REVIEW OF POLICY AND INSTITUTIONAL FRAMEWORK FOR BIODIVERSITY FINANCE IN KAZAKHSTAN

THE BIODIVERSITY FINANCE INITIATIVE - BIOFIN

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The publication "Review of policy and institutional framework for biodiversity finance in Kazakhstan" was prepared in the framework of the international project "Biodiversity Financing" (BIOFIN) implemented by the United Nations Development Program. The publication examines the institutional, legislative aspects of biodiversity conservation in Kazakhstan, which lead to changes in biodiversity and ecosystems.

BIOFIN aims to support the countries participating in the project in forming a holistic picture of biodiversity conservation trends at the national level, identity the lack of biodiversity funding and mobilizing resources through new economic mechanisms.

The views set out in this publication are those of the author and do not necessarily reflect the opinion of UN Development Programme.

CONTENTS

ABBREVIATIONS AND ACRONYMS

ABD	Agrobiodiversity
AIC	Agro-industrial complex
BIOFIN	The Biodiversity Financing Initiative
GDP	Gross Domestic Product
WB	World Bank
SFR	State forest reserves
PPP	Public Private Partnership
GEF	Global Environmental Facility
UN CCD	UN Convention to Combat Desertification
BDC	Convention on Biodiversity Diversity (CBD)
PA	Protected Area
CCBS	Cartagena Convention on Biosafety
PF	Performance factor
IUCN	International Union for the Conservation of Nature
NGO	Non-governmental organization
NBSAP	National Biodiversity Strategy and Action Plan
HC	Hunting concessions
UNDP	United Nations Development Program
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
SCUPWB	Schemes of Complex Use and Protection of Water Bodies
CIS	Commonwealth of Independent States
RCCWC	Rural Consumer Cooperative of Water Consumers
UNESCO	United Nations Educational, Scientific and Cultural Organization

LIST OF APPENDICES

INTRODUCTION

Biodiversity is the main source for satisfaction of many human needs and serves as the basis for human adaptation to changing environmental conditions. The practical value of biodiversity is that it represents biological resources – food, medicines, raw materials for clothes, building materials, etc. as well as essential services for humanity such as water regulation, climate control, flood protection, nutrient cycling, etc. Biodiversity provides the genetic resources for agriculture and is the biological basis for the world's food security and is a necessary condition for human existence.

According to research, the world is now facing unprecedented and irreversible biodiversity losses[1]. The rate of species extinction is 1,000 times higher than the evolutionary rate[2], and it may grow to more than 10,000 times, if current trends in the species extinction and climate change go on. Around 70% of the known species in the world are threatened to become extinct by 2100[3]. These trends are fraught with critical consequences for human well-being, especially for the poorest segments of the world's population, who are very dependent on biodiversity and ecosystem services to meet their basic needs[4], and are vulnerable to the impacts associated with climate change[5].

In 2010, 193 countries that are parties to the Convention of Biological Diversity (CBD) adopted 20 global targets for biodiversity conservation, sustainable use and equitable sharing of benefits[6]. These targets, known as the Aichi biodiversity targets, cover a broad range of issues related to the conservation and sustainable use of biodiversity. In particular, the 17-th Aichi biodiversity target calls on each country to revise their national strategic action plans on biodiversity conservation (NBSAP) because the NBSAP is the primary national instrument for the implementation of the CBD, and is part of the Convention for each signatory party.

One of the main flaws of the previous version of NBSAP of all countries was that they did not contain precise estimates needed for the implementation of strategies and actions, and almost all of them lacked a resource mobilization plan. Therefore, the 20th Aichi biodiversity target calls on the countries to assess the financial needs and to mobilize financial resources for effective implementation of the Strategic Plan of CBD at the national level. In addition, the decision X/3 made at

1 Assessment of Ecosystems at the Millennium Threshold, 2005
2 Biodiversity Convention, 2010
3 Rosser and Mainca, 2002
4 UNEP, 2010
5 IPCC, 2007
6 Aichi, Japan, 2010.

the 10th Conference of the CBD Parties requests the countries to communicate their financial needs, gaps and priorities related to the national implementation of the resource mobilization strategy, and to prepare national financial plans for biodiversity conservation.

In this regard, to support the CBD participant countries, in October 2012 UNDP began to implement the Biodiversity Finance Initiative (BIOFIN) as a new global partnership for solving the biodiversity financing problems in a comprehensive and systematic manner. The goal of the partnership is to assist initiative participant countries in the preparation of a clear economic rationale for increased investment in sustainable and equitable management, conservation and restoration of biodiversity and ecosystems. In this regard, BIOFIN is closely linked to the CBD decision aimed at improving the available financing information at the country level by the participant countries, conducting a country assessment of resource needs and developing resource mobilization strategies as part of their NBSAP. The BIOFIN implementation and NBSAP development complement each other and provide a platform through which the results of national assessments of financial needs and national resource mobilization plans under BIOFIN will be integrated into the decision-making process. Finally, BIOFIN will enable countries to fulfill several international commitments adopted under the CBD.

In Kazakhstan, BIOFIN was launched in September 2013 and is funded by the Swiss Government, the European Union and the German Government.

1. BIOFIN METHODOLOGY

BIOFIN is developing several printed and online products. The main guidance is **the BIOFIN Workbook**, the purpose of which is to promote consistent application of resource mobilization steps and key principles via the participation of BIOFIN partner countries. The goal of the BIOFIN Workbook and related products is to provide specific guidance for countries on how to assess existing the expenditures for biodiversity conservation, the costs of implementing their NBSAP, and to understand how to mobilize the financial resources required for a full implementation of their updated NBSAP. Thus, the countries can improve the biodiversity conservation strategies and sectoral development policies, and to improve the public expenditures by adjusting them in line with the objectives and strategies for the biodiversity conservation and development.

The methodological structure of the BIOFIN Workbook was developed using research and analysis related to public expenditure review and institutional analyses in various fields. The priority criteria in the expenditure estimation procedures are:

a) analysis of existing expenditures and the general conditions underlying the estimation of such expenditures, including appropriate funding institutions, policies, key players and their effectiveness,

b) analysis of expenditures and fiscal deficits to achieve the main objectives,

c) plan for elimination of this deficit by increasing the efficiency of expenditures and matching the funds with key goals and objectives.

This conceptual framework is presented in the figure below:

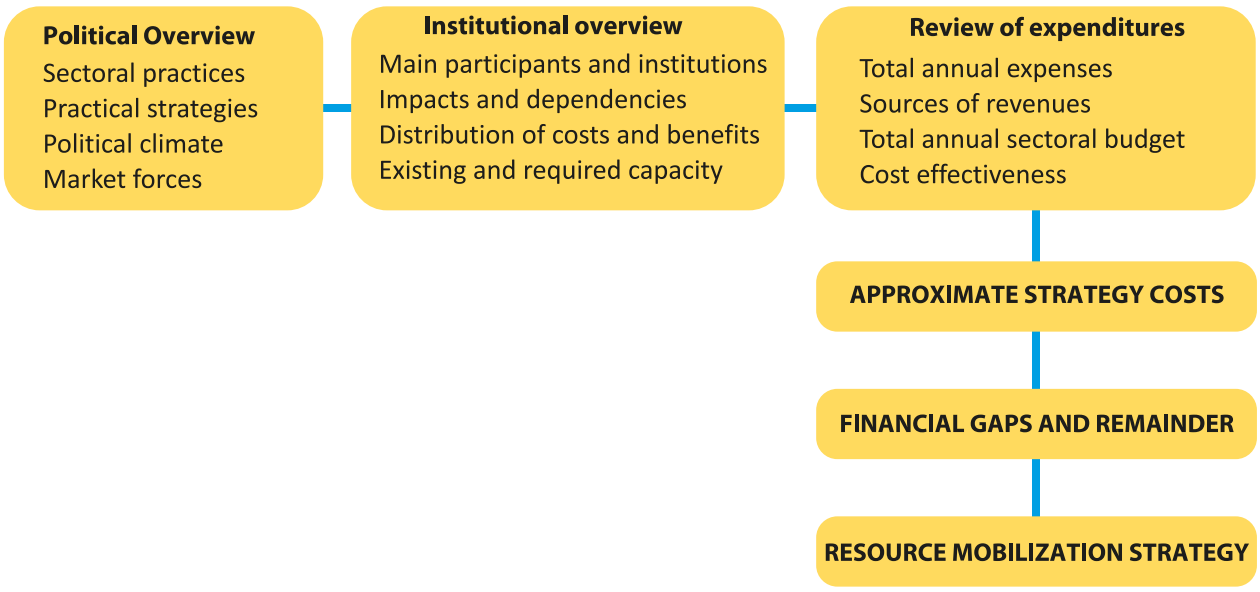


Figure 1. Conceptual framework for estimation of expenditures

The BIOFIN Workbooks are systematized in three parts[7]:

Part I examines the policies, institutions and expenditures associated with biodiversity. This information provides the basis for understanding:

a. the major policies and practices that lead to changes in biodiversity and ecosystems,

b. key institutions, their role in biodiversity financing and planning, funding and their opportunities

c. the baseline of existing expenditures associated with biodiversity with both positive and negative impacts on biodiversity and the effectiveness of these expenditures.

Part II is the estimation of the total cost of implementing each of the strategies for biodiversity conservation under the revised NBSAP. These strategies were combined into five main categories:

a. strategy for the integration of biodiversity issues (Aichi Targets 1 through 10),

b. protection strategies (Aichi Targets 11 through 13),

c. rehabilitation strategies (Aichi Targets 14 through 15),

d. strategy for benefit access and distribution (Aichi Target 16),

e. strategies for implementation improvement (Aichi Targets 17 through 20).

The second part also includes an estimation of the financial gap (deficit), based on the comparison of the "common scenarios" of financing and general estimation of the expenditures for implementing new biodiversity strategies.

Part III identifies and prioritizes the potential financing actors and mechanisms, develops a specific strategy for resource mobilization and actions for filling the financial gap.

This report covers the first part of the BIOFIN process, called the Policy and Institutional Review and included:

- Analysis of sustainable and unsustainable sectoral policies, techniques, factors that lead to changes in biodiversity and ecosystems.
- The analysis of a wide range of institutions in general across many industries, defining their roles in planning for biodiversity financing, their impact and interdependence with biodiversity, the coherence between the targets and the national biodiversity goals, and the overall capacity level.

[7] BIOFIN Workbook, version 8.0, 10.04.2014

2. BIODIVERSITY AND ECOSYSTEMS OF KAZAKHSTAN

Kazakhstan is located deep in Eurasia. The length of the country is 1.6 thousand km from north to south and 3 thousand km from west to east, with an area of 2.72 million square km. Kazakhstan has a unique variety of landscapes: from deserts to mountains and inland sea ecosystems. Arid and sub-humid lands occupy more than 75% of the country. They contain more than 40% of the entire species diversity of the country.

Kazakhstan with its unique combination of natural complexes of steppes, deserts, mountains, large inland water bodies and inflowing rivers and well-developed deltas is characterized by the greatest diversity of ecosystems in Central Asia.

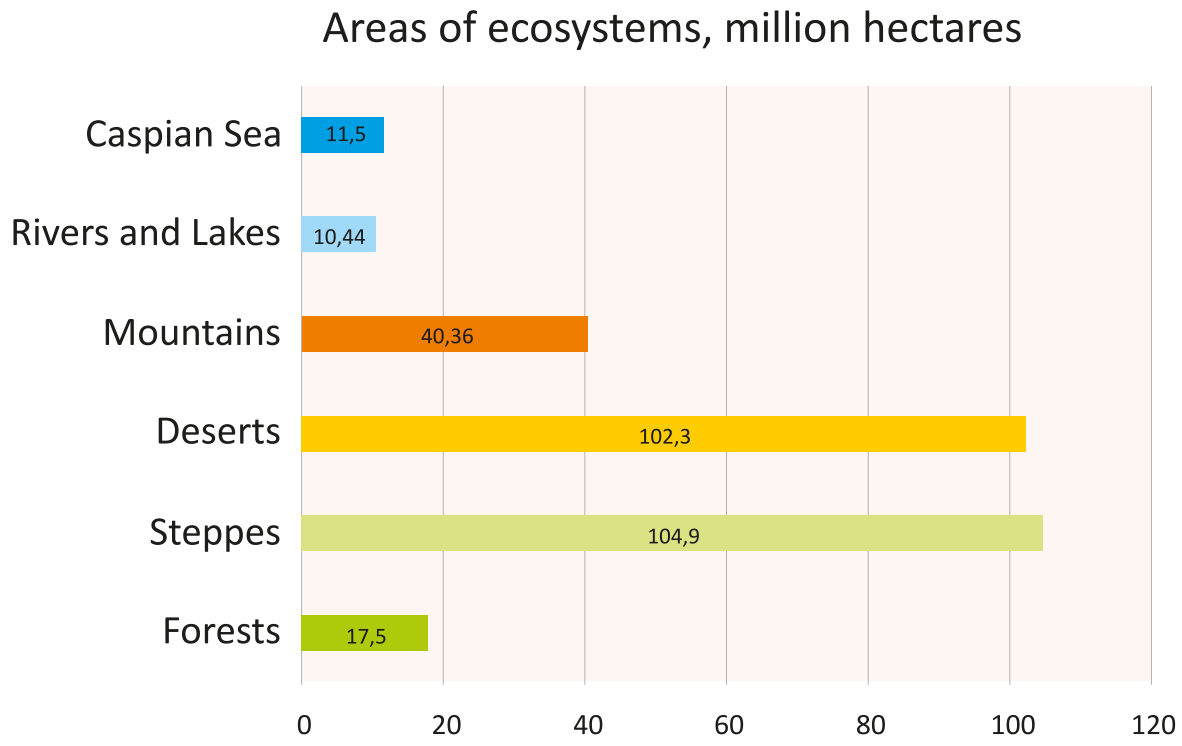


Figure 2. Area of ecosystems in Kazakhstan

Currently, all the natural zones and subzones of Kazakhstan have some PAs, which include almost all the variety of the country's main natural ecosystem types. Along with natural landscapes, Kazakhstan has agroecosystems that include human-created and regulated arable lands, gardens and vineyards, forests and park plantations, soil protecting and roadside thickets, deposits, improved pastures, etc. The present-day fauna of Kazakhstan is rich and understudied.

Table 1. Number of vertebrate species in Kazakhstan

Class	Number of Species			
	Total	Recorded in the Red Book of Kazakhstan	Recorded in the Red Lists of IUCN	Hunted
Cyclostomes	3	1	-	
Fish	147	17	15	
Amphibians	12	3	1	
Reptiles	50	10	-	
Birds	489	57	32	59
Mammals	178	40	31	34

It should be noted that Kazakhstan has a huge space of preserved steppe ecosystems that have been destroyed in other countries of Eurasia, enabling a large part of the populations of steppe species to find refuge there. Those include globally threatened species such as saigas, baibak marmots, steppe birch mice, a number of jerboa species, etc., and birds like pallid harriers, lapwings, steppe black-winged pratincoles, white-headed ducks and many others.

The territory of the republic is inhabited by vertebrate species, which belong to the wild ancestors of domestic animals. Among mammals are mouflon, argali, wild boar, wild ass, wolf, spotted cat and several others. Among birds are primarily mallards, gray geese, quails and others.

The vegetation of Kazakhstan is very diverse. The main types of vegetation are widespread in Eurasia. Kazakhstan has flora endemism centers (the mountains of Karatau, Western Tien-Shan), unique natural ecosystems with pine forests growing on sands (Ara and Aman-Karagai, Naurzum), forest and steppe complexes of low mountains in Central Kazakhstan, original floristic composition in the dessert community of Betpakdala, southern Trans-Balkhash area, Ili basin, forest, shrub and steppe communities in Southern Altai, Kalba, and Tarbagatai mountains, Dzhungar Alatau middle hills and Tien-Shan coniferous forests and fragments of apple forests, wetland ecosystems of the lower Urals, Torgay hollow, Tengiz and Alakol lakes, floodplain forests (tugai) of Syrdarya, Ili, Charyn rivers.

Despite the vast territory and low population density, many fauna species are rare or endangered, mainly due to habitat destruction and illegal hunting[8]. The Red Book of Kazakhstan (2006) describes 125 species of vertebrates (15%), including 40 species of mammals and 57 species of birds.

The flora of Kazakhstan is estimated to have more than 13 thousand species, including more than 5.7 thousand species of higher vascular plants, around 5 thousand mushroom species, more than 0.4 thousand lichens, more than 2 thousand algae, around 0.5 thousand mosses. Around 14% of plant species are endemic.

Kazakhstan has unique genetic resources of globally important floristic ABD. According to 2013 data, they include 226 species of wild relatives of cultivated plants, determining the genetic potential for 24 agricultural crops. Fruit ABD received international recognition and, above all, Sivers Apple, Niedzwiecki Apple and ordinary apricot. The promising species are also Kazakhstan's genetic resources of pistachio, almonds and ordinary wine grape.

[8] KBD Secretariat – Section on Kazakhstan (2014)

3. ANALYSIS OF PRACTICES AND POLICIES

Workbooks 1a and 1b reviews the regulatory norms, market forces, policies and strategies of the state that lead to positive or negative impacts on biodiversity and ecosystems.

During the preparation of Workbooks 1a and 1b, the specialists used reports from industry experts in the field of forestry and forest resources, fishery resources and fishing, hunting and fauna, PA, agriculture and agrobiodiversity, and used the overview materials on tax policy and tax revenues, subsidies by sectors, budget financing, official statistics provided by the Ministry of National Economy, Ministry of Finance, Ministry of Agriculture, Committee of Forestry and Fauna and other organizations. They used the V National Report of the Republic of Kazakhstan on Biological Diversity (2014). Results were discussed with experts and other stakeholders.

3.1. Legislation of Kazakhstan in the sphere of biodiversity FINANCE

International agreements on biodiversity ratified by Kazakhstan

Kazakhstan, being a subject of international relations, has ratified a number of international legal instruments and is a party to the CBD (1994), UNESCO (1994), UN CCD (1997), CITES (1999), the Convention on the Conservation of Migratory Species of Wild Animals (2005), Convention on Wetlands of International Importance (2005), CCBS (2008), the Nagoya Protocol on Regulation of Access to Genetic Resources and Joint Use based on Fair and Equitable Distribution of Benefits arising from their utilization for BDC (2015). Under these agreements, Kazakhstan receives technical assistance from international agencies and donors.

National strategic documents

The main strategic development document is the Strategy "Kazakhstan-2050", which has operated since 2012. In the framework of the Strategy, the government adopted the Strategic Development Plan of Kazakhstan until 2020 (2010), Concept of Kazakhstan's Joining the 30 Most Developed Countries of the World (2014), Concept for Transition of the Republic of Kazakhstan to a "Green Economy" (2013), which envisage goals and activities for biodiversity management (figure 3). Based on the objectives of these main documents, the ministries approve strategic plans.

Biodiversity and ecosystem issues are an integral part of the Concept on Transition to a Green Economy. According to the Concept, the "green" economy of Kazakhstan is realized in seven areas:

1) rational use of water resources,
2) development of sustainable and highly productive agriculture,
3) energy saving and increase of energy efficiency improvement,
4) development of electric power industry,
5) development of waste management system,
6) reduction of air pollution,
7) ecosystem conservation and effective management.

Under the "green" economy development programme, Kazakhstan plans to invest in 10 key sectors of economy. These are agriculture, housing and utilities, energy, fisheries, forestry, industry, tourism, transport, recycling and waste disposal, water management.

National legislative acts regulating the issues of biodiversity

At the national level, the document with highest legal force is the Constitution of Kazakhstan (1995), with the main provisions in the field of environmental protection enshrined therein. The Constitution defines the state environmental protection as one of the targets favorable for life and health. The Constitution establishes that citizens of Kazakhstan must preserve Nature and protect natural resources.

The Kazakh legislation in the area of biodiversity includes the following documents:

Table 2. Basic laws and regulations relating to biodiversity

Environmental Code	Regulate relations in the scope of environment protection, reclamation and conservation of the environment, the natural resources utilization and restoration of natural resources in the implementation of business and other activities, related to the natural resources utilization and the environmental modification, within the territory of the Republic of Kazakhstan.
Forest Code	Regulate the public relations in use and protection of flora (other than forests) and fauna, water bodies, subsoil, soil, air, the specially protected natural areas shall be regulated by the special legislation of the Republic of Kazakhstan.
Budget Code	Regulates budget, intergovernmental fiscal relations, set out the main provisions, principles and mechanisms of the budget system, the formation and use of budget funds, as well as the formation and use of the National Fund of the Republic of Kazakhstan.
Tax Code	Establishes principles for taxation, defines the procedure for calculation and payment of taxes and other budget payments, specifies the way in which payments are made for the use of land, wildlife, forest resources, water resources, PAs, emissions into the environment.
Land Code	Regulate the relations on use and protection of mineral resources, water, natural air, forests and other vegetation, animal world, objects of environment that have a special ecological, scientific and cultural value, specially protected natural areas shall be regulated by the special legislation of the Republic of Kazakhstan.
The Law on Protection, Reproduction and Use of Wildlife	Regulate the social relations in the field of protection, reproduction and use of animal world and directed at ensuring of conditions of preservation of animal world and its biological diversity, sustainable use of objects of animal world for the purposes of meeting of environmental, economic, aesthetic and other needs of person in recognition of interests of current and future generations.
The Law on Specially Protected Natural Areas	Regulate the public relations on creation, expansion, protection, restoration, stable use and management of especially protected natural areas and objects of the state natural conservation fund representing especial environmental, scientific, historical and cultural and recreation value, as well as that are a component part of the national, religious and world environmental network.

Kazakhstan applies provisions of three-year budget planning, whereby biodiversity issues are included in the 3 year Strategic Development Plan of the Ministry of Agriculture.

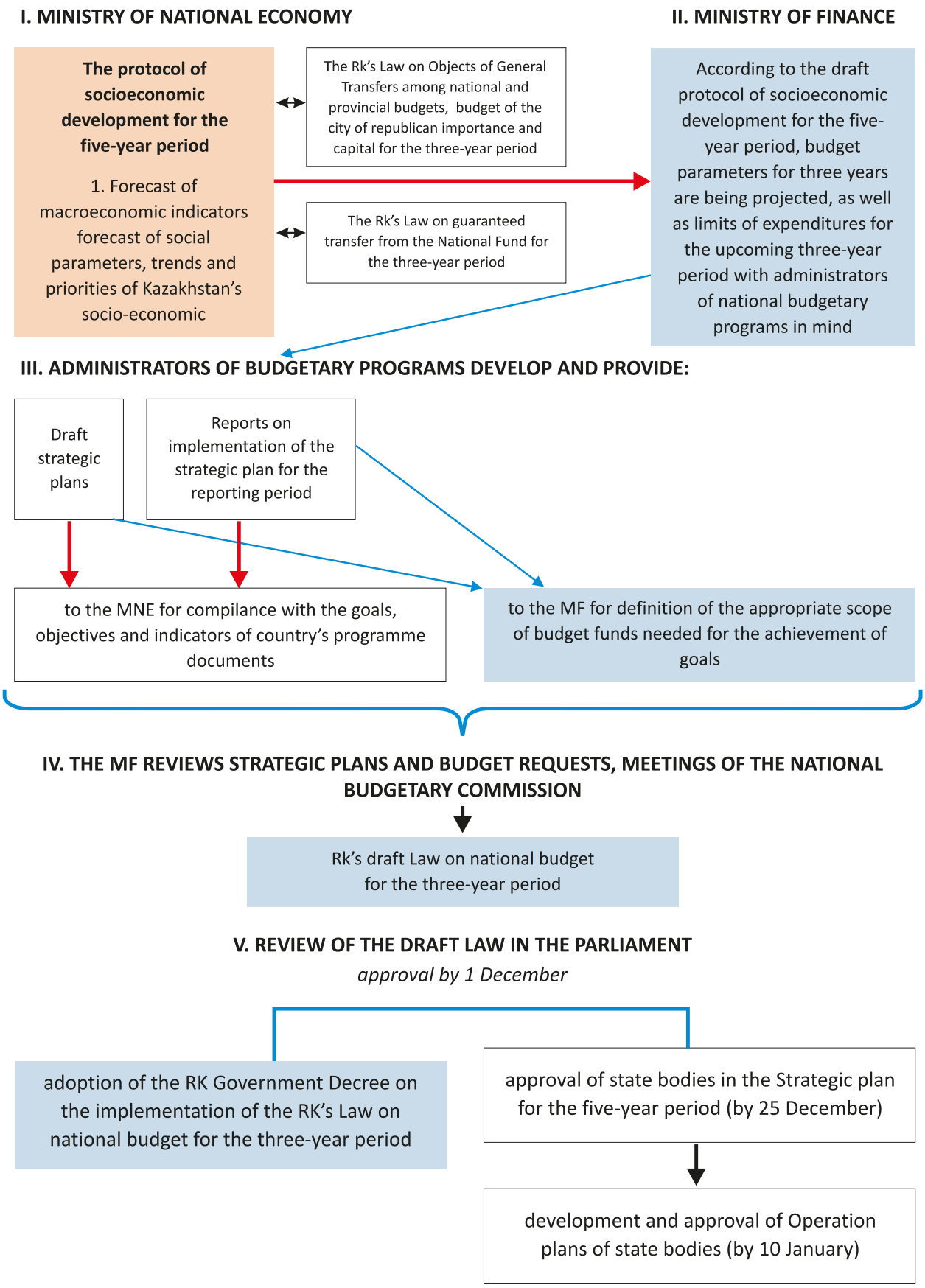


Figure 3. Stages of formation on the national three-year budget

Sectoral programs in the sphere of biodiversity

Sectoral Program "Forests of Kazakhstan" (2004-2006).

The purpose of the Program was to stabilize the situation in the field of conservation, protection and reproduction of forests, their rational use and to build capacity for further improvement of the efficiency of forest management, increase of forest plantations to improve the environmental protection and formation role of forests. The budget of the Program amounted to around 75 million USD. (The republic budget allocation was 58.8%, the local budget - 39.8% and grants - 1.4%).

Program "Zhasyl El" (2005-2007).

In addition to the Program "Forests of Kazakhstan", the Program "Zhasyl El" set the goals of greening human settlements and creating green areas around them through the involvement of youth in these processes. The three-year Program amounted to 170.8 million USD. (The republic budget allocation was 59.7%, the local budget – 39.7%, the private sector – 0.5% and grants – 0.1%).

Sectoral Program "Zhasyl Damu" (2010-2014).

The program was the only program aimed at creating conditions for the preservation and restoration of natural ecosystems. The program established measures for the development of international relations, scientific support of environment protection and natural resources management, environment and natural resource monitoring systems, environmental education, outreach and public awareness raising. The program was interdisciplinary in nature, and contributed to the integrated solution of many issues, including greenhouse gas emissions, air pollution, environmental disaster zone, PA, production and consumption waste, water resources, landscaping. The program included a section on forestry, fauna and PA, which addressed the issues of biodiversity conservation. Currently, this program is completed, and other integrated programs for the conservation of biodiversity and ecosystems are not available.

Concept of Fishery Development in the Republic of Kazakhstan (2007-2015).

The purpose of the program was to increase the competitiveness of the industry based on the sustainable operation of the fish industry through the preservation, reproduction and rational use of aquatic bio resources in natural water bodies, creation of conditions for development of commercial fisheries.

National Strategic Action Plan for Biodiversity Conservation.

The First NBSAP of Kazakhstan was developed and approved in 1999 by the Ministry of Natural Resources and Environmental Protection. However, this document was not adopted as a mandatory policy document, and thus not supported by public funding.

In 2014, under the UNDP project "Planning of biodiversity conservation at the national level to support the implementation of the CBD Strategic Plan in the Republic of Kazakhstan 2011-2020", the government developed the draft of the new NBSAP of Kazakhstan with was in line with the relevant targets of the Aichi Biodiversity Targets. In accordance with the regulations of the state planning,

this document is referred to as the Concept for Conservation and Sustainable Use of Biodiversity in the Republic of Kazakhstan until 2030. The Concept contains 20 national targets and has a plan of activities until 2020. To date, this document has not been approved. A detailed Action Plan has been developed based on the Concept and includes detailed actions for implementing the Concept.

3.2. Sectoral practices influencing biodiversity

Kazakhstan is an agrarian-industrial country. The economy of Kazakhstan is the largest economy in Central Asia. The main source of economic growth is oil, metals and minerals, agriculture, engineering and manufacturing industry the role of which has significantly increased in recent years with the production of goods with high-added value.

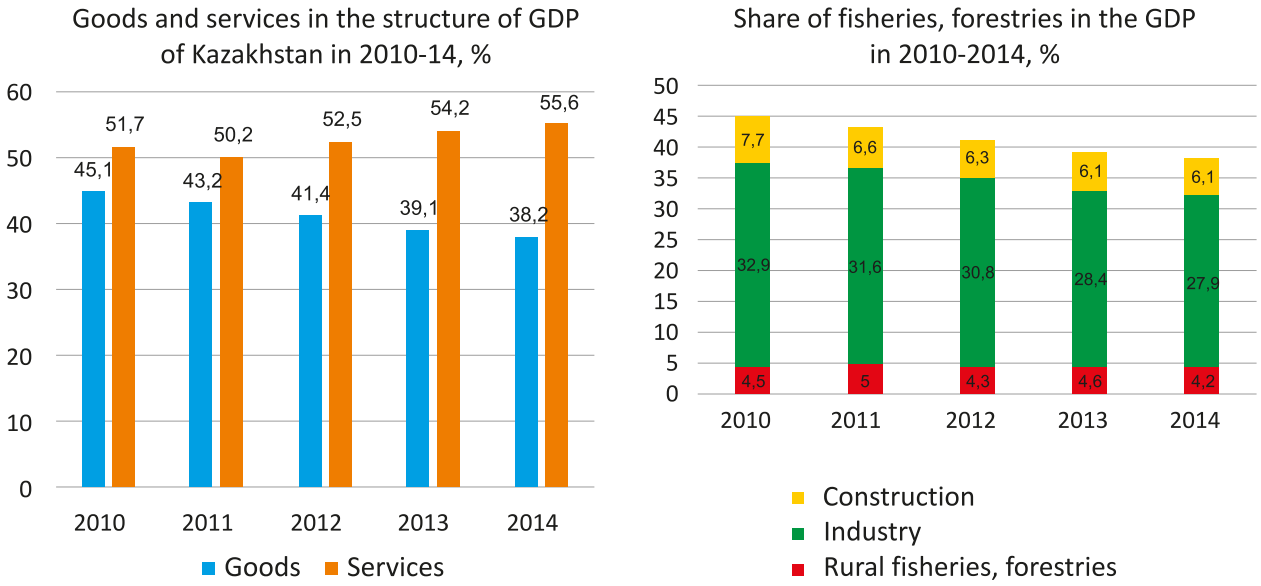


Figure 4. Kazakhstan's GDP structure for 2010-2014

According to official data, at the beginning of 2015, the GDP per capita was 13.6 thousand USD. The economic success of Kazakhstan is stipulated by the presence of rich natural resources. Reserves of coal, oil, gas, chrome, uranium, zinc, iron ore, copper, gold and other production place Kazakhstan among 15 leading extractive industries countries of the world. Around half of the budget revenues and over 70% of export profits come from natural resources. Of these, oil revenues make up around half the state budget, the export of products from extractive industries make up 76%, of which 71% is from hydrocarbons. Overall, 17% of the economy is based on resource-dependent industry.

The sectors of mining, energy, oil and gas are the most risky sectors for biodiversity, because they use a resource-based approach. Within each sector separately, there are many obvious factors, which have both negative and positive impact on biodiversity and ecosystems. Despite the progress made in the biodiversity conservation, Kazakhstan continues to face the impact of negative factors on natural ecological systems and populations of wild species, wild plants and ecosystems.

As practice shows, the existing model of economic development leads to ineffective sustainable development of the economy and increase of the pressure on biodiversity and ecosystems, especially with the stable growth of the population. Low efficiency of energy resources use, land degradation and water scarcity, pollution and increased pressure on flora and fauna lead to a loss of biodiversity, deterioration of local health and local decrease in well-being of specific population groups and local communities (despite an overall statistical increase in average annual income).

There are a number of key direct and indirect threats, which should be paid special attention. These threats are systematized in the table below.

Table 3. Classification of threats to biodiversity

DIRECT THREATS	INDIRECT THREATS
Full loss and degradation of habitats Climate change Introduction and spread of invasive species of animals and plants Overexploitation of resources	Gaps in the legal framework Weak institutional framework Insufficient capacity and knowledge Low participation of civil society in management and conservation Resource exploitation based approach to management Underestimation of the economic value of biodiversity and ecosystem services

Protected Areas

The most effective tool for the conservation of biodiversity is currently the creation of Protected Areas (PAs). To date, the structure of Kazakhstan's PA system includes 10 reserves, 12 national parks, 2 regional parks, 5 nature reserves, 26 natural monuments, 50 fauna sanctuaries and 5 protected areas, with a total area of 238 thousand square km. Since 2009, the area of PA with the status of legal entities has increased by 10.2 thousand square km: there are two new national parks and two state nature reserves; a number of existing nature reserves and national parks has expanded. The current area of all PAs in the country is 238 thousand square km corresponds to 8,7% of the country's area.

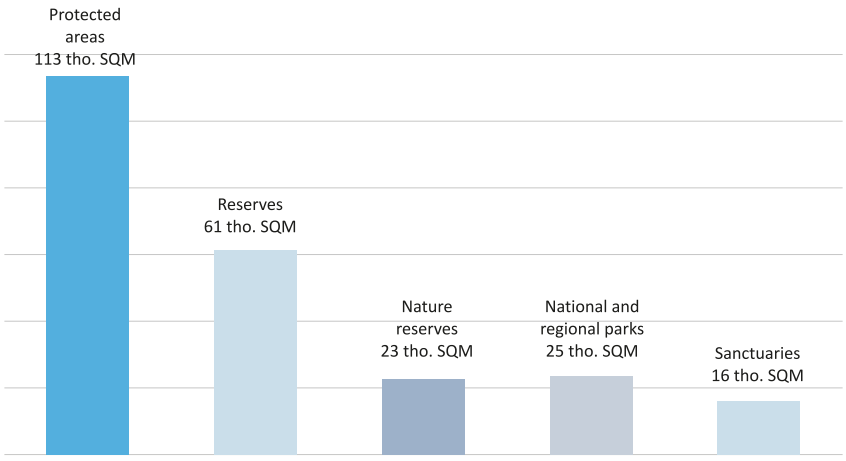


Figure 5. Structure of Kazakhstan's PA in 2014

The PA system of Kazakhstan depends on the function corresponding to I, II and VI categories IUCN and operates in accordance with the Management Plan approved for a 5-year period.

The strategic plan for the conservation and sustainable use of biodiversity for 2011-2020, adopted in the framework of the BDC in 2010 in Nagoya (Japan) envisages increasing the area of PA land to 17% by 2020. The main emphasis was placed on representativeness (representation of ecosystems) and the efficiency of PA management along with the application of the ecosystem approach to ensure the environmental sustainability and involvement of local communities in co-management.

In Kazakhstan, the PA representativeness is low: the mountain ecosystems are covered by PA at the level of 5.5%; dry steppes ecosystems at 4.0%; deserted steppes at 1.3%; arid steppes at 1.1%; forest steppes at 2.6%; northern deserts at 2.0%; middle and south deserts at 0.69%; lake ecosystems at 0,04%. From the above table of ecosystem area in the country, it can be seen that water bodies and forests are the ecosystems with the smallest area and this important targets for conservation and sustainable management. The general scheme envisages, by 2020, bringing the PAs to 10.7% of the total area of the republic (291 square km); and by 2030, to 15.3 % of the total area of the republic.

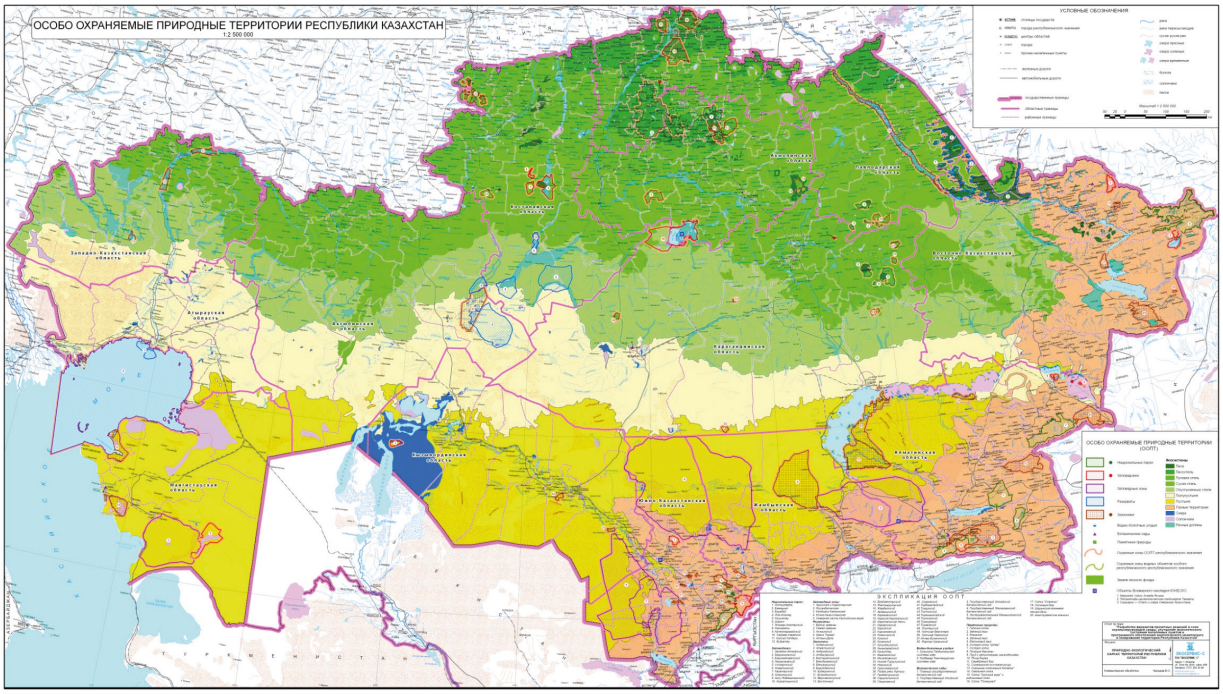


Figure 6. Map of the Protected areas of Kazakhstan

Besides, the Forecast Scheme of Territorial and Spatial Development until 2020 envisages, in the period from 2010 to 2020, the establishment of 13 new PAs and the expansion of 7 existing PAs. However, currently, there is no concept or sectoral programs for the development of PAs in the medium and long term.

PAs in Kazakhstan are a diversified organization operating in different directions. If the objective of reserves is the conservation of habitat, ecosystems, populations, species and genetic resources in their natural state, as close to natural conditions as possible, the objective of national parks and nature reserves is to conserve natural communities and landscapes of national and international significance for spiritual, scientific, educational, recreational purposes and tourism. Thus, the conservation of natural communities, genetic resources and species also remains one of the major tasks.

In Kazakhstan, PAs are a very promising place to meet the growing needs of people in cognitive recreation. PAs, particularly national natural parks, play a major role in the shaping of the planned of tourist flows and revenues. Over the past 5 years, the number of PA visitors has mounted to more than 3.5 million people.

When visiting the PAs, it brings benefits to the state in the form of revenues and to the PA themselves in the form of their own funds. Over the period from 2004 to 2014, the revenues per PA visit increased by more than 8 times.

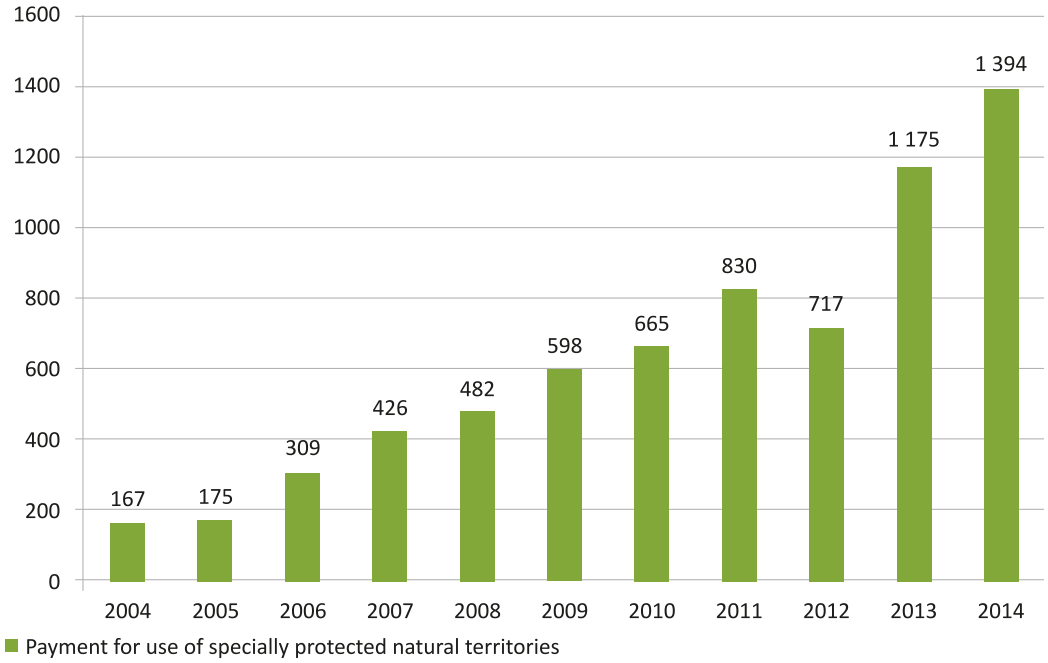


Figure 7. Dynamics of revenues to the republic budget due to PA visits (thousand USD)

The national parks of Kazakhstan plan tourism and nature conservation based on the functional zoning of the territory still under PA planning. Based on the approved functional zoning, the entire territorial structure of PA is planned, including tourism infrastructure.

The state budget provides for approximately 84% of the total PA funding in Kazakhstan, which is the share that has remained practically unchanged in the past decade. More than a tenth of the PA funding comes from foreign grants and only 7% is earned from extra-budgetary income sources.

Forestry

The forest sector of Kazakhstan is divided into two subsectors – forestry, administered by the Ministry of Agriculture and Local executive bodies (Akimats), and the timber and wood sector, which is administered by the Ministry of Investment and Development.

The main functions of the Ministry of Agriculture in the field of forestry is the conservation, protection, reproduction of SFR forests, provision of forest resources for utilization (wood felling based on public tenders), as well as the control and supervision of the forest condition and management. The maintenance of the forestry sector is financed from the state budget and the own funds of forest institutions, formed by the development of forestry services.

The main functions of the Ministry of Investment and Development are implemented, under the legislation of Kazakhstan, with the purpose of preparing and processing forest resources, managing and supporting the production of wood construction materials, wood products and paper. It involves mainly small and medium enterprises of the country funded by private funds and domestic and foreign investments.

The forestry sector in Kazakhstan is aimed at increasing the forest area, preservation and rational use of forests, including the timber production for the purposes of the national economy by wood felling without infringing on the protective role of the forest.

In accordance with Kazakhstan's legislation, forests are state property, nonetheless private forestry is encouraged:

- for private business, this reveals a new area of business that used to be entirely controlled by state institutions;
- this focuses entrepreneurs on the creation of assets on their own by investing their own resources therein, and hence, subsequently, the entrepreneur will be careful and prudent with respect to such a forest;
- this promotes the development of lands that are vacant, inconvenient and unused in agriculture by moving them into the category of producing and ecologically useful areas, contributing to the preservation and development of biodiversity of the republic;
- this provides the opportunity to create new jobs by significantly improving the employment and social conditions of rural population, in other words by increasing the GDP of the country.

Forests are spread across the country unevenly; the forest coverage of individual administrative regions ranges from 0.1 to 15.5%. The SFR protection is implemented by 123 state forestry agencies. As of 1 January 2014, the SFR of Kazakhstan amounted 292.9 thousand square km or 10.7% of the country, including the forested land of 125.9 thousand square km or 43.0% of the total area of SFR with the forested land equal to 4.6%, thus increasing the relevance of artificial afforestation. However, the private forest stock covers only around 600 hectares.

It should be noted that despite these obvious advantages, the private forestry has not found wide practical application in the country, although it has been many years since the adoption of the Forestry Code, which provides for the development of private forestry.

This is due to several reasons:

- In Kazakhstan, private forestry is a completely new field of business;
- The development of private forestry is fraught with difficulties emanating from the specifics of the production process. It requires very high initial investments and shows financial returns only in the long term.

If, in agriculture, the production cycle ranges from a few months (for plantations) to 2-3 years (for animal breeding), developing productive forests takes decades. However, to ensure the production process, one needs working capital. In this context, agriculture appears more attractive for farmer. For a long time in agriculture, gardeners were in situation similar to the forestry situation, when apple orchards or other fruit trees yielded returns after many years. However, thanks to advances in science, intensive gardening made it possible to harvest fruit already within 3 years after planting a garden. For private forestry, such fast rates of harvesting are so far impossible.

From 2008 to 2015, as part of support of forestry development in Kazakhstan, the sector was not subsidized. However, according to article 112-3 of the Forest Code of the Republic of Kazakhstan, state support for private afforestation can be provided in the following way:

- by reimbursing (up to fifty per cent) costs for establishment and growing of plantations of fast-growing tree and bush crops for industrial and energy purposes;
- by reimbursing (up to fifty per cent) costs for establishment and development of private forest nurseries.

Regulatory support for this type of subsidization is ensured through the rules for reimbursing costs for establishment and growing of plantations of fast-growing tree and bush crops, for establishment and development of private forest nurseries, approved by the RK Government Decree of 1 August 2012, No. 1014.

The dry, sharply continental climate of Kazakhstan is the main cause of the increased sensitivity of the existing forest ecosystems to various threats that are anthropogenic and are directly dependent on human activities and behavior:

(1) fires (natural and anthropogenic, including agricultural)

Over the period of 2003-2013, the SFR territory suffered from more than 8 thousand forest fires, which covered 3.9 thousand square km of forested area. The loss from fires in this period amounted to more than 20.5 million USD.

The main causes of forest fires were natural factors (lightning) – about 40% and anthropogenic (caused by people, unknown causes) – about 60%. The causes of major fires are the move of steppe fires to the territory of the state forest in connection with the inefficiency of measures taken by

akimats for the prevention of steppe fires, poor levels of staffing and assets in the state organizations for forest protection. The availability of firefighting services in environmental agencies is about 52% of the required level.

(2) pests that often come after fires,

At the beginning of 2014, the specialists identified 6 key outbreak foci of pests and diseases of forests, the total area of which amounted to 3.6 thousand square km. This negative trend brings forward the establishment of the Centre for Forest Pest Monitoring for a timely response to outbreaks.

(3) the over-felling due to the illegal and "sanitary" felling and fuel wood harvesting for personal use,

The commercialization of forestry, which has appeared due to the sharply increased cost of timber, leads to the expansion of the market for the sale of wood products and an almost unlimited demand under the conditions of our forest-poor country and economic growth. The commercial use of timber from various kinds of sanitary felling, thinning, cleaning becomes a real threat to forests and reduces their critical ecological functions being the basis for the biodiversity conservation, and as a consequence this leads to the degradation of fauna habitat due to excessive hunting and tourism.

Furthermore, the multiple reduction of forest planting and seeding resulted in a partial loss of forest nurseries and forest seed facilities, reduction of seed material cultivation. There is not enough shelterbelts along roads and railways, field shelterbelts and pasture protective plantations, anti-erosion and water conservation plantations.

In 2011-2013, the reforestation and afforestation on the territory of the Republic was conducted on an area of around 2 thousand square km.

Table 4. Reforestation and afforestation in 2011-13 (square km)

Measures	2011	2012	2013
Plantation	258	321	265
Seeding	330	286	200
Promotion of natural forest regeneration	86	132	105

By 2013, the forest reserves of Kazakhstan increased by 10.1 thousand square km (3.5%). The increase of the forested land mainly occurred due to transition of unintegrated forest areas to the forested land, resumed deforestation, burned and cleared areas.

According the Forest Code, the forest resources in the SFR lands are provided for the long-term forest use for a period of 10 to 49 years. Forest managers are provided with the forest resources under long-term forest management for the purposes of timber harvesting for a period of 10 years, and for cultural and health, recreational, tourist and sporting purposes, as well as for secondary use, for 49 years.

Tourism and recreation

In the period of 2007-2010, the development of tourism in Kazakhstan was defined by the State Program of Tourism Industry Development of the Republic of Kazakhstan for 2007-2011[9], in the period of 2010 to 2014, the sectoral planning of tourism in Kazakhstan was carried out according to the "Program on Development of Perspective Directions of Tourist Industry of the Republic of Kazakhstan for 2010-2014" and as defined in the Strategic Plan of the Ministry of Industry and New Technologies of the Republic of Kazakhstan for 2011-2015.

The issues of conservation and sustainable development of natural recreational resources, including biological diversity, in the process of their use in tourism, were not addressed, specifically and directly, in any of the programs. However, their significance was reflected in their various sections.

The promising side of tourism development in Kazakhstan is defined as "the variety of natural resources" and the weakness is "a low level of natural resources protection". Thus, it is acknowledged that the basis for tourism development is the richness and diversity of natural resources, and it is noted that there is a low level of their protection from the perspective of tourism.

All programs note that ecological tourism in Kazakhstan has good potential, but it is underdeveloped. The potential interest to the ecological tourism in the international market is at 8.9 million USD (or 63% of the total potential). Therefore, the ecotourism product occupies the best position in the world tourism market and should become one of key factors for development in Kazakhstan. Therefore, even the State Program of Tourism Development for 2007 - 2011 highlighted ecotourism was as one of the priority areas and envisaged drafting national, regional and local policies for its development. However, to date, the government has not developed any national policy for ecotourism development or integrated organizational approaches for its implementation. Since 2005, there has been an Information Resource Center of Ecological Tourism in Almaty, but it is the only informational body.

Besides, the country realizes "the Concept of Tourism Industry Development of the Republic of Kazakhstan until 2020". The Concept was developed using expired state programs referred to above. As for the main directions of tourism development, the tasks and methods of their solutions, this document reiterates all of the previous programs and refers to the planning of tourism development in some of the most promising tourism regions and cities of the republic based on master plans or clusters.

According to these programs, it is planned to allocate public funding and investment to the tourism infrastructure, awareness on the environment, nature and culture, as well as a shift towards special experiences based on the environment. All the mentioned directions of tourism development are based on the diversity of the natural recreational resources of the republic, and they can evolve only if they are well preserved under the increasing pressure from tourism. Thus, the tourism development plans of Kazakhstan confirm the leading role of protected areas, natural diversity, recreational resources, and environmental quality.

[9] Approved in 2006.

Fishery

The fisheries sector is of great importance not only as a source of income and economic growth, employment improvement, but also as a renewable source of biodiversity.

In order to conserve fisheries resources, the state's activities in Kazakhstan focus on the following three areas:

- fish resources protection;
- regulation of the fisheries resources sustainable use;
- reproduction of fish resources.

Accordingly, Kazakhstan generally supports the trends accepted in the world related to the development of responsible approach to fisheries and aquaculture. The fish resources use has been regulated since 2006 by long-term registration of fishery reservoirs of international, national and local importance in the name of users on a long-term basis (5 to 49 years).

Over several years, the fundamental document in the field of fisheries was "the Concept of Fishery Development of the Republic of Kazakhstan for 2007-2015" approved by the Government in 2006. It has currently expired. Now, partial measures for fisheries are carried out under other cross-sectoral government programs - Agribusiness-2020, Zhasyl Damu. Currently, there is no sectoral program for fisheries development.

Today, 1791 fishery sites are assigned to 1004 users that signed agreements on fisheries management; out of 344 reservoirs (sites) of international and national importance, 292 water bodies (sites) are assigned to 152 users. 52 reservoirs and/or plots remain unassigned. The users of the water sites committed themselves to 10 years' investments of their own funds to the protection, reproduction of fish resources, scientific research and strengthening the material and technical base. Over 2006-2013, the users in these areas invested more than 54 million USD.

Reforming the regulatory framework is a necessary measure for the implementation of efforts for biodiversity conservation. In general, the regulations of Kazakhstan in the field of fisheries are directed at the creation of conditions for rational use of biological resources. At the same time, they are not sufficient for these purposes and require reforms aimed at improving the principles of conservation and sustainable use of biodiversity in accordance with CBD. The major disadvantage is the lack of clear targets that can produce targeted policies in the management of the fishery sector of the region (basin) depending on the status of fish stocks, and develop a plan for achieving optimum parameters of the fishing industry.

Currently, there are processes of biodiversity and water reduction associated with the increased demand for target fish species. There is a general decrease in the abundance of fish, their species diversity, replacement of valuable food and commercial species with less attractive ones. At the same time, the state regulation of biological resources use is carried out in terms of "traditional" approach, which does not fully ensure the sustainable use of fishery resources.

Degradation and fragmentation of fish and other aquatic animal habitats are one of the most important factors reducing biodiversity. Regarding aquatic biological resources, the main cause of habitat degradation and fragmentation is unsustainable water use, which does not take into account the needs of aquatic organisms. As well, there are cases of pollution that lead to habitat degradation of aquatic organisms.

Unsustainable fishing is the main factor that reduces the number of exploitable fish species. The selectivity of the fishery based on individual, the most commercially profitable, species conducted without sufficient consideration of the production capabilities of populations led to changes in the structure of reserves. The harsh exploitation in fisheries and the growing competition from the less-used "low-value" species lead to further depletion of the species.

The maximum production of marketable fish was recorded in Kazakhstan at 9.8 thousand tons in 1990. Currently, 90% of the production of marketable fish is concentrated in two regions - Almaty and South Kazakhstan, while the total amount of farmed fish is less than one thousand tons. To date, none of the fish farming organizations registered in Kazakhstan is focused on or engaged in the reproduction of juvenile rare and endangered fish species. The existing plants have not developed any technology for cultivation of rare fish species. The enterprises for reproduction of fish resources are characterized by deterioration of the production base with the use of outdated technologies, low labor productivity and weak innovation.

Besides, the main river basins of Kazakhstan are transboundary in nature and are shared with the neighboring countries located on the upstream above the territory of Kazakhstan. This circumstance creates a significant environmental problem. The transboundary watercourses transport pollutants and cause diffusion of aquatic organisms, including fish.

In the absence of compliance or conformity with the fish protection requirement, hydropower plants, power plant and other large water intake facilities harm fish stocks. In the spawning period, juvenile fish pass to rice fields due to inefficient fish protection, where they die. Due to inconsistent regimes of water releases and triggers, hydropower plants also cause great harm to the spawning populations.

With the development of subsoil use in the Caspian Sea and the increase in the intensity of shipping, risks have increased for the safety and normal functioning of the Caspian Sea ecosystem. Currently, anthropogenic load is increasing in association with the hydrocarbon production. The consequences of the activities directly related to hydrocarbon extraction, as well as potential contamination under emergencies, worsen the concerns; the unconventional fisheries significantly increase the risks for the Caspian Sea ecosystem.

Since 2010, Kazakhstan has imposed a ban on the sturgeon fishing, except fishing for reproductive and research purposes. Considering the decisions accepted at the state level in all littoral countries on the ban of commercial sturgeon fishing, the quotas for fishing and export of sturgeon species are not adopted.

From 2008 to 2015, as part of support of fisheries development in Kazakhstan, only one area was subsidized - commercial fisheries. This areas meets the interest of this project, as development of commercial fisheries can reduce pressure on natural water bodies.

However, subsidies in the fish sector were provided only in 2011. The support planned in the amount of KZT 156,6 million. Actual sum disbursed through target transfers for local executive bodies equaled

to the planned sum and constituted KZT 151,5 million. Therefore, one may conclude that subsidies turned out to be useful for entrepreneurs and delivery was 97%. Out of KZT 151,5 million KZT 126,9 million was spent to reimburse expenditures for fodder and KZT 24,6 million was spent reimburse expenditures for fish seeds.

Hunting

Over the past 10 years, the Government of Kazakhstan has delegated authority for monitoring and protection of animals to the hunting concessions, which currently includes 698 hunting concessions and represents almost half (44%) of the territory of Kazakhstan. The primary responsibility for fauna and hunting management, as well as hunting control, in Kazakhstan lies with the Committee on Forestry and Fauna. The hunting organizations (owners of hunting units) have the following responsibilities: building the internal structure of hunting farm, employment of rangers from local communities, investing in infrastructure, providing reports on animal accounting, and filing applications for quotas to the executive body (Committee on Forestry and Fauna). In exchange, the owners of hunting units receive the exclusive right to issue permits and provide services to hunters based on the annual hunting quotas set by government. In addition, the Committee of Forestry and Fauna is supported by the public participation in management of fauna through the creation of PPPs.

Kazakhstan has a long tradition of hunting and use of animal resources. Currently, Kazakhstan has 698 hunting concessions with a total area covering 44% of the territory of Kazakhstan. There are 130 thousand registered hunters (about 0.6% of the total population). According to the current legislation, hunting is permitted for 93 species (34 mammals and 59 birds).

Only hunters with a hunting license can hunt legally. To get a hunting license (valid for 10 years), the hunter must be trained. Around 4 thousand new hunting permits are issued every year, which suggests continued interest in hunting activities. A hunting license costs 105 USD, while the training course is 55 USD. The government receives slightly more than 1 USD and the rest goes to the hunting farm budgets. Most hunters also pay an annual membership fee to the Hunters Union. http://kansonar.kz/ru

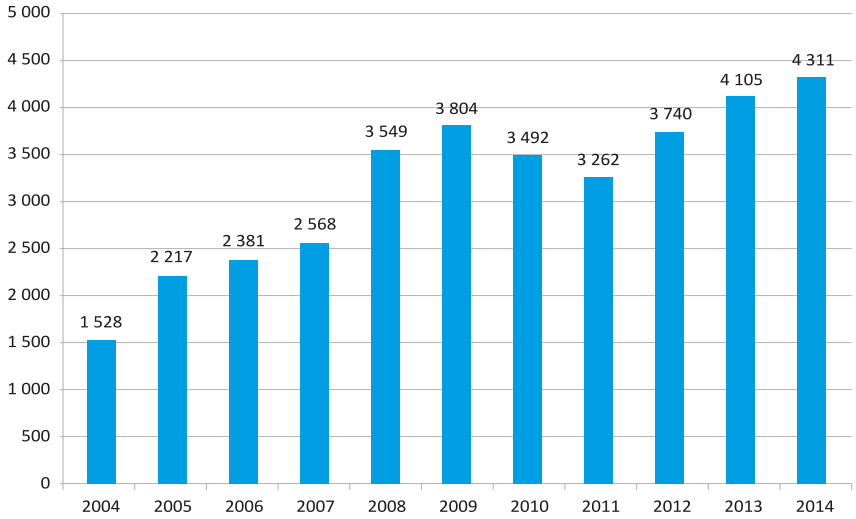


Figure 8. Revenues to the budget for wildlife use (thousand USD)

Nonetheless, illegal hunting remains a problem that, in some cases, threatens the local fauna populations. Poaching is committed by local residents (mainly for meat), organized groups with good equipment (mainly for obtaining animal parts such as saiga horns exported to China), or rich trophy hunters poaching rare species (e.g. argali). Poaching may become a serious problem, especially in winter, when hunters use snowmobiles for easy access to vast and remote territories. Over a 6-year period (2008-2013), the authorities arrested 863 poachers, and the maximum fine amounted to 5 500 USD.

Kazakhstan uses various systems for monitoring the number, distribution and movement of fauna populations. The most advanced systems are used for research programs and restoration of specific species, in particular rare species. For example, in 2013, the Government of Kazakhstan invested around 3.7 million USD to support research, monitoring and protection of saiga antelopes. Hunting for saiga is illegal and is regulated by legislative rules. This amount included satellite telemetry to track movements and to conduct aerial census (with image decryption) in order to determine the population size.

The annual quotas for hunted species are based on monitoring information obtained in the previous three years.

The abundance of terrestrial animals in the country is monitored only for some rare species and some hunted species. Hunting concessions are required to maintain the monitoring of hunted animals. Based on these materials, the number of species in the whole country and its alteration trends are determined in order to define the limits for hunting these species. It should be noted that the accounting quality in different hunting units and areas is extremely uneven, from the real data to just expert estimates or approximate figures based on the previous years. This happens due to completely different resources, availability of staff in hunting units and their qualifications. Nevertheless, these materials can tell at least about the order of the number (at least for prominent species) and the trends.

The accounting of the number of rare ungulates, unlike the accounting of the hunted species, is maintained by the state government agencies, using standard equipment and unified methods.

Water resources

In 2014, the government approved the "State Program for Water Resources Management in Kazakhstan", according to which the main water reserves of the republic are concentrated in surface and underground sources. In general, Kazakhstan's water resources are located unevenly across regions. The water supply level in average is 20 thousand cubic meters per 1 square km of the country's territory, which is one of the lowest indicators among the Eurasian countries. In total, Kazakhstan has over 48 thousand lakes with a total water surface of 4.5 thousand square km and a volume of around 190 km^3. Most lakes are in the forest-steppe zones and northern parts of the steppe zones.

Kazakhstan is equal to such countries as Israel and Portugal in the index of dependence on the inflow from rivers shared with neighboring countries. This greatly increases the significance of the cross-border flow regulation in addressing the existing and potential water problems of the country.

From shared water resources to date of 38.6 km³ per year required for environmental purposes (environmental flow) for the preservation of river and lake ecosystems. 29 km³ per year is not available due to the lack of necessary infrastructure, evaporation and filtration, ensuring mandatory spill into neighboring States. In addition, to 12.8 km³ of water resources are unreliable, based on the criterion of 75% probability. Thus, the volume of guaranteed water resources currently stands at 23.2 km³ per year.

To date, 38.6 km³ per year from the shared water resources are required for environmental purposes (environmental flows) for the preservation of river and lake ecosystems. Other 29 km³ per year are lacking due to scarce infrastructure, evaporation and filtration, mandatory flows to the neighboring States. In addition, 12.8 cubic meters of water resources are unreliable based on the criterion of 75% useful capacity. Thus, the volume of stable water resources is currently 23.2 km³ per year.

The main share of water is used in agricultural production — around 75% of the country's total water consumption. High water losses in agriculture are explained by a low PF of irrigation systems.

Besides agriculture, due to industries and hydropower construction, other sectors such as fisheries, recreation facilities, and utilities have access to low quality water.

The situation with the deficit of drinking water, sewerage and wastewater treatment is exacerbated with the lag in the technical support and maintenance of the existing centralized water supply infrastructure. Much of the utilities sector infrastructure is in poor condition, resulting in high water losses. Nationwide, they account for around 40% of the total loss.

Despite the reduction of irrigated land from 23 to 14 thousand square km, the water consumption in some agricultural regions remains unreasonably high. The huge excessive water loss leads to the depletion of water sources, increasing the cost of production, reducing the competitiveness, and contributing to the water tariff growth. For example, to produce 1 ton of rice, the average consumption in the world is 5 thousand cubic meters of water; in Kazakhstan, it is 10.4 thousand cubic meters. When growing 1 ton of cotton, the consumption is, respectively, in the world — 3 thousand m³, and in Kazakhstan - 4.3 thousand m³ of water. The use of water-saving technologies in water supply and irrigation (drippers, sprinklers, discrete systems) in agriculture is less than 7% of the used irrigated land or 958 thousand square km.

Due to low levels of water recycling and reuse, inadequate provision with water-saving and waterless technologies, dissatisfactory condition of water supply systems, and their low performance, the fresh water costs of the industrial sector remain high as per unit of production. This trend is assessed by experts as negative impact on biodiversity.

Agriculture

The main sectoral program is the "Program for Development of AIC in the Republic of Kazakhstan for 2013-2020 - Agribusiness-2020"[10]. Under this program, large amounts of subsidies are provided to support livestock and crop production. Environmental experts consider them as negative subsidies for biodiversity, although there were no official studies.

The Strategy "Kazakhstan-2050" set the task to develop the agricultural sector in the coming years, for it to become the global and regional food supplier, which is possible with sufficient production of cheap, high-quality and competitive agricultural products. It noted that there is a high potential to create world level fodder because the country has vast pastures, ranking sixth place in the world, and can produce competitive, environmentally friendly livestock products for domestic and foreign markets.

Alongside, there are other impacts on biodiversity trends in the context of agriculture in Kazakhstan:

- unsustainable use of rangelands and hay lands,
- desertification, degradation of vegetation and soil cover,
- fragmentation of haylands,
- worn-out irrigation systems,
- worn-out material and technical base of households,
- pests, diseases of agricultural plants and animals,
- climatic conditions,
- low capacity of small farms, non-compliance with pasture rotation schemes, lack of knowledge.

These factors are the effects of one-dimensional agricultural management, lack of staff, infrastructure and "green" technologies. The problems of unsustainable land use are currently worsened by the multiplicity of small agricultural and cattle farms, which are unable to ensure a cost-effective use, purchase of machinery, veterinary services for livestock, insurance fodder reserves etc. In recent years, hay stock sharply declined in grassland pastures, work stopped on processing seeded grasslands and their improvement. These conditions are deteriorated by the haphazard use of natural lands without compliance with the norms of resource use, which leads to land degradation and desertification, reduces the numbers of many animal species and reduces their habitat area.

Due to desertification, degradation of vegetative and soil cover, the republic experiences a constant reduction of grasslands. Between 1991 and 2012, their area decreased by 838 km^2. Because of the grassland fragmentation among small farms, system of their rational use is broken, worsening the cultural-technical condition of hayfields. They turn into steppes. Since 1991, the area of irrigated grasslands has decreased by almost 20%, and improved lands increased by 2.5 times.

The area of actually used irrigated land decreased to 14 thousand square km by 2012. The area of arable lands is shown in the table below:

[10] Approved in 2013

Table 5. Area of arable lands in Kazakhstan

Irrigated land available in 1990, square km	Of which, transferred to other categories of land in 1990s, square km, (written off)	Irrigated land available in 2012, square km	including	
			Unused for their purpose , square km	Used for their purpose, square km
23.5	2.8	20.8	6.6	14.2

Measures are taken now for land restoration at government level as part of policy on green economy and organic production. Indicators are identified to achieve goals.

Currently, due to the deterioration of the irrigation network and backwardness of irrigation techniques and technologies, the used land receives only 30-40% of water and 60-70% is lost, causing erosion and secondary salinization. Finally, the actual water provision does not exceed 50-60% (at a minimum flow rate of 90-95%) and the water provisions of crops is 40-50% (at a minimum flow rate of 85-90%). For all these reasons, these lands experience a lesser effect of fertilizers, assimilate fewer varieties of new quality seeds and other agricultural practices, and the state support has less efficiency. It is necessary to take measures to improve the water supply for crops by reconstructing IDS and introducing efficient irrigation technologies. Rational agricultural methods are crucial in the prevention of desertification processes, as well as providing appropriate space for living organisms as habitats.

Key targets on combating desertification, development of organic farming, implementation of measures on encouraging the use of green technologies are identified in the Concept for conservation and sustainable use of biodiversity in the Republic of Kazakhstan until 2030 being reviewed by Government.

The future results of the soil agrochemical inspection will be given to the state inspector on land use and protection, and, on their basis, they will take different administrative measures, up to withdrawal of lands from agricultural use in case of irrational land use resulting in a significant soil fertility deterioration.

In the period from 2000 to 2011, conducting annual soil agrochemical inspections of an area of 150 thousand square km, the country inspected 191 thousand square km of agricultural land. However, this inspection does not show the cyclicity of 5-7 years. To achieve the above cyclicity, over 2013 to 2020, the AIC Development Program "Agribusiness 2020" provided for an annual soil agrochemical inspection of an area of at least 3.5 million hectares.

The most serious threat to biodiversity from agriculture is the invasion of pests and diseases of agricultural plants and animals. The greatest damage to agricultural crops has been brought about in recent years by a plague of locusts. In this regard, in order to introduce safe methods of combatting especially dangerous pests, the Program "Agribusiness 2020" provides for preventive methods of struggle against especially dangerous pests of agricultural crops, development of standards for the implementation of biological methods of combatting the major pests of cotton, vegetables, fruit, vineyard and other crops.

One of the natural factors contributing to desertification processes in Kazakhstan is its landlocked situation, which determines the climate continentally and aridity, scarcity and uneven distribution of water resources causing wide spread of sands (up to 300 thousand square km) and saline soils (1270 thousand square km). The conditions for land degradation are also created with the breach of the seasonal soil formation specifics when they are exposed to droughts. The prerequisite for desertification is also a weak formation of the soil and vegetation cover and its dynamics. These natural features of Kazakhstan result in a weak natural environment resilience to anthropogenic impacts (it is estimated that about 75 % of the country is at high risk of ecological destabilization).

The main types of desertification in Kazakhstan, defined in accordance with the criteria adopted by the Convention on Combatting Desertification, are vegetation degradation; water and wind erosion; salinization and soil dehumidification; chemical pollution of soils, ground and surface waters; anthropogenic degradation of lands and breach of hydrological regimes.

The degradation of agricultural land is caused by such factors as lack of pasture rotation, lack of knowledge and skills to use new and improved methods of management and lack of incentives for farmers. These issues are under consideration of the Ministry of Agriculture as part of the programme on Kazakhstan's agro industrial complex development

The main purpose of subsidization in the agricultural sector is to improve competiveness of producers of agricultural products, while each type of subsidy is aimed to solve the following tasks:

- improve economic affordability of goods, works and services in plant production,
- improve economic affordability of financial services,
- improve economic affordability of goods, works and services to produce products undergone deep processing,
- improve availability of goods, works and services as part of the implementation of prioritized investment projects,
- improve economic affordability of water for producers of agricultural product,
- improve economic affordability of educational services, results of agricultural science and consulting services.

An expert analysis conducted by BIOFIN has showed that despite a huge number of various forms and areas of support for agriculture, none type of subsidization is aimed at developing and preserving biodiversity in the country. The funds allocated for subsidization of agriculture in 2014 exceeded KZT 150 billion. However, forms and types of support are not aimed at agro environmental incentives, sustainable use of natural resources and much less biodiversity.

Climate change adaptation

The Strategic Development Plan until 2020 includes a priority on the development of "green" low-carbon economic policy, which requires using modern technology with low power consumption, implementing other measures aimed at saving energy. In this case, the task of preventing the effects of climate change and the low carbon economy is considered in the context of Kazakhstan's contribution to global reduction of greenhouse gases. As one of the measures for reduction of air pollution, the "green economy" concept refers to the implementation of continuous monitoring and control of greenhouse gas emissions by a body competent in the field of environmental protection. The development of low-carbon economy ensures a significant reduction in greenhouse gas emissions in relation to gross domestic product, transition of energy production from burning hydrocarbons to renewable energy sources (solar energy, wind energy, small hydropower plants), reduction of energy consumption and subsequent reduction greenhouse gas emissions in the manufacturing and housing sector (energy saving). The main law regulating the issues of adaptation to climate change is the Environmental Code of Kazakhstan.

The issues of adaptation to climate change is a priority in the context of AIC and agricultural processing sector development. In this case, it envisages the implementation of measures to adapt crop production to the possible consequences of global warming, as well as measures aimed at improving the efficiency of water use in agriculture.

The main existing sectoral program integrating the climate change issues was the Sectoral Program "Zhasyl Damu" for 2010-2014, which has been completed by the date.

In this regard, the adaptation measures to climate change in the context of rural area are included in the NBSAP of Kazakhstan in the form of individual national targets and indicators, for example (1) by 2020, agronomic and agro hydrological indicators were refined for the soil in the major grain producing areas, (2) by 2020, new stress-resistant varieties and hybrids of major crops are created, (3) by 2025, crops including high-yielding crops adapted to stressful situations are diversified, (4) by 2030, agro-climatic zoning of agricultural crops is conducted (by type, species and varieties), taking into account climate change, (5) by 2020, the structure of arable land use is changed including crops able to actively absorb carbon dioxide from the atmosphere and (6) by 2030, moisture saving technologies of agricultural cultivation are introduces on an area of more than 50%.

Kazakhstan has the potential of taking measures on adaptation to climate change, mitigation of climate change either through domestic funding or international funds such as GEF. GCF, World Bank funds (Carbon Partnership Facility, Forest Carbon Partnership Facility, Partnership for Market Readiness, Carbon Initiative for Development, BioCarbon Fund: Initiative for Sustainable Forest Landscapes, Prototype Carbon Fund, Community Development Carbon Fund, BioCarbon Fund, Netherlands European Carbon Facility, Italian Carbon Fund, Danish Carbon Fund, Spanish Carbon Fund, Umbrella Carbon Facility) and other.

Industry

Industry occupies almost a third part in the structure of Kazakhstan economy. Kazakhstan is the leading exporter of extractive industries (primarily due to oil), and in terms of per capita exports it is ahead of all CIS countries.

a. Oil and Gas Sector

The oil and gas sector of Kazakhstan is regulated by such laws as the Civil Code, Land Code, Tax Code, Law "On Gas and Gas Supply", Law "On Natural Monopolies and Regulated Markets", Law "On Transfer Pricing", Law "On Subsoil and Subsoil Use", Law "On State Control and Supervision in the Republic of Kazakhstan", Law "On State Regulation of Production and Turnover of Some Types of Oil Products".

Specifically the Law on Subsoil is important to regulate activities of the industrial sector relating to biodiversity conservation. Gaps in this law relating to biodiversity issues constitute significant barriers to implementation of offset measures and planning of long-term conservation measures.

Besides, in 2012, Kazakhstan ratified an agreement with Russia on Russian Oil Transit via Kazakhstan to China.

Environmental impact assessment is undertaken in accordance with the current legislation. However, integrated assessment of oil and gas sector impact on biodiversity and ecosystems has not been conducted, although there is evidence of violation of environmental norms by enterprises of the sector.

The development of subsoil use in the Caspian Sea and the increase in the intensity of shipping increased risks to the safety and normal functioning of the ecosystem of the Caspian Sea. Currently, there is an increase of anthropogenic load associated with the hydrocarbon production. The consequence of the activities directly related to hydrocarbon extraction, possible contamination during emergencies, increased human disturbance, and unsustainable fisheries combine to significantly increase the threats to the ecosystem of the Caspian Sea.

Alongside, industrial enterprises resist seeking approval for their annual environmental action plans in the Ministry of Energy and hesitate to provide funding under these plans. The major environmental activities of oil, mining and energy companies are restoration, monitoring and research of flora and fauna (only one company), and operation of devices for fauna protection. The indirect activities include such activities as wastewater treatment and re-use, reclamation of disturbed lands (but not for economic activities). In the mining and energy sectors, the only activity with direct impact on biological diversity is plantation. Other activities have very important and negative indirect impact on biodiversity.

b. Energy

The republic has huge reserves of traditional energy resources (0.5% of the world fuel reserves), which ensure its long-term significant export potential.

Kazakhstan has significant renewable energy potential, primarily in the form of hydro, wind and solar energy, which is enough to provide a significant portion of its needs in energy resources, while simultaneously reducing the burden on the environment and biodiversity.

In recent years, the Government of Kazakhstan has been seeking to reduce the energy and carbon intensity of the country. Thus, the Concept on Transition to "Green Economy" envisages that, by 2050, 50% of Kazakhstan's energy will come from renewable and alternative energy sources. Moreover, the government defined the main targets by 2020, including the targets of reducing GDP energy intensity (down to 25% of the 2008 level), the share of alternative sources in power production (at least, 3%) and correspondence of the carbon emissions in the electricity sector to that of 2012, so as to begin, within the period from 2020 to 2030, the transformation of the national economy focused on careful use of water, encouragement and stimulation of development and broad implementation of renewable energy technologies, as well as construction of facilities based on high energy efficiency standards.

The law "On Amendments and Additions to Some Legislative Acts of the Republic of Kazakhstan on Issues of Support and Use of Renewable Energy Sources" dated 4 July 2013 regulates activities in the field of renewable energy. The regulations adopted to implement the Law establish the rules and procedures for support and monitoring of renewable energy projects in power generation companies and individual consumers, as well as the rules of determining the fixed tariffs for renewable energy projects.

In 2014, the government of the Republic of Kazakhstan approved the tariffs for electricity produced from renewable energy sources for 15 years with the possibility of annual indexation taking into account inflation.

In 2013, the government resolved to approve the Plan of Measures on Development of Alternative and Renewable Energy in Kazakhstan for 2013-2020, according to which, by 2020, it is planned to commission 28 SEPs with an installed capacity of 713.5 MW. Moreover, Kazakhstan supported the initiative to create the Global Atlas of Renewable Energy presented by the International Agency for Renewable Energy.

c. Other Mining

You missed this important sector.

d. Manufacturing? Is it important? Waste streams at least but may not be important.

Other policies supporting biodiversity conservation

a. Regional International Cooperation.

The foreign policy concept of Kazakhstan for 2014-2020, approved in 2014, provides for the continued strengthening of relations with Russia based on the Treaty on Good-Neighborliness and Alliance in the XXI century.

Besides, Kazakhstan is promoting the idea of "green economy" in the international arena by promoting partnership with countries of Europe, Asia and the Pacific in the implementation of plans and the "Green economy" programs, as well as the programs of governments, private sector, public and international organizations. The Kazakhstani President voiced the idea of interregional cooperation at

the 66th Session of the UN General Assembly in September 2011, which was subsequently reflected in the text of the Astana Initiative "Green Bridge" http://gbpp.org/en/ Kazakhstan presented AIGB at the Ministerial Conference on Environment of the Asia-Pacific Region, which received approval as a primary document, along with the Ministerial Declaration and Regional Implementation Plan.

The AIGB developed and presented the "Green Bridge" Partnership Program for 2011-2020 at the Seventh Ministerial Conference of UNECE "Environment for Europe" and received its approval in the outcome documents of the conference.

The GBPP covers 5 priority sectors, reflecting the overall requirements of "green" development in the countries of the region. They include water resources management; access to renewable energy; food security; sustainable urban systems; resilience to climate risks.

In 2012, the GBPP was approved by all the states at the UN Conference on Sustainable Development (Rio+20) as an interregional initiative for sustainable development, which is voluntary and open for participation to all partners.

The GBPP presumes the management of "green" economic growth in Central Asia via international cooperation and assistance in technology transfer, knowledge sharing and financial support. The cooperation of the states, international, scientific organizations and business in the creation or development of new green business sectors via the implementation of investment projects, reformation of policies, is a key issue for effective implementation of the GBPP. Thus, it also aims to create a new level of partnership - not only between countries and regions, but also between government and business.

In October 2013, the International Conference on GBPP and international exhibition "EXPO-2017" was adopted the Charter on GBPP, which was supported by the representatives of 12 countries, including Finland, Germany, Latvia, Russia, etc. the Charter specifies mechanisms for the implementation of GBPP and contributes to the creation of financial and technical incentives for the start of "green growth".

In accordance with the Concept of GBPP, the main directions of its implementation include:

- support of international research conducted in partnership with international experts and institutions.
- technology transfer and stimulation of R&D and technological innovation and production locally, promotion of international cooperation, innovational regional development and business incubators.
- financing of planned and expansion of existing projects by providing technical assistance, grants, assistance in providing a parity or venture capital financing. Assistance for proven technologies will be provided via credit and equity financing or by reducing financial risks.

Besides, Kazakhstan develops comprehensive strategic cooperation with China, and develops multifaceted relationships with Central Asian States – Kyrgyzstan, Tajikistan, Uzbekistan, Turkmenistan in order to bring the countries of the region together to counter internal and external challenges and threats to biodiversity, activate cooperation on a mutually beneficial and parity basis.

Kazakhstan participates in the elaboration of the interstate program "CIS ECONET" until 2020, which aims to combine the capabilities of the CIS countries for cooperation in the field of addressing issues of environmental importance.

b. Informational and Scientific Provision

Today the situation is such that (1) the consumer attitude is predominant in respect of natural resources, which needs to be refocused on conservation and careful use, (2) there is a low level of biological literacy and lack of understanding the importance of biodiversity conservation and (3) there is a rapid change in public opinion in terms of social and economic reforms.

There are no holistic outreach programs supported by the state. The information campaigns are carried out locally by various governmental agencies and NGOs within their location.

Funding and developing scientific research for conservation and sustainable use of biodiversity in Kazakhstan are mainly provided at the expense of the budget under a public order. In the same way, scientific research is conducted at the expense of grants provided by international donors.

The main research executors are:

1) research organization administered by the Ministry of Education and Science, Ministry of Agriculture, Committee of Forestry and Fauna,
2) Private commercial research companies,
3) Non-profit public organizations.

The main problem of science in the field of biodiversity and ecosystems is limited funding and shortage of qualified personnel. Funding of these issues will be considered in the future analytical reviews of BIOFIN.

c. Staffing / Capacity Building

Inadequate staffing in the field of biodiversity finance in Kazakhstan remains one of the major barriers. There are no majors in economics of natural resources management or management in PAs. The problem is exacerbated by the fact the forest sector, fish sector, PAs are among the most poorly paid according to statistical data, and young specialists do not choose them.

It is recommended:

- integration of degrees in economics of natural resources management into the programmers of education institutions;
- rethink and expansion of thematic areas of training with a focus on biodiversity finance and management;
- creation of an enabling environment (grants, funding of knowledge exchange among students of environmental faculties, etc.) at government level;
- development and introduction of a master degree in economics of natural resources management.

In 2014, the UNDP project supported the launching of a Master's program for PA leadership training.

4. STATE PLANNING SYSTEM

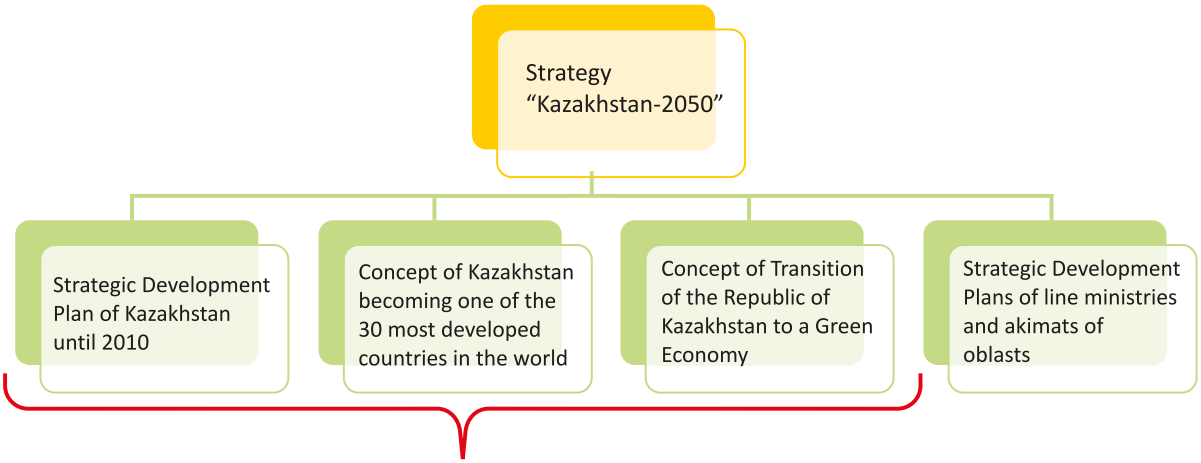
The Policy and Institutional Review examines the role of key institutions in the policy and practice of the biodiversity and ecosystems management.

This Workbook determines who is responsible for the main factors of change in biodiversity and ecosystems, how the distribution of benefits and costs may change from the existing status quo to projected new state in which new strategies are implemented, and what capacity and organizational structure are possessed by the main actors and institutions responsible for the financial implementation of these new strategies.

The drafters of PIR used the reports from industry experts in the field of forestry and forest resources, fishery resources and fishing, hunting and fauna, PAs, agriculture and agrobiodiversity, as well as used review materials on tax policy and tax revenues, subsidies by sectors and budget financing. They also used the 5th national report of the Republic of Kazakhstan on biological diversity (2014). Consultation with experts and other stakeholders complemented the desktop research.

State planning system

The State planning system in the Republic of Kazakhstan provides for the development in the country for long term (over 5 years), medium term (1 to 5 years) and short-term (under 1 year) periods.



TASKS in the sphere of natural resource management:

1) improvement of effectiveness in the use of resources (water, land, biological etc.) and their management;
2) upgrading the existing and construction of new infrastructure;
3) improvement of people's well-being and environmental quality via decreasing the pressure on the environment;
4) provision of water resources.

Figure 9. State planning system in Kazakhstan

According to the legislation, the state management of biodiversity and ecosystems is carried out by state organizations at two levels:

1. Central executive bodies,
2. Local executive bodies, i.e. *akimats*

Until August 2014, the main state executive body responsible for the management and intersectoral coordination in the implementation of the state policy in the field of environmental protection was the Ministry of Environment and Water Resources (MoEP&WR). The competence of the Ministry was to implement international agreements of the Republic of Kazakhstan in the sphere of biological diversity conservation.

In August 2014, Kazakhstan reformed the state administration system, according to which there are currently 12 ministries and 30 committees.

After the reform, the MoEP&WR was abolished and its functions and powers related to formation and implementation of the state policy in the field of fisheries development, water resources management, forests and fauna were transferred to the Ministry of Agriculture

The main state authority responsible for the activities in favor of biodiversity conservation is the Committee of Forestry and Fauna under the structure of the Ministry of Agriculture. The Committee of forestry and Fauna carries out implementation, controlling and supervising functions in the field of forestry, protection, reproduction and use of fauna and PA.

In addition, within its competences, the indirect management of biodiversity is implemented by the Ministry of Education and Science, Ministry of Energy, Ministry of Investment and Development.

The Ministry of national economy and the Ministry of Finance form the fiscal policy of the state and are authorized bodies in the field of strategic and budget planning. Since the reform of public administration, the planning function of the country's budget has belonged to the Ministry of Finance, whereas previously these functions were assigned to the Ministry of Economy and Budget Planning.

Administrative and territorial structure of the country includes 16 oblasts (regions) and 2 republic significance cities. Accordingly, at a local level, biodiversity management is carried out by *akimats* of 14 oblasts and 2 city *akimats* of Astana and Almaty.

The competence of the government and local state administration in the field of protection, reproduction and fauna use is defined in the Law "On Protection, Reproduction and Use of Fauna" and in the field of PAs in the Law "On Specially Protected Natural Territories". The competence of the ministries, agencies and committees in this field is set by the laws and regulations of these agencies.

Funding schemes for each level of the budget will be considered in detail in the Biodiversity Expenditure Review

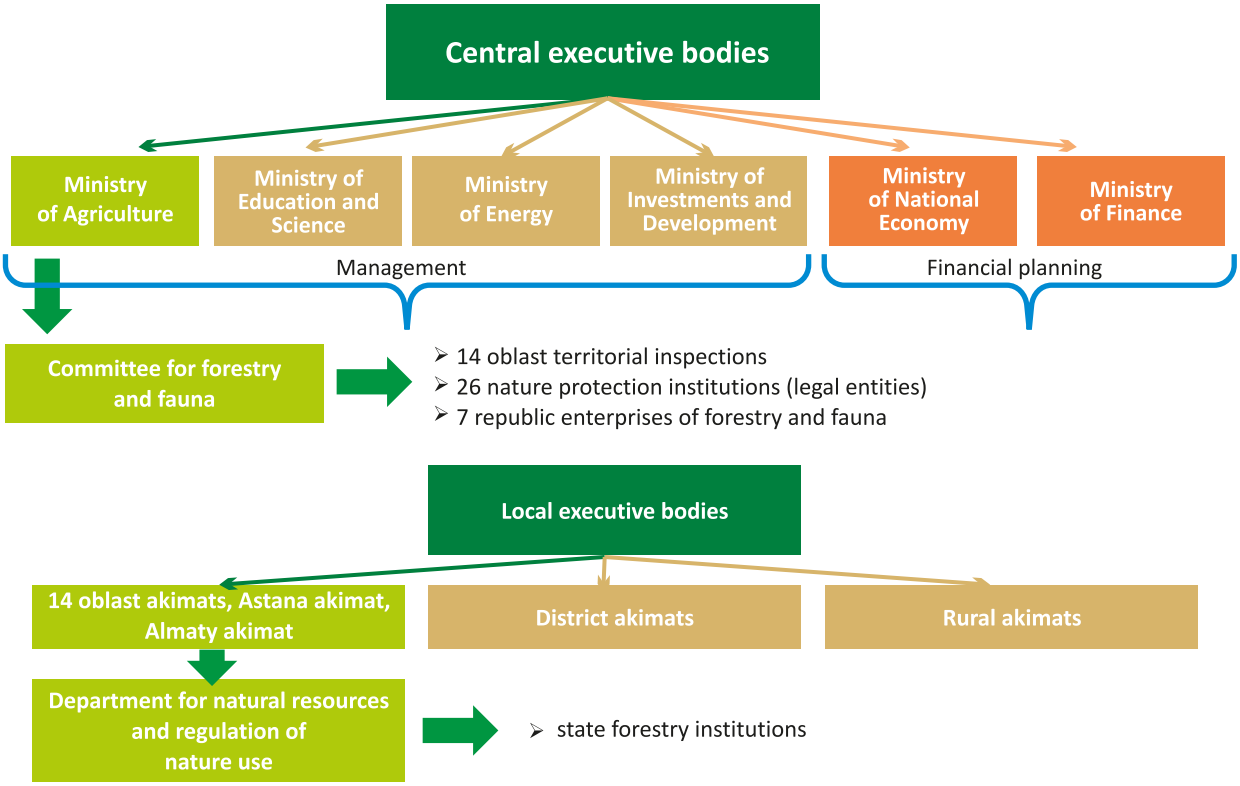


Figure 10. Biodiversity management structure in Kazakhstan

The responsibility of public authorities in conserving biodiversity is presented in the table below:

Table 6. List of public authorities exercising powers in the field of conservation and sustainable use of biodiversity

Title	Functions	Programmes
Office of the President of the Republic of Kazakhstan	This public body controls the state national natural park «Burabay» and therefore the Department is responsible for the conservation measures in this unique natural zone and continuous monitoring of the conditions in natural ecological systems of the unique and rare landscapes of the Shchuchinsk-Borovoe resort area.	Burabay National Park is only national park which is managed by this government agency and is financed separately
Ministry of Agriculture	AIC, agricultural farming, seed production, crop production, protection and quarantine of plants, veterinary, industry in terms of production of food, AIC technical equipment, livestock and agricultural science, state regulation of agricultural production.	Programs on financing of forest and fish sectors, hunting concessions, PAs, agrobiodiversity,

Committee of Forestry and Fauna	Implementation, control and supervisory functions in the field of forestry, protection, reproduction and use of fauna and PAs (including regulation of tourist and recreational activities in PAs), reproduction and use of fish resources and other water animals.	Programs on financing of forestry, hunting, fisheries and PAs
Committee for Water Resources	Implementation and control functions in the field of use and protection of water reserves.	Programs on water resources
Ministry of Energy	Green economy, climate change, environmental monitoring, renewable energy, waste management, subsoil use, oil industry development, environmental regulation, oil and gas industry control.	Approves plans on financing of conservation activities of industrial enterprises
Ministry of Education and Science of Kazakhstan	Education, scientific and technical activities, creation of conditions for education, improving the organization of scientific research, including issues of biodiversity, elaboration of programs for fundamental research in the field of conservation of biological diversity. Implementing the intermediacy mechanism for biological safety (coordination center for the intermediacy mechanism for biosafety).	Finances the research programs on biodiversity
Department of tourism under Ministry for Investment and Development	Strategic planning of ecological tourism development in the long term, implementation of the state policy for the promotion of the tourist image of Kazakhstan.	Finances programs on tourism development, including ecological tourism around PAs
Departments for Natural Resources and Nature Use regulation under regional akimats	Implementation of environmental protection measures and environmental management. Approvals in coordination with competent central executive authorities of the lists of geological, geomorphological and hydrogeological objects in the state natural reserves of local significance and subsoil sections having special environmental, scientific, cultural and other values, classified as specially protected natural territories of local importance. Provision of operational direction and control over the activities of subordinate bodies and organizations in the field of protection, reproduction and use of fauna and flora. Development in coordination with competent bodies and implementation of regional programs on conservation, protection, use of forest reserves, reforestation and afforestation. Organization and provision of conservation, protection, reforestation and afforestation, regulation of forest use on the territory of the state forest reserves within the functional management. Development and execution of annual action plans for prevention of forest fires and their control in the territory of the state forest reserves. Elaboration of suggestions for development programs of especially protected natural territories, coordination of establishment of these territories. Organization of specially protected natural territories of local importance. Reservation in the established order of lands as specially protected natural territories.	Provides funding for biodiversity, PAs, forestry at local level

Private Sector

A special role in the conservation and sustainable use of biodiversity is played by environmental non-governmental organizations (NGOs). In Kazakhstan, there are over 30 NGOs working on the issues of biodiversity conservation, environmental education and basic ecotourism development. There is a network of environmental information users connected through the Internet to exchange information on environmental and biodiversity issues.

One of the largest public organizations is the Association for the Conservation of Biodiversity of Kazakhstan, which has operated since 2004 and is an affiliate member of the International Union for the Protection of Birds.

The Corporate Biodiversity Conservation Fund of Kazakhstan was created under the assistance of the UNDP project for integrated conservation of globally significant wetlands as habitats of migratory birds. The Fund was established as an international trust fund and registered in the order established by the legislation of Kazakhstan as a non-governmental and non-profit organization. The Fund is intended to create a mechanism for funding projects aimed at the conservation of biological diversity of Kazakhstan and sustainable fauna management by providing a grant support to individuals and legal entities.

The fund works under the contributory scheme. Fund's donors are the Global Environment Finance, Kazakhmys JSC and Air Astana JSC:

- Global Environment Finance - US$ 500 000
- Air Astana - US$80 000
- Kazakhmys - US$181 000

Alongside funds coming from contributions, the Fund manages funds of partners through sinking. Funds coming to the Fund through sinking, as a rule, are allocated for financing of specific projects and are as follows:

- Financing of subprojects under the RK Government-World Bank Forest Protection and Reforestation Project - US$2 236 00
- Conservation of saiga antelopes and their habitats under the memorandum with Kazakhmys JSC - US$153 000
- Development and introduction of payments for ecosystem services within Yrgyz, Torgai, Zhylanshyk in the form of GEF SGP grant - US$40 000
- Conservation of biological diversity of wetlands within Korgalzhyn reserve as part of a contract for sponsorship with ENRC-Komek CF - US$55 000

Remaining funds are on Fund's account. In accordance with the national legislation, the Fund is exempted from social tax, income tax, being its advantage.

Charitable Seimar Social Fund is one of the first charity foundations in Kazakhstan implementing social and charitable programs. In particular, it implemented large-scale ecological program

"SOS-Saiga". "Project "SOS-saiga" is a staged large-scale project aimed at the protection, conservation and restoration of saiga populations. This program includes the creation of assets in order to increase the number of mobile groups of State Enterprise "Okhotzooprom" by providing grants for acquisition of vehicles, equipment, special devices for satellite communication, night vision etc., as well as by conducting educational work to combat poaching by providing a series of documentary films, social clips and cartoons about the saiga". The Fund has attracted more than US$ 600 000 for saiga programme.

The NGO EcoForum of the Republic of Kazakhstan is the largest national network of non-governmental organizations of Kazakhstan operating in the field of environmental protection and sustainable development. It brings together more than 40 environmentally focused NGOs. The EcoForum is a non-profit voluntary republic level public association of individuals and legal entities, whose activity is aimed at protecting, preserving and restoring the environment.

Also, the list of international organizations providing grants for biodiversity conservation and development of protected areas has been approved pursuant to RK Government Decree of 31 October 2016, No.1035.

1. Asian Development Bank
2. World Tourism Organization
3. World Fauna Fund
4. Global Environmental Facility
5. European Bank for Reconstruction and Development
6. International Bank for Reconstruction and Development
7. International Fund for Agriculture Development
8. Organization for Cooperation in the field of Culture and Education
9. United Nations Secretariat
10. United Nations Food and Agriculture Organization
11. United Nations Development Program
12. United Nations Environment Program
13. European Union Technical Assistance Program for CIS Countries
14. U.S. Agency for International Development
15. British Council
16. German Society for International Cooperation
17. Danish International Development Agency
18. UK Department for International Development

In Kazakhstan there are many non-governmental organizations that finance biodiversity. Biodiversity finance trends will be presented in detail in the future reviews of BIOFIN.

APPENDICES

APPENDIX 1. IMPLEMENTATION OF BIODIVERSITY AND SUSTAINABLE USE

Sectors	**Sectoral practices, market forces and policy factors, having NEGATIVE impact on biodiversity and ecosystems**		**Sectoral practices, market forces and policy factors, having POSITIVE impact on biodiversity and ecosystems**	
	Sectoral practices, having negative impact on the condition of biodiversity and ecosystems	**Influential market forces, strategies and policy factors**	**Sectoral practices, having positive impact on the condition of biodiversity and ecosystems**	**Influential market forces, strategies and policy factors**
Forestry	Illegal felling under the pretense of sanitary felling Non-compliance by individuals with bans and restrictions Creation of private forest plantations is undemanded	Commercialization of the sector High demand for wood fuel and construction materials Low environmental responsibility of the private sector, predominance of economic interests Long production process	Declared ban on felling saksaul Due to forest plantations, the area of forest reserves increases. Forest PA network expands.	Threat of species extinction Political will for maintaining the balance of desert ecosystems, decrease of desertification scale.
	Poor control over the collection of non-wood products by forestry organizations	Resource approach in decision making Underestimation of the economic value and low tariffs for non-wood products Shortage of personnel	Collection of non-wood forest products is for a payment	Current legislation
	Fires on SFR territories	Shortage and low equipment with work assets of forest farms and forest PAs. Equipment of firefighting services in nature protection organizations is around 52 % of the needed norm. Irresponsible attitude of the population and businesses	Established clear boundaries for forestry management between nature protection organizations	Established boundaries, functional zoning
	Outbreaks of pests and diseases in forests	Ineffective forest pathology measures Poor control and delayed response Shortage of funding for use new technologies		
			There is a system of leasing pastures, hayfields and areas for building beeyards in forestries and forest PAs.	

Tourism	Uncontrolled tourism and intensive pressing ecosystems and biodiversity	Low culture of visiting natural territories	Visiting PA is paid	Current legislation
	Lack of thorough control over interaction with nature and prevention of negative impact on the life of key species	Gaps in legislation Lack of state program on ecotourism		
	Complicated access for tourists	Rules for zoning territories, transboundary zones		
Fisheries	Uncontrolled use of juvenile fish caught in natural water reserves	High demand for some species Technologies for growing rare fish species are lacking	Private sector is involved in the development of pond farms as an alternative to provide material for processing	Shortage fish material resources
	Unconventional fishing of some fish species without taking into account the reproduction capacity of populations Lacking system of monitoring over fish resources	Lacking state program in the field of sustainable fishery Weak legislative regulation in the management of fishing	The users of fish reserves assumed the responsibility to invest their own money within 10 years for protection, reproduction of fish resources, scientific research and asset improvement.	
	Selectivity of fishing, based on some most commercially profitable species and conducted without sufficient account of the reproductive capacity of populations	Low environmental responsibility and predominance of commercial interests		
	Poaching Breach of restrictions and bans by individuals and businesses Commercial fishing of sturgeon species is subject to fishing and export quotas	Poor control from state bodies High demand for fish products Export of products	Since 2010, ban introduced on fishing sturgeon, except for fishing in reproduction and scientific research purposes.	Decisions of the Caspian countries on banning commercial fishing of sturgeon species
	Unsustainable water use, leading to degradation of habitats for fish and other aquatic species	Insufficient regulatory framework Worn-out production base		

Hunting units and fauna management	Illegal excessive fishing Illegal trade of threatened species Degradation of fauna habitat due to excessive hunting, tourism	High commercial demand for some species Poaching Lacking mechanism of benefits for local population for the use of fauna	various systems for monitoring the number, distribution and movement of fauna populations are used	Openness and understanding of the introduction of new approaches and practices
	Ineffective system of fines for poaching		Monitoring and protection of fauna are realized by hunting units and PPP schemes	Current legislation
	Hunting units are managed cost-ineffectively	Schemes of state financial incentives are insufficient	Hunting units generate income from the sale of licenses	Current legislation
	Irregular grazing during the mating season			
Water resources management	Lack of drinking water, wastewater and sewage treatment	Dependence on cross-border flows	SCUPWB was developed for each water basin	State program
	Uneven distribution of water resources causing wide spread of sands (up to 300 thousand square km) and saline soils (1270 thousand square km)	Inland position of the country		Subsidies for RCCWC in the range of 40 to 60%
Agriculture	Intensive grazing/ overgrazing and non-compliance by farmers with pasture rotation schemes, leading to desertification and degradation of vegetation and soil cover	Lack of knowledge Large number and low capacity of small farmers Worn-out material base of farms		
	High level of water losses (75%)	Low performance of irrigation systems		
	Water saving technologies, water feeding and irrigation (drip, sprinkler, discrete systems) are used only at 7% of used irrigated land	Lacking infrastructure for evaporation and filtration, for ensuring flows to neighboring states	To increase the productivity of agricultural cultures, field protective forest strips, protective green umbrella in the treeless steppe regions of the republic are created.	

	Unreasonably high water consumption in regions where rice, cotton is grown	Weak financial capacity of farmers for widespread use of new technologies		
	Pollution of waters with animal waste	Weak mechanism of state control Mechanisms and technologies of waste processing are not used by farmers	In some regions, the local population is practicing the use of animal wool, skin	
	Abandoned lands are not involved in agricultural turnover and are not rehabilitated			
	Remote pastures are not used	Lacking infrastructure, poor financial position of farmers		
Climate change adaptation	Measures for adaptation to climate change focused primarily on power consumption Ecosystem services are not taken into account	Strategic Development Plan of the country till 2020	Monitoring and control of greenhouse gas emissions	Strategic Development Plan of the country till 2020
	Poorly understood approaches and accepted adaptation measures in crop production	Lack of research Lack of knowledge		
Industry	Expansion of lands subject to anthropogenic impact Assessment of the impact on biodiversity when developing projects is not carried out. Assessment under the EIA does not take into account the loss of economic value of biodiversity and ecosystems	Imperfect legislative norms Breach of existing norms and rules	Industrial enterprises provide funding and take nature protection measures	Legislative regulations

Oil production	Intensive navigation on the Caspian sea associated with the extraction of hydrocarbons lead to contamination of the water No work is underway for prevention of pollution through careful control of wastes, fuels	Poor state control		
Gas production	Leakage of gases from the earth in the extraction leads to changes in the quality of air and soil cover	Non-compliance with the technology of processing gas deposits		
Mining solid minerals	Technology of dump recovery is not practiced leading to the destruction of ecosystems	It is required to use additional labor and material costs, which increases the production cost of solid minerals, thus making ore uncompetitive	Use of technologies to fill the voids in the earth with mine dumps	Intensive mining
Energy	HPP, TPP do not comply or partially comply with the requirements for the construction of fish protection facilities at major water intakes	Breach of technologies Imperfection of legislative norms		

APPENDIX 2. BIODIVERSITY PROTECTION

Protection: PA	**Strategic and policy factors, leading to INEFFECTIVE protection of species and ecosystems**		**Strategic and policy factors, leading to EFFECTIVE protection of species and ecosystems**	
	Ineffective protection practices at state and local levels	**Effective strategies and policy factors**	**Effective protection practices at state and local levels**	**Effective strategies and policy factors**
Representativeness	Representativeness of PA low: mountain ecosystems are covered by PAs at 5,5%, dry steppe ecosystems– 4,0%, deserted steppes – 1,3%, arid steppes – 1,1%, forest steppes – 2,6%, north deserts – 2,0%, middle and south deserts – 0,69%, lake ecosystems – 0,04%.	General scheme envisaged until 2020 to bring the PA areas to 10.7 % of the total republic area (291 thousand square km) by 2030 to 15.3 % of the total republic area	The existing legal framework is sufficient for establishment of a representative ecological network for biodiversity conservation	
PA	Local PAs do not have legal entity status	Current legislation	The PA system covers the habitats of species that are key for biodiversity and ecosystems of extensive spatial and biological scale	
			The PA regime minimizes the threat of external negative impacts on biodiversity and habitats	
Buffer zone			Buffer zones are intended for various forms of core activity zones which are limited, regulated and without adverse impact on the condition of ecological systems	National legislation
Ecological corridors			Protection and management of ecological corridors is carried out by nature protection institutions	National legislation

Effective governance and benefits sharing			PA system includes various types of protected areas and PA categories (I, II and IV categories of IUCN) Creation of national parks in priority order for active management and equitable access	National legislation Ratification of international agreements, conventions
			For providing special conservation and protection from adverse impacts influences around and on the lands of landowners and land users located within the boundaries of PA, the system establishes protection zones with prohibition and/or restriction within these zones of any activity adversely affecting the condition and recovery of PA ecological systems and reserve facilities located there	National legislation
			With the creation of PA, compensation mechanisms are used for land allocation under PA	National legislation
			In wetlands of international importance, the regimes are of protected and customized types or regulated type for economic activity, ensuring the protection and restoration of waterfowl habitats.	Current legislation
Integration of benefits from PAs	The economic benefits of PA are little known and not used in sectoral decision-making	Lacking vision and adapted techniques of PA economic evaluation Currently, PAs are only of scientific value.		

Management efficiency	Practice of land allocation within PA for the creation of strategic economic entities reduce the value of territories	Political decisions		
	Not at all PAs have effective monitoring programs and scientific research	Lacking adapted techniques	PAs have a clear legal status	Current legislation
	No resource studies are conducted to determine the number of species	Insufficient funding of science and material base	PA territories are demarcated Some PAs have clearly defined boundaries and recreation places (hiking, automobile entry, campsites) to avoid pressure on sensitive areas	Current legislation
	Not enough opportunities for overcoming the main threats, determining and designating priorities		Protection of natural complexes and reserve facilities of nature protection organizations is performed by state inspectors of protection services within these organizations	National legislation
	Not all PAs have effective program of public relations on the local level	Lack of qualified human resources		
	PAs do not have sufficient staff with the necessary skills for carrying out basic actions	Shortage of qualified personnel in rural areas as a consequence of the migration of the educated population to urban areas		
	Standards of PA protection do not take into account the specifics of ecosystems and are uniform for all	Gaps in legislation		
Policy and potential	All state programs of PA system development are completed, new programs are not available	Weak position of the authorized body	PAs protect biodiversity on the basis of 5-year planning in accordance with the Management plans	National legislation

Sustainable financing	Level of funding does not cover the needs of PA	Low priority of the sector in general state policy Less than 0.02 % in the structure of GDP	The state budget is a guaranteed source of funding PA (over 84%)	National legislation
	Sponsorship funding is practiced little	Gaps in the existing tax legislation	PAs provide paid services and have their own funds	National legislation
Trade	Valuable species are hunted and traded outside the PA territories	Commercial demand Lacking an effective alternative mechanisms	No trade of species within PAs	
Genetic diversity	The legislative framework on access to genetic resources and joint use on a just and equitable sharing of benefits arising from their use is not established	Legislation needs improvement	There are two forest breeding center Genetic reserves of Sieverts apple trees created Techniques for conservation of the genetic reserves (apple-trees, aspens) being used	Current legislation
	Issues of genetic resources are not regulated by any separate regulations and there are no methods for preservation of genetic reserves except for apple-trees and aspens		There are some studies on the collection of agro-biodiversity genetic pool	
	Illegal export of genetic materials, collections		Subsidizing the breeding of pedigree livestock, certified seeds. Implementation of dissemination technology for the conservation of valuable breeds	Agribusiness-2020
			Nagoya Protocol ratified in 2015	Political will

APPENDIX 3. REHABILITATION

Section 3: Rehabilitation	**Strategies and policy factors contributing to INEFFECTIVE restoration of species and ecosystems**		**Strategies and policy factors contributing to EFFECTIVE restoration of species and ecosystems**	
	Ineffective practices of restoration	**Influential market forces, strategies and policy factors**	**Effective practices of restoration**	**Influential market forces, strategies and policy factors**
Land rehabilitation	Large areas are removed from use and abandoned, these lands are not restored	Shortcomings of agricultural policy	Improving the quality of grassland, there is potential for expansion	
	Remote pastures are rarely used		Local practices of pastures development for unloading rural degraded pastures	Master-plan for the pasture livestock development
	Insufficient monitoring of lands		Diversification of the land	Measures of state support
	Lacking scientific approach to land recultivation		Zero and minimum land cultivation	
			Use of organic fertilizers	
			Land recultivation	
			Maintenance of a favorable regime for water reservoirs	
Reintroduction of species	Defaulting on restoration of fish stocks	Low responsibility Poor production capacity	Fish stocking	Current legislation Lack of resources
			Reproduction, breeding and restoration in the natural environment (PA) of rare and threatened species of plants and animals	

Improvement of environment	Lacking seed production of perennial grasses necessary for restoration of soil fertility and forage diversity	Measures of state support and incentives are insufficient Destroyed infrastructure	100% water cycle (wastewater treatment)	
	Underused alternative renewable energy	The country is in the early stages of renewable energy introduction	Reforestation and afforestation to prevent erosion and improve the environment	
Rehabilitation of habitats			Wetlands of international importance have reserved and protected regimes or regulated regime of economic activity ensuring protection and restoration of waterfowl habitats.	

APPENDIX 4. ACCESS AND BENEFIT SHARING (ABS)

Section 4: Access and exchange of benefits	Strategies and policy factors contributing to INEFFECTIVE practices of AEB		Strategies and policy factors contributing to EFFECTIVE practices of AEB	
	Ineffective practices of AEB	**Influential market forces, strategies and policy factors**	**Effective practices of AEB**	**Influential market forces, strategies and policy factors**
PA	Fragmentation of PA areas and their buffer zones (fences)		Some PAs have public councils governing equitable access to resources	Effective method of resolving disputes
	The existing system of income PA distribution and payments does not generate funds for development	Budget, tax legislation		
	The local population contributes to the export of genetic materials and receives illegal income	Low level of environmental literacy Unemployment		
Water resources	Access to quality drinking water is 67%		Use of underground water resources, which is a potential source of freshwater	
	Transboundary nature of water allocation	Lacking access to the sea, which creates significant difficulties for access to foreign markets	There are basin councils involved in the regulation of access to resources	Policy of stakeholder involvement in process of decision making is governed by legislation
Fauna	Income from illegal hunting is concealed		Hunting users have the right to generate income from the sale of permits for hunting	PPP mechanisms
	Local population has no priority rights in the allocation of hunting sites		Fees for nature use is fixed in the legislation	
Fish resources	Mediation and collaboration with poachers, receipt of illegal income Overfishing above the established limits, poaching	Predominance commercial interests Increased demand for fish products Low environmental responsibility Unemployment Poor control by state authorities	Fishery management entities receive income from the use of fish products	High demand for fish products

APPENDIX 5. GENERAL POLICY ANALYSIS

Section 5. General policy analysis	Factors of general political climate that SLOW DOWN the process of biodiversity preservation, sustainable use and equitable benefit distribution	Factors of general political climate that CONTRIBUTE TO the process of biodiversity preservation, sustainable use and equitable benefit distribution
Political will and political leadership	Weak political will of the government for integration and accounting of biodiversity issues in sectoral planning Biodiversity is not a priority and not adequately taken into account in the estimation of GDP National policy in the field of ecotourism is not established, ecotourism development measures are not clearly defined	Kazakhstan as a party to international relations has ratified a number of international legal acts and is a party to BDC, UNESCO, UNCCD, CITES, CMS, Convention on Wetlands of International Importance, CCBS, Nagoya Protocol on Access to Genetic Resources and joint use based on an equitable and equal sharing of benefits arising from their use and performs its obligations thereunder implementing state programs and projects In 2013 the government adopted the Concept of Transition of Kazakhstan to a «Green Economy», one area of which is the management of ecosystems and transition to a resource-efficient economy
Financial and economic lobbying by influential stakeholders (large industries)	Most major mining companies do not recognize the importance of biodiversity Lack of a targeting system of funds paid by major industrial enterprises for the damage caused to ecosystems and biodiversity	In accordance with the current legislation, industrial entities carry out nature protection measures, in particular, they fund local planting of forests
Media, awareness raising, feeling and attitude		The public is continuously informed about the importance of biodiversity via various information media Environmental protection organizations conduct informational and environmental education activities for the development of ecological tourism
Principles of good governance	Poaching and numerous violations of the bans, felling of forests, gathering of non-wood products take place. Legislative regulations and international standards, including the monitoring of target species biological status, determination of standards for fishing are not observed, fishing limits are exceeded The country depends on the regulation of cross-border river flows	Legislation in the field of biodiversity is enhances in line with international requirements and country needs
Inter-sectoral coordination, group, management, communication	Planning of biodiversity preservation and ecosystems is carried out without applying sectoral approach	For development of a green economy, there is a council under the chairmanship of the Prime Minister and other sectoral working groups There are interdepartmental committees

Public participation in decision making	Between the population and supervisory bodies, there is weak interaction on issues of sustainable use There are no effective means of involving the public in the process decision making Role of NGOs in decision making is weak PPP schemes are used poorly	In some PAs there are public councils There are basin councils established according to the legislation
Information on values of biodiversity, threats	Economic benefits from the conservation have not been well studied, and consequently there are no studies in this subject underway	UNDPs project carry out pilot activities to define ecosystem services and their economic evaluation and introduction of payments for ecosystem services UNDP projects conducted economic evaluation of six ecosystem services, one national park, the results of which were used to take into account the PA value in the allocation of budgetary funds
Coordination between agencies	The First 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 Environmental Protection. This National Strategy was not approved by the Government as a program supported by public funding and mandatory for implementation. Many of the provisions in the National Strategy and Action Plan for conservation and sustainable use of biodiversity of Kazakhstan referred to the activities of various ministries and agencies, which are not subordinated to a single coordinating center, therefore the provisions of this document were reflected in sectoral plans insignificantly.	New NBSAP was developed, but it is not supported by the MNE due to a lack of supporting facts expressed in monetary terms describing the benefit of conservation
The use of the existing opportunities for financing biodiversity	Funding of sectors (forestry, fisheries, fauna management, PAs), contributing to the preservation of biodiversity is not sufficient for full implementation of tasks Since 2013 there have been budget lines for subsidies in forestry which were not demanded by the private sector due to a prolonged production process	Successful implementation of micro-credit programs alternative types of economic activity of the population living around PAs. The aim of the programs is to replace traditional activities that adversely affect biodiversity There are budget lines for subsidizing the development of commercial fisheries and fish farms that are popular among target groups Key enterprises of forestry, fish farms function on government subsidies

APPENDIX 6. EXISTING AND POTENTIAL RESPONSIBILITIES OF KEY PARTICIPANTS AND INSTITUTIONS: FACTORS LEADING TO COMPLETE LOSS OR DEGRADATION OF HABITATS

Factors, leading to a complete loss or degradation of habitat	Participants and institutions contributing to, influencing, bearing responsibility for and depending on the existing situation, now.	Explanations and assumptions	New strategies related to key change factors	Participants and institutions that could contribute to, influence, bear responsibility for and depend on the forecasted new investment strategies	Explanations and assumptions
Loss or damage to habitats: intensive forest management fires poaching the spread of diseases of animals and plants spread of diseases of animals and plants genetic erosion irrigation and drainage of wetlands intensive agriculture change in the natural river channels and other fresh water bodies construction of industrial facilities mining	Committee of Forestry and Fauna	Responsible for performance of obligations and reporting on BDC and other international agreements	Creation of representative ecological network Ensuring conservation of forest ecosystems via enhanced security and protective measures Improving efficiency of forest management Increasing reforestation and afforestation to increase the forest cover of the Republic Protection of biodiversity and natural habitats of fish and other aquatic animals Conservation and restoration of agrobiodiversity in fallow lands, withdrawn from agricultural turnover Production of environmentally friendly products by organic farming. Soil conservation	Committee for Water Resources Committee for Tourism Industry	
	Committee for Science				
	Ministry of Agriculture	Currently has the function in the field of formation and implementation of state policy in the sphere of fishery development, management of water, forests and fauna.			
	Committee for Water Resources				
	Committee for ecological regulation, control and state inspection in oil and gas industry.				

Climate change: change of water regime and droughts	Ministry of Energy	Performs functions in the field of formation and implementation of state policy in the sphere of protection, control and supervision over rational handling natural resources, solid waste management, renewable energy, monitoring of state policy development of a «green economy»	Adaptation measures to climate change in forestry Adaptation of agricultural production to climate change.	Ministry of Agriculture	
	Committee for Water Resources			Committee for Science Of the Ministry of Education and Science	
Invasive species: invasive species of invertebrates invasive species of fish invasive species of plants invasive species of birds	Committee of Forestry and Fauna is		Conservation of genetic resources, access to them and their use on an equitable and equal basis		
	Ministry of Agriculture				
	Committee for Science Ministry of Education and Science				
	National Center for Biotechnology	Serves as a coordination center for mediation mechanism under the Cartagena Protocol.			

Excessive exploitation: overexploitation of fish overexploitation of hunted species overgrazing and degradation of pastures	Committee of Forestry and Fauna is		Conservation of rare and threatened species Development of the system of ecological monitoring of biodiversity based on ecosystem approach Preservation of ecosystems of the Caspian Sea Ensuring the protection, reproduction and rational use of animal resources Recovery of fish populations, which tend to reduce, migration routes and places of concentrations (wintering holes and spawning areas) for fish and other aquatic animals Conservation of agrobiodiversity in agriculture by restoring and reducing areas, downed and degraded pasture ecosystems	Committee for Tourism Industry	
	Ministry of Agriculture				
	Association of Biodiversity Preservation of Kazakhstan				

Indirect factors: transformation and destruction of habitats pollution of the environment acclimatization and invasion of alien species unorganized tourism and recreation imperfect legal and institutional framework shortage of capacity and knowledge weak participation in the management and preservation of civil society resource-based approach to management and the underestimation of the economic value of biodiversity and ecosystem services	All of the above institutions		Regulatory support of protection, reproduction and sustainable use of animal resources Addressing the problem of biodiversity preservation in regulatory support of fisheries Improving the system and mechanisms for PA management in line with the objectives of biodiversity preservation	All of the above institutions	

APPENDIX 7. EXISTING AND POTENTIAL DISTRIBUTION OF BENEFITS

Key change factors	Participants and institutions that benefit from the existing situation at the present time	Explanations and assumptions	New strategies for addressing key change factors	Participants and institutions that could benefit from new strategies	Explanations and assumptions
Loss or damage to the environment	Farmers and farms receiving subsidies for chemical fertilizers Fishermen and fishing teams Water users Tourists and tourist companies	Ineffective practices of use, recovery, conservation	Introduction of new mechanisms for economic evaluation of resources and equitable distribution of the benefits between the stakeholders Improvement of legal framework in line with successful international practices Strengthening capacity of decision makers, reinforced training	State organizations Private users of natural resources Local population	New economic mechanisms are not sufficiently studied and their implementation will take a long time
Invasive species					
Climate change	Industrial entities	Wastes, emissions			
Excessive exploitation of species	Private entities	Poaching, extraction of species from the natural environment in excess of established limits, norms			
Indirect factors					

APPENDIX 8. EXISTING AND POSSIBLE DISTRIBUTION OF COSTS

Key change factors	**The participants and the institutions bearing the costs at the present time**	**Explanations and assumptions**	**New strategies for elimination of key change drivers factors**	**Participants and institutions that could pay the costs of new strategies**	**Explanations and assumptions**
Loss or damage to the environment	Ministry of Agriculture Committee of Forestry and Fauna Committee for Water Resources Public organizations that implement international projects	Costs associated with conservation are covered by the relevant ministries in the form of funding state programs Industry entities finance nature protection projects in accordance with the laws	Introduction of payment schemes for ecosystem services, when all parties concerned share costs on an equitable basis	State organizations Business entities and Private users of natural resources Local population	Limited governmental subsidies and need to enhance environmental responsibility of businesses
Climate change	Ministry of Energy Industrial entities				
Invasive species					
Overexploitation of species	Ministry of Agriculture				
Indirect factors	State organizations				

APPENDIX 9. INSTITUTIONAL ROLES AND RESPONSIBILITIES, AND KEY ISSUES

Key participants and institutions involved in the financing of biodiversity	**Roles and key issues in setting national priorities and budgetary allocations**	**Roles and key issues in the determination of expenses and annual budgets**	**Role and key issues of access and distribution of financial resources**	**Role and key issues of financial costs and reporting**
Ministry of National Economy	Formation of state policy in the sphere of strategic planning and formation of budget policy			
Ministry of Finance	Forms and implements the state policy in the field of budget planning	Consolidates general need in the budget funds for government programs	Allocates budget funds for state programs	Creates unified reporting on public expenditure for all sectors
Ministry of Agriculture	Is the administrator of budget programs in the field of agriculture, water, fishery, forestry, wildlife management and PAs	Consolidates budgets of subordinate committees and local organizations	Allocates budget funds for administered state programs	Creates unified reporting on budget expenditures under administered state programs
Committee of Forestry and Fauna	Indirect participation	Consolidates the budgets of subordinate territorial units and PA		Creates unified reporting for supervised programs
Committee for Science	Indirect participation	Consolidates the budgets of subordinate territorial units		Creates unified reporting under supervised programs
Non-profit organizations	Do not participate			
International organizations			Co-financing	
International donors			Co-financing