially Protected Natural Territories» in the part of developing a management plan for protected areas, is used in the management of specially protected natural areas. Management Plan will assess the natural and socio-economic value of specific protected areas, develop and implement appropriate interventions aimed at achieving these goals.</p> <p>Forestry committee of Agriculture Ministry of the RK, in conjunction with projects of SEF / UNDP «Integrated conservation of priority globally significant wetlands as habitats of migratory birds, the SEF / UNEP« Strengthening the network of training centers for the management of protected areas» and the Association of Biodiversity conservation of Kazakhstan held a national training courses for employees of Pas on «Development of management plans for nature reserves, national parks and nature reserves of Kazakhstan»; conducted training seminars on the subject: «Organization of Security Services in protected areas» in Korgalzhyn SNP and Alakol SNP; a seminar on improving the work of PAs in the field environmental education and public awareness for staff of protected areas and SNNP in Kolsai SNNP.</p> |
| <p>3.3. To develop, apply and transfer appropriate technologies for protected areas.</p>          | <p>In accordance with state programs and priorities of the Government of Kazakhstan and UNDP, the project «Support to the implementation of the Concept of Transition of Kazakhstan to sustainable development» was developed. The project prepared the Strategic Planning of SD on conservation of wetland resources in mountain and grassland ecosystems and mountain agro-biodiversity in Kazakhstan. To implement priority CSD developed and implemented projects in Biodiversity Conservation including better planning and management of protected areas. «Rules for the development of scientific projects and feasibility studies for the creation or expansion of protected natural areas», «Methodological guidelines for the management of nature in the Chronicle of specially protected natural areas with the status of legal person» were developed; Rules on development of management plans for environmental organizations to further approval were finalized.</p>   |

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| <p>3.4. To ensure financial sustainability of protected areas and national and regional systems of protected areas.</p> | <p>Financing of specially protected areas is done by: 1) the budget, 2) means of environmental institutions and 3) grants, means of funds on development of specially protected natural areas, voluntary contributions and donations of individuals and entities. Financing of the activities is carried out by the budget for the development and maintenance of environmental institutions</p> <p>Ensuring financial sustainability for covering the expenses on introduction of effective national and regional systems of protected areas is carried out within the framework of state and regional programs, and international projects.</p> <p>The realization of the development of specially protected natural territories of the Republic of Kazakhstan for 2007-2009 will be allocated from the state budget: 147.81 million tenge, including the years: 2007 - 5.5 million tenge, 2008 - 72.33 million tenge, 2009 - 69.98 million tenge, at the expense of international grants: 9.3 million tenge, including the years: 2007 - 7.5 million tenge, 2008 - 1.8 million tenge. From 1 January 2008, the development of protected areas is carried out under the Program for the conservation and rational use of water resources, wildlife and the development of a network of specially protected natural territories until 2010. Republican and local budgets, grants, and funds from various extrabudgetary sources will be attracted for implementation of the Program activities. The amount of funds for the implementation of specially protected natural territories in 2008 2843.590, local budget - 34,200 million tenge. At the 2009 national budget - 5.0 million tenge, the local budget - 31.300 million tenge; the 2010 national budget - 0,850 million tenge, the local budget - 18,000 million tenge (the budget will be refined in the formation of projects of the national budget in the appropriate year); international grants - 1.5 million tenge.</p> <p>Ensuring the financial sustainability of globally important protected areas is carried out within the framework of international projects implemented in the territory of the Republic of Kazakhstan (see Chapter 3).</p> |
| <p>3.5. To strengthen communication, education and public awareness.</p>  | <p>In accordance with the article 181 of the Environmental Code, environmental education, awareness and training of specialists in the field of protection environment is being developed in Kazakhstan as part of education for sustainable development.</p> <p>In Kazakhstan, over 30 NGOs are involved in reproduction and restoration of biodiversity, environmental education, basics of ecotourism development.</p> <p>Environmental actions («Marsh Parks», festivals, competitions) are widespread in the activities of PAs of Kazakhstan. Mass media informs the public about the importance and benefits of protected areas.</p> <p>Web sites: <a href="http://www.oopt.kz">http://www.oopt.kz</a>, <a href="http://www.altai-sayan.kz/">http://www.altai-sayan.kz/</a>, <a href="http://www.wetlands.kz">www.wetlands.kz</a> etc were created and are being actively</p>  |



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|   | <p>filled with information. Visit centers are created in PAs.</p> <p>SEF / UNDP project «Conservation and Sustainable Use of Biodiversity of Kazakhstan Altai-Sayan Ecoregion» presents new publications issued in 2007-2008, designed for a wide range of readers who care about environmental issues.</p> <p>A draft of the strategy on public awareness on conservation of VBU was developed.</p> <p>“Training programs for water users on irrigation, safe for biodiversity VBU for Tengiz-Korgalzhyn system of lakes» were released.</p> <p>Training programs on environmental education in the three project areas, which were approved by Atyrau city, Korgalzhyn and Alakol education departments, were released;</p> <p>Manuals on birds for students “Touch the world of birds of your native land” were published.</p> <p>A booklet on Wetlands of Kazakhstan in Kazakh, Russian and English was released. The booklet includes general information about the role and importance of preserving the VBU, and also contains a map of Kazakhstan, showing the location of the 19 globally significant VBU.</p> <p>Created videos: The disastrous steppe fires; On preservation of populations of saiga; on maintaining populations of sturgeon fish species; on the Fund of Conservation of biodiversity in Kazakhstan.</p> |
| <p>4.1. To develop and adopt minimum standards and best practices for national and regional protected area systems.</p> | <p>The main task of forming the optimal system of protected areas in Kazakhstan is to ensure that they are inseparable, when the kernel reserves (reserves and national parks) are interconnected areas with less strict protection (nature reserves, protected areas) as well as with elements of ecological network - of ecological corridors, forests, water protection zones and stripes and other protected natural areas.</p> <p>Analysis of the distribution of protected areas by geographical regions of the Republic shows that the development of reserve in the country was carried out with large gaps in relation to protected areas in the steppe and desert zones. To date, in the largest continent, Eurasia, only Kazakhstan and Mongolia have lots of steppe and semi-desert in the virgin state, promising to protect and restore rare and endangered species. In this regard, the system provides the expansion of protected areas in the steppe and semidesert zones as ecosystems of global significance. Particular attention should be given to the western region, including the valley of the Ural River.</p>   |
| <p>4.2. To evaluate and improve the effectiveness of protected areas management.</p>                                    | <p>Activities aimed at promoting the effective management of protected areas by strengthening the administrative and technical capacity, developing management plans for existing and newly created Pas are ongoing in Kazakhstan. The capacity of organizations related to protected areas, allowing extensive consultation processes for the effective</p>   |

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|   | <p>planning and management of biodiversity will be developed. These organizations include: administration of protected areas, the relevant government agencies, Akimats, local communities, NGOs and the private sector. Protected areas management plans comply with international standards.</p> <p>There is a need to revise the organizational structure of PAs, as well as rationalizing the expansion of the state on the basis of a new organizational structure by assessing management needs. This will help to strengthen the capacity of PAs to work with local communities in the implementation of the functions of public education and public relations, as well as improve the capacity to carry out the functions of the impact, resource management, and implementation of the primary monitoring and research.</p>  |
| <p>4.3. To assess and monitor protected area status and trends.</p>   | <p>Assessment and monitoring of protected areas is carried out within the framework of national and regional programs and international projects. To effectively assess the extent of protected areas it is necessary to develop and implement monitoring of programs in protected areas on an ecosystem basis. The program will be designed to convey key information to managers and other decision makers. Works on improving data collection and processing of information on biodiversity in protected areas and adjacent territories is ongoing. Available information on the status of biodiversity protected areas is incomplete and outdated. This prevents the development and implementation of effective management programs based on ecosystems. Therefore, action in the first instance will be directed at identifying and filling gaps in basic data (distribution and number of rare, endangered species and cross-border).</p> <p>To implement the monitoring and implementation of long-term evaluation of biodiversity, it is necessary to establish by 2010 a permanent field monitoring stations and equipment, as well as a series of activities to improve the storage, management and dissemination of information to all interested parties.</p> |
| <p>4.4 To ensure that scientific knowledge contributes to the establishment and effectiveness of protected areas and protected area systems..</p> | <p>Analysis of modern ecological state of the environment and the objects of nature-reserve fund, both inside and outside the protected areas is carried out in Kazakhstan for improving environmental performance of PAs. Sustainability of natural complexes and objects of protection to human impacts is being determined.</p> <p>A complex of measures providing protection of all components of ecosystems, as well as recommendations for the development of scientific research and environmental education activities as important components of environmental protection PAs are developed on the basis of the materials using GIS technology.</p>   |

## **Appendix IV - National indicators used in the report (optional)**

Program of the Government of the Republic of Kazakhstan for 2007-2009 as a priority area identified the transition to sustainable development, improving people's quality of life and human capital development. The program includes the introduction of targets and indicators for sustainable development in the context of each region and by industry.

A list of national indicators of sustainable development, taking into account the indicators recommended in the documents UNCSD, EU, World Bank and the national specificities of the Republic of Kazakhstan.

### **Indicators**

#### **Species threatened with extinction, as a percentage of the total number of species (animals, plants);**

In general 22.5% of the total diversity of mammals, 11.4% of species diversity of birds, 20.4% of reptiles, amphibians 25%, 15.4% of fish and a small proportion of insects, crustaceans, molluscs and other invertebrates are recorded in the Red Book of Kazakhstan.

#### **Number of threatened species: mammals, birds, reptiles, fish, trees and shrubs.**

The list of rare and endangered animal species - 40 species of mammals, 57 species of birds, 10 reptiles, 3 species of amphibians, 19 species of aquatic animals.

The list of rare and endangered plant species - 387 species.

#### *Indicators of response*

#### **Specially protected natural areas (PAs) as a percentage of the total territory;**

By 2010, the total area of protected areas will be 23,297.4 ha, or 8.5% of the territory of the State

#### **Number of nature reserves and national parks**

On January 1, 2006 in Kazakhstan, operated 10 state nature reserves, 9 state national natural parks, 2 state nature reserves, 55 state nature reserves, 5 of public protected areas, 26 natural monuments of national importance.

#### **The area of nature reserves and national parks (ha).**

In 2007, the total area of protected areas of national importance was 22 038.7 thousand hectares - 8.1% of the territory, including the status of legal person - 4 689.1 thousand hectares, or 1.7% of the territory. (1.44% protected areas - national parks and national parks).