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ENVIRONMENTAL FINANCE POLICY AND INSTITUTIONAL REVIEW IN THE KYRGYZ REPUBLIC



BIOFIN
THE BIODIVERSITY FINANCE INITIATIVE

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This project is co-funded by
the European Union



Federal Ministry
for the Environment, Nature Conservation
and Nuclear Safety



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The Global Biodiversity Finance Initiative (BIOFIN) is a global partnership in biodiversity financing. The Global Biodiversity Finance Initiative is managed by UNDP in partnership with the European Commission and the governments of Germany, Switzerland, Norway and Flanders. Transformation of biodiversity financing is necessary for the planning and management of all resources, including those not identified, that are necessary to achieve the Aichi Targets defined in the CBD Strategic Plan for Biodiversity 2011-2020 in a context that promotes sustainable development and poverty eradication.

BIOFIN supports national partners in determining the status and trends of biodiversity financing at the national level and addressing resource scarcity problems. BIOFIN addresses the lack of financing for biodiversity and develops a plan for mobilizing financial resources and to integrate biodiversity and ecosystem services into sectoral budget planning and national policies.

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LIST OF ABBREVIATIONS

BFP	Biodiversity Finance Plan
BTI General Directorate	Biosphere Territory Issyk-Kul General Directorate
CAREC	The Regional Environmental Centre for Central Asia
CBD	Convention on Biological Diversity
CHPP	Central Heating and Power Plan
GDP	Gross Domestic Product
GEF	Global Environmental Facility
GHG	Greenhouse Gases
GIZ	German Agency for International Cooperation
GovKR	Government Administration of the Kyrgyz Republic
EEU	Eurasian Economic Union
ESC	Environmental Safety Concept
FAO	The Food and Agriculture Organization
HPP	Hydropower Plant
JK KR	Jogorku Kenesh of the Kyrgyz Republic (Parliament)
JICA	Japan International Cooperation Agency
KFP	Key Medium-Term Fiscal Policies in the Kyrgyz Republic
LEPF	Local Environment Protection Fund
LSGA	Local Self-Governance Agencies
MAPILR	Ministry of Agriculture, Processing Industry and Land Reclamation
MCIT	Ministry of Culture, Information and Tourism
MoE	Ministry of Economy
MES	Ministry of Emergency Situations
MoF	Ministry of Finance
MTR	Ministry of Transport and Roads
MTSSBE	Mid-term strategies for sectoral budgetary expenditures
NAS KR	National Academy of Sciences of the Kyrgyz Republic
NGO	Non-Governmental Organization
NLA	Normative and Legal Acts
NSC	National Statistics Committee
NSDS	National Sustainable Development Strategy
ODA	Official Development Assistance
OECD	Organization for Economic Cooperation and Development
PAs	Protected Areas
PES	Payments for Ecosystem Services
PTSD	Programme for Transition to Sustainable Development
RES	Renewable Energy Sources
RFEPF	The Republican I Funds for Environmental Protection and Forestry Development
SAEPF	State Agency on Environment Protection and Forestry

SCIES	State Committee on Industry, Energy and Subsoil
SDI Kyrgyzgyprozem	State Design Institute Kyrgyzgyprozem
SDGs	Sustainable Development Goals
SFF	State Forestry Fund
SEEA	System of Environmental-Economic Accounts
SIETS	State Inspection on Environmental and Technical Safety
SIVPS	State Inspection on Veterinary and Phytosanitary Safety
SIP	State Investments Program
WTO	World Trade Organization
UN	United Nations Organization
UNCCD	United Nations Convention to Combat Desertification
UNFCCC	United Nations Framework Convention on Climate Change
UNDP	United Nations Development Program
USAID	United States Agency for International Development

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1. EXECUTIVE SUMMARY

The offered Review of Policy and Institutional Framework for Environmental Financing with the Focus on Biodiversity and Adaptation to Climate Change in the Kyrgyz Republic (PIR), alongside with the Environment Expenditure Review and Biodiversity Financial Needs Assessment form the basis for a Biodiversity Finance Plan with prioritized financial solutions that address management challenges in the environmental sector.

This review includes the analysis of the current policies, and economic, fiscal and institutional frameworks. In particular, it:

- analyzes policies, strategies and trends in the field of environment, biodiversity and adaptation to climate change;
- identifies sectoral links and drivers that have an impact on environment, biodiversity and adaptation to climate change;
- identifies the current financial framework in the field of environment, biodiversity and climate change, including identification of the current financing mechanisms and key 'entry points' to improve financing;
- describes core institutions playing an important role in terms of funding environment protection, biodiversity conservation and adaptation to climate change.

Findings and key recommendations in the above areas are summarised below:

1 Strategic documents related to environmental protection, biodiversity and adaptation to climate change address the key issues, such as depletion of natural resources, reduction of its regenerative capability, anthropogenic pressure on the resources and other factors that may have an impact on human well-being and economic growth in the mid- and the long-term perspective. Implementation of strategies provides for the development and coherent implementation of the national policy in the sphere of environmental safety and protection. However, the review of the strategic plans implementation during the previous period shows that some of the planned activities failed regardless of the fact that the issues of environment protection, biodiversity conservation and adaptation to climate change were in the focus of the National Strategy for Sustainable Development (NSDS) and the Program of Transition to Sustainable Development (PTSD) for 2013-2017, i.d. have been among the most compelling priorities of the national policy in the Kyrgyz Republic. There are several reasons for that, and some of them are listed below:

- Strategic documents, in general, pursue the priority of economic development despite the established national priorities in the area of environment protection. It means that these priorities a priori are competing, which results either in improper implementation of programmes, or their total failure.
- The scope of financing does not comply with the scale of the tasks, thus leading to incomplete implementation of the programmes.
- Strategic documents lack target indicators to assess quality of environment interventions after programmes' completion.
- The national strategic documents do not effectively address the country's climate change trends and the related disaster risks.
- Strategic documents primarily rely on external financing for environmental components due to constant national budget constraints, and this approach cannot ensure their implementation. At the same time, capabilities and opportunities for mobilizing extra-budgetary domestic funding sources are not taken into account.

Recommendations:

It is necessary to revise and develop new strategic documents in the field of environment protection, biodiversity conservation and other areas, based on sustainable development principles and taking into account climate change trends. It is necessary to identify domestic sources of revenues through assessment of economic benefits emerging from environmental quality, biodiversity and environmental safety.

Special attention should be paid to monitoring of programmes' implementation that should be based both on the activities' outcomes and the system of indicators to assess the status of environmental components. Strategic documents in other sectors shall include indicators to assess environmental changes as a result of such interventions.

It is necessary to allocate funding for research to analyze the value of ecosystem services at the national level in order to build an optimal state policy in the sphere of environment protection, biodiversity conservation and adaptation to climate change, including capitalization of ecosystem services.

Key actors are the Government of the Kyrgyz Republic (GovKR), the State Agency on Environment Protection and Forestry (SAEPF), the Ministry of Economy (ME), the Ministry of Finance (MoF), the Ministry of Emergencies (MES), the National Academy of Sciences (NAS KR), line ministries, groups of experts and academia.

2 The Kyrgyz Republic has developed its environmental **normative and legal framework** that covers almost all aspect of environment protection and biodiversity conservation. The review shows that some environmental laws are not implemented in practice or lack clear and coherent implementation mechanisms, that should be laid down in the relevant sub-laws. It is apparent, that in the current situation, the country needs to revise the environmental legislation in general, avoiding reference norms, legal conflicts, repetitions and duplications.

Recommendations:

Take measures to harmonize domestic legislation. This work should be done at three levels: general national legislation, general environmental cluster and special legislation cluster regarding the Issyk-Kul Biosphere Reserve.

Key actors: KR Parliament, GovKR, Ministry of Finance (MoF), Ministry of Economy (MoE), State Agency on Environment Protection and Forestry (SAEPF), State Agency for Local Self-Government and Inter-Ethnic Relations (SALSGIR), NAS KR, General Directorate of the Issyk-Kul Biosphere Reserve, Issyk-Kul Province State Administration, groups of experts, line ministries.

3 The leading idea of economic growth is a common **driver in the area** of biodiversity loss in the country, and the key indicators of the country's development include GDP increase and income generation, that may adversely affect the other spheres of development. The government is pursuing a policy of reducing the burden on business. Therefore, any regulatory initiative, including environmental, which may become an additional burden for business, has more chances to be rejected than accepted. The same is done with initiatives that affect the interests of socially vulnerable segments of the population.

Natural resources' users at all levels receive significant benefits from ecosystem services. According to a limited number of surveys, ecosystems generate significant revenues for the users in monetary terms, however, these revenues are implicit, and the population does not consider ecosystems as income-generating natural assets that require investments. The government has a similar viewpoint on these services. This situation seems to be typical in all sectors of economy, including informal sectors with a significant scale of ecosystem services consumption: wood and non-wood forest products, herbs, hunting, fishing, community tourism and others. However, species' tourism as a non-material type is one of the positive drivers to preserve biodiversity.

Recommendations:

Regarding the drivers conducive to natural resources degradation, the government has to review its approaches to natural resources' use, and to define the environment-oriented priorities and strictly follow them. To this end, the government has to mainstream environmentally safe and environmentally friendly drivers of economic growth in the strategic documents.

Formal and informal educational and awareness raising programs in the field of environment protection, biodiversity conservation and adaptation to climate change are needed as well. They can be incorporated both in high school and university curricula and informational programs for general public.

The SAEPF, as an authorized agency, development partners and NGOs should pay more attention to environmental awareness and literacy of the people and develop awareness raising programmes. In this regard, the consultative and technical support of development partners will play a critical role to advocate and promote environmentally responsible behaviour and values of ecosystems and biodiversity. Key actors: GovKR Government, NAS KR, BTI General Directorate, Ministry of Education and Science, Ministry of Health (MoH), ME, academia, NGOs, SALSGIR and groups of experts.

4 The **budget process** in the Kyrgyz Republic is neutral in terms of any funding allocations. Technically, the total budgetary financing depends on the national policy priorities, however, in reality, it depends on the needs of social sector and the collected revenues. First and foremost, protected budget lines are subject to financing, as well as social benefits. Therefore, the main budget expenditures include salaries and the related deductions to the social fund.

Thus, environment, biodiversity and climate change are not included among priority areas of the budget process. Funds are allocated based on the planned staffing levels of the relevant agencies, their running costs and minimal development needs. Capabilities of ministries and agencies are also limited within the ceiling of the budget allocations.

Despite the fact, that sustainable development is identified as a principle of governance, the funds allocated for environmental aspects, including biodiversity and adaptation to climate change, are meagre, and on average, accounts for only 0.5% of the total budget expenditures. The budget financing primarily covers running costs and law-making. Not all of the functions, as they set forth in the regulations, are completely implemented by the state agencies. The main reason is that the applicable national priorities system was developed in 1990, and given the limited financing, it is focused on issues of social security and economic growth support. The situation is aggravated due to internal contradictions in normative and legal acts (NLA), weakness of monitoring and evaluation systems in all sectors, and other factors which distort the decision making process.

The issues of environmental protection, biodiversity conservation and adaptation to climate change, including financing, are listed among authorities of a number of ministries and agencies. However, at the budgeting stage, the agencies with significant impact on environment, biodiversity and adaptation to climate change, excluding the State Agency on Environment Protection and Forestry and State Inspection on Environmental and Technical Safety that have no status of a ministry, are not tasked to finance environment. Consequently, no criteria related to the issues of sustainable use of natural resource are used in the process of budget consideration and approval. Thus, there are obvious discrepancies between the declared national priorities versus financial priorities. Moreover, the issues of environment al protection and biodiversity conservation are not among ultimate priorities of the leading ministry in the field of sustainable development- Kyrgyz Ministry of Economy, as its major objective is economic growth, per se.

Recommendations:

Therefore, the budget process is neutral in terms of any budget allocations; the SAEPF or other ministries or departments with environmental expenditures should generate their budgets in line with sustainable development priorities identified in the national and sectoral strategic documents; it is also necessary to use the results-based budgeting mechanism, or program budgeting that has an advantage of aligning the agency's activities with the state policy reflected in the strategic documents. This will enable some guarantees for funding environmental protection measures within strategic documents implementation.

Since the result-oriented budgeting or program budgeting are relatively new mechanisms for SAEPF and SIETS, political support, senior management commitment and capacity building measures are needed to develop program budgets with clear performance indicators.

Ministries and agencies should develop their budgets based on priorities stipulated in the national and sectoral policy documents, while benefiting from all the advantages of the programme budget. This will require, first of all, efforts to strengthen result-oriented (programme) budgeting capacity of management and the staff, as well as their capacity in the field of integration of development priorities, including environmental, in programme budgets of the key sectors.

It is necessary to introduce the principle of budget financing depending on the organization's activities. Financing of their main budget lines should be protected. For example, the agencies with major activities in policy development, management and decision-making should have protected budget lines, such as salaries and relevant operating costs (stationery, travel expenses, etc). Budgets of other organizations with a core product resulting from industrial activities, such as forestry enterprises, should be protected in terms of salaries, operating costs, procurement expenses (seedlings, hand tools, chemicals, etc.), services of workers and capital investments.

It is also necessary to identify mechanisms for financing the most important activities in the sphere of environment al protection, biodiversity conservation and adaptation to climate change both from the state budget and other sources.

The reform of budget principles should include municipal budgets.

This approach will provide an opportunity to improve financing of relevant activities in the sphere of environment protection, biodiversity conservation and adaptation to climate change, whereas, the country's progress towards sustainable development may open budget-financed priorities.

Key actors: Parliament, Government, MoF, ME, SAEPF, SALSGIR, State Revenue Service, line ministries and academia.

5 Coordination of activities among ministries and agencies on environmental issues, biodiversity protection and adaptation to climate change is mainly formalistic and low efficient. Contrary to the main principles of the National Sustainable Development Strategy (NSDS) until 2017, the current coordination mechanisms do not guarantee adoption of balanced decisions aimed at achieving the country's sustainable development. Given that, the most powerful institutions (e.g. Parliament and local self-governance bodies) demonstrate the least interest in the issues of environment al protection, biodiversity conservation and climate change. Whereas, the most interested institutions (e.g. academia, NGOs, SAEPF and SIETS) have a relatively limited influence on this process.

Recommendations:

Since co-ordination and interaction between the executive authorities depends on the availability of transparent vertical and horizontal linkages between them, it is necessary to involve the state institution(s) guiding the policy in the sphere of environmental protection and biodiversity conservation in decision-making mechanisms that address or impact these spheres. In order to achieve that, it is necessary to set out clear mechanisms in the relevant by-laws, taking into account the status of the institution(s) guiding issues in the sphere of environmental protection and biodiversity conservation.

Introduction of blockchain technology in land management system can become one of the instruments to ensure consistency and transparency of managerial decisions; this may include the cadastral system of record-keeping and management of land resources, including pastures, lands of the State Forestry Fund, protected areas, etc.

Key actors: Parliament, Government, State Tax Service, State Registration Service (SRS), SAEPF, Ministry of Economy, Ministry of Finance, SALSGIR and line ministries.

6 The Kyrgyz Republic implements different **subsidies** – certain types of state support, including those with direct impact on environment, biodiversity and efficient adaptation to climate change. At that, potentially negative subsidies that contradict the declared sustainable development priorities prevail. These subsidies are allocated, in particular, to develop energy sector, mining industry, transport and agriculture. One of the reasons for that is that sustainable development goals are poorly integrated into the national and regional development policies.

Potentially negative subsidies imply excess burden on the budget. Most of them were introduced to support low-income population; however, everyone can use them. Therefore, the state financial allocations and subsidies appear to serve the common goal to support peoples' well-being, but in fact, funding is allocated for conflicting, in terms of sustainable development concept, policies: on the one hand, measures that adversely affect nature, and on the other hand, measures to address the negative effects.

Recommendations:

Potentially negative (harmful) subsidies for biodiversity must be reformed.

Firstly, it is necessary to conduct a comprehensive assessment of their actual social effectiveness. This assessment will foster the plan for subsidies' reform - "greening" with minimal disadvantage for vulnerable groups of the population who depend on these subsidies. Primarily, the reform should be carried out in the sphere of heat and electricity supply at subsidized tariffs for the population, and in the sector of agriculture with subsidized irrigation water supply.

The reform of subsidies will allow, on the one hand, to save and mobilize resources, on the other hand, to reduce their impact on the environment with benefits for future budget.

The issues of potentially negative subsidies should be discussed across all levels of government and the public, particularly, with the beneficiaries of such subsidies.

Key actors: Parliament, Government, SAEPF, MoF, ME, donor organizations allocating such subsidies, line ministries, groups of experts and civil society.

7 Officially, the state has a wide range of **tools to monitor performance of the state agencies and economic entities** in terms of their potential negative effect on environment. These tools include the procedure of state environmental expertise implemented by SAEPF, the system of environmental control and monitoring implemented by SIETS, administrative and criminal prosecution for environmental offenses and crimes, as well as incentive tools and others.

However, efficiency of these instruments is extremely low due to both limited financial resources and poor internal coordination of the government agencies. All this, in terms of economic growth priority, results in growing risks in the sphere of environmental safety, accelerated degradation of environment, irreparable damage to biodiversity and devaluation of ecosystem services.

The declared commitment of the state policy to sustainable development, public finance management reform, the country's membership in international integration organizations, including Eurasian Economic Union (EEU), are the main entry points to launch effective functioning of the national environmental control mechanisms at political level. Reasonable use of these mechanisms will provide opportunities for implementation of recommendations under this Review.

Recommendations:

It is necessary to revise the entire system of environmental control based on in-depth analysis of efficiency of the current environmental control tools used by the government agencies and economic entities. This will ensure the effectiveness of environmental control.

Key actors: Parliament, Prosecutor General's Office, Ministry of Internal Affairs (MIA), State Committee on National Security (SCNS), Ministry of Justice, SAEPF, SIETS, Ministry of Emergency Situation (MES), MoF, experts and civil society.

8 Private sector demonstrates its interest in promoting "green" economy and its willingness to implement new mechanisms of financing environment protection, biodiversity conservation and adaptation to climate change.

The private sector supported by the government may become one of the lead drivers to implement such tools. However, businesses are distrustful to such government initiatives observing low efficiency and lack of transparency of these government activities.

Private sector engagement in implementing national priorities for “green” and sustainable development may be possible only in case of simple, clear and attractive for businesses “rules of the game”. The main interest of businesses is to generate profit; therefore, such rules should provide for obvious economic benefits through direct investments into “green” technologies and economic activities.

Public-private partnership mechanisms are another potentially effective means to gain financial support from private sector in order to implement the national environmental priorities; primarily, regarding establishment of new infrastructure or upgrade of the current basic infrastructure for it to become environment-friendly.

Business community is ready to discuss financial solutions that will enable private sector to work according to the principles of green economy.

Recommendations:

The state should guarantee conditions of mutually beneficial partnerships and high level of transparency of these guarantees at the legislative level. For this purpose, it is necessary to introduce economic, financial and tax incentives for private businesses, taking into consideration the above-mentioned recommendations.

It is important to be guided by EEU technical regulations and agreed requirements, environmental norms, technical and environmental safety standards of the EEU member states. It is a universal supra-national regulatory framework that is mandatory for all EEU member states to follow, and clear to businesses.

It is necessary to ensure transparency of the national and municipal bodies’ performance funded from the budget and off-the-budget, that will be used to accumulate private sector resources for further investment into environmental activities.

Availability of non-material benefits from their participation in environmental activities is an additional attractive factor.






Key actors: KR Parliament, GovKR, State Revenue Service, MoF, ME, SAEPF, KR Chamber of Commerce and Industry (CCI), Eurasian Economic Commission (EEC), expert communities and private business.

2. INTRODUCTION

The UNDP Biodiversity Financing Initiative (BIOFIN) is a global partnership providing a comprehensive overview of biodiversity financing. The purpose of BIOFIN initiative is to provide assistance to governments in establishing robust financial plan to increase investments into sustainable use and fair distribution of benefits related to the use of ecosystems and biodiversity with a special focus on financial needs at the national level. The Project serves as a tool to provide assistance to quantify the deficit in biodiversity financing at the national level with a purpose to increase economic efficiency through mainstreaming biodiversity in economic development and sectoral planning, as well as for drafting integrated strategies for resource mobilization.

Kyrgyzstan is part of the global BIOFIN initiative administered by UNDP in partnership with the European Commission and the governments of Germany, Switzerland, Norway and Flanders. The global BIOFIN initiative brought together 31 countries involved in the development and piloting of the BIOFIN methodology.

This methodology enables the countries with mechanisms to measure their current expenditures on biodiversity, evaluate their financial needs in mid-term perspective and to define the most appropriate financial decisions to fill the gaps in biodiversity financing at the national level. This BIOFIN methodology includes the following main stages:

- 1  **Review of institutional frameworks and policies to finance biodiversity:** analysis of policy and institutional architecture of biodiversity financing, and available financial decisions.
- 2  **Review of biodiversity-related expenditures:** analysis of public and private biodiversity-oriented expenditures.
- 3  **Assessment of needs in biodiversity-related financial resources:** assess investments needed to implement the national plans to preserve biodiversity and to achieve the national goals and outcomes in the sphere of biodiversity.
- 4  **Biodiversity financing plans:** analysis of available current options and expansion of future investments (public, private, national, international, traditional and innovative) in biodiversity management.
- 5  **Implementation of financial decisions:** support to implement strategic recommendations provided by BIOFIN, such as improvement or establishment of financial mechanisms, and mainstreaming of financial decisions into the national planning cycles.

The offered Review of Policy and Institutional Framework for Environmental Financing with a Focus on Biodiversity and Adaptation to Climate Change in the Kyrgyz Republic is the result of the work of the national BIOFIN team within the first stage of the Project. This Review is not limited by biodiversity preservation issues, but covers wider environmental and climate change adaptation aspects.

This Review was developed in cooperation with the “Poverty and Environment” Initiative – a global joint initiative of UN Environment – UNDP, which supports the country’s efforts aiming at mainstreaming environmental management into the national and regional planning processes through financial and technical assistance and capacity building.

The objectives of this Review include: establish baseline context and identify directions of the entire BIOFIN process. The Review tasks include:



Review and revise strategic documents and trends, and legal frameworks in the area of environmental protection, biodiversity and adaptation to climate change;



Analyze the current economic frameworks and drivers leading to environmental changes, including biodiversity and climate change, sectoral ties and reliance on ecosystems;



Identify the current financial framework for environment, biodiversity and climate change, inter alia, by identifying the existing financing mechanisms and key “entry points” to improve financing;



Analyze institutions essential for financing environmental protection, biodiversity conservation and adaptation to climate change.

Reallocation of investments towards natural capital and clean effective technologies will improve environment, facilitate poverty reduction and social equality. Recommendations of the Review will be used at the future stages of BIOFIN Project implementation.

The informational base for this review included: interviews with stakeholders, data and information from official reports and strategic documents; statistical and analytical materials; documents of international organizations; normative and legal acts of the Kyrgyz Republic.

3. ENVIRONMENTAL PROTECTION, BIODIVERSITY AND ADAPTATION TO CLIMATE CHANGE VISION AND STRATEGIES

In the Kyrgyz Republic, the transition to sustainable development is a justified need since social and economic development in the country is, to a large extent, based on natural resources consumption. The depletion of natural resources without provision of effective alternatives, as well as the loss of natural ecosystems, pose threat to the future sustainable development.

In the new National Sustainable Development Strategy Agenda for 2013-2017, Kyrgyzstan confirmed its commitment to sustainable development principles, expressed during the UN “Rio+20” Conference on Sustainable Development in 2012. It was for the first time, when human development, human and natural capital became the core development priorities within the framework of this Strategy. Nature and its components are the national assets of the Kyrgyz Republic, and one of the main factors for its sustainable social and economic development.

Thus, the issues of environment protection and adaptation to climate change are reflected in the country’s key strategic documents. There is a growing understanding in the country of the fundamental role of environment protection and adaptation to climate change in the social and economic development; however, the country faces challenges due to weak strategic planning in relation to budget financing. Knowledge of undergoing trends and changes in nature, and of the status of the government policy is important for drafting recommendations aiming at improving the situation in this sphere.

This section reviews environmental status and trends, including issues of biodiversity and climate change. A summary analysis of legal environmental framework, including international conventions and protocols ratified by the Kyrgyz Republic, was conducted. A review of the national and sectoral strategic documents defining the national policy regarding management and conservation of nature, that were in force in 2016, was performed.

3.1. The Environmental Status and Trends, Including Biodiversity and Climate Change. Contribution to Sustainable Development.

Analysis of the environmental status shows that, currently, the national economy primarily applies technologies and practices that lead to environmental degradation and deterioration of livelihood environment, in general. Natural resources are being depleting, pollution is increasing and the dynamics of loss of biodiversity can be observed. All this reduces the regenerative capacity of the natural environment¹.

Economic entities, energy, transport, mining and agriculture sectors in particular, affect the environment. There is a general lack of policies and economic mechanisms which aims to internalize the external costs to society caused by these entities including emissions, pollution and other degrading activities. This results in an overuse of the environment and natural resources. And it is worth noting, that the current pricing mechanisms regarding the use of natural resources in the country do not take into account any negative external costs and, therefore, do not establish any economic limitations to excessive consumption of natural resources.

Another factor is the growing urbanization, which leads to significant air pollution due to emissions from stationary sources and road transport, degradation of land resources, accumulation of solid wastes, growing number and scale of natural and anthropogenic emergencies. There is also a growing problem related to the access to pure drinking water, and adequate waste water treatment systems, because municipal infrastructure development falls behind the urban population growth rate.

1 National Environmental Report for 2011-2014 and Environment in the Kyrgyz Republic: KR NSC, - B.: 2016

Kyrgyzstan has significant **water resources**, the majority of which are used for irrigation and agricultural purposes². In the recent years, a steady non-productive loss of water was reported. According to the National Statistics Committee's (NSC) data, the losses amount to 27.6% of the total water intake. The reasons for the losses are poor technical condition of irrigation and water distribution networks, depreciation of equipment, ineffective methods of irrigation and total lack of recycled water supply systems.



27,6 %
non-productive loss
from total water
intake

Pollution of water resources with different biological and chemical substances is the most dangerous factor which leads to water resources' depletion and degradation, drinking water in particular. The condition of waste water treatment facilities is a matter of a serious concern; many of them are outmoded and physically worn-out, obsolete and need renovation³.

Forecasts on glaciers' status are of particular concern in the country. As of 2010, the volume of glaciers was estimated at 390km³. According to mathematical and cartographic modelling, the volume of glaciers reduced by approximately 15% from the mid-1970s to 2000⁴.

Agricultural lands (arable lands, pastures, hay fields, perennial plantations) which account for 33.8% (2015) of the total area of the country according to NSC, are degrading. Fertility of the arable lands decreases every year. Around 60% of agricultural lands are exposed to water and wind erosion. The reasons for irrigated lands degradation are inadequate natural drainage condition, lack or destruction of drainage network, heavy losses of irrigation water due to filtration in irrigation canals and irregular irrigation scheme. Small scale land farming and failure to comply with agricultural technologies leads to degradation of soil fertility. Ineffective land use has a negative effect on the state of land resources, alongside with uncontrolled conversion of agricultural lands to lands for construction of different facilities.

Atmospheric air in the country is losing its high quality, particularly, in big cities. The common practice of building densification causes low ventilation in the city; green areas reduced at more than 10%. Energy enterprises, means of transport are the main all-year-round atmospheric air pollution sources, including individual residential areas in winter time.

The needs of energy sector will increase and in short- and mid-term perspective will be covered through increase of coal mining and coal and oil combustion and only in the long-term - due to an increase in hydroelectric power. In absolute figures, the volumes of combusted hydrocarbons will grow and essentially affect atmospheric air.

According to experts' assessment, over 87% of major pollutants get into the air from mobile sources⁵.



around
60 %
of agricultural lands are
exposed erosion

During long period of economic activity, the Kyrgyz Republic has accumulated around 115 million tons of **industrial and consumer wastes**⁶. However, no solution exists regarding environmentally safe methods of solid wastes

2 Batykova A. Zh., «Use of water resources in the Kyrgyz Republic», Vestnik of the Kyrgyz National Agrarian University after K.I. Skryabin, 2014

3 Monitoring and forecasting of hazardous process and phenomena in the Kyrgyz Republic (Edit. 14, incl. amend. and suppl.), B.: KR MES, 2017

4 UNFCCC Third National Communication on Climate Change. 2016

5 National Environmental Report for 2011-2014

6 Environment in the Kyrgyz Republic: KR NSC, - B.: 2016

management, disposal and recycling. The current system of waste management is ineffective, the existing landfill sites do not comply with the requirements of environmental and health safety, and the landfills themselves are the source of secondary contamination. There are significant areas of ash and slag wastes generated through coal burning in the CHPP and boiler houses. In addition, areas of raw sludge at waste water treatment facilities are growing; though, it is prohibited to use it as a fertilizer or for any other than passive storage purposes. These are “dead” territories excluded from economic activities. The process of irreversible degradation of biological resources in mining areas leads to accumulation of tremendous volumes of industrial wastes often containing highly toxic elements, among others⁷.



more than

87%

of major pollutants get into the air from mobile sources

Tailings pose a serious threat due to their high vulnerability to natural disasters, such as landslides; as well as their proximity to the main regional water arteries, settlements and state borders⁸.

Chemical substances including pesticides, industrial agents and consumer chemicals are used intensively in the country. The current situation directly affects the health of the population and the environment. The use of mineral fertilizers and pesticides causes water and soil pollution, and contradicts programs on sustainable development.



more than by

10%

decrease of urban green areas

Climate change. Specific characteristics of the Kyrgyz Republic include severe and extreme environmental conditions and high vulnerability of mountain ecosystems. The impact of climate change can be already observed in the country with a negative effect on ecosystems, health of the population, spheres of economic activity and increased vulnerability to emergency situations.

Climate change observed in the Kyrgyz Republic and in the world in the current and the past centuries has similar tendency for annual average temperature increase: in Kyrgyzstan, since 1976, it was growing at 0.18°C per decade. The air temperature growth results in the shift of vertical and horizontal zones of vegetation communities. Desert and semi-desert communities will occupy the niche in the

Expert estimates show that in order to preserve productivity of ecosystems, Kyrgyzstan will have to allocate 4,550.4 million KGS (USD \$94.8 million) on forest-related activities annually, if the temperature grows at +1.5 C and precipitations reduce at 10%

«Program on Adaptation to Climate Change «Forest and Biodiversity Sector» for 2015-2017»

mountain steppes and grasslands; process of species changes/replacement in vertical zones will strengthen, and the scale of biodiversity and forests loss will increase. Migration of forests to the higher zones may result in higher vulnerability of multiple plants due to genetic and environmental impact. Many types of trees will not be able to adapt, and will disappear due to

⁷ The Fifth National Report on Biodiversity Conservation in the Kyrgyz Republic, 2013

⁸ Hazardous process and phenomena in the Kyrgyz Republic monitoring and forecasting (Edit. 14, incl. amend. and suppl.), B.: KR MES, 2017)

climate change. Climate change will influence biodiversity, in general, in Kyrgyzstan. Temperature increase, changes in water availability and the projected increase of carbon dioxide in atmosphere may cause changes in forests and other ecosystems at two levels: structural level (physiology and metabolism of trees and fauna), and level of ecosystems functioning.

According to scientific assessments, the expected climate changes will result in a more than twofold reduction of the bulk surface runoff in the Kyrgyz Republic by 2100. This situation will cause adverse consequences on energy safety and agricultural production in the country. According to the most negative climate change scenarios, by 2100 the annual economic damage may amount to 65 billion KGS. Thus, the climate change processes may significantly slow down the country's sustainable development. Therefore, the national policies include measures to mitigate climate change and its consequences, as well as adaptation measures.

Another climate change consequence is the increased occurrence of extreme natural and weather phenomena and events: mudflow, heavy precipitation, flood, wind, fog, late spring and early autumn frosts, sharp weather change and droughts. They are meteorological by their genesis, i.e. their occurrence directly depends on climate change.

Kyrgyzstan suffers significant economic damage from natural disasters. According to the MES KR reports, average annual damage for the period 1992-2011 amounted to 0.6 billion USD, or 112 billion KGS⁹. In 2016, economic losses remained at the average annual level of around 0.6 billion KGS¹⁰.

It should be noted that Kyrgyzstan's contribution in increase of greenhouse gases concentrations (GHG), that adversely impact the climate, is relatively small. The inventory findings conducted within the frame of the Third National Communication on Climate Change in the Kyrgyz Republic to the UNFCCC for the period of 2006-2010, showed that the total GHG emissions in 2010, including net emissions in the sector of "Land Use, Change of Land Use and Forestry", amounted to 13,046 Gg CO₂ equivalent, that is a little bit more than 2 ton per person per year. Compared with Kazakhstan's GHG emissions per capita in 2011 were more than 16.7 ton/person¹¹.

Biodiversity. Almost all economic sectors in the country, including social sphere, directly or indirectly depend on biodiversity. It ensures safe sanitary and hygienic condition of environment influencing human health, climate and reproduction of biological resources.

For example, pastures in agricultural sector which retained their original set of plant species, provide the highest fodder value. Pastures overgrazing, and reduction of natural ecosystem areas inevitably degrade the quality of life of people, in general, and local communities, and cause depletion of the resource base meant for economic activity. Because of high economic interest, many biological resources at the gene, species and ecosystem level are currently at risk of modification, damage or loss.

Despite the fact that Kyrgyzstan occupies a relatively small territory (0.13% of the world's land area), it is among the top 200 priority ecological regions of the world. This is attributable to high concentration of diverse species.

The nature of the country's biodiversity depends on high altitude – almost 90% of its territory is above 1,500 m above the sea level, whence, mountain and alpine species prevail.

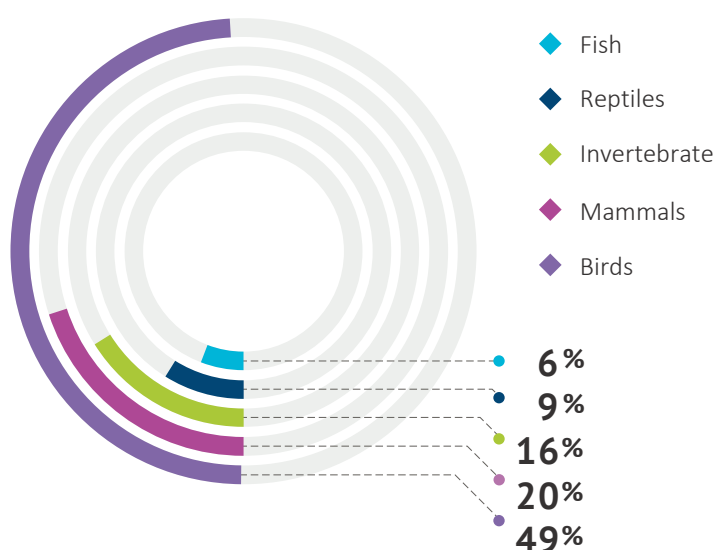
In Kyrgyzstan, in different ecosystems, biodiversity, for the most part, is represented by plants, fungi, vertebrae and protozoans and comprises over 26,500 species.

9 Climate profile in the Kyrgyz Republic. B.: 2013

10 Estimates were performed based on information provided in publication "Monitoring, forecast of dangerous processes and events in the Kyrgyz Republic" (amended publ. 14.), B.: MES KR, 2017

11 "The National Report on Environmental Status in the Kyrgyz Republic for 2011-2014"

Fig 3.1. Distribution of rare and endangered fauna species of the Kyrgyz Republic by main groups



Source: National Report on Biodiversity in Kyrgyzstan 2011-2014.

The majority of the known Kyrgyz fauna species belong to the group of insects- around 14,600 species, with more than 500 of amphibians. There are 618 species of the known vertebrates: fish – 74 species, amphibian – 4, reptiles – 42, birds – 407 and mammals – 91 species.

Land resources degradation and deforestation lead to the loss of biodiversity. Sharp change of habitats and direct removal of plants and animals resulted in 11 species extinction, and endangered and put at risk of extinction several other species. Red Data Book of Kyrgyzstan (2007) includes 207 rare endangered species of animals and plants. Figure 3.1 shows the breakdown of rare and endangered fauna species.

Common reasons for the number and distribution changes for many terrestrial vertebrate species is a widespread reduction of their habitat, number and size of population. For example, habitats of wild sheep and goats have significantly reduced in size, and are currently fragmented. There is a threatening trend of hunted bird and mammal species decline.

Biological diversity suffers both from uncoordinated policy of economic development and poaching. In particular, the Governmental Decree of 2007 defining tourism development areas along the northern coast of Issyk-Kul Lake did not take into account the fact that these areas overlap with the spawning grounds of such endemic species as *chebak*, *chebachok*, *scaleless osman* and *marinka* (Schizothorax), and this has caused their catastrophic population decline. The *scaleless osman* is no longer found, while *marinka* (Schizothorax) is included in the category of endangered species.

Another problem is dispersal of alien invasive species imported to the country without due control; this threatens the survival of local species. Thus, in 1930, 1936 and in 1956, alien trout and pike perch (*Stizostedion*) species were acclimatized in the Issyk-Kul Lake and other water bodies in the country. At that, biological feasibility for the dispersion was conducted without due consideration of ecosystem approach and in-depth analysis; no analysis of the impact of the new occupants on the local fish fauna was carried out either. This led to reduced fish productivity and reduced number of endemics- *chebak*, *chebachok* and *scaleless osman*¹².

12 The Fourth National Report on Biodiversity Conservation in the Kyrgyz Republic, 2008

Currently, the country lacks mechanisms to address alien species. No assessment of risks related to new species introduction is carried out, adventitious species arriving in the country are not recorded. There is a low cross-sectoral integration to address issues of adventitious species¹³.

The relevant SAEPP units perform protective and biotechnical activities, as well as raids and patrols to prevent and identify violations of reservation conditions in order to foster preservation and reproduction of rare and endangered species of flora and fauna.

Pastures represent wide categories of terrestrial ecosystems which are an important biological resource, as they are used for cattle grazing and hay harvesting. Pastures are the backbone of animal husbandry - the most important sector of agriculture – because livestock is the main income-generating source for farmers, who comprise over 2/3 of the country's population.

According to the NSC data, pastures occupy 45% of the total country's territory and 85% of agricultural lands in the country. At that, the pasture areas in use decrease each year due to excessive anthropogenic load, high livestock densities, inappropriate use of pastures resulting in their degradation: there is a sustainable growth of livestock, and stocking rates exceed the norms more than three times¹⁴.

As a result, around 1/3 of grazing areas are currently included in the category of degraded lands in terms of both vegetation condition (weed grass, poisonous and inedible plants) and soil condition. In 2013, yield of grain reduced by over 20% compared to 1980s.¹⁵

Wetlands in the Kyrgyz Republic are represented by rivers, lakes, swamps and artificial water bodies. There are over 100 lakes with a total area of over 66,750 km². The lakes are mostly located at 2,000 meters above the sea level and over.

In 2002, the Kyrgyz Republic acceded to the Ramsar Convention on protection of wetlands, and the largest lakes- Issyk-Kul (1976), Chatyr-Kul (2005) and Son-Kul (2011)- are included in the list of wetlands of international importance.

Forest resources of the Kyrgyz Republic play an important role in ensuring global environmental management processes and preventing negative impact of climate change. Forests deposit carbon, thus reducing GHG accumulation in atmosphere. They are the only natural sinks of carbon dioxide. They grow at the slopes of the mountains, thus putting barriers to mudflows, and preventing landslides and avalanches formation, and regulating water discharge in rivers, ensuring a relatively constant river flow during the year. In this regard, all forests in Kyrgyzstan have ecological value and play ecological, sanitary and hygiene, recreational and other protective functions as stipulated in the Forest Code of the Kyrgyz Republic¹⁶.

Around 90% of the country's forests grow at the altitude of 700 to 2,500 meters above the sea level. According to the National Forest Inventory of the Kyrgyz Republic,¹⁷ the forested area is 1,116.56 thousand hectares, or 5.61% of the total land area.

The forest hosts over 180 types of hardy-shrub species. The forest is primarily represented by four types: fruit and nut, fir and spruce, archa (juniper) and tugai (floodplain) forests.

There is a tendency to forests' aging. The reasons for that are both natural, such as prevalence of ever-ripe trees (typical to fir tree forests), and anthropogenic factors such as cattle grazing in forests. The soft leaved forests, walnut and fruit, pistachio and almond forests suffer from anthropogenic load at its most, as they grow in the regions with high density of population.

Another negative tendency is deforestation which is the result of extensive exploitation

13 The Fifth National Report on Biodiversity Conservation in the Kyrgyz Republic, 2013

14 The Fifth National Report on Biodiversity Conservation in the Kyrgyz Republic, 2013

15 The Fifth National Report on Biodiversity Conservation in the Kyrgyz Republic, 2013

16 KR Law dated July 8, 1999, No. 66

17 KR Government Decree as of July 26, 2011, No. 407

of natural resources by local population. Around 200,000 people reside within the boundaries of forests and totally depend on their resources. Wood is used as cheap or even free firewood and also for construction purposes; these and other factors and lack of alternatives to local wood, push local population to uncontrolled trees felling¹⁸. Forests are also used for cattle grazing, thus limiting their reproduction.

Illegal trees felling has a negative impact on forest ecosystems. Its real scale is unknown due to absence of true statistical data, and monitoring capacities are limited.

Forests protection and reforestation is implemented by SAEPF. Main means of reforestation include new trees' planting. In the period from 2012 to 2015, forestries¹⁹ has annually transformed around 470 hectares into the category of forest of special value²⁰.

Specially Protected Areas (SPAs) – parts of the country's territory (both land and water bodies) containing unique, standard or valuable nature complexes or facilities of special scientific, ecological or aesthetic significance - serve as a core measure for natural ecosystems preservation, reproduction and restoration in Kyrgyzstan. They are under special regime of protection and use.

The SPA network in the Kyrgyz Republic comprises 7.4% of the total country's area and includes 10 state nature reserves, 13 state natural parks, 64 nature sanctuary/*zakaznik* (complex, botanical, zoological and forest), natural monuments, botanic garden named after E. Gareyev (Bishkek) and zoological park (Karakol)²¹.

Sary-Chelek State Natural Park (1979) and the Issyk-Kul Biosphere Reserve (2001) were included into the UNESCO World Network of Biosphere Reserves²².

There is a strong tendency in the country to formally expand SPAs areas, however, many of SPAs are not sufficiently effective in performing according to their established objectives. Challenges for their effective functioning include: outdated methodology and approaches of the protected areas management, biodiversity monitoring and assessment; non-compliance with the established SPA zoning regime; implementation of activities contradicting the SPAs principles; lack of ecotourism development mechanisms; weak material and technical resource base and limited staff capacity²³.

It is necessary to complete zoning of the Issyk-Kul Biosphere Reserve under UNESCO Man and the Biosphere Programme. Lack of zoning according to biosphere principles may result in the loss of its status in the next few years.

In order to resolve the above-mentioned problems, it is necessary to put in place an effective SPA planning and management mechanism, including amending the regulatory and legal acts and revising management plans in line with the International Union for Conservation of Nature (IUCN) recommendations and SPAs objectives. It is necessary to develop and introduce alternative livelihood programmes for both local communities, and SPAs.

The national system of biodiversity monitoring is underdeveloped in Kyrgyzstan. Monitoring is implemented for a limited number of species only; they include populations of five mammals and four bird species, with a set hunting quotas, and seven species of mammals listed in the Red Data Book. The count of numbers of the main hunted species of wild animals and wild species listed in Red Data Book is conducted in hunting entities and SPAs.

Poaching significantly damages populations of animals, in particular, ungulate animals. No

18 Main Causes of Forests Degradation and Deforestation in Kyrgyzstan. Bishkek, IEM "Biom", 2001

19 Leskhoz – subordinated to SAEPF structures managing State Forest Fund.

20 Environment in the Kyrgyz Republic, KR NSC, B., 2016

21 SAEPF data

22 Legal basis for creation and functioning of biosphere territories in the Kyrgyz Republic defined by the KR Law «On biosphere territories in the Kyrgyz Republic», June 9, 1999, No. 48

23 Priorities to conserving biological diversity in the Kyrgyz Republic for the period until 2024 (NBSAP)

reliable statistics on the number of illegally hunted animal species, including the ones listed in the Red Data Book, is available. Lack of this statistics, or any estimates is due to weak and ineffective public monitoring system of biodiversity, and its poor enforcement.

Certain biodiversity observations are carried out by NGOs and academic institutions, however, due to lack of financing this activity is not regular and lacks follow up observations.

3.2. Environmental Legislation. International Conventions and Protocols

Fundamental environmental principles are enshrined in the Constitution of the Kyrgyz Republic, which stipulates the right for each citizen to a healthy and safe environment and the right to receive compensation of damage caused to a person's health; they are recognized as fundamental human rights by the world community (article 48).

In order to ensure these principles, the Kyrgyz Republic adopted and is implementing the body of environmental laws which regulate a wide range of legal relations associated with environmental protection and biodiversity conservation.

First of all, it provides the framework for conservation and rehabilitation of the most important species of flora, fauna, ecosystems and landscapes to the level of sustainable reproduction, for maintenance or restoration of populations of species in their natural environment (in-situ), and for conservation of all components of biodiversity outside their natural habitat (ex-situ).

This legislation sets up the requirements for environment protection when implementing economic or any other activity; procedures for the use of natural resources, norms and depletion quotas. It also defines types of environmental offenses, liability and accountability for committing them.

The Law of the Kyrgyz Republic "On Environment Protection" is a fundamental legal instrument in the sphere of environment protection and land use. This law establishes the legal framework for environmental policy and legal relationships in the sphere of use of natural resources and environment protection. Among other, this law sets up legislative framework for environmental financing.

The Forest Code of the Kyrgyz Republic establishes the legal framework for rational use, protection and regeneration of forests, improvement of their environmental and resource potential and rational use.

The Land Code regulates land tenure in the Kyrgyz Republic, the procedures of inception, implementation and termination of the rights to land, and their registration, and also aims at establishing land and market relationships under state, municipal or private land ownership, its rational use and protection.

Law of the Kyrgyz Republic "On Flora Protection and Use" aims at rational using of flora. It establishes a fee-charging mechanism for natural vegetation usage: harvesting, gathering of medicinal, technical and edible wild plant raw materials; the use of soil-conservation, soil-forming, water-protective and other properties of natural vegetation; the use of natural vegetation for recreation and tourist purposes.

The Law of the Kyrgyz Republic "On Fauna" establishes legal relationships in the field of protection, use and reproduction of fauna. Fauna species in the country are owned by the state.

The Law of the Kyrgyz Republic "On Hunting and Hunting Industries" is the normative act regulating relations in the field of protection, reproduction and use of hunting resources and their habitat for hunting, and hunting business.

The Law of the Kyrgyz Republic "On Specially Protected Areas" regulates relations in the

sphere of SPAs organization, management, protection, use and control in order to preserve standard and unique nature complexes and facilities, natural formations, animal and plant genetic resources, as well as to study biosphere natural processes and monitor changes in the status of biosphere. Within the SPAs, the law prohibits any actions that leads to deterioration or depletion of natural resources and facilities, or violates their state protection regime.

Law of the Kyrgyz Republic *“On Biosphere territories in the Kyrgyz Republic”* provides the legal basis for the creation and functioning of biosphere territories established in order to preserve, restore and use areas of natural and cultural heritage.

Furthermore, there is another unique special environmental law regarding the Issyk-Kul Biosphere Reserve which was established as a set of international legal instruments (UNESCO) in line with the national priorities. This legislation contains directly applicable laws that, like some others, are not enforced due to multiple judicial contradictions resulting from uncoordinated amendments to the law. Among these, in particular, is the Law of the Kyrgyz Republic *“On Sustainable Development of Ecological and Economic System of Issyk-Kul”* dated August 13, 2004.

The current programmes approved by the President and the Government are not taken into account when developing new strategic programs. In particular, these may include the *Concept of Sustainable Development of Ecological and Economic System of Issyk-Kul until 2020* (Presidential Decree No. 98 of 10.02.2009, approved by the Kyrgyz Government Resolution No.281 dated 08.09.2009).

The Issyk-Kul Biosphere Reserve, located within one province, occupies 22.5% of the country's total area. This region is rich in biological species, ecosystems, endemics, endangered species, species listed in the Red Data Book of Kyrgyzstan and international IUCN classification.

The law of the Kyrgyz Republic *“On Environmental Expertise”* was adopted to prevent possible negative effects on human health and environment due to planned economic or other activities, which is the goal of environmental expertise; in addition to the mandatory state environmental expertise, there is public environmental expertise, though the latter is not a mandatory procedure. The positive conclusion/report of the state environmental expertise is one of the essential conditions for financing, crediting or investing in the planned activity.

Environmental impact assessment (EIA) is a mandatory procedure, and an integral part of the project document development at all stages. The project proponent is responsible for the EIA delivery and its submission to SAEPP for the state environmental expertise.

There are continuous efforts to improve legislation, though it does not fully comply with or the modern requirements or international standards yet.

Due to lack of efficient implementation mechanisms and insufficient environmental financing, normative and legal acts on environment protection and biodiversity conservation are not properly enforced. A number of NLAs contain contradictions or duplication of provisions. It often happens that the national law regulations or mechanisms become invalid or lose their legal force being outweighed by the relevant provisions of international law.

Despite the fact that biodiversity conservation is stipulated in the national law, there are serious discrepancies regarding this issue throughout the entire legal system. For example, according to the Kyrgyz Law *“On Biosphere Territories”*, they are considered specially protected areas, but the Kyrgyz Land Code with a higher legal status, and the National Land Cadaster do not provide for such regime in the said areas. This resulted, among others, in failure of the Biosphere Reserve Issyk-Kul zoning in line with biosphere zoning principles, when clear boundaries of core, buffer, transition and sanitary zones are identified according to the UNESCO requirements for such territories to be included in the Global Network. Legal norms on transboundary biosphere

reserves and ecological networks development are also lacking. All this hinders proper SPAs functioning.

The Kyrgyz Republic signed and ratified the following **14 international environmental conventions and 4 protocols to them**:

- Convention on Biological Diversity (1996), including:
 - Cartagena Protocol on Biosafety (2005);
 - Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity (2015).
- Ramsar Convention on Wetlands of International Importance especially as Waterfowl Habitat (2002),
- Convention on International Trade in Endangered Species of Wild Fauna and Flora (SITES) (2006),
- Bonn Convention on the Conservation of Migratory Species of Wild Animals (2013),
- United Nations Convention to Combat Desertification in Those Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa (UNCCD) September 12, 1994 (1999),
- UN Framework Convention on Climate Change (UN FCCC) and Kyoto Protocol (2000),
- Aarhus Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters (2001).

Kyrgyzstan also ratified other international environmental instruments which to some degree address issues of biodiversity and climate change.

Ministry of Agriculture, Processing Industry and Land Reclamation is responsible for implementing the Convention to Combat Desertification; SAEPF²⁴ is in charge of all the remaining Conventions.

Pursuant to all Conventions, Kyrgyzstan submits the relevant country reports and communications with information to the relevant Convention Secretariat on implementation of its obligations within the Conventions.

In 2016 Kyrgyzstan, within the framework of the UNFCCC, has signed *Paris Agreement on Climate*²⁵ which stipulates measures to reduce carbon dioxide emissions starting from 2020. Signing Paris Agreement enables economically weak or vulnerable countries, like the Kyrgyz Republic, to have an access to climate foundations aiming at adaptation to negative effects or natural disasters, and low-carbon development through reduction of GHG emissions.

Within the framework of its obligations under international conventions, the country is implementing a number of international projects focused on environment al protection and rational use of natural resources. Thus, with the support of the Global Environmental Facility (GEF) Kyrgyzstan has implemented more than 20 international projects.

24 GovKR Resolution as of January 16, 2006, No. 13-p

25 GovKR Resolution, June 29, 2016, No. 297-p

3.3. Summary of Visions and Strategies in the area of Environment, Biodiversity and Climate Change

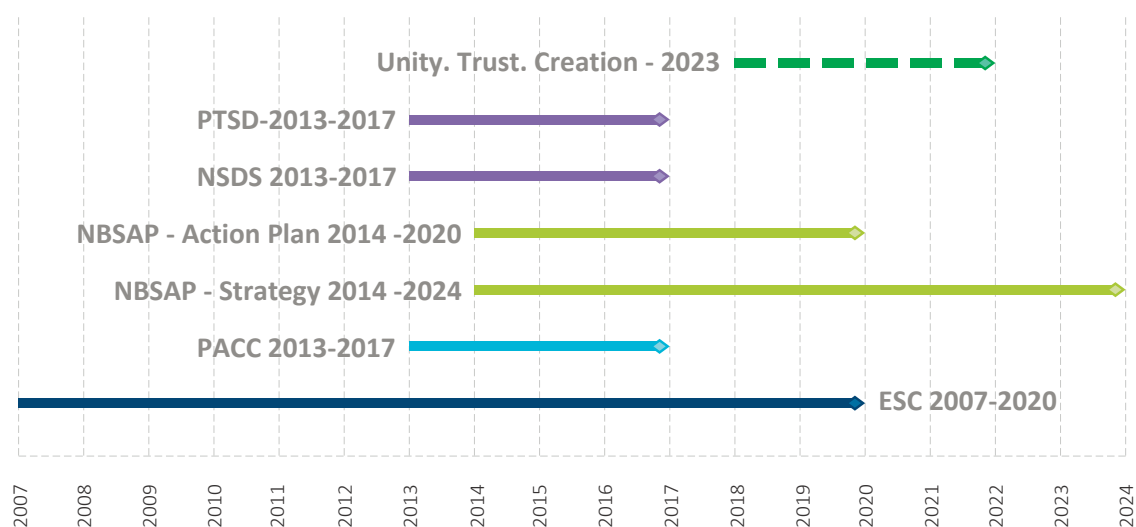
The development and implementation of unified state policy in the sphere of environmental safety and protection is planned within the framework of approved national and sectoral strategic documents on environment al protection, biodiversity conservation and adaptation to climate. It is highlighted that the economic policy should be oriented on rational use of natural resources and increased productivity.

A set of strategic documents defining state policy in the area of environment protection, biodiversity conservation and climate change includes the following national and sectoral documents (Information on their validity, please see Fig. 3.2):

The national strategic documents:

1. The National Sustainable Development Strategy of the Kyrgyz Republic for 2013-2017 (NSDS-2017)¹.
2. The Program of Transition to Sustainable Development of the Kyrgyz Republic for 2013-2017 (PTSD-2017)².
3. The Government program of the Kyrgyz Republic “Unity. Trust. Creation” until 2023.

Figure 3.2. Validity of strategic documents, including instruments on environment, climate change and biodiversity.



Sectoral strategic objectives in the area of environment protection, biodiversity conservation and climate change are stipulated in the following documents:

1. The Environmental Safety Concept of the Kyrgyz Republic until 2020 (ESC-2020)³.
2. Priority Directions of Adaptation to Climate Change in the Kyrgyz Republic until 2017⁴.
3. Biodiversity Conservation Priorities in the Kyrgyz Republic for the period until 2024 (NBSAP – Strategy- 2024) and Action Plan for 2014-2020 (NBSAP – Plan 2020)⁵ (at the time of the Review were under development).

1 Kyrgyz President Decree No. 11 of 21 January 2013,
2 GovKR Decree No. 218 of 30 April 2013,
3 Kyrgyz President's Decree No. 506 of 23 November 2007
4 GovKR Decree No. 549 of 2 October 2013
5 GovKR Decree No. 131 of 7 March 2014

3.3.1. The National Strategic Documents

Kyrgyzstan pursues sustainable development goals, and makes the relevant provisions in the **National Sustainable Development Strategy for 2013-2017 (NSDS-2017)** and the Programme on Transition to the Sustainable Development for **2013-2017 (PTSD-2017)** which stipulate environmental stability as one of the components alongside with economic development and social equality.

According to the NSDS, in a long-term perspective, the strategic vision for Kyrgyzstan is to become a strong and independent state among the advanced countries, comfortable for all, ensuring the rights, freedoms and safety of citizens, with a friendly and multilingual environment, ensuring compliance with the law, having a high level of education, healthy environment, social stability, international image of a successful country, sustainable economic growth and high attractiveness to investors.

Economic growth and the country's economic structure are primarily based on extensive technogenic and nature-consuming development. In this respect, the country is totally depending on the natural ecosystems' state. Transition to sustainable development makes it necessary to include environmental factors in the system of socio-economic development indicators. Environmental factors in decision-making are underestimated due to the fact that the costs related to management of natural capital (the so-called balance of natural resources to include their use (outflow) and economics of environmental degradation) are not reflected in traditional economic development indicators.

The Program of Transition to Sustainable Development of the Kyrgyz Republic (PTSD) was adopted by the Kyrgyz Government to implement NSDS, which assigns sustainable development tasks to the ministries and agencies within the same development parameters.

The PTSD notes that currently economic growth in the Kyrgyz Republic is achieved through uncontrolled use of significant natural resources, and that over 75% of the country's area is at high risk of natural capital degradation. Neglecting obsolescence of natural capital leads to environmental degradation and unsustainable development in the country.

The PTSD objectives are implemented through annual development plans of the Government of the Kyrgyz Republic.

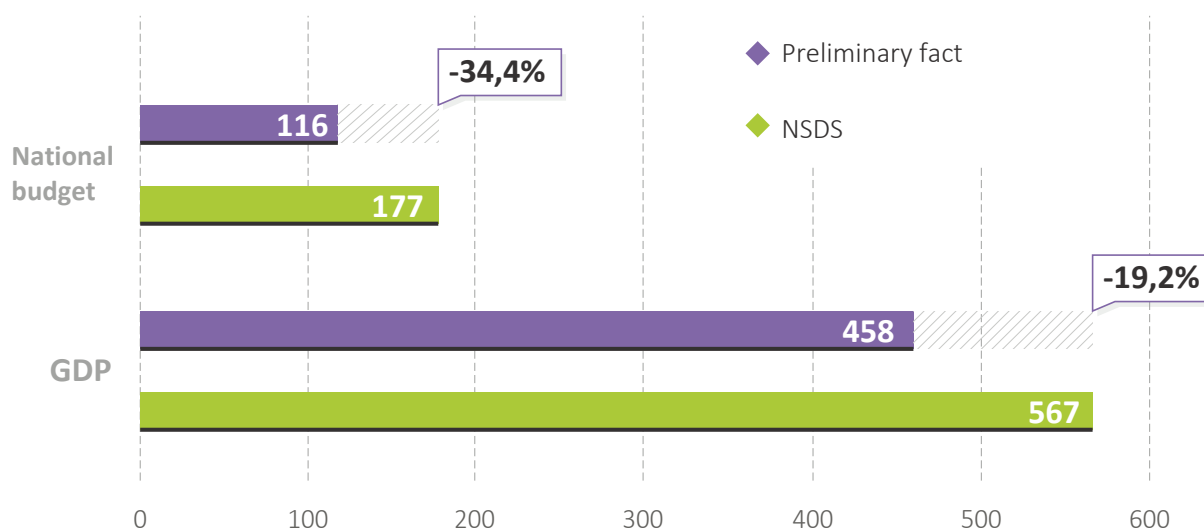
One of the PTSD objectives is to preserve environment that is conducive to human life in the context of economic growth. In order to achieve it, a number of tasks and measures in the following priority areas are identified: (i) to reform the state environmental protection and natural resource management system; (ii) to reduce hazardous impact and minimize negative environmental effects due to economic activities; (iii) to preserve biodiversity and restore natural ecosystems in a changing climate; (iv) to promote principles of low-carbon development.

The NSDS and PTSD economic policy implementation should have led to the stable and sustainable economic growth, including through ensuring environmental sustainability; the budget should have become balanced, and inflation should have been predictable; and Kyrgyzstan should have stopped to be considered a poor country. Expectations were made that the GDP annual average growth rate would be at least 7%; and GDP per capita would increase by a factor of 2 – from USD \$1,200 in 2012 to USD \$2,500 in 2017. However, these programs provide no data on the expected changes in the quality of life of people resulting from the planned development.

Nevertheless, Kyrgyzstan failed to maintain the set parameters of economic development. Eventually, in 2016, incomplete PTSD activities accounted for approximately 20% of GDP, and GDP per capita decreased and reaches USD \$ 1,133. The forecasted budget expenditures were

not implemented at over 34% (See Fig. 3.3); and the expected overall shortfall for 4 years of PTSD implementation equals the amount of annual budget.

Figure 3.3. Projected NSDS compared with actual 2016 data, billion KGS, %



Source: NSDS, NSC, MF, own calculations

The national strategic documents in the area of sustainable development stipulate that transition to sustainable development makes it necessary to include environmental factors in the system of economic development indicators; it is also necessary to introduce different 'green' development elements. However, preliminary assessment of the national documents' implementation shows that only regular, routine activities are implemented as they do not need any additional financing, for example, law-making activities, as well as activities that receive financial and technical support within the framework of GEF, UNDP, GIZ and other projects. Important measures in the field of environmental protection, adaptation to climate and biodiversity conservation, and monitoring schemes in these spheres, were not completed either.

One of the reasons for that is a low level of the government financing on environmental activities – around 0.5% of the national budget expenditures. Moreover, mainstreaming of the relevant environmental priorities in the plans and budgets of other sectors is low. Implementation of NSDS and PTSD was completed in 2017. Effectiveness of these programmes' implementation, as well as environmental components, will be subject to evaluation.

In order to identify the vector for further development, the national strategic instruments for the country's development up to 2023 and 2040 are being developed. One of the new documents is the Programme of the Government of the Kyrgyz Republic for 2018-2023. It is developed based on targeted-programme approach in meeting strategic development objectives.

The Government program of the Kyrgyz Republic "Unity. Trust. Creation" until 2023 determines the key directions for the sustainable development in the country.

The program formulates the following goals for the mid-term development of the country.

1. The economic well-being of the people, including sustainable jobs, stable incomes, export potential and the development of the country's regions.
2. Social well-being, including health and education of the population, social equality and a strong family institution, cultural revival.

3. Security and a favorable environment for the life of citizens, the main components of which are public order, patriotism and environmental safety.

The environmental safety component, being an integral part of the country's sustainable development goals, provides for the following priority areas of the country's government activities:

- formation of a long-term vision of national measures to prevent climate change consequences and enhance climate resilience, implementation of measures to adapt to climate change. One of the elements of this vision will be the Forest and Biodiversity Adaptation Program, which will propose a set of measures to involve the international community in the conservation and restoration of natural land.
- ensuring the environmental sustainability of the country. This direction, among others, includes such measures as the introduction of strict environmental requirements in the implementation of investment projects, the conservation of the country's unique ecosystems, the promotion of green technologies (through customs duties, green purchases, green investments, the introduction of standards and procedures for eco-labelling of products), the development of measures to optimize potentially harmful biodiversity subsidies, the introduction of beneficial subsidies to biodiversity, and the development and implementation of other financial mechanisms for biodiversity conservation
- restoration of natural ecosystems of Kyrgyzstan through the afforestation of the territory of Kyrgyzstan.

Particular emphasis in the document is given to maintenance and strengthening of democratic framework, development of socio-economic system, digital transformation, regional development, environment protection.

Sustainable Development Goals (SDGs). The Government of the Kyrgyz Republic is adapting SDGs to the national context. Aiming at ensuring institutionalization of SDGs adaptation and their further mainstreaming in the national programme documents, the Coordination Committee on adaptation, implementation, and monitoring of SDGs till 2030 in the Kyrgyz Republic with a mandate to implement SDGs was established.

Based on the results of SDGs adaptation to the national context, conceptual recommendations will be developed to be included in the strategic development document that will also contain new goals and objectives, timeframes, target indicators, pilot projects. Adoption of this document will serve as a road map on mechanisms of SDGs' integration into the national policy frameworks.

3.3.2. Sectoral Strategic Documents

Principles of the national environmental policies aiming at ensuring sustainable development are inherent in the Environmental Safety Concept of the Kyrgyz Republic till 2020 (hereinafter referred to as ESC) that was adopted in 2007. One of the basic trends to ensure environmental safety is 'greening' of economy through integration of environmental aspects into sectoral policies, and sustainable consumption of natural resources.

The ESC covers a wide spectrum of environmental issues, including problems of global climate change and biodiversity conservation. The document provides general recommendations on their solution. At that, recommendations on adaptation to climate change involve reduction of GHG emissions in energy sector and reforestation activities. Measures to preserve biodiversity focus on the SPAs development, biodiversity monitoring and improvement of legislation.

General recommendations aim at creating a comprehensive system of environmental safety. Thus, there is a need to integrate environmental and economic indicators in the government

pricing system for different products and services, and internalization of environmental costs into the price structure.

The main instruments in the public environmental policy include mandatory environmental expertise and environmental impact assessment. There is a need to introduce procedures for accounting parameters related to restoration and carrying capacity of ecosystems in the process of socio-economic development planning in the country.

This document stipulates that the use of natural resources should be performed on a chargeable basis, including on the polluter-pays principle, and environmental damage should be repaired. It is also necessary to improve environmental legislation, and law enforcement practices in all spheres, including permitting and monitoring systems. Furthermore, a meaningful environmental monitoring is of the utmost importance.

The Concept offered a number of financial solutions, such as ‘greening’ the tax system that will include a single pollution tax; formulation and implementation of tax, customs and tariff policies that will firstly encourage economic reorientation from the export of primary products towards the production of high-value and ultra-processed products; and secondly, use and import of environmentally clean technologies, goods and services. It is recommended to use international mechanisms, such as debt-for-environment swap, clean development, carbon credits and others. At that, ensuring environmental safety plays a pivotal role to justify theoretical and technological frameworks for transition to sustainable development.

Adequate environmental budget financing being one of the country’s priorities is essential for ensuring environmental safety. A critical requirement aiming at ensuring environmental safety is *adequate budget environmental financing being one of the country’s priority activities*. Environmental researches shall be also funded from the budget based on public procurement principles.

As a result of ESC implementation, the country should achieve environmental improvement and sustainability by 2020.

In its content, ESC is a document of high quality addressing all key aspects of the country’s ‘green’ development. However, currently this document is not taken in consideration when formulating public policy. One reason for this is that the majority of the goals were not achieved during initial stages of ESC implementation. For example, not a single financial solution was implemented. Moreover, not all of the ESC ideas were reflected in the NSDS and the PTSD. Another reason for this is that public administration system is oriented on economic priorities implementation, leaving behind issues of environmental management or integrated public governance for sustainable development.

In this regard, it is feasible to continue implementation of the relevant ESC recommendations within the future strategic documents for sustainable development after the review of accomplished tasks and achieved results is conducted.

Principles and major activities in the area of biodiversity conservation in the Kyrgyz Republic are defined in the national strategy and action plan on biodiversity conservation entitled the **National Biodiversity Conservation Priorities in the Kyrgyz Republic for the period until 2024 and Action Plan for their implementation for 2014-2020 (NBSAP)**⁶.

The main idea of the priorities is biodiversity conservation and its efficient use in the Kyrgyz Republic aiming at achieving sustainable socio-economic development. The Action Plan on its implementation includes comprehensive stage-by-stage measures focused on biodiversity conservation in the Kyrgyz Republic. Based on the needs and priorities in the Kyrgyz Republic, the document identifies 4 strategic objectives, 13 tasks and 77 activities to achieve them.

6 GovKR Regulation as of March 17, 2014, No. 131

The priorities provide the reasons for species diversity reduction in the Kyrgyz Republic, including fragmentation of habitats and reduction of the total area of habitats, as well as biocenological changes due to anthropogenic impact. Biodiversity management gaps, including insufficient knowledge regarding the role of the fauna species in ecosystems functioning and support to their stable welfare, lack of regular and systematic inventory and monitoring of species, or their incompleteness were also described.

Currently the review of the priorities and the action plan is in progress. The review was initiated because the priorities did not adequately reflect the tasks of the Strategic Plan for biodiversity conservation and its sustainable use for 2011-2020, as well as the Convention on Biological Diversity, and the objectives related to the Sustainable Development Goals (SDG 15).

Moreover, due to inadequate funding, some of the activities were not implemented or couldn't meet their deadlines. It particularly refers to the activities that fall outside the scope of annual plans of various ministries and agencies. Many action plan activities are unfunded or not included into the Budget Law. For instance, establishment of new SPAs in 2016 was not supported by financial (capital or current) resources. Conversely, the regulatory and legal acts provide for their funding within the 'current budget allocations', which means high competition for allocated resources, and may result in deterioration of SPAs' functioning in general. Activities financed by development partners under international projects, in particular, UNDP-GEF projects are implemented in the most comprehensive way.

Lack of clear performance indicators to assess implementation of the action plan makes it impossible to evaluate the dynamics of biodiversity in the country.

Inadequate implementation of the national strategic documents related to biodiversity conservation is a persistent problem. The Fourth and the Fifth National Reports on Biodiversity conservation⁷ that provide an assessment of the 2002-2006 Biodiversity Conservation Strategy implementation, illustrate this.

The National Strategy for Preservation of the Snow Leopard in the Kyrgyz Republic for 2013-2023⁸ and its **Action Plan⁹** were developed aiming at preservation and restoration of the snow leopard population. Implementation of **the Global Snow Leopard Ecosystem Protection Program (GSLEP) till 2020¹⁰** aiming at further strengthening of ongoing efforts of twelve snow leopard range states, and promoting transboundary cooperation regarding these issues throughout its habitat is under way.

Priorities for the Conservation of Wetlands of the Kyrgyz Republic in 2023 and its **Action Plan for 2013-2017¹¹** were adopted and are in progress; their main objective is to preserve wetlands of the world importance, and increase the water bird population in the Kyrgyz Republic.

Concept of Forestry Development till 2025¹² determines the forestry development strategy, and ensures the relevant environment for forest preservation, enhancement and efficient management, and sustainable development of the forest sector. In 2017, the development of the new Concept for Forestry Development till 2040 has started.

The development and implementation of **the System of Environmental-Economic Accounting in the Forest Sector** is under way. Information on actual cost of ecosystem services and integration of ecosystem services in the country's strategic planning will ensure more effective evidence-based decisions.

7 Kyrgyz Republic, in line with its obligations within the Convention on Biodiversity, provides it's regular reports.
8 GovKR Decree, October 19, 2012, No. 732
9 GovKR Resolution, August 05, 2013, No. 320-p
10 Adopted as a result of Global Forum on Snow Leopard Protection, Bishkek, 2013.
11 GovKR Decree, October 18, 2013, No. 569
12 GovKR Decree, April 14, 2004, No. 256

The Program to Develop Fruit & Nut Species in the Kyrgyz Republic till 2025¹³ is implemented aiming at preserving rare species, grown in regions with significant population.

Considering new challenges and problems associated with the global climate change, **Priorities for Adaptation to Climate Change in the Kyrgyz Republic till 2017¹⁴** were developed to include adaptation measures in the key sectors: water resources, agriculture, public health, emergencies, forest resources and biodiversity.

This document is considered as the first step in the establishment of the comprehensive planning system and adaptation measures implementation. The document mission is to establish the national policy for resources mobilization in order to minimize negative risks and achieve the country's sustainable development.

In order to implement the objectives and tasks of the Priorities for Adaptation to Climate Change till 2017, the ministries and agencies have developed **sectoral adaptation programmes**:

1. *The Climate Change Adaptation Programme and Action Plan for 2015-2017¹⁵ for the Forest and Biodiversity sector.* This document addresses the issues of adaptation based on ecosystems, and its measures focus on strengthening ecosystem management providing a wide spectrum of social benefits.

2. *The Climate Change Adaptation Programme and Action Plan for 2016-2020¹⁶ for Agriculture and Water Management sector.* The program objective is to reduce vulnerability of agriculture and water management sector associated with the climate change; and to develop adaptation measures for the sector. Given that the sector is already having losses (460 million KGS in 2010), the programme objectives focus on increasing resilience in agriculture to climate change through improving crops and animal production via preventive measures mitigating effects of the global climate change.

3. *The Climate Change Adaptation Programme and Action Plan for 2011-2015¹⁷ for the Health sector.* This programme includes the health sector responses aiming at adaptation to climate change. It was observed that circulatory and respiratory diseases' occurrence depends on climate and meteorological factors. The sectoral program includes action plan aimed at ensuring public health protection from negative effects of climate change, and establishment of conducive environment.

4. *Programme on Adaptation to Climate Change in the 'Emergency Situations' Sector for 2015–2017¹⁸.* It is noted that the annual direct damage caused by emergencies is USD \$30-35 million, complete damage (including indirect) is several times higher. These documents, *inter alia*, include preventive, emergence recovery, engineering and other activities.

Follow-up strategic documents regarding climate change adaptation are planned for implementation in 2018. SAEPF together with international agencies develops project proposals to be submitted for consideration to the Green Climate Fund. The draft *Low Greenhouse Gas Emission Development Concept till 2050* is pending approval.

In 2017, **the Concept for Organic Farm Production Development in the Kyrgyz Republic for 2017-2022¹⁹** was adopted; its objective is to create conducive conditions for organic farming

13 GovKR Decree, June 2, 2014, No. 293

14 GovKR Decree «On approval of priority directions on adaptation to climate change in the Kyrgyz Republic until 2017», October 2, 2013, No. 549

15 KR SAEPF Directive, April 17, 2015, No. 01-9/110

16 KR MAPILR Directive, March 27, 2014, No. 73

17 KR MH Directive, October 31, 2011, No. 531

18 Approved by the Order No. 692 of 07.07.2015 of the Minister of Emergency Situations

19 GovKR Decree, August 2, 2017, No. 459

development²⁰ through improvement of regulatory and legal framework, as well as other measures that facilitate the organic farming development, and enhance competitiveness of organic products.

Organic farming is implemented based on initiators' own resources, as well as donor and international organization resources, without any direct funding from the government budget. Mechanisms for economic support and development of organic industry are not defined either.

Currently, Kyrgyzstan attaches great importance to the development of tourism, and in 2016, **the Government's Program for Tourism Development till 2020 in the Kyrgyz Republic**²¹ was adopted; it stipulates that the sphere of tourism in the Kyrgyz Republic shall be environmentally oriented, and develop based on the relevant environmental requirements. However, excessive and uncontrolled flow of tourists may often have a negative impact on the environment, and cause the reduction of biological and cultural diversity.

In 2015, the Government's **Program for Energy Saving and Energy Efficiency Policy Planning for 2015-2017**²² was approved. The key programme objective is to achieve GDP growth without significant growth in fuel and energy resources consumption through strengthening energy saving measures in production, transportation and consumption of energy resources.

Among the regional programmes, the Concept for Sustainable Development of the Ecological and Economic System of Issyk-Kul (2009-2020) should be noted; the concept includes four key development priorities in this region, whose administrative boundaries coincide with those of the Issyk-Kul Biosphere Reserve.

This Concept defines clear development priorities in the region, as well as frameworks and limitations that are intended to efficiently preserve biological diversity without hampering economic development in this area. The priorities include tourism, agriculture, energy and integrated management both at the government (province/province administration) level, and environmental authority level that has the UNESCO international status (General Directorate of the Issyk-Kul Biosphere Reserve).

3.3.3. General Characteristics of Strategic Documents

The set of strategic documents in the Kyrgyz Republic, covering the key areas of environment protection, biodiversity conservation and climate change, have a number of shortcomings which do not allow to describe the public policy in these spheres as an effective one.

Large number of divergent strategic documents in the same sphere declared a large range of priority areas, objectives and tasks; however, these documents' action plans do not address the defined goals and objectives.

Given that these documents were developed independently, there is a lack of synergy among the defined tasks and the planned activities.

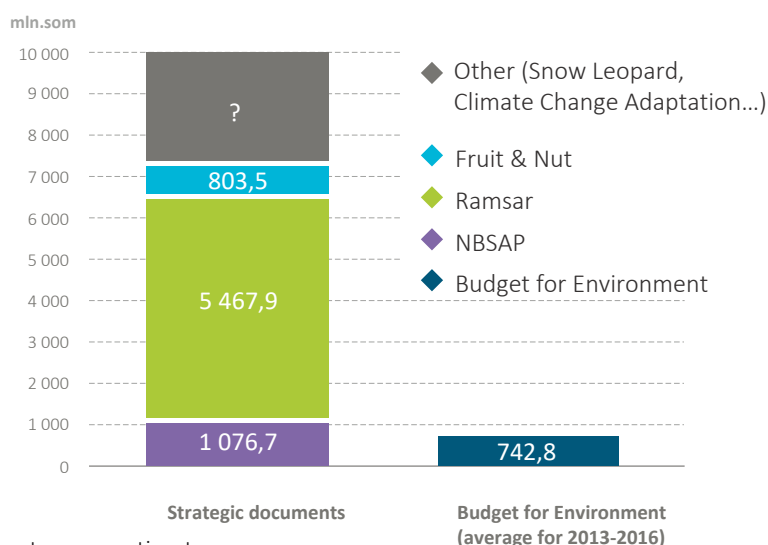
Moreover, since each action plan is funded from the state budget, there is a competition for funding among the documents.

20 Organic farming is a form of agriculture where farmers deliberately minimize the use of mineral fertilizers, synthetic substances, pesticides, growth regulators and feed additives.

21 GovKR Decree, April 11, 2016, No. 192

22 GovKR Decree, August 25, 2015, No. 601

Figure 3.4. Funding needs for the main strategic documents related to biodiversity conservation, and average annual environmental budget (2013-2016)



Source: strategic documents, own estimates

Thus, the total funding of at least 7,348.1 million KGS for strategic documents related to environment, biodiversity and adaptation to climate change (excluding documents without the developed or published financial plan) far exceeds the budget capacities. However, annual environmental budget for the past 4 years was 742.8 million KGS (see Fig. 3.4), out of them over 85% were current expenses, therefore, available funds for strategic activities implementation could be no more than 150 million KGS (2016). Eventually, the strategic documents do not have a full-scale financial support.

Analysis of strategic documents shows that activities included in the current agenda of agencies that do not require any additional funding, or the activities that were technically or financially supported by the development partners, are the only ones that are being implemented.

Interagency coordination is practically lacking, integrated budget of the relevant agencies is not taken into account, either, within the process of environmental policy development or implementation. The authorized environmental agency is responsible for implementation of strategies related to environment, biodiversity and climate change. Responsibilities of other public authorities with similar functions are vaguely set. Environmental issues are not reflected in the strategic documents or budgets in other sectors, such as agriculture, energy, mining industry and tourism.

Therefore, it is necessary to revise the strategic documents in the sphere of environment protection, biodiversity conservation and climate change taking into account financial constraints, and developing strategies of extrabudgetary fund-raising. The same principle shall apply to new sustainable development strategies and programmes. Due attention should be paid to integration of environmental component into other sectors of economy (agriculture, energy, mining industry) as a priority option.

3.4. Conclusions

1. The environmental degradation in Kyrgyzstan continues primarily due to economic entities performance, including agricultural, and urban development. All this results in a serious air pollution due to emissions from stationary sources and the road transport, land degradation, domestic solid wastes accumulation, increasing number and scale of natural and man-made disasters.

Climate change in Kyrgyzstan, in general, coincide with the global trends. Temperature increase affects all country's ecosystems: they are degrading and many of them may disappear. Kyrgyzstan bears significant financial losses due to emergencies which are the direct effect of climate change. However, the country's contribution to the human-induced causes of climate change at the global scale is relatively small.

The state of biodiversity is getting worse. The evidence of this fact is land degradation and deforestation. The situation is aggravated due to dispersal of alien invasive species imported to the country without due control.

2. The Kyrgyz current regulatory and legal framework covers almost all aspects of environment protection, biodiversity conservation and climate change. However, the analysis shows that many laws have never been implemented due to lack of implementation mechanisms clearly set in bylaws. The majority of bylaws are narrow departmental, which hinders implementation of legal provisions in full. A number of regulatory and legal acts have some contradictions or duplicate each other.

Therefore, it is necessary to improve environmental legislation to address the deficiencies. In order to achieve that, it is necessary to consolidate the findings of the review of the regulatory and legal framework; conduct an additional review/analysis, if required; draft the necessary regulatory and legal acts and secure their adoption.

3. The environmental strategic documents mentioned above in this section and their action plans are not harmonized with each other, suffer from lack of funding from the national budget and depend on donor support. They need revising based on appropriate priority tasks and measures, and the country's financial viability.

It is necessary to identify and implement financial mechanisms, that will, firstly, allow to mobilize financial resources from different sources, and secondly, will allow to make savings through reduction of environmental pressures.

4. SECTORAL LINKAGES AND ENVIRONMENTAL DRIVERS WITH A FOCUS ON BIODIVERSITY AND CLIMATE CHANGE

In the context of BIOFIN, the term ‘drivers’ is used to describe the main causes of environmental change. The drivers explain how the established social systems, institutions or people function, and include the features of economic activity, social behavior and preferences, technological development, policies and management. Collectively, several drivers lead to changes that may be observed in ecosystems, and at a wider level, in environment in general.

This section describes linkages and interaction between economic sectors that are considered priority industries within the sustainable development policies, and the environment with a focus on biodiversity and ecosystems. Ecosystem services offer multiple nature benefits to the society.

Ecosystem services support economic activity and directly influence the results of economic activity in many economic sectors through:

- **raw materials** – ecosystems’ raw materials, including food, fiber, fuel, fresh water and genetic resources are used in many production processes;
- **processes** – the main economic sectors depend on natural processes, such as pollination, water, air, climate management, pest and disease control – everything that affects production, processing and services provision;
- **capital** – ecosystem services support natural capital with many types of economic activities depending on it. It includes assets, such as soil and water that make a basis for production, and represent cultural values (landscape and wildlife to be used to facilitate tourism, recreation, culture and health improvement);
- **working environment** – the society needs ecosystem services in order to maintain health, prevent natural disasters and ensure viable, resilient environment.

Alongside with essential services provision, biodiversity and associated ecosystems create employment opportunities. Recognition of benefits offered by nature gives rise to enhanced political interest, and provides an opportunity for additional support to biodiversity conservation through identifying common goals among other strategic policy programs.

This section identifies main risks and opportunities for environment and biodiversity in terms of economic perspective, disaggregated by priority sectors within the national sustainable development policy.

4.1. Economic and Social Trends in the Kyrgyz Republic

The area of the Kyrgyz Republic is around 199.9 thousand sq. km. Almost 90% of the country’s area is over 1,500 meters above the sea level. According to the NSC KR, the resident population is 6,140.2 thousand people, as of January 1, 2017. More than 1/3 of the population (33.8 %) resides in urban settlements, and around 2/3 of the population (66.2 %) resides in rural settlements²³.

The most densely populated regions are Chui province and Bishkek city with almost 1/3 of the population (over 80 people per 1 square kilometer). Kyrgyzstan is characterized by harsh natural environment and fragility of mountain ecosystems. Prevalence of broken relief creates particular condition for the majority of people to reside at the foothills, in valleys and plains.

Economic performance of Kyrgyzstan showed an upward trend during last 4 years which proves positive trends compared to 2010-2013 figures. The GDP dynamics is an evidence to that (see Table 4.1).

Table 4.1. Gross Domestic Product and its dynamics, 2000, 2010-2016

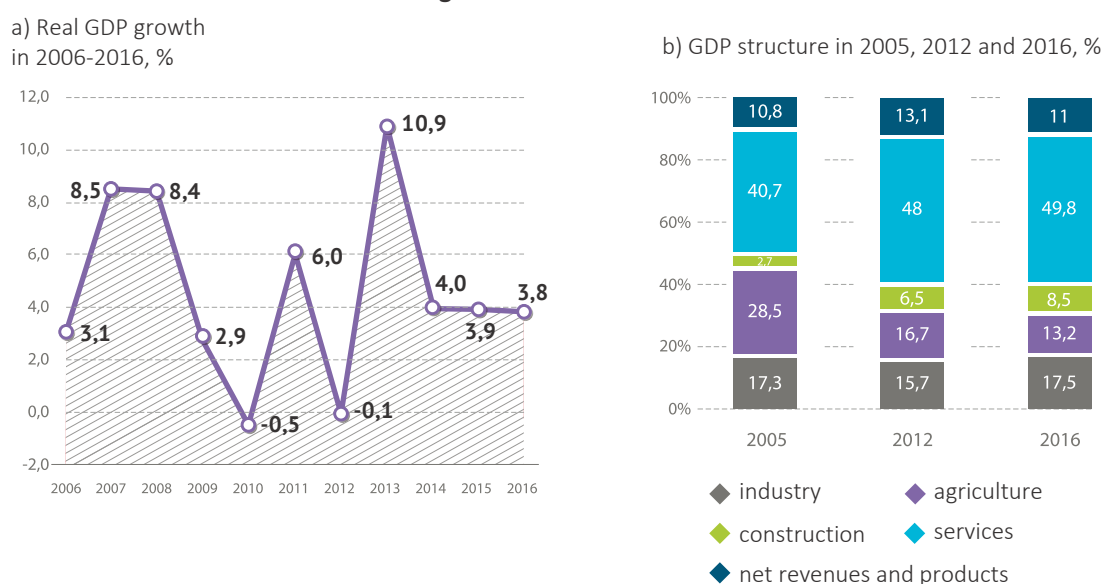
Indicators	2000	2010	2011	2012	2013	2014	2015	2016
GDP, billion KGS.	65.3	212.2	273.1	304.3	335.3	400.7	423.6	458.0
Growth rate, %	5.4	-0.5	6.0	-0.1	10.9	4.0	3.5	3.8

Source: NBKR (www.nbkr.kg)

The negative growth in gross domestic product (GDP) in 2010 was caused by political instability with an adverse impact on agriculture, services and construction. Decline in GDP in 2012 was mainly due to decrease in gold mining activities in Kumtor Gold Mine (mining industry), and the following decay of metallurgical production, including at OJSC Kyrgyzaltyn gold refinery. In 2012, the overall Kumtor-related production capacity was around 38% of the national industrial production.

Economy of Kyrgyzstan is subject to influence of regional and global economic trends. According to the Kyrgyz Ministry of Economy, the major constraint to economic growth in 2016 was a deteriorating economic situation in the countries – its main trade partners- EEU and China. During last 10 years, the real GDP growth was fluctuating from negative figures (- 0.5% in 2010) to rather high figures (10.9% in 2013). In 2016, GDP amounted to 458.0 billion KGS with a real growth rate at 3.8%, illustrating the minimum growth over the past 4 years (see Fig. 4.1).

Figure 4.1. GDP statistics



Source: NBKR. Values: 1 – industry, 2 – agriculture, 3 – construction, 4 – services, 5 – net revenues and products.

According to NSC, the GDP output structure has experienced noticeable changes. The share of industrial production reduced from 18.5 % in 2013 to 17.5 % in 2016, and agriculture share reduced from 14.6 % to 13.2 %. The share of services sector increased from 46.6 % in 2013 to 49.8 % in 2016, and the construction sector share increased from 6.3 % to 8.5 %. At that, it could not be said that the economy's dependence on agricultural biodiversity declines: higher growth in services sectors is experienced.

A large share of services in GDP does not give a real picture of the quality of economic development. It is known that the foundation for any economy is a properly functioning financial

system, transport infrastructure, education, healthcare and other social services. All the above-mentioned services comprise around 20% of total number of services, which shows inadequate development of this sphere to become the backbone of the economy. GDP per capita in national currency is constantly growing, however, its USD equivalent, following the peak in 2014 (USD \$1,339.5), started to decline, and in July 2016 fell below the 2011 level (see Table 4.2). According to this indicator, Kyrgyzstan is among middle-income countries under IMF classification.

Table 4.2. GDP per capita in 2000, 2010-2016

	2000	2010	2011	2012	2013	2014	2015	2016
Thousand KGS	13.3	42.4	54.4	58.0	65.0	71.8	75.5	78.7
US Dollars	278	920.2	1,183.2	1,233.2	1,339.5	1,331.2	1,163.3	1,133.6

Source: KR NSC (www.stat.kg)

The average nominal salary in Kyrgyzstan was constantly growing with its minimum value in 2013 (104.9 %). However, the real average salary growth was not always positive. Thus in 2010 and 2014, the real average salary was decreasing, in 2016 the country experienced three-digit inflation (see Table 4.3). Due to deflation in 2016, real salary growth exceeded its nominal growth.

The poverty level fluctuated from year to year: in 2007, it reached its maximum of 38% over the past decade. In 2016, the poverty was 25.4% which is a minimum level over the whole period of independence in Kyrgyzstan.

The level of inflation in Kyrgyzstan fluctuates considerably, which means there is no sustainable dynamics, and increases the country's economic risks making it's economy more vulnerable to external factors.

Table 4.3. Social and economic statistics in 2010-2016

	2010	2011	2012	2013	2014	2015	2016
Average monthly salary, KGS	7,142.0	9,352.0	10,891.0	11,426.0	12,435.0	13,277.0	14,492.0
Nominal growth %	14.2	30.9	16.5	4.9	8.8	6.8	9.2
Real growth, %	-4.2	23.9	8.3	0.9	-1.5	3.3	9.7
Poverty level, %	33.7	36.8	38.0	37.0	30.6	32.1	25.4
Population, thousand	5,418.3	5,477.6	5,551.9	5,663.1	5,776.6	5,895.1	6,019.5
Demographic growth, %	1.3	1.1	1.4	2.0	2.0	2.1	2.1
Inflation, %	119.2	105.7	107.5	104.0	110.5	103.4	99.5

Sources: KR NSC (www.stat.kg), NBKR (www.nbkr.kg)

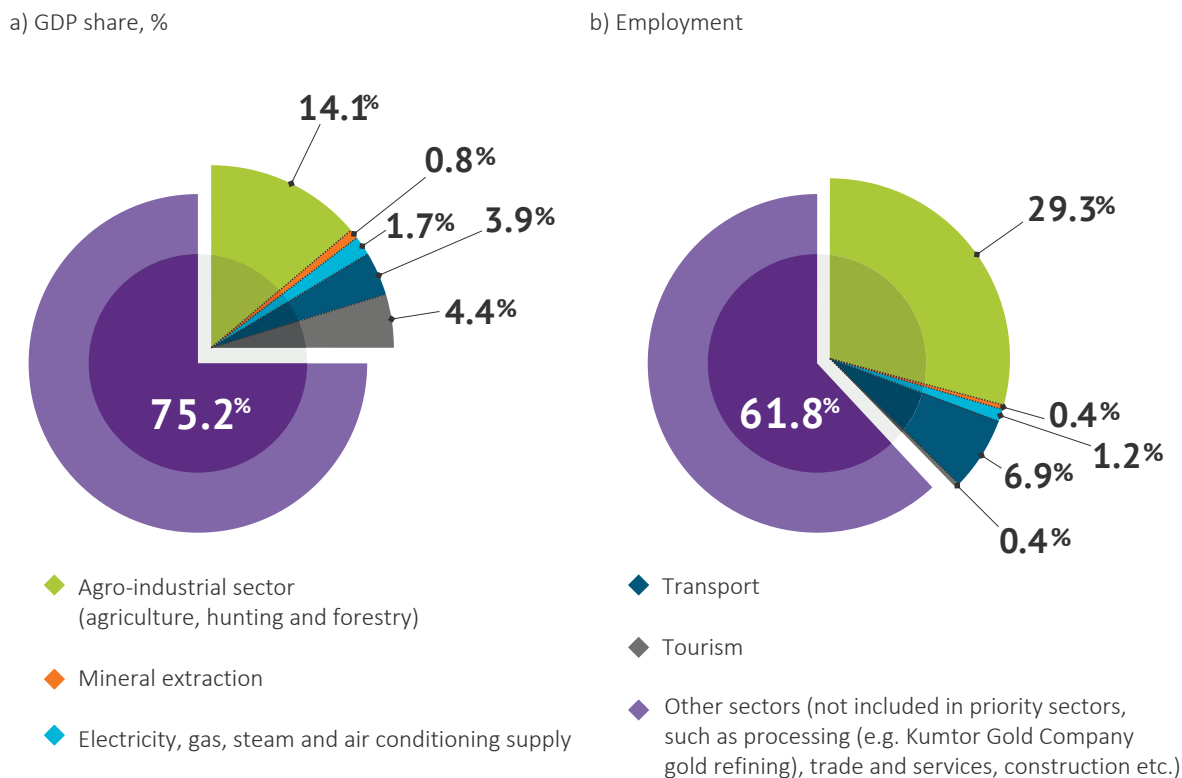
4.2. Sectoral Linkages, Risks and Opportunities

This subsection describes the linkages between priority sectors and ecosystems. Relevant sectoral practices affecting biodiversity trends, and financial drivers for sectoral and common practices were identified.

These sectors are important for the national development not only due to their large share in GDP or total employment, like agriculture (See figure 4.2.), but also in terms of the industry's role as a driver of economic growth and the development of regions in the future. For example, according to the Kyrgyz NSC, the Kumtor Gold Company's operation and associated gold refining was 8.6% of GDP in 2015 (gold refining belongs to processing industry which is not listed among priority areas).

The priority economic sectors receiving special support from the State, have direct linkages with ecosystems, depend on them and affect them.

Figure 4.2. Priority sectors according to NSDS and PTSD: GDP share and employment in 2015



Source: KR NSC (www.stat.kg), own estimates.

The concept of Adjusted Net Savings (ANS)²⁴ demonstrates the importance of environment for sustainable development. ANS measures savings rate in economy, including investments into human capital and excluding natural resources depletion and damage caused by pollution.

Therefore, this is an indicator of sustainable growth. In this regard, ANS can be useful for policy-makers, as well as for tracking progress towards sustainable development. Figure 4.3 shows adjusted net savings and gross national savings²⁵ in comparison for Kyrgyzstan and Nepal.

Despite the fact that the gross savings as a gross national income is a positive value in the Kyrgyz Republic, the ANS (as a share of gross national income) fluctuates around zero; and in 2012-2015, its value was negative. If we take into account the UNDP Human Development Index, which grew steadily from 2010 to 2015 (from 0.632 to 0.664)²⁶ when analyzing the sustainable development dynamics, it becomes clear that the negative trend in ANS is caused solely by the natural capital depletion.

Positive ANS means that the country's well-being is improving, thus, guaranteeing the ownership of the available resources by future generations.

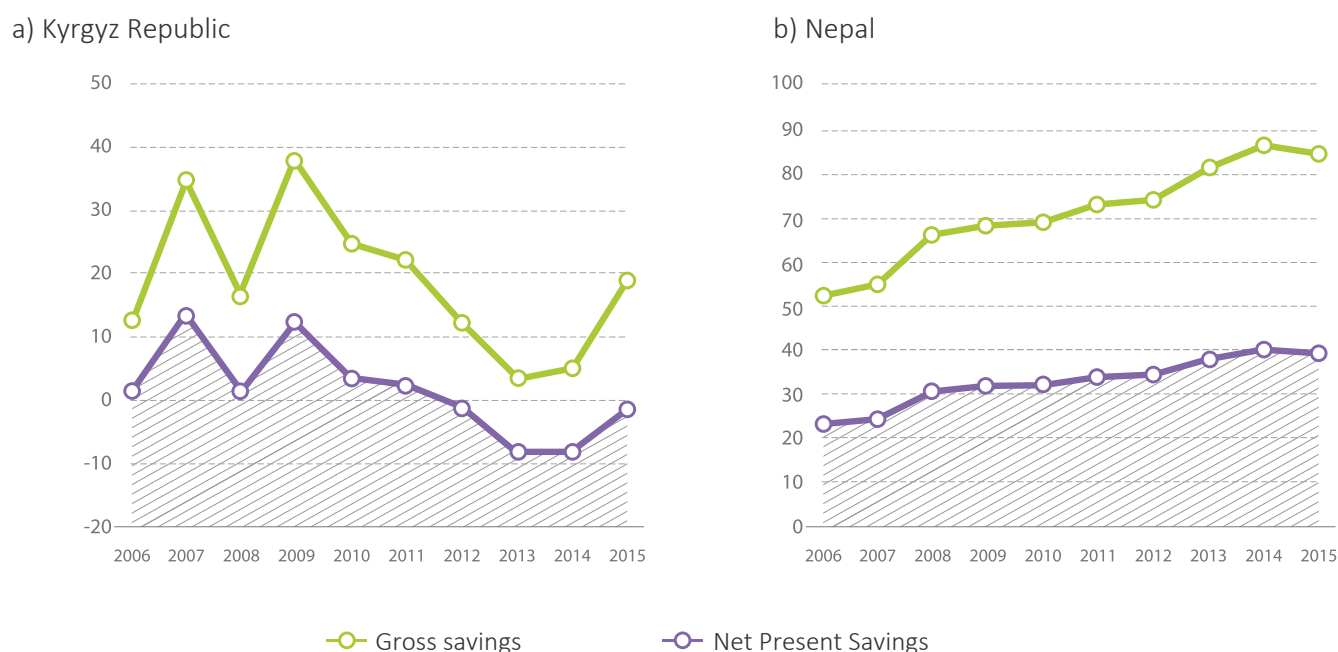
This suggests that the Kyrgyz Republic allows excessive natural capital depletion compared to savings. This means that the total wealth of the country either slowly increases, or even decreases; and the interests of future generations are put at risk.

²⁴ Net savings is an indicator used for estimates by the World Bank. It is a ratio of investments into future generations and current exploitation of resources. To make it simple, this indicator may be described as arithmetic sum of indicators: ANS = net savings + investments into human capital (primarily, education) — consumption of resources — environment pollution.

²⁵ Gross National Saving is gross disposable income less final consumption expenditure.

²⁶ <http://hdr.undp.org>

Figure 4.3. Adjusted net savings and gross savings in the Kyrgyz Republic and Nepal, % of net gross income.



Source: World Bank Open Data, <http://data.worldbank.org/>

Nepal serves as an example of the country with actual sustainable development: ANS is positive and growing, i.e. total wealth of the country is growing.

4.2.1. Agriculture, Forestry and Fisheries.

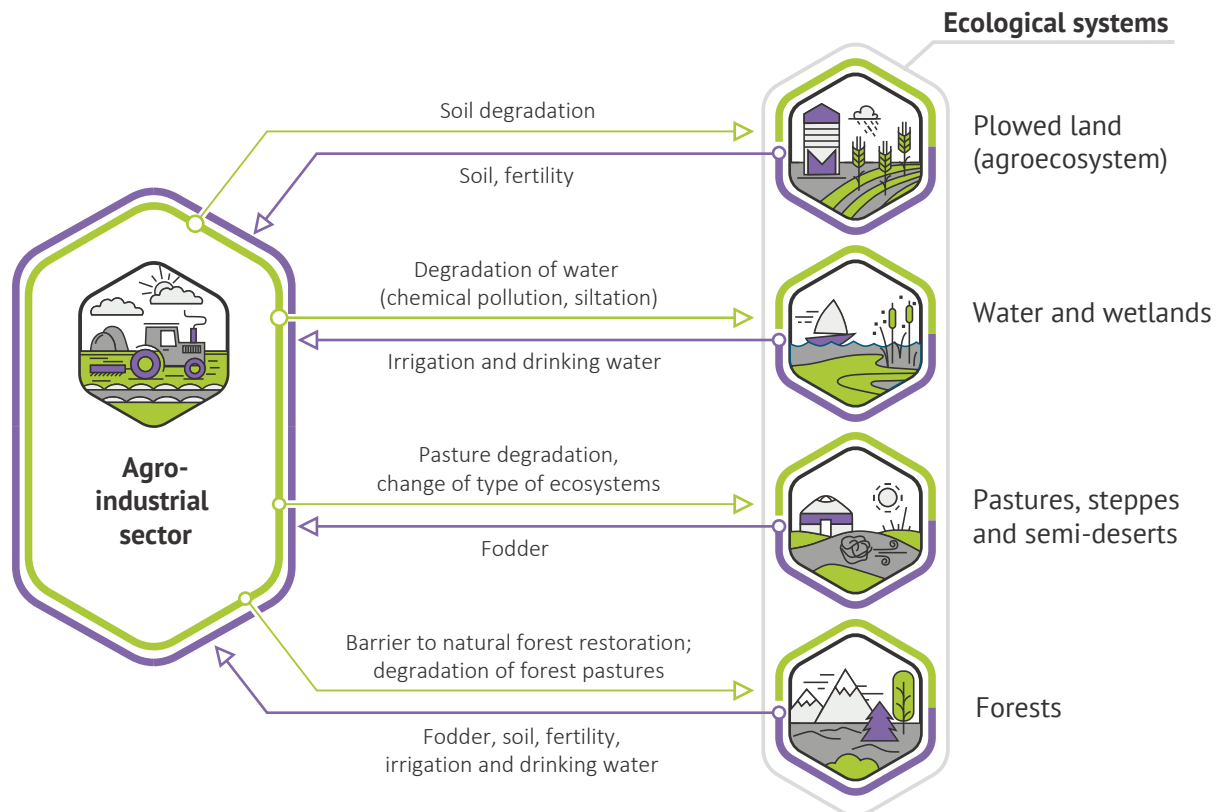
Agriculture serves a foundation for other sectors, as it generates raw and other materials. It is a labour-intensive industry and employs over 29% of the economically active population. It makes a considerable contribution in GDP: in 2016, its GDP share was 14.1% (NSC, 2017).

This sector is directly linked with ecosystems – water, forest, pastures and agroecosystems, which promotes production of environmental goods and services and allows to regulate climate and water regimes, soil composition, etc., and creates additional externalities for other sectors.

Given its specificity and scale, this sector has the strongest effect on environment and biodiversity (Figure 4.4.) through:

- Overgrazing or sporadic grazing of livestock in the available pastures, seizure of highland areas - wildlife habitats - to be used as new pastures and hayfields, uncontrolled grazing in forests, land transformation to a different category other than agricultural land. All these causes land degradation, decrease in range vegetation and pasture productivity (1/3 of pastures are classified and degraded both in terms of vegetation and their state, in general), low renewability of valuable forest species, destroying young stock, and displacement of wildlife from their habitats;

Figure 4.4. Linkages between agriculture, forestry, fisheries and ecosystems



- use of agrochemicals cause reduction in natural pollinators (insects, small birds and bats); getting into soil, chemical fertilizers increase soil mineralization, thus reducing the humus layer; moreover, when arable lands have slopes, leaching of fertilizers is more intensive, resulting in long-range chemical contamination;
- dispersal of alien invasive fauna and flora species threatens the survival of local species, including endemic species, thus reducing natural genetic assets which can bring economic benefits to people or may be useful in the future (genetic resources, ancestors of agricultural crops and breeds);
- unsustainable land use practices and inefficient use of irrigation water for agricultural needs result in changes, that are mostly adverse; affect soil fertility; cause waterlogging, salinization or erosion; therefore, large tracts of lands are not included in land turnover: in 2016, over 6% of arable land was not used, including 1.4% due to the above-mentioned reasons (See Fig. 4.5).

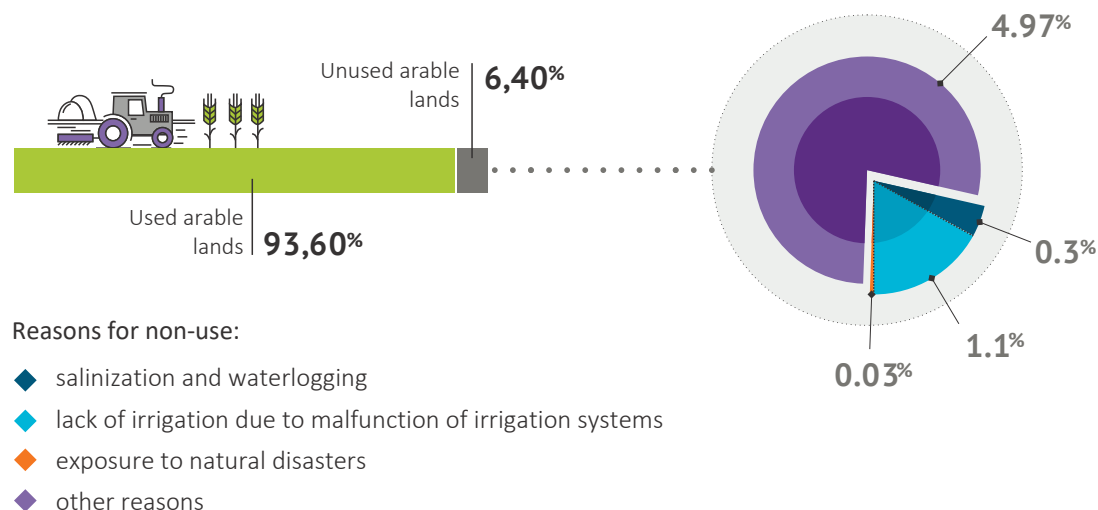
Nine of the 11 fish species that populated the Issyk-Kul lake were endemic. Dispersal of alien invasive species in the ecosystem of Issyk-Kul (pike, perch, rainbow trout) resulted in a steady decline in the number of the natural fish population. For example, scaleless osman has practically disappeared in the lake ichthyofauna.

No accurate estimates of economic losses incurred by the Kyrgyz Republic as a result of such impact were made (however, there are expert estimates of losses).

Multiple studies conducted at the international level provide a wide range of findings regarding consequences of human impact on ecosystems and ecosystem services. For example, joint French and German studies conducted in 2008 showed that the world economic value of insect-based pollination services (mainly bees) is 9.5% of the world's total

agro-production. Disappearance of pollinators will lead to losses in product consumption in the amount of 190 to 310 billion EURO²⁷.

Figure 4.5. Unused arable lands in 2016, %



Source: KR NSC, own estimates

The climate factor (increase of temperatures and decrease of precipitation) may bring changes to pastures in terms of species composition. The volume of ungrazed plants will increase, and useful for cattle phytomass production will probably reduce. The further forecasted temperature growth may be followed by shift in vertical belts of plant communities. Desert and semi-desert plant species will occupy the niche of mountainous steppes and grasslands; processes of plant species alternativeness, biodiversity and forest cover losses will strengthen.

Drivers of environmental changes. Currently, farming is the most accessible type of economic activities for rural population, and an opportunity to invest their small savings. Mistrust in banks, lack of alternatives, and nomad traditions precondition villagers' investing in livestock. Given the vast areas of pastures, which constitute 85% of agricultural land, livestock breeding in the country is historically predetermined. Farmers continue to increase livestock population, despite the fact of land degradation and decline in pasture productivity.

As a rule, farmers²⁸ do not understand the need for sustainable nature management, which often involves relevant limitations and restrictions and sometimes, financial investments. Methods of using resources are usually guided by rationality, in the perception of local communities, economic approach to farming which does not always mean careful and efficient use of resources; this approach is usually chosen due to lack of any other alternatives or approaches. Lack of accessible pastures forces local residents to graze their livestock in forests, which in most cases is illegal.

Over the past years, the sheep population grew due to increased number of major owners of small cattle in the remote pastures. Remote pastures are not accessible for small owners which results in overloading of village pastures.

According to findings of monitoring observations conducted by 'Kyrgyzgyprozem' State

²⁷ Nicola Gallai, Jean-Michel Salles, Josef Settele, Bernard E. Vaissière: Economic valuation of the vulnerability of world agriculture confronted with pollinator decline. Ecological Economics (2008), information is available at <https://www.ufz.de/index.php?en=35639>

²⁸ The term 'farmer' applies to all actors involved in farming regardless of their activities scale

Design Institute, grazing capacity of the country's pastures reduced by 36% during the past five years due to decreasing pasture areas and increasing degradation²⁹.

Chui, Batken and Osh provinces has exhausted their potential for livestock growth, and their future efforts should focus on enhancement of livestock productivity, including species productivity optimization, as well as on improvement of pasture management and regulation of access to pastures.

Corrective/adjustment measures, such as support to water saving technologies, sustainable use of available farmlands (cattle breeding: follow norms for maximum load, pasture seasonality, and livestock improvement; crop production: scientifically sound agricultural practices and use of highly productive released varieties of seeds); degraded fields and pastures restoration; chemicals control, and strengthened control over economic activity in the forest fund areas.

Climate change will significantly influence the forms and methods of farming practices. Farmers and food producers are not able to successfully adapt to climate without support from the state and private sector.

Green economy, including the country's development framework, should become a fundamental policy in this sector. From this perspective, the world's trend to increase consumption of organic products is a positive driver for biodiversity changes. In Kyrgyzstan, there are farmers trying to occupy organic products niche, and the government may use their lessons learnt in order to promote certified products complying with international environmental standards as the national brand.

The losses amount due to land degradation and reduced soil productivity in the Kyrgyz Republic in the period from 2001 to 2009 was USD \$ 0.55 billion per year, or 11% of GDP.

Economics of land degradation in
Central Asia Research, 2016

At that, while implementing green economy policy, special focus shall be placed on basic infrastructure development, such as water supply (drinking water, irrigation), energy, transport infrastructure, water disposal and domestic solid wastes disposal systems.

4.2.2. Fuel and Energy Sector

The Kyrgyz fuel and energy complex is characterized by a limited volume of coal and oil extraction and processing, and primarily, electric power generation in hydropower plants. The Kyrgyz Republic has Central Heating and Power Plants (CHPPs) and boiler houses, among which there are two large CHPPs. Bishkek CHPP-1 was commissioned in 1977, it works on coal, gas and fuel oil. Its capacity is constantly increasing (currently, it is around 700 thousand kW). Osh CHPP has a capacity of around 60 thousand kW. High share of coal in the fuel balance of CHPPs and boiler-houses puts them among the largest air pollutants in the country. The key polluting substances include soot, sulfur dioxide, nitrogen and carbon oxides, in particular, carbon monoxide (CO), heavy metal compounds, carcinogenic benzopyrene (C₂OH₁₂).

This sector depends on the country's water ecosystems, because 90% of the electric power is generated in hydropower plants (HPPs). This dependence will only increase: the country plans to build three cascades of new large HPPs, and facilitate the development of small hydropower as the most environmentally friendly source of energy. Currently, only 3% of small rivers' hydro resources in the country are developed.-

Hydropower is one of the priority sectors in the country's socio-economic development, because it plays a dominant role in the formation and the development of energy sector in the Kyrgyz Republic and has a high share – 42.3 % – in the total consumed energy resources, including coal, oil products and gas.

However, it is necessary to search a balance between the development based on the national hydrocarbon resources (coal), and the country's liabilities under the Paris Agreement and the United Nations Framework Convention on Climate Change (UNFCCC).

Potential of the national renewable energy sources (RES) that are available within the current level of technical and technological advancement is 840 million tons of fuel equivalent, annually. Currently, practical use of RES³⁰ is insignificant with 1.07% of the country's energy balance.

Construction and functioning of hydropower facilities and hydropower plants is followed by changes among all compartments of water ecosystem. Land losses as a result of reservoirs' flooding and diversion of rivers is the inevitable consequence of HPPs construction. This may cause changes in growing condition of natural vegetation, fauna habitats, population and productivity of the key aquatic fauna (diadromous fish) and plants, changes in species composition, temperature and microclimate changes, etc.

Climate change will significantly affect the country's water resources. Small rivers flow decline is expected in the country, followed by insufficient water availability in many regions.

Drivers of environmental changes. The drivers of adverse effect on the environment, biodiversity and implementation of climate change adaptation measures within the sector are primarily of economic and social nature. They may include:

- objective: economic and social development, population growth, pursuit of export capability growth, substitution for electric power from other energy carriers.
- subjective: inefficient use of electricity by the population and other consumers. The reason for this is the low cost of electricity, which is state-subsidized in order to maintain electricity price within decent social threshold (this subsidy is potentially negative; for details, please see Section 5.2). However, such subsidies should be valued as 'negative' with caution, as the increase in electricity cost will cause the rise in prices for manufactured goods and services and decrease of their competitiveness in domestic and external markets.

Appropriate policies regarding these factors may be developed. With regard to objective factors the following measures can be implemented: use of more environmentally friendly energy sources, such as natural gas, hydropower and RES; or a more thorough environmental impact assessment during environmental expertise with an objective to minimize and/or mitigate negative consequences associated with new HPPs. As for subjective factors, one of the options is to establish conditions for economical energy consumption to become beneficial for the population and economic entities.

4.2.3. Mining Sector

The government policy in the mining sector is focused on achieving sustainable development in mining industry, and efficient use of mineral and raw material potential. The Government actively supports the production growth and the development of new mineral deposits with preference being given to advanced mining technologies. Counteracting against wasteful and environmentally damaging mining techniques was announced.

According to experts, the sector has a potential to become a driver in the development of the country's mountainous areas, and a factor that deters migration, both external and internal, through creating jobs in the remote regions³¹.

30 According to the KR Law "On renewable sources of energy" these sources are: energy of the Sun, Earth, vacuum, wind, water (HPES not exceeding capacity of 30 MWt); sources of energy from fossil fuel and of non-carbon origin, energy of decomposition (anaerobic digestion) of biomass of any organic wastes and/or materials; energy of secondary heat.

31 A.I. Kopytina. Mining in Kyrgyzstan: Locomotive of the Country's Economy. KRSU Bulletin. 2015. Volume 15. No. 8

This sector mainly depends on aquatic and terrestrial ecosystems; however, it can affect almost all types of ecosystems. Specific feature of mining sector is its large scale and high production specialization. It is a large consumer of material resources, primarily, non-renewable natural resources, and it affects environment during production process and even upon its completion.

In the operation zone of mining enterprises:

- uptake of forest fund lands, agricultural lands and lands in specially protected natural areas occurs;
- subsoil and groundwater integrity is broken;
- hydrological regime of watercourses changes;
- the risk of man-made disasters and their adverse consequences increases.

The formation and accumulation of a huge amount of industrial wastes and rock dumps containing, inter alia, highly toxic substances in the areas of mineral extraction and processing contributes to irreversible degradation of biological resources. Metallic ore processing technology requires the use of toxic chemicals, significant water and electricity consumption, construction of special facilities for toxic waste storage and industrial wastewater purification.

Deformation of the earth's surface over mining areas forms new man-made landscapes. The potential for negative effect is higher in Kyrgyzstan, because mining works are conducted in remote areas, environmentally or socially sensitive areas. This leads to changes in ecosystems and the loss of biodiversity in these areas, practically in all cases. The fact that the existing mining companies are obliged to have reclamation plans and the bank account to accumulate resources for landscape reclamation when the mine is closed, is not of great help.

Mineral deposits are often explored in the forests and SPAs. In this case, since the state policy is aimed at developing mining industry, extraction works are commenced at the forest site.

The permit for gold mining in one of SPAs – Samailuu-Tash nature park – may serve an example of this practice; though, the law prohibits any activities that may cause deterioration in the quality or depletion of natural resources or sites. Thus, a precedent was created for land withdrawal for the purpose of exploration and the following gold mining.

Kyrgyzstan has 92 sites with radioactive and toxic mining wastes. Most of them are located in the area of transboundary water courses, seismically unstable areas, with high risk of landslides or avalanches posing a threat to the entire region. Climate change will inevitably enhance hazardous natural phenomena, such as mudflows, landslides, avalanches, etc.

Drivers of environmental changes. The drivers of adverse effect within the sector are primarily of economic and political nature.

The Government will always support the development of mining industry as it is necessary for economic growth. Metals, including gold, are mostly exported, thus improving balance of payment; whereas, construction materials and coal are consumed directly by the population and, among others, resolve social challenges. Similarly to energy sector, drivers of the negative impact in this sector may include economic and social development, population growth, pursuit of export capability growth, substitution for electric power from other energy carriers.

Appropriate policies can be developed to address these factors. For example, regulation of this sector can be based on international principles for mineral production, such as Environmental, Health and Labor Guidelines for the Mining Industry (2004) of the International Finance Corporation or Extractive Mining Industries Strategy (2012) of the European Bank for Reconstruction and Development, with account of measures in the area of environment protection and biodiversity conservation.

In view of the fact that mining sites are located in mountainous areas, where no human activities have ever been implemented, it is highly important to conduct environmental impact assessment and the state environmental expertise, as well as mandatory implementation and monitoring of environmental and social management plans.

4.2.4. Transport

Public policy priorities in the field of transport are linked with improvement of transport infrastructure:

- 1) Improve internal road network, ensure the country's transport independence.
- 2) Ensure rehabilitation of international road transport corridors, and access to regional markets of goods and services (CAREC project).
- 3) Establish transit capabilities of railways.

The State, with the financial support from development partners, allocates significant funds for construction and reconstruction of all types of roads. These expenditures are considered to be potentially negative subsidies (for details, please see Section 5.2). Currently, the construction of an alternative North-South road of the total length of 433 km is under way. The construction of China-Kyrgyzstan-Uzbekistan railroad with the Kyrgyz section of 268 km is being negotiated.

Negative impact on the environment and biodiversity due to construction of new roads (both automobile and railroads) includes the following factors:

- reduction and fragmentation of habitats, including disturbance of wild animals' migration routes;
- factor of disturbance due to noise and vehicles' movements;
- environmental pollution along roads (noise and dust, vehicles' emissions).

No assessment regarding economic and environmental losses due to negative effect of transport in the Kyrgyz Republic was carried out. However, the world data on adverse consequences of air pollution are collected. For example, a recent OECD survey shows that air pollution causes more than 3 million deaths a year in the world, as well as asthma, heart diseases, and other diseases. In OECD countries, the costs associated with air pollution effect on human health (causing both diseases and death) were around US Dollars \$1.7 trillion; in the USA – around US Dollars \$2 billion, where automobile transport accounted for more than half of them³².

Drivers of environmental changes. The drivers of adverse effect on environment and biodiversity within the sector are primarily of economic nature. Road network is a necessary condition for economic development and improved welfare in the regions of the Kyrgyz Republic. The development of international road transport corridors and railways is a necessary requirement for Kyrgyzstan to be engaged in regional and international trade. Therefore, implementation of measures regarding transport development is vitally important for the country.

The government should develop and consistently implement measures to minimize and mitigate harmful environmental impact of roads and transport. First of all, it is necessary to assess the effect of roads and vehicles on environment and biodiversity within the state environmental expertise, and develop regulations to minimize and mitigate harmful effects. These measures may include planting trees along roads to reduce dust, noise and pollution of roadside areas with automobile emissions; construction of overpasses for migrating animals, etc.

32 OECD (2014), The Cost of Air Pollution: Health Impacts of Road transport, OECD Publishing, available at <http://www.oecd.org/env/the-cost-of-air-pollution-9789264210448-en.htm>

Capabilities of taxation system to facilitate the use of less polluting vehicles should be analyzed. Regulation of fuel types and their quality used for vehicles are among fundamentally important measures. In particular, incentives should be provided to use relatively environmentally safe motor fuel – K4-K5 category, liquefied petroleum gas and compressed natural gas, and other available types of fuel.

4.2.5. Tourism

Tourism plays an important role in resolving social problems through establishment of additional jobs and increasing well-being of the population, in particular, in rural areas. In the Kyrgyz Republic, tourism is one of the priority areas of the State economic policy³³. During last five years, according to the NSC, the share of tourism in GDP fluctuated between 3.7% and 4.7%, whereas the world average is 5.2%³⁴. As a result, according to the World Travel and Tourism Council, Kyrgyzstan ranks 102nd according to direct contribution of tourism to GDP³⁵. According to international experts, Kyrgyzstan uses its tourism potential at no more than 15%, which explains a relatively low share of tourism in GDP.

The main goal of the State policy in the field of tourism is that Kyrgyzstan should become one of the regional tourism centers in Central Asia.

To achieve this goal, the following measures are planned: establish tourist clusters; conduct international cultural and sports events; implement a large-scale pilot project aiming at creating roadside motels, camping sites, parking lots for automobiles and trucks, and related infrastructure at the key highways. These projects will become growth points for the regions, facilitating the development of small and medium-sized businesses.

At the same time, the NSDS and the SDTP stipulate that stability of ecosystems and natural landscapes as tourism products, and the potential for tourism growth should become indispensable conditions for tourism development in Kyrgyzstan. This is an evidence of close linkage between this sector development and environment and biodiversity.

The diversity of ecosystems, landscapes and terrains, climatic zones and seasons within one country makes it attractive for different types of tourists. Skiing is intensively developing and attracts tourists from the countries of near and far abroad. The skiing infrastructure is sometimes located in the territory of forestry enterprises and national parks.

The Issyk-Kul Lake is the main tourist attraction for domestic and foreign tourists. Infrastructure and transport are intensively developing, tourist centers become more attractive for tourists.

Hunting tourism has a strong position. The main hunted species include ungulates (capricorn, roe deer), birds, wolves and small mammals (hare, fox, groundhog). Argali trophy hunting is strictly regulated and is restricted based on agreement with CITES. However, poaching and the reduction in the number of animals, leads to the decision for a long-term moratorium on shooting/hunting, as they threaten the development of legal hunting sector.

Eco-, ethno- and agrotourism are promising areas for development in terms of increasing employment and income-generation for rural residents. These types of tourism have a potential to displace other types of economic activities that require higher costs and higher consumption of natural resources. Landscapes attractive in terms of tourism are developed or maintained. This type of tourism is mostly informal; it is difficult to assess its scale. Nevertheless, the use of some territories for tourism generate a demand for other related economic activities.

33 NSDS for 2013-2017

34 NSC KR, www.stat.kg

35 <https://www.wttc.org/-/media/files/reports/economic-impact-research/countries-2016/kyrgyzstan2016.pdf>

Popular places for tourists include forests and SPAs. Routes, recreation sites are established, and mass cultural events are organized in the forests.

However, in case of inadequate management, tourism may have a negative effect on biodiversity:

- tourism disrupts ecosystems in areas popular among tourists (through construction of hotels, arrangement of recreation facilities, designation of areas for outdoor activities, etc.);
- the environment is polluted, inter alia, with sewage and solid domestic wastes, for example, in the Issyk-Kul lake;
- it creates a factor of disturbance for wild animals (noise, presence of people);
- valuable plant species are destroyed.

Independent or self-organized tourism has a particularly negative environmental effect.

Drivers of environmental changes. The drivers within the sector are poverty and low level of economic development in some areas, where tourism and related activities are a better alternative than any other economic activities. Combined with low awareness regarding sustainable tourism practices, tourism may cause biodiversity deterioration and ecosystem disturbance: popular tourist sites are being polluted with garbage.

The Government should implement measures and pursue a consistent policy to ensure the protection of nature/ecosystems in places popular among tourists. They may include legislative initiatives, licensing/permit system measures, etc. It is also very important to conduct outreach work to promote sustainable tourism and encourage involvement of local population in SPAs management. It is necessary to increase and diversify local residents' incomes through establishment of alternative sources of livelihood for local communities.

The Law of the Kyrgyz Republic on Specially Protected Areas defines regime of use of SPAs for tourism activities. SPAs are used aiming at developing environmental tourism, engaging local residents in tourist infrastructure formation and ensuring its sustainable functioning, as well as familiarizing with natural, historical and cultural places of interest. SPAs are allowed to arrange and establish environmental routes for excursions, tourist paths and stopping places, museums and open-air exhibitions at specially designated areas in accordance with the regime of the relevant zone.

4.2.6. Informal Sector

The informal sector, which is comprised of small businesses, or sometimes households or individual persons who carry out economic activities, is important both in terms of ensuring the well-being of the population (informal sector employs around 76% of working population³⁶), and due to its environmental effect, because the majority of informal activities use natural resources and are not controlled by the government. For example, practically all ecosystems - forests, especially nut and fruit, water ecosystems, meadows, etc. – serve as income-generating sources for the local people. Revenues from such activities are not taken into account in the statistic authorities, and taxes are not levied. However, the scales of production are large. Thus, the NSC survey revealed the volume of non-recorded non-wood forest products with value added of 1.2% of GDP; and it is a low estimate.

At the same time, the population is not proficient in sustainable business management of ecosystems. Their active exploitation prevents ecosystems' natural recovery.

Drivers of environmental changes. Collection of wood and non-wood forest products, fishing, collection of medicinal herbs and other informal activities are accessible to the public,

and open an opportunity for their, usually small, investments. This shows the direct economic value of functioning ecosystems for many parts of the country. As a rule, people engaged in this activities do not understand the need for sustainable nature management, which often involves relevant limitations and restrictions and sometimes, financial investments.

The informal sector is, in some cases, involved in illegal activities, which often implies ignoring principles of sustainable environmental management and natural resources conservation. Therefore, the government bodies should strengthen their efforts to prohibit such activities, and enforce measures against such unscrupulous nature resources users. Inspectors of the State Inspection on Environmental and Technical Safety ensure control over environmental law compliance at the local level in the country, and SAEPF ensures control within forestry fund lands, SPAs and established hunting grounds. One of the multiple reasons of weak enforcement and lack of control on the ground is the shortfall in regular staff due to low wages and difficult working conditions (highlands, remoteness from populated areas).

It is very important to conduct outreach activities regarding sustainable nature management principles among the population.

4.3. Overview of Existing Research Studies on Economic Valuation of Ecosystem Services in the Kyrgyz Republic

The major part of the value of natural capital and the relevant ecosystem functions and biodiversity is outside the market; this results in the situation, when benefits that nature provided for the population and businesses are usually not taken into account in the decision-making process, or are largely underestimated.

At the same time, economic evaluation of ecosystem services should serve as a basis to address management challenges and tasks: on the one hand, to determine a real contribution of ecosystems to economic development (as a share of GDP); on the other hand, to define areas of development within unique natural territories, to determine appropriate environmental management regimes there, to address financial issues in the sphere of biodiversity conservation. This will ensure implementation of timely measures in the field of biodiversity and ecosystems conservation. Thus, understanding and dissemination of ecosystem services' valuation results is an important objective, because it will allow the authorities to make more efficient and fair decisions at the level of management bodies, and to justify the choice of various measures or actions.

Valuation of ecosystem services is a new field of expertise in the Kyrgyz Republic, and requires elaboration of comprehensive approach in assessment of the wildlife resource functions and its life-support functions. There are few researches in the field of ecosystem services' evaluation in the country. The first research to estimate economic value were launched in 2008. Then, under the UNECE Convention on Transboundary Water Resources, *a study on the economic valuation of the ecosystem services in the basin of Issyk-Kul Lake was conducted*. Based on the study findings, recommendations on payment for ecosystem services in the context of integrated water resources management were developed. These recommendations were piloted in the framework of the Payment for Ecosystem Services (PES) in the Issyk-Kul Basin and its replication in Central Asia project.

Within the framework of the Swiss project "Integration of the Concept of Payments for Ecosystem Services (PES) and Reduction of Emissions as a Result of Deforestation and Degradation (REDD) in Central Asia", *a research to introduce PES in the Kyrgyz Republic* was conducted in 2009-2011. The project goal was to increase sustainability of local ecosystems

in the pilot basin of Chon-Aksuu River, Issyk-Kul province, through implementation of PES and REDD+ tools.

In 2012-2014, the Central Asian Regional Environmental Centre (CAREC) implemented the “Promoting the concept of ecosystem services in Central Asia” project to introduce principles of ecosystem services in Kyrgyzstan. The project was implemented in the basin of Chon-Aksuu River, Issyk-Kul province. The project outcomes showed that Kyrgyzstan has a potential for research, implementation, development of regulatory and legal framework, and possibility for its replication in other Central Asian countries.

The research findings regarding the value of ecosystem services are shown in Table 4.4.

Table 4.4. Economic valuation of ecosystem services in the Kyrgyz Republic

Organization, year	Valuated Ecosystem Services / Valuation Results
Central Asian Regional Environmental Centre Support to local initiatives in the field of environment and water management in Central Asia; 2016	10 ecosystem services in Chon-Aksuu river basin: drinking water supply, forest products (wood and non-wood), fodder, agricultural products, tourism, carbon sequestration and storage. 8 ecosystem services in the river basin. Valuation result: 648.6 million KGS/per year. Zerger river basin: non-wood forest products, firewood, water quality, pasture and fodder, building materials, agricultural crops, carbon storage and biodiversity. Valuation result: 136.3 million KGS/per year
UNEP-UNDP Poverty and the Environment Initiative Experimental estimates of economic value of the Karakol State Nature National Park; 2016	Valuation of ecosystem services with a market price (tourism, recreation, fishing sites, pastures, etc.); indirect values (conservation of water intake basins, carbon sequestration, etc.); additional values (medicinal plants, etc.); existence values (picturesque landscapes, rare animal and plant species). Valuation result: total present value 128.9 billion KGS
Secretariat of the Land Degradation Economics Initiative/ American University of Central Asia; 2011-2014	The annual total economic value/costs associated with land degradation in mountain pastures was estimated. Valuation result: US Dollars \$4 billion per year. Ecosystem services in Chon-Aksuu (drinking water, fodder, carbon storage and sequestration, ecotourism, mushrooms, timber, firewood). Valuation result: US Dollars \$6 million per year Ecosystem services in Kyzyl-Unkur (drinking water, fodder, forest and pasture entities, carbon sequestration, non-wood forest products). Valuation result: US Dollars \$21 million per year Ecosystem services in Son-Kul (drinking water, fodder, carbon storage and sequestration, ecotourism, recreation). Valuation result: US Dollars \$16 million per year

National Statistics Committee/ GIZ Piloting SEEA- forest accounts; 2015	Valuation of the forest sector on a national scale (non-wood forest products, fodder, honey, firewood, mushrooms, timber). Valuation result: The cost of non-wood forest products is included in GDP, the contribution of forest products increases from 0.05% to 1.24% of GDP, i.e. up to 25 times higher
BIOFIN Initiative, UNDP	Valuation of services in Chon-Kemin National park (non-wood forest products, fodder, honey, tourism). Valuation results: US Dollars \$140 million per year

Currently, efforts to improve the methodology of economic valuation of ecosystem services in the Kyrgyz Republic are under way. However, the experts face a number of limitations- the key one among them is the lack of information, which significantly hampers the analysis and skews its results. The methodology for valuing important assets, such as ‘beautiful view/scenery’, which is obviously more attractive for tourism than a waste landfill, has not been finalized either. Natural resource rent is not assessed.

Economic valuation of biodiversity as ecosystem services’ costs is not enshrined in the Kyrgyz legislation. Valuation of biodiversity elements within one-time reparation rate in case of their direct destruction or damage is carried out.

4.4. Conclusions

1. Priority economic sectors defined in the strategic documents have considerable negative effect on environment, biodiversity and effectiveness of climate change adaptation measures. Economic entities in these sectors are the main sources of anthropogenic environmental effect (for details, please see Section 5). On the other hand, these sectors depend on the quality of environment and ecosystem services; furthermore, the negative environmental effects lead to negative social outcomes, and influence informal economy on which much of the Kyrgyz population depend.

2. The current decisions, formally aimed at mitigating negative environmental effect, such as obligations of mining companies to have plans for mining sites’ recultivation and the bank account to accumulate funds for these purposes are in most cases ineffective.

3. The drivers of adverse effect on environment, biodiversity and effectiveness of climate change adaptation measures within economic sectors include poverty; primacy of GDP growth in the public policy; low level of public awareness, as well as decision-makers on irreversible consequences of deterioration of environment and biodiversity, *inter alia*, for the future economy; and disregard for environmental rules by the population.

The Government should take measures regarding the drivers, in order to, at least, mitigate negative consequences. The public policy should provide for effective measures aiming at:

- encouraging introduction of nature- and resource-saving technologies. They may include measures from “green” fiscal reform instruments;
- establishing environmental regulatory systems, that are of particular relevance for pastures in agricultural sector.
- regulating application of international principles for mineral resources mining, such as Environmental, Health and Labor Guidelines for the Mining Industry (2004) of the International Finance Corporation or Extractive Mining Industries Strategy (2012) of the European Bank

for Reconstruction and Development, with account of measures in the area of environment protection and biodiversity conservation.

- conducting outreach campaigns for the public and decision-makers; engaging local population in the environmental management. Development of comprehensive communication strategy can be very helpful here. Systems of primary, secondary and higher vocational education should play an important role.

4. There are no mechanisms to assess economic value of ecosystem services in place.

According to selected surveys, ecosystems generate significant revenues for the users in monetary terms, however, these revenues are implicit, and the population does not consider ecosystems as income-generating natural assets that require investments. In order to institutionalize the system for economic value of ecosystem services assessment, the relevant methodology should be adapted and initiated by the government decision, as the first step. The owner of the methodology will be a designated environmental authority.

5. FINANCIAL FRAMEWORK FOR THE ENVIRONMENT, BIODIVERSITY AND CLIMATE CHANGE

5.1. The Budget Process

This section provides a description of the Kyrgyz budget system that is valid as of the end of 2017.

The Kyrgyz budget system is a system of relations arising in the budget process implementation based on economic relations and the national government structure. This system accumulates budget revenues. Public policy funding is provided via this system.

The budget system includes the following budgets:

- the national budget, which is the aggregate of monetary assets intended for funding objectives and functions of authorities and subordinate budgetary institutions.
- the budgets of the Social Fund and the Mandatory Health Insurance Fund are formed and executed independently (they are not included in the analysis, since they are not linked with the issues of environment, biodiversity and adaptation to climate change).
- local budget is the budget of ayil aimak and the city/town (municipality).

The national budget, the budget of the Social Fund, the budget of the Mandatory Health Insurance Fund is subject to annual approval in the Kyrgyz law. Local budgets are approved by local keneshes.

There are four budget expenditure classifications in the country:

1. Functional classification, when expenses are classified according to the following functions:

- 701. General public services;
- 702. Defense;
- 703. Public order and security;
- 704. Economic issues;
- 705. Environment protection;**
- 706. Housing and utility services;
- 707. Public health services;
- 708. Recreation, culture and religion;
- 709. Education;
- 710. Social protection.

2. Departmental classification, when each budgetary institution has its own code. For example, 52. State Agency for Environmental Protection and Forestry under the Government of the KR.

3. Economic classification of expenditures means grouping budgetary expenditures based on economic content of transactions carried out in the public governance sector. Economic classification contains the so-called 'protected lines' - the lines recommended for funding as top priority, that are not subject to budget cuts: wages, social insurance fees, procurement of medicines and medical products, purchase of food products, social security benefits, social assistance benefits and scholarships. The remaining budget lines in the classification are 'unprotected' and include, among others, capital expenditures and transactions involving financial assets.

4. Programme classification is a new classification. It doesn't have a strict format, and is not approved by a normative legal act. It can be amended with the time, depending on the list of budgetary measures of the state-funded institution.

The budget process in the Kyrgyz Republic includes drafting, consideration, approval, adjustment and implementation of the budget; accounting and reporting, financial management and control³⁷;

The budget process consists of 4 stages:

- 1) Budget drafting;
- 2) Budget consideration and approval;
- 3) Budget implementation;
- 4) Reporting on budget implementation, approval of reports and control;

Budget processes within the national and local budgets have different formation procedures and budget calendar.

5.1.1. Budget Process within the National Budget

Stage 1. Budget drafting

The national budget is subject to approval by the law. The executive authorities draft the national budget of the Kyrgyz Republic in accordance with the *procedures and the calendar*, that are approved by the Government before its commencement no later than February 1, of the year preceding the upcoming fiscal year³⁸. Ministry of Finance compiles draft budgets of the line ministries and agencies.

The budget forecast is based on evaluation of the current budget progress and projected key economic and social development indicators.

Ministry of Economy of the Kyrgyz Republic prepares several scenarios of the country's economic development based on *the forecast of social and economic development*. The government chooses one scenario for budget formation.

Before April 30, on the basis of mid-term forecast of socio-economic development, Jogorku Kenesh adopts *budget resolution* which defines main areas of budget policy for the next year.

Based on the goals and objectives set in the national and sectoral development strategies/ programs³⁹, the Government develops and approves by its Decree the *Key Medium-Term Fiscal Policies* in the Kyrgyz Republic (KFP), which stipulate budget policy objectives for the next three years, and ways to achieve them. Under KFP, ministries and agencies are provided with preliminary 'benchmark figures' regarding budgetary resources (expenditure ceilings).

KFP include mid-term strategies for sectoral budgetary expenditures (MTSSBE), developed by ministries and agencies, taking into account the needs of their respective sectors. The MTSSBE define strategic goals and objectives, budget programs, as well as ministries' and agencies' performance indicators. They are discussed with civil society in the open budget hearings.

Following the adoption of the legal and regulatory acts regarding KFP, the Ministry of Finance provides *Guidelines on Programme-based Budget Drafting* and to the ministries and agencies *Instructions on budget drafting on the basis of the program*, as well as the budget baseline.

37 Article 2, Budget Code of the Kyrgyz Republic.

38 The budget calendar for drafting Key Medium-Term Fiscal Policies for 2018-2020 and the draft Law Draft of the Kyrgyz Republic on the National Budget of the Kyrgyz Republic for 2018 and Forecast for 2019-2020 approved by the Kyrgyz Government Decree No. 25-p, February 3, 2017

39 Described in the section 3.2

Ministries and agencies develop and submit draft budgets in the program format to the MoF, which drafts the law on the national budget. After reviewing it, the Government submits the draft law on the national budget for the coming period to Jogorku Kenesh for consideration no later than October 1.

Stage 2. Budget Consideration and Approval

At the second stage of the budget process, Jogorku Kenesh considers and approves the draft law on the national budget. In the process of its consideration, the draft law is subject to additions or amendments, which are jointly discussed by the Parliament, ministries and agencies, Government administration and the Ministry of Finance.

Jogorku Kenesh considers the draft budget law within the three-reading procedure. In the first reading, they consider parameters of macroeconomic forecast, budget policy for the next budget year and for the forecasted period. The second and the third readings are devoted to consideration of the detailed budget structure. In the third reading, the Parliament adopts the draft law in general, and after that, the budget is approved by the law. The law is submitted to the President for signature.

The procedure of the national budget consideration and approval is open and public. The ministries and agencies, the Government and Jogorku Kenesh should organize public budget hearings at all stages of the budget formation.

Stage 3. Budget Implementation

Budget implementation starts after the budget law approval. If the budget revenues decline, that may occur due to unforeseen deteriorating economic situation, sequestration procedure – proportional spending cuts, except protected lines- shall be applied.

Stage 4. Development, Approval and Control of Budget Implementation Reports

The Parliament (Jogorku Kenesh) considers and approves budget implementation reports.

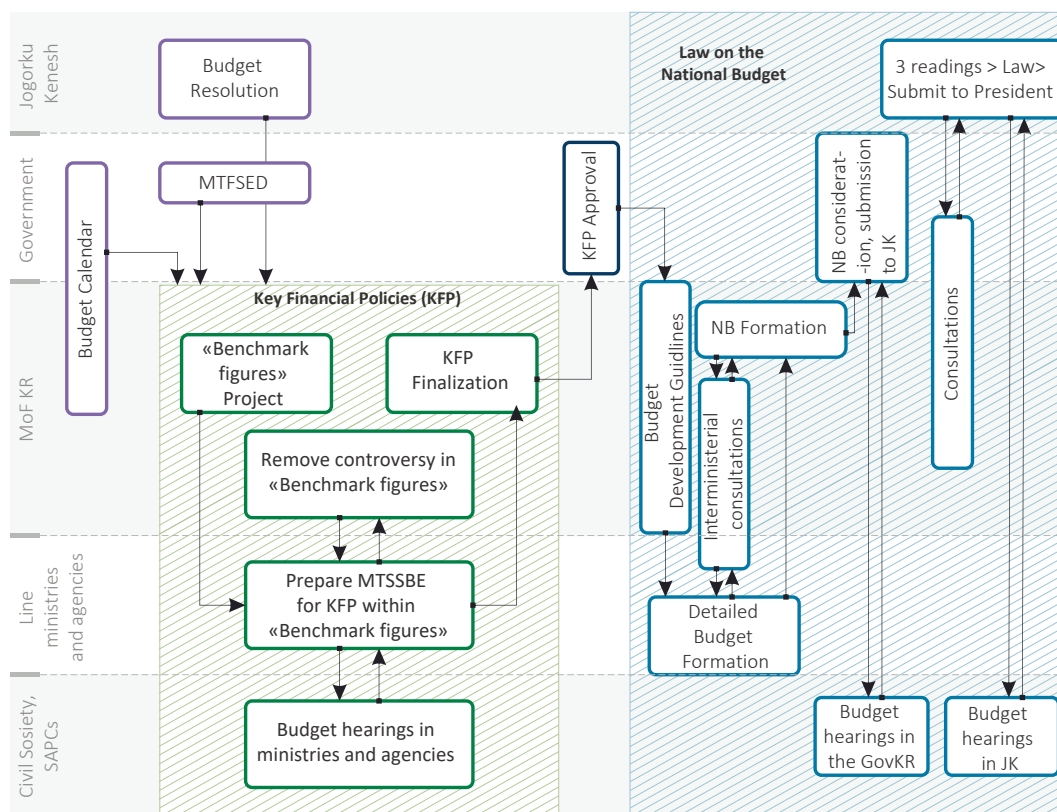
The Government through the Ministry of Finance prepares an annual budget implementation report and submits it to Jogorku Kenesh for consideration.

The Audit Chamber is a special body that provides control over budget implementation, conducts audit of the budget implementation, and submits audit conclusions to the Government and Jogorku Kenesh.

Based on the Audit Chamber findings after the report consideration, the Government adopts a legal act on corrective measures.

Following consideration, Jogorku Kenesh adopts the law on approval of the national budget implementation report, including budget evaluation, within one-reading procedure.

The budget implementation report should be discussed at public hearings.

Figure 5.1. The National Budget Formation in the Kyrgyz Republic

Note: MTFSED – Medium-Term Forecast for Socio-Economic Development of the Kyrgyz Republic for 3 years (developed by the Ministry of Economy, approved by the Government; KFP – Key Financial Policies, MTSSBE – Medium-Terms Strategy for Sectoral Budget Expenditures; NB – the national budget – a detailed budget of ministries and agencies, inter alia, on a program basis; JK – Jogorku Kenesh (Parliament); SAPCs – State Agencies Public Councils.

5.1.2. Budget Process at Local Level

Stage 1. Drafting Local Budget

Every local self-governance agency (LSGA) forms local budget drafts on the basis of strategic documents of territorial development and taking into account KFP in accordance with the procedure established by local keneshes (councils) and schedule approved by the MoF.

The MoF brings to the LSGA a calendar plan, the expected norms of charges from the state taxes and the estimated size of equalizing grants distributed to local budgets.

Local self-governance agencies submit local budget drafts for consideration and approval of local keneshes, to be further approved by the MoF.

Stage 2. Consideration and Approval of Local Budget

Local budget drafts go through preliminary consideration of local keneshes' (councils) budget commissions which submit a conclusion on budget draft to local kenesh after discussion.

Local keneshes consider local budget drafts for the next budget year and the forecast period and approve local budget not later than one month after approval of national budget.

Municipal budgets approved in accordance with the established procedure are submitted to the MoF, and budgets of ayil aimaks are submitted to the territorial financial bodies of the MoF for inclusion in the consolidated budgets according to the calendar plan.

Consideration and approval of the LSGA budgets is open and public at open sessions of the local kenesh. LSGA should also hold public budget hearings.

Stage 3 and 4. Budget Performance. Reporting on Local Budgets Performance.

Municipal bodies implement the budget. The procedure for sequestering the budget may be applied.

Reports on the execution regarding local budgets are compiled by LSGA and approved by local keneshes according to the following parameters.

Resolutions of local keneshes on the performance of LSGA budgets and decisions of local keneshes on budgets for the relevant years are subject to publication in mass media. Approved annual reports on the execution of local budgets shall be submitted to the MoF.

External audit of formation and execution of local budgets is carried out by the Accounting Chamber once every two years.

5.1.3. Introduction of Amendments to Budgets

The Government, the Social Fund, the Mandatory Health Insurance Fund, local self-governance agencies can initiate changes and additions to the approved budgets⁴⁰ twice a year (the first until June 1, the second - until November 1 of the current fiscal year). Amendments to the approved budgets are carried out on the basis of the results of the analysis of budget execution and evaluation of the efficiency of appropriations and implementation of budget programs.

5.1.4. Special Accounts of Budgetary Institutions

One of the sources of budget financing is the revenues from the public paid services. State agencies can provide paid services to individuals and legal entities. The register of state services is approved by the Government of the Kyrgyz Republic. Returns from public paid services are transferred to special accounts of departments and thus, they have a greater degree of freedom in administering the funds.

In special accounts, in addition to funds received from the provision of paid services, income is taken into account in the form of sponsorship and voluntary and trustee contributions of charitable or grant assistance, allocations from international institutions for joint research and development, funds from the sale of own-produced goods.

Charge for the use of natural resources, fines and payments, license fees - **are not credited** to special accounts

Prior to the adoption of the Budget Code, the so-called *special funds* - assets of budgetary institutions received from the sale of products, performance of work and the provision of services and (or) the performance of other types of activities are transferred to special accounts in accordance with the effective normative and legal acts.

Public service is the result of the activity of state institutions carried out within the framework of their competence to fulfill the request of individuals and legal entities and aimed at the realization of rights, satisfaction of the legitimate interests of consumers of services, or the performance of duties arising as a result of civil law relations.

*Law of the Kyrgyz Republic
"On Public and Municipal Services"*

40 Cases when the budget revision may be initiated: 1) the need to eliminate situations that threaten the political, economic, environmental and social stability of the Kyrgyz Republic; 2) changes in legislation affecting budget parameters; 3) making a decision on the use of cost savings; 4) decrease or increase in the revenues part of the budget.

The Republican and Local Funds for Environmental Protection and Forestry Development (FEPFD) (hereinafter referred to the Funds)⁴¹ were established as financial institutions in the context of regions, with the purpose of accumulating funds received as payments for pollution of the environment. Further, these funds were used to finance environmental protection activities and measures for nature protection, restoration of losses in the natural environment, conservation of biodiversity and forest ecosystems, development of the forestry sector and specially protected natural areas in regions and the republic as a whole.

Funds were formed due to: 1) payments for environmental management, 2) payments for environmental pollution, 3) fees for paid public services, 4) voluntary donations, etc.⁴²

According to the Budget Code⁴³, the Funds have lost the first two income sources, and starting from January 1, 2017 these payments are transferred to republican budget. If before the budget of the Funds reached 335.6 million KGS per year (in 2015), in 2017 it is amounted only 100 million KGS. Thus, the opportunities and the role of the Funds have decreased.

5.1.5. Official Development Assistance and Mechanisms for its Provision

All possible forms of donor support coexist in Kyrgyzstan: financing of individual projects and programs, support of sectors and direct budget support. Funds received as part of official development assistance (ODA) are public resource. International loans provided under the government guarantee are repaid mainly from the republican budget. Procedures related to donor-supported projects differ from budgetary ones. The projects follow funding rules and reporting standards specific to a particular donor organization.

The main form of providing donor assistance is *budget support*. It means financing the republic's budget through the transfer of funds from an external source of funding to the state budget through the Ministry of Finance. These funds are then spent by the line ministries and other participants. These funds become a part of the budget of the republic and are then *spent* in accordance with the rules established in the republic by the public finance management system.

There are two types of budget support:

- General budget support - support for the budget, aimed at implementing general measures to combat poverty, but not in specific sectors.
- Sectoral budget support - support for a specific sector, subsector or sectoral program. Grants and loans in support of the sector are taken into account in a special section of the annual republican budget - the Public Investment Program (PIP). The Government of the Kyrgyz Republic co-finances the PIP projects.

In 2016, the Board of the state FEPFD considered 563 applications, 250 applications were approved and financed. In order to ensure financing (co-financing) of nature conservation activities, restoration of losses in the natural environment, conservation of biodiversity and forest ecosystems, in 2016, 275,305.1 thousand KGS were allocated from the fund, including, for conservation of biodiversity and development of specially protected natural areas – 17,509.6 thousand KGS and for development of the forestry sector gardening and landscaping – 520,063.2 thousand KGS.

41 GovKR Resolution "On Approval of the Regulations on the Republican Fund for Nature Conservation and Forestry Development of the State Agency on Environment Protection and Forestry under the Government of the Kyrgyz Republic", June 12, 2012, No.400

42 GovKR Resolution "On Approval of the Regulations on the Formation and Use of Funds of the Republican and Local Funds for Nature Protection and Development of the Forestry Sector in the Kyrgyz Republic", October 9, 2012, No. 696

43 Came into force on January 1, 2017

Another form of donor assistance is *technical assistance in sectors*. As a rule, it is not included in the PIP and is a grant. This is how the projects of the UN (UNDP, UNEP, GEF, etc.) and international cooperation agencies (USAID, GIZ, JICA, etc.) are financed. Quite a large number of analytical reports, studies and strategic documents was produced in the framework of such technical assistance.

It is not possible to accurately predict the amount of anticipated donor assistance during the budget planning period. That is, there are risks of late implementation of the accepted conditions of these programs by ministries and departments, problems with procurement. All this may lead to delays in the implementation of projects financed from external sources.

5.1.6. Issues of Environment, Biodiversity and Adaptation to Climate Change in the Budget Process

Direct financing of the environment and biodiversity follows the budget process within a separate functional classification item: 705 - "Environmental Protection", and the finances directed to climate adaptation activities are reflected in item 702 - "Defense" in the sub-functions "Emergency Situations" and "Other Measures for Civil Protection and Emergency Situations". Activities on these areas of public policy are implemented by the State Agency on Environment Protection and Forestry, the State Inspection on Environmental and Technical Safety, Ministry of Emergency Situations, Ministry of Agriculture, Processing Industry and Land Reclamation, State Inspection on Veterinary and Phytosanitary Safety and State Committee on Industry, Energy and Subsoil Use. In addition, some activities that can be classified as directed to the environment, biodiversity and adaptation to climate change can be financed under other functional classification items. For example, Article 704 - "Economic Issues" includes such sub-items as 70421 - "Agriculture" (contains activities related to the protection of the environment and biodiversity: "Conservation or Expansion of Arable Land", "Control and Regulation Over Agricultural Production"⁴⁴), 70422 - "Forestry", 70423 - "Fisheries and Hunting", 70424 - "Water Economy and Amelioration", 7043 - "Fuel and Energy", etc.

From the point of view of the budgetary process, the environment, biodiversity and climate change have the same status as the other areas of public policy. This leads to the fact that environmental issues compete for budget resources with such areas as health, social protection, education, emergencies and, as a rule, they lose. Herewith, a negative factor is that there are no clearly defined mechanisms for ensuring the integration of environmental issues, biodiversity and adaptation to climate change into the budgetary process. The formation of budgets important for the environment, biodiversity and adaptation to climate change agencies does not include requirements for the financing of environmental measures. Accordingly, when considering and approving the budget, criteria related to the sustainable use of natural resources are not applied.

In view of the constant budget deficit and the instability of economic growth, there is a high risk of budgetary sequestration of financing of some activities in the course of budget execution.

The possibility including additional activities in the budget plan is provided by sectoral strategic documents. At the same time, these documents should be qualitative in terms of justifications and the correct allocation of priorities in conditions of financial deficits. The analysis showed that existing strategies and programs do not have the necessary qualities (see Section 3 of this Review).

In 2017, a result-oriented *program budget* was developed, which, if properly applied, will consistently implement key activities in the spheres of environment, biodiversity and climate adaptation. It assumes the justification, from the point of view of state policy and public interests, of the costs of certain measures and their prioritization. SAEPF and other agencies should develop

qualitative strategic documents (see Section 5.1) in order to convince the Government to allocate funds for environmental and adaptation measures.

It is important to use scientific approach when developing and justifying budget programs on environment protection, biodiversity conservation and climate change adaption. Doing this requires involving the civil sector and scientific institutions.

Advantages of the program budget should also be used by scientific organizations financed from the budget. This will make it possible to finance applied research that is important for making managerial decisions, including in the sphere of environmental protection, biodiversity conservation and adaptation to climate change.

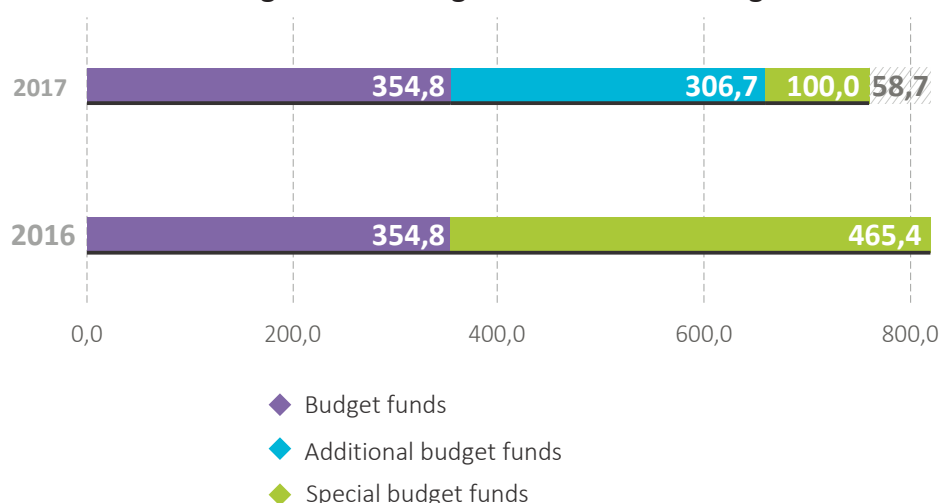
It is necessary to introduce criteria for the budget programs evaluation of ministries and agencies from the point of view of environment protection, as one of the aspects of sustainable development. The system of indicators of budget programs should include all three aspects of sustainable development: economic, social and environmental.

Until January 1, 2017, one of the main sources of financing for nature protection measures were the Nature Conservation Funds (NCF)- the Republican (RNCF) and local (LNCF), financed mainly from special funds⁴⁵. Formally, the NCF funds cannot be directed to other than environmental activities. However, according to experts, the NCF funds were often used in derogation from the government's tasks- for the maintenance of SAEPF and NCF bodies.

The Budget Code, which entered into force on January 1, 2017, changed the system of budgetary accounting of a part of the sources of NCF income- now they are credited to the central accounts of the Treasury and, accordingly, may be redistributed to non-environmental development priorities. Besides, these funds can be sequestered, which was previously not possible with respect to the RNCF.

In 2017, only 85% of funds (or 306.7 million KGS) previously received as special funds are planned to finance the SAEPF system from the republican budget (100 million KGS are transferred to the agency's special account). As a result, the amount of funding for environmental protection is 58.7 million KGS less than that allocated in 2016 (Figure 5.2).

Figure 5.2. Change in the SAEPF funding



Sources: MoF KR, own estimates

In addition, part of the amount coming from the republican budget, if necessary, may be subject to sequestration. Special funds could not be sequestered.

5.2 Financial mechanisms

This Section describes existing financial mechanisms that are directly relevant to the achievement of public policy objectives in the field of environment, biodiversity and climate change adaptation. The first sub-section describes subsidies, followed by discussion of other financial mechanisms.

5.2.1 Subsidies

The government earmarked at least 22.2 billion KGS, or 14.9% of the total national budget expenditures to subsidies in 2017. For the purpose of this Review, the broad definition of the *subsidy* proposed by the OECD is used: “**subsidy is the result of government action that provides benefits to consumers or producers, allowing them to maintain their income or reduce their costs**”⁴⁶. This definition covers the main elements of the definition of subsidies contained in the WTO Agreement on Subsidies and Countervailing Measures. It fully corresponds to the fundamental goal of improving the financing of environmental activities and “greening” the Kyrgyz Republic economy. This definition is much broader than that given in the Kyrgyz Republic Budget Code⁴⁷.

The OECD definition makes it possible to identify a wide range of fiscal policy measures that further on, when developing the Financial Plan for Biodiversity Conservation, can be assessed in detail for the acceptability and improvement possibility, in terms of contribution to environmental protection, biodiversity conservation and climate change adaptation measures.

Subsidies include cash payments, tax relief, competition protection, bank interest benefits, non-monetary subsidies in the form of reduced prices for resources (for example, irrigation water and electricity).

This review outlines the following categories of subsidies: subsidies potentially negative and subsidies positive for the environment, biodiversity and climate. Each of the categories is divided into monetary and non-monetary subsidies. This review does not consider negative subsidies, because no studies have yet been done on the impact of such subsidies on the environment, biodiversity and climate.

5.2.1.1. Subsidies Potentially Negative for the Environment, Biological Diversity and Adaptation to Climate Change

1) Monetary subsidies ⁴⁸

This category of subsidies includes national budget expenses for activities that are potentially negative for the environment, biodiversity and impeding adaptation to climate change.

It is estimated that approximately 22.1 billion KGS will be allocated from the state budget for these subsidies. At the same time, donor assistance for negative subsidies accounts for more than 82% of the total subsidy amount.

Potentially negative subsidies are distributed by sectors as follows.

1. In *energy sector*, a potentially negative subsidy is the direct financing of the fuel procurement for generating boiler-house heat energy for the population. The subsidy is

46 OECD, 2005, Environmentally Harmful Subsidies Challenges for Reform: Challenges for Reform

47 73 Definition of the Budget Code of the Kyrgyz Republic: Subsidies are the funds provided to legal entities-producers of goods, works, services on a non-refundable basis to compensate for losses incurred in carrying out their production activities, in accordance with state economic and social policy.

48 Monetary subsidies are based on the Law of the Kyrgyz Republic “On the National Budget for 2017 and the Forecast for 2018-2019.”

social and aims at helping the poor to reduce rising costs associated with heating. However, in this way, air pollutants are maintained from the state budget.

An inefficient (uneconomical) use of energy resources is encouraged; this contradicts the NSDS priority on energy efficiency of the Kyrgyz economy, (see section 4.1.2 for negative industry impact on the environment, biodiversity and measures of adaptation to climate change). In addition, in fact, the subsidy recipients are all heating network subscribers, not only the poor. This blurs the subsidy's purpose and creates an excessive burden on the state budget. In 2017, it is planned to spend more than 1 billion KGS.

2. *Agriculture*. Farmers receive subsidies directly aimed at increasing productivity. These include chemical control of locusts and biological plant protection (253.5 million KGS in 2017) and development of irrigation (2.1 billion KGS), including World Bank projects totalling 604.8 million KGS. IFAD supports livestock development (1.4 billion KGS).

Farmers do not have the necessary means for development of agricultural infrastructure, introduction of new production methods, and plant protection. This requires an integrated approach and coverage of large areas that cannot be ensured because most of the farmers own small plots. Therefore, the state, in order to ensure food security, and to keep food prices at socially acceptable level, is forced to subsidize this sector.

Thus, in the absence of effective integration of biodiversity conservation objectives, adaptation to climate change and environmental protection into agricultural policy, the intensification of agricultural production, and development of irrigation can create an excessive and negative burden on nature. Although this impact has not yet been studied, it is clear that the benefits of agricultural subsidies are not straightforward in the context of full costs and benefits, with the inclusion of environmental externalities (see section 4.1 for negative impacts of the industry on the environment, biodiversity and adaptation measures to climate change).

3. *Transport*. In the transport sector, subsidies include the costs of rehabilitating international transport corridors, repairing, and building new roads and road infrastructure. In 2017, 17.4 billion KGS are planned to be spent on roads, including the rehabilitation of international transport corridors, and 16.2 billion KGS from the funds of the development partners.

Nature protection measures in the operation of roads are not effective, and the threat has increased with the commissioning of the international transport corridor (Bishkek-Torugart) and the construction of main state roads (alternative road Bishkek-Osh). This has a negative impact on the environment and biodiversity in the areas adjacent to the roads (see section 4.1.4 for the negative impact of the industry on the environment, biodiversity and measures for adaptation to climate change).

4. *Tourism* is one of the priority spheres of the economy and the state has taken on the function of promoting the tourism opportunities of Kyrgyzstan. The state supports the growth in the tourists' number arriving in the Kyrgyz Republic, but at the same time this increases the burden on the nature. Positive economic results in the absence of effective measures to mitigate the negative impact on nature, can affect and disrupt ecosystems (see section 4.1.5 for negative effects of the industry on the environment, biodiversity and measures to adapt to climate change).

2) *Non-monetary subsidies*

In the Kyrgyz Republic, potential negative non-monetary subsidies are provided by state and quasi-state institutions. This includes tax breaks.

Tax concessions stimulate the expansion of production and consumption in economy

sectors which activities may have a negative impact on the environment, biodiversity and contradict the goals of adaptation to climate change.

For example, *agricultural producers and enterprises of the food and processing industry, which carry out industrial processing of agricultural products* (except excisable goods used for production), enjoy extensive tax privileges. All of them, regardless of size, are exempt from the main state taxes: income tax, value added tax, sales tax, etc. This privilege is introduced to stimulate agricultural production and to keep food prices at a socially acceptable level.

Another potentially negative subsidy is exemption of the individuals from the sale tax on *electricity, heat and natural gas* used for domestic purposes. The negative factor of this benefit is that it stimulates inefficient energy consumption.

Regulating electricity and irrigation water tariffs is one of the most environmentally friendly and prohibitive adaptation to climate change subsidies. However, tariffs are significantly underestimated. This is evidenced by the negative balance of incomes and expenses of the energy sector of the Kyrgyz Republic (in 2014, the deficit amounted to 55.8% of income).⁴⁹ In the water supply sector, the applied tariff for the population is 2.75 times⁵⁰, and according to independent experts – up to 7-8 times⁵¹ lower than the net cost.

It is obvious that tariff regulation is aimed at social supporting. However, the observed difficulties in maintaining and developing the energy infrastructure and irrigation system in the country, being evidence that tariffs are much lower than net cost, on the other hand, testify to the increasing and accumulating long-term negative effect of such subsidies.

The negative effect for the environment is that the inefficient (uneconomic) use of energy and water resources is encouraged. This creates additional negative impacts on nature and climate, and accelerates soil degradation.

Significant potentially negative state subsidies include also:

- *exemption from payment for the emissions* used by economic entities that emit pollutants into the atmosphere related to the production of heat and electrical energy for the needs of the population and budget organizations. These emissions, caused by generation of heat and electrical energy for the above-mentioned categories of consumers, are allowed provided to comply established allowable emission standards for pollutants;⁵²

- *exemption from payment for the discharge of pollutants* of domestic wastewater from the population and facilities financed by budget, and economic entities carrying out such discharge, provided to comply to the established standards of wastewater quality;

- *exemption* of economic budget entities, as a result of activities which generate municipal solid waste (MSW), as well as the population *from payment for MSW disposal* at specialized district and city landfills, provided to comply to environmental requirements.

5.2.1.2. Subsidies Contributing to Environmental Protection, Conservation of Biodiversity and Adaptation to Climate Change

This section presents subsidies that directly or indirectly contribute without any harm to the preservation of the environment and biodiversity.

49 GovKR Decree “On the Medium-Term Tariff Policy for Electric and Thermal Energy for 2014-2017”, June 17, 2014, No. 336

50 <http://www.gov.kg/wp-content/uploads/2015/06/Ob-utverzhenii-tarifov-za-uslugi-po-postavke-vodyi-iz-gosudarstvennyih-vodohozyaystvennyih-sistem-vodopolzovatelyamdoc.doc>

51 <http://www.msn.kg/ru/news/21167/>

52 GovKR Decree “On Approval of the Methodology for Determining the Charge for Pollution in the Kyrgyz Republic”, September 19, 2011, No. 559

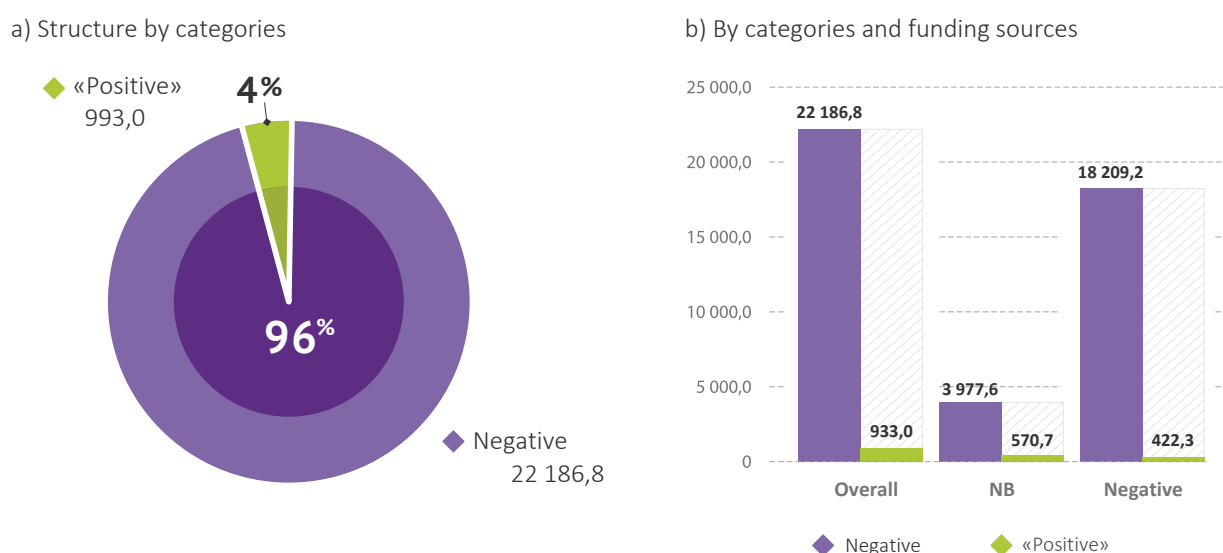
1) Monetary subsidies⁵³

1. A useful subsidy in the energy sector is the national budget expenditures for the major repairs of boilers, engineering equipment and heating networks (30 million KGS in 2017). The major repairs should increase the efficiency of heating boilers and reduce heat energy losses. This means reducing the amount of coal, fuel oil and gas burned per unit of heat.

2. In agriculture, a positive subsidy is the financing of projects aimed at improving the efficiency of use of agricultural resources, Improved Pasture Management Project implemented in the framework of the World Bank activities (422.3 million KGS in 2017). This project is aimed at the efficient and careful using of the national pastures and overcoming the tendencies of overgrazing and degradation. Financing of free technical assistance to farmers under this project can be considered as a subsidy. Thus, the rate of human expansion into natural territories decreases. In total, in 2017 it is planned to spend 1.6 billion KGS for such kind of projects.

The state financing of the fall webworm moth (a quarantine invasive pest of fruit crops) pest control campaigns is a positive subsidy. The funds are spent to purchase pesticides and spraying plants. The main beneficiaries of such subsidy are gardeners.

Figure 5.3. Financing by categories of monetary subsidies and by sources of financing, plan for 2017, million KGS, %



Source: MoF KR, own estimates

In addition, the state budget finances measures that are not subsidies, as they are not directed to consumers and producers. However, they are aimed at improving the state of biodiversity. These are primarily expenses:

- in forestry, where forest biodiversity conservation is one of the goals of public forest policy. The government finances activities aimed at conserving and increasing the forest area, including the annual forest planting. In 2017, it was planned to spend 327.4 million KGS for forestry sector;

⁵³ Monetary subsidies are based on the Law of the Kyrgyz Republic "On the National Budget for 2017 and the Forecast for 2018-2019." GovKR Resolution "On Medium-Term Electric and Heat Energy Tariff Policy for 2014-2017", June 17, 2014, No.336 <http://www.gov.kg/wp-content/uploads/2015/06/Ob-utverzhenii-tarifov-za-uslugi-po-postavke-vodyi-iz-gosudarstvennyih-vodohozyaystvennyih-sistem-vodopolzovatelyamdoc.doc> <http://www.msn.kg/ru/news/21167/>

- for biodiversity conservation measures in its natural habitats – protected areas and hunting grounds, it was allocated 213.2 million KGS in 2017.
- for protective measures and emergency prevention that are aimed at preventing both economic and environmental damage. In addition, these activities are adaptive to climate change.

Figure 5.3 shows that subsidies and other expenditures that contribute to environmental protection, biodiversity conservation and adaptation to climate change, account for only 4%, and potentially negative 96% of monetary subsidies. At the same time, potentially negative subsidies are mainly funded by donors (investment road, irrigation and other projects), and the “useful” ones are largely financed by the state budget.

2) *Non-monetary subsidies* ⁵⁴

“Useful” subsidies in the Kyrgyz Republic, as well as negative ones, are also provided in non-monetary form. They include one tax benefit and one non-monetary subsidy.

The state environmental conservation policy has provided the tax benefit for degraded lands obtained for agricultural needs by various entities. These lands are exempted from land tax. It is assumed that the municipality or the farmer, having acquired the degraded land, will seek to include it in the economic turnover ensuring land restoration.

Another non-monetary subsidy that contributes to the preservation of the environment and biodiversity, as well as adaptation to climate change are grants and concessional loans for housing insulation in the framework of the Kyrgyz Sustainable Energy Financing Facility (KYRSEFF⁵⁵). The loan rate is 14% per annum, but if the project is successfully implemented, you can receive a grant in the amount of 20% of the loan amount. As a result, energy consumption and, consequently, carbon dioxide emissions into the atmosphere are reduced. According to KYRSEFF, CO₂ emissions reduced by 9.9 thousand tons per year⁵⁶.

5.2.2. *Public Sector Revenue: Payments for the Use of Natural Resources*

Nature management on a paid basis and compensation for damage to the environment is one of the principles on which the state policy in the field of environmental protection and rational nature management is based on⁵⁷.

Considering the fact that the use of natural resources damages environment, the restoration should be carried out at the expense of those users who have a harmful effect on the environment. This is the reason for charging for environmental pollution.

The use of natural resources is carried out on the basis of payment: subjects pay for permits for the seizure of flora and fauna objects.

54 Monetary subsidies are based on the Law of the Kyrgyz Republic “On the National Budget for 2017 and the Forecast for 2018-2019.”

55 <http://www.kyrseff.kg/ru/home-main/o-programme>

56 <http://www.kyrseff.kg/ru/statistika-home/item/10-ctatistika-zhilishchnykh-proektov-finansiruemykh-programmoj-kyrseff>

57 The Concept of Environmental Safety of the Kyrgyz Republic (Decree of the President of the Kyrgyz Republic, November 23, 2007, No. 506)

The purpose of pollution charges is to be an economic tool for nature conservation, which serves to stimulate the emissions reduction, discharges and waste disposal; stimulate the construction of environmental facilities; financing environmental activities and reimbursement of costs associated with offsetting the effects of emissions and discharges of pollutants.

Payments, in accordance with the law, have a clear environmental focus. However, they are not used directly for financing the environmental protection and biodiversity conservation activities, since they are transferred to the national budget on a single treasury account or local budget. Pollution charges are of compensatory nature and not a tax.

Table 5.1. Public sector revenues from the use of natural resources

Type of payment	Beneficiary (ries)	Features («+» - positive, «-» negative)
1. Lease payments for land use:		
Land of municipalities	Local budget	“+” Well administered “-” Low rental rates, therefore, cannot be used for development, including for environmental purposes.
Pastures	Pasture committees	“+” Well administered “-” Low transparency due to lack of reporting system “-” Low rental rates, therefore, cannot be used for development, including for environmental purposes.
Lands of the state forest fund and SPAs, including pastures	National budget	“+” Well administered “-” Low rental rate “-” Fully deducted to the central budget, where funds are distributed on a common basis, regardless of origin, and therefore cannot be used for environmental purposes.
2. Payments for the use of natural resources:		
Payments on the use of water bodies	National budget	“+” Well administered “-” A very low tariff, therefore it cannot be used for development, including for environmental purposes.
Fee for water supply to water users	National budget	“+” Well administered “-” A very low tariff, therefore it cannot be used for development, including for environmental purposes.
Fee for authorization of special use of plant and animal life	National budget	“-” Insufficient coverage due to the inability to control the entire territory where withdrawal could be done. “-” A very low tariff and a small official charging base, therefore it cannot be used for development, including for environmental purposes.
Payments for the mineral deposits research, including groundwater	National budget	“+” Well administered
Development of mineral deposits, including groundwater	National budget / local budget (2%)	“+” Well administered

3. Payments for environmental pollution:		
Emissions to atmospheric air	National budget	<p>“-” Poorly administered due to the complexity and labour input to the calculations and administration.</p> <p>“-” Pollution charges are charged for an excess air and water pollutants. The cost of administering payments for most pollutants is higher than the value of the revenues themselves*.</p> <p>“-” The current standards of payments are very low, their stimulating effect for polluters is almost zero</p> <p>“-” There is no mechanism for adjusting the fee, in case the user of the environment incurred other expenses for the implementation of environmental protection measures. Although this adjustment is required by law</p> <p>“-” There are no penalties for late payment.</p> <p>“-” The accounting of payments in the payer's accounting documentation is not regulated: as expenses, or from the company's profit.</p> <p>“-” Fully deducted to the central budget, where funds are distributed on a general basis, regardless of origin, and therefore cannot be used for environmental purposes.</p>
Discharges into water bodies		
Waste disposal in the environment (except for certain categories of enterprises (see section 5.2.1.1.2 “Non-monetary subsidies”))		
Payments for the removal and disposal of solid waste	Local budget and revenues of municipal enterprises	“+” Well administered
4. Fines:		
penalties in case of violation of environmental standards and environmental management;	National budget	<p>“-” State bodies do not have sufficient financial and human resources to effectively monitor violations of environmental legislation. Penalties are not effective and do not entail the elimination of the offense.</p>
rates for damage caused by the illegal seizure of natural resources;	National budget	
5. Entrance fees to natural parks:	National budget – special funds	<p>“-” Low tariff, therefore cannot be taken into account as a source of financing environmental protection measures in SPAs</p>
6. Taxes:		
Land tax	Local budget	“+” Well administered
Tax on the use of subsoil	National budget	“+” Well administered

* - The fee is set for 120 major pollutants in emissions into the air and 31 for emissions into water bodies. However, government agencies do not have sufficient resources to control the entire list of pollutants. Emissions are determined in relation to a limited number of substances, and payments are made mainly by indirect calculation, due to the complexity of the instrumental method of calculation, the absence and high cost of modern test equipment. As a result, the cost of administering payments for most pollutants is higher than the value of the revenues themselves. Such a system is very burdensome for both payers and government agencies.

In addition to those mentioned in Table 5.1., there is one more problem that needs to be pointed out: the classification of budget revenues does not provide for the allocation of a separate line of income from the issuance of licenses / permits for various activities, including those related to environmental management. Similarly with fines- all fines, including for violations of environmental regulations, are presented as one type violation, that is, for offenses in all areas. Thus, the target spending of funds received from the above sources for environmental protection measures is impossible.

All identified problems need to be addressed. Each payment is a mechanism to improve the financing of environmental protection and biodiversity conservation with potentially high efficiency. At the time of the development of this Survey, they are of little effect and require further development. This is primarily the increase in the size of fines; improvement of administration, improvement of the material and technical base of payment administrators, laboratory development, increase in staffing of both permissive and regulatory bodies. One of the most important conditions for increasing the efficiency of resource use and income is the reform of payments for the natural resources use⁵⁸.

5.2.3. Other Financial Mechanisms Existing in Kyrgyzstan

The task of protecting the environment, preserving biodiversity and adapting to climate change can be solved in various ways. Some of them suggest financial mechanisms aimed at finding new sources of funding or improving the efficiency of existing ones. Others themselves have a positive effect on the biodiversity conservation through the efficient use of resources - natural, human, time.

In the Kyrgyz Republic, the regulatory (normative) legal acts (NLA) and regulations provide for about 60 such financial mechanisms⁵⁹, including payments and taxes discussed in Section 5.2.2. The most promising of them are listed here. The full list of the implemented financial mechanisms is given in Appendix 3.

1. “Effective government procurement” and “Green government procurement.” The Ministry of Finance of the Kyrgyz Republic works on improvement of the public procurement efficiency. An electronic procurement system has been introduced. It significantly saves resources, incl. energy, thus reducing pressures on nature. The next necessary step is the introduction of the environmental friendliness of the goods and services supplied. It requires work of both the Ministry of Finance and the Ministry of Economy, which is the authorized body in the field of sustainable development.

2. “Ecotourism” is one of the priority types of tourism in the Kyrgyz Republic. It is beginning to develop, but so far it does not generate significant incomes for the environmental protection and biodiversity conservation. The SAEPF and the MCIT Department of Tourism should work together to work out common approaches to develop this type of tourism.

3. “Results-oriented budgeting.” In Kyrgyzstan, result-oriented budgeting is being introduced. This is the program budget, which is aimed at ensuring the effectiveness of government expenditures and prioritizing resources. The principles of the state budget are established by the Budget Code of the Kyrgyz Republic. The MoF and the Ministry of Economy should work out approaches to integrate the principles of sustainable development into sectoral strategies of budget expenditures (one of the main elements of the program-based budget).

58 OECD (2016), *Reforming Economic Instruments for Water Resources Management in Kyrgyzstan*, OECD Studies on Water, OECD Publishing, Paris

59 The BIOFIN methodology describes about 160 financial mechanisms and solutions that contribute to the biodiversity conservation

4. The sector-wide approach (SWAp) is used by the government of the Kyrgyz Republic and ODA in the Education and Health sectors. As for the environment, biodiversity and adaptation to climate change, this mechanism is promising in terms of mobilizing public resources. In each case, the SWAp is adopted by the relevant legal act. The SAEPF needs to explore the possibilities for applying this mechanism to finance environmental protection measures.

5. “Redistribution of licensing fees for hunting.” The amount received from the hunting license is distributed as follows: return to hunting farms in order to co-finance the conservation and reproduction of natural resources- 40% of the amount; fee for hunting license is returned to local budgets of local self-government bodies at the place of extraction of the animal- 25%; SAEPF to carry out work on monitoring, protection and reproduction of hunting resources, inter-farm hunting, implementation of regulatory, coordinating and other functions in the sphere of hunting.

6. “Recultivation Fund in Mining Sector”, which is purposed to accumulate and finance recultivation and rehabilitation of areas damaged during the activities of mining enterprises. A thorough analysis of this tool is required.

5.3. Key “Entry Points” for Better Financing of Environment, Biodiversity Conservation and Adaptation to Climate Change

“Entry points” for better financing of environment, biodiversity conservation and adaptation to climate change are the areas that the government, business society and population should focus on. “Entry points” provide opportunities for promoting environmental protection, biodiversity conservation and adaptation to climate change in the framework of the state policy. In Kyrgyzstan, there are at least three “entry points”.

I. Commitment of Public Policy of the Kyrgyz Republic to Sustainable Development

1. The Sustainable Development Strategy until 2040 which is being developed in the country will determine the state policy for the next 20 years. Accordingly, the directions, which are identified as priority, will have to be compulsory financed. SAEPF and other agencies should justify the priority of the environment; biodiversity and climate change adaptation and include them in this strategy. This will serve as a foundation for subsequent integration of environment, biodiversity and climate change adaptation into sectoral programs and action plans.

2. Sectoral programs and action plans are documents that identify government priorities and are the basis for financial plans in sectors for the medium and long terms. SAEPF and other relevant agencies should include environmental, biodiversity and climate change adaptation issues into future national, regional and sectoral strategic documents and financial plans.

The existing strategic planning system prescribes the presence of an environmental component into all newly developed documents. However, this approach is formal and it does not provide for an environmental impact assessment of each event of a strategic document. Therefore, there is a high probability of approval of a document containing a formal section on the environment, and also containing measures that directly degrade the environment, biodiversity and impede climate change adaptation.

3. At the time of this analysis, three of these documents are in effect in the Kyrgyz Republic: 1) The Environmental Safety Concept⁶⁰ of the Kyrgyz Republic by 2020 adopted in 2007, 2) the Biological Diversity Conservation Priorities of the Kyrgyz Republic by 2024, and 3) Action Plan for the Biological Diversity Conservation Priorities of the Kyrgyz Republic for 2014-2020⁶¹. These documents require updating. SAEPF has initiated the process of revision of the strategic documents on biodiversity

60 Approved by the Decree of the President of the Kyrgyz Republic, November 23, 2007, No.506

61 GovKR Resolution, March 17, 2014, No. 131

conservation. Thus, from the BIOFIN point of view, there is an opportunity (“entry point”) for building the right state policy in the field of environmental protection and biodiversity conservation

4. The implementation of the environmental protection, biodiversity conservation, adaptation to climate change policies, and an increase in their financing should be recognized by government officials and the public. Therefore, it is necessary to implement communication measures to promote environmental protection, biodiversity conservation and adaptation to climate change, and the government agencies, international community, business and public need to play a special role in this process.

5. Sustainable development requires the participation of all segments of the population. Most of them are poorly aware of the importance of conserving the existing ecosystems and the possible negative consequences of their disturbance with economic activity, uncontrolled hunting, cutting down trees and collecting plants. SAEPF, partners and NGOs should pay attention to the issues of environmental education. It is highly likely that awareness of the need to conserve nature will allow to save the funds for allotted for its protection.

II. Ongoing Public Finance Management Reform in the Kyrgyz Republic

The next stage of the public financial management reform is being implemented in Kyrgyzstan: the Budget Code of the Kyrgyz Republic (January 1, 2017) came into force, which introduced budgeting on a program basis.

The program budget allows justifying the financing of measures included in budget programs and establishing performance indicators. For the purposes of environmental protection, biodiversity conservation, and adaptation to climate change, as well as for any other direction of state policy, the introduction of the program budget is the most important “entry point” allowing funding for priority activities.

The SAEPF budget for 2018 was shaped in the form of a program budget (with the consulting support of the BIOFIN team), which reflected the main directions of environmental protection activities. Biodiversity conservation issues have been incorporated to a separate budget program from the five SAEPF programs. As a result, at the parliamentary hearings on the budget for 2018-2020, positive progress was noted from the point of view of the budgeting of this state body.

The 2019 budget cycle will also be supported by the BIOFIN initiative. Firstly, it is planned to assist SAEPF in improving budget programs, better formulation of performance indicators. Secondly, assistance will be provided for the development of the budget of the State Inspection on Environmental and Technical Safety under the Government of the Kyrgyz Republic (SIETS), which performs monitoring functions, including environmental field.

The development of the program budget will allow developing important financial mechanisms related to lobbying budgetary allocations, working with development partners. In addition, the program budget, due to better visualization of the sector’s needs for public funding, will increase the chances for implementation of financial mechanisms related to environmental payment reform.

III. Kyrgyz Republic Membership in International Integration Organizations (EAEU, WTO, etc.)

Integration associations involve introduction of new regulations, standards and certificates, including those related to environmental safety.

For Kyrgyzstan, this is the “entry point” for the introduction of modern production, consumption and waste management standards in the country, so that the technical regulations of the EAEC on interstate agreements are mandatory for execution. At the same time, Kyrgyzstan should adhere to the policy of sustainable development within the framework of national priorities and the principles of the “green economy”.

5.4. Conclusions

1. In terms of the budget process, the environment, biodiversity and climate change have the same status with other areas of government policy. This leads to the fact that environmental issues compete for budgetary resources with areas such as health, social protection, education, emergencies and, as a rule, they lose. The main reason is that within the given the shortage of financing, the system of national priorities, adopted in early 1990s, is mainly focused on social protection and support of economic growth. The situation is worsening with internal contradictions in normative and legal acts, weakness of monitoring and evaluation systems in all sectors and other factors which distort the decision making process. In many ways public funding for any sector depends on the level of revenue collection of the state budget, which are formed in the conditions of chronic shortage of funds (not all the necessary measures can be financed). First of all, the “protected” articles of the economic classification of the budget are subject to financing, incl. basic social benefits.

2. When considering and approving budgets of ministries and departments important for the environment, biodiversity and adaptation to climate change, the criteria related to the sustainable use of natural resources are not applied.

3. The formation of budgets important for the environment, biodiversity and adaptation to climate change does not include requirements for financing environmental measures (except SAEPF). Accordingly, when considering and approving the budget, criteria related to the sustainable use of natural resources are not applied. Considering the fact that the state policy of the Kyrgyz Republic is subject to the principles of sustainable development, it is necessary to introduce criteria for evaluation of the budget programs of all these agencies in terms of compliance with these principles, for example, setting environmental safety requirements for public investment projects.

4. There are mechanisms that allow, when certain conditions are met, to ensure financing of the environment, biodiversity and adaptation to climate change in at least the most priority areas. These are, first of all, mechanisms of the program budget and mechanisms for attracting extrabudgetary funds, incl. international donors.

The advantages of the program budgeting approach should be used. It presupposes a clear justification of the state policy and public interest on the department expenditures for all measures and their initiation. Herewith, a qualitative strategic basis is important, i.e. well-grounded strategic documents on biodiversity conservation and plans for their implementation in order to convince the government and parliament to allocate funds for environmental protection and adaptation measures. For this purpose, it is necessary to:

- train the top management and staff of SAEPF and SIETS to integrate environmental results and priorities into program budgets, since the mechanism of program budgeting for these organisations is relatively new.
- use a scientific approach when developing and justifying budget programs. To do this, it is necessary to involve non-governmental organizations and scientific institutions.

5. Advantages of the program budget should also be used by scientific organizations to finance applied research important for making managerial decisions, including in the areas of environmental protection, biodiversity conservation and adaptation to climate change.

6. To overcome the problem of underfunding functions which are under the unsecured items of the economic classification of the budget, it is necessary to introduce new rules for financing budget organizations, depending on the type of activity. That is, the costs of institutions should be secured under their basic mandates. For example, policy making and managerial decisions institutions should be protected in terms of wages and related current expenses (office supplies, travel expenses,

etc.). Institutions, with where the main product- the result of economic activity, for example, forest enterprises, should be protected in terms of wages, running costs associated with the purchase of goods (seedlings, necessary tools, chemicals, etc.), services of laborers and capital investments.

The processes of reforming the budget principles should also affect the budgets of municipalities.

7. Various subsidies are being implemented in the Kyrgyz Republic, including those that directly affect the environment, biodiversity and the effectiveness of climate change adaptation measures. Potentially negative subsidies prevail. The situation is conditioned by the priority of the energy, transport and agriculture sectors and the fact that the sustainable development goals are not comprehensively understood by decision-makers.

Potentially negative subsidies often have not only undesirable effects on the environment, but also create an excessive burden on the budget. Most of them, originally introduced for social assistance to certain segments of the population, are used by a wider group of the population. In this regard, it is recommended to assess the effectiveness of selected potentially negative subsidies in order to implement economically, environmentally and socially justified reforms that will eliminate deviations in the development of the economy and make social assistance targeted.

8. The state has a wide range of control tools and stimulates the activities of state bodies and economic entities in terms of potential environmental impact.

The control tools include environmental assessment conducted by SAEPP and environmental monitoring system implemented by SIETS, system of strategic environmental assessment, administrative and criminal liability for environmental offenses and crimes.

Stimulation tools are system of benefits and other forms of support, and system of environmental payments.

Reform of the environmental control and stimulation tools system is necessary to ensure their effectiveness in terms of stated goals and objectives.

9. The existing financial mechanisms that could assist implementation of environmental protection, biodiversity conservation and adaptation to climate change are still not strong enough and can not help overcome the negative trends in this sphere. The government is to revise these mechanisms. The BIOFIN initiative will propose ways of reforming the existing financial mechanisms and a list of new ones with high implementation potential. The mechanisms will envisage an increasing role and responsibility of the private sector in environmental matters.

6. INSTITUTIONS IMPORTANT FOR FINANCING ENVIRONMENTAL PROTECTION, BIODIVERSITY CONSERVATION AND ADAPTATION TO CLIMATE CHANGE

This section describes the powers of institutions important for the protection of the environment, biodiversity conservation and adaptation to climate change and the implementation of relevant financial mechanisms. First of all, these are the agencies responsible for public policy, including the budget, in the priority sectors of the economy (see Section 4), the agencies that shape policies in the field of environmental protection, biodiversity conservation and adaptation to climate change, as well institutions having a certain importance for the issues covered in this review.

The previous sections identified the most important financial mechanisms and decisions for Kyrgyzstan influencing the environment, biodiversity and adaptation to climate change, which determine the actual state policy in this area (Section 5) and their current trends (Section 3). Table 6.1 demonstrates the link between public policy and the status of the environment, including biodiversity and adaptation to climate change.

6.1. Powers and Capabilities of Organizations Involved in the Financing of Environment Protection, Biodiversity Conservation and Adaptation to Climate Change

The state executive authority for implementing the policies and regulating relationships in the field of environmental protection, safety and is the **State Agency on Environment Protection and Forestry under the Government of the Kyrgyz Republic (SAEPF)**⁶².

The goal of SAEPF is to ensure the preservation of the unique ecological system of the Kyrgyz Republic and environment protection for present and future generations.

According to the responsibilities approved by the Regulation, the State Agency on Environment Protection and Forestry implements the state policy in the field of environmental protection and safety, develops proposals for integrated environmental management, biodiversity conservation, environmental management, management of specially protected areas, development of forestry and hunting; monitors environmental pollution, biodiversity, including forests; conducts forest inventory and forest inventory; coordinates the implementation of measures for the protection, reproduction and restoration of objects of the animal and plant world, the rational use of forest resources during economic activities, issues conclusions for permits for the withdrawal, import and export of objects of flora and fauna; carries out state ecological expertise; participates in the development of adaptation measures for climate change, etc.

The national budget does not allow financing all necessary forestry and biotechnical activities. It is mainly finances, salaries and contributions to the Social Fund that amounts up to 90% of the budget.

The state agency is limited in financial resources and expertise. It does not have sufficient own potential for development a balanced state environmental policy. The list of its obligations is incommensurable with its capabilities which indicates clear imbalance in the system of state administration in the direction of detracting and underestimation of the importance of the country's main environmental authority.

SAEPF is the executive body for the implementation of the obligations of the Kyrgyz Republic under the UN Framework Convention on Climate Change (UNFCCC)⁶³.

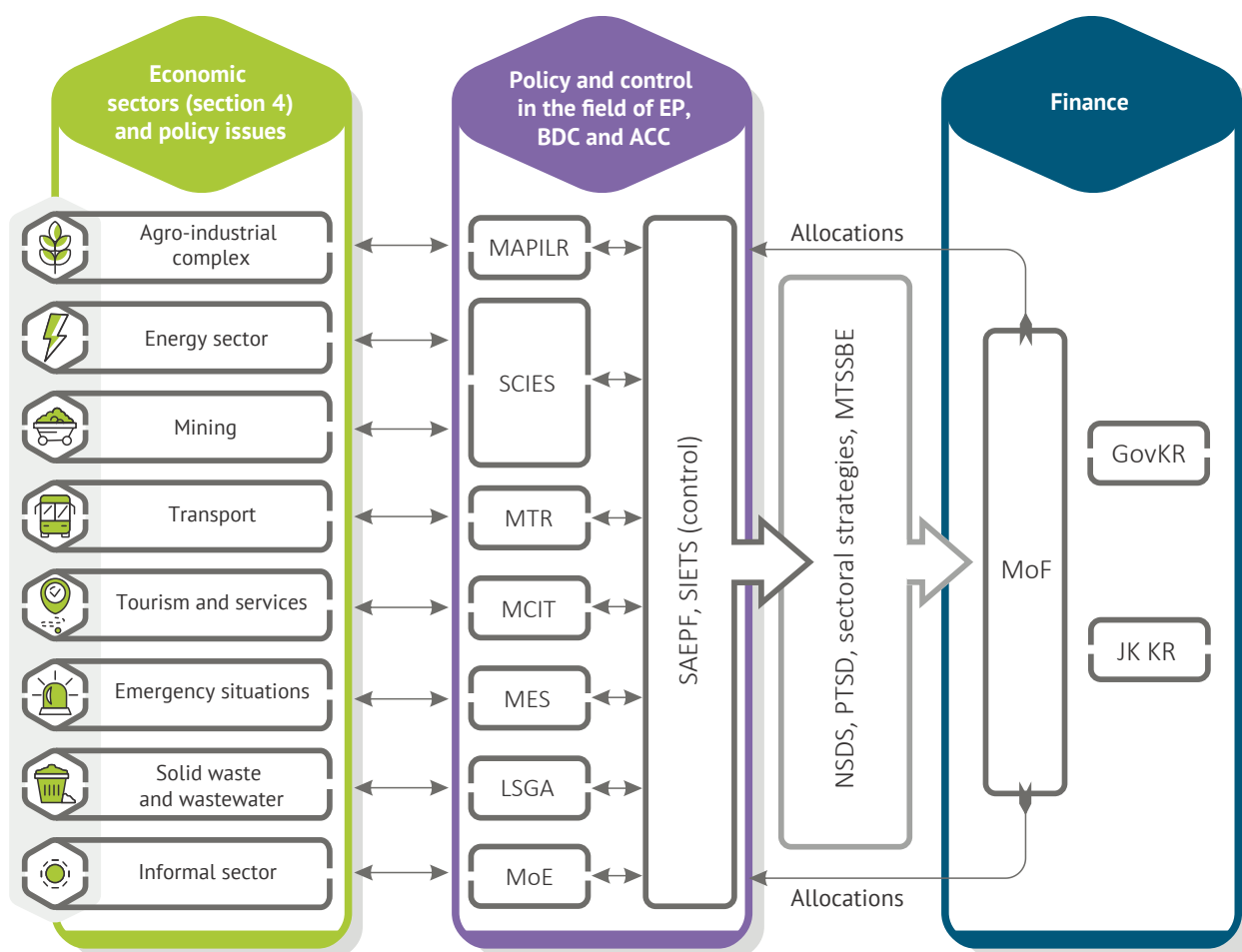
62 GovKR Resolution "On Approval of the SAEPF Regulation", February 20, 2012, No. 123

63 GoV KR Resolution, January 16, 2006

To implement the provisions of the UNFCCC, sectoral and interdepartmental coordination of state bodies, the Government of the Kyrgyz Republic issued Resolution No. 783 of 21 November 2012 to establish a *Coordination Commission on Climate Change*, chaired by the Vice Prime Minister of the Kyrgyz Republic in charge of environmental issues.

In 2015, the Government of the Kyrgyz Republic designated the SAEPF as the National Authorized Body for work with the UN Green Climate Fund.

Figure 6.1. Institutes involved in the financing of the environment, biodiversity conservation and climate change adaptation



In 2017, the Centre for Climate Financing of the Kyrgyz Republic ⁶⁴ was established to represent the interests of the Kyrgyz Republic in the United Nations Green Climate Fund, in international organizations, to attract and promote investments in the implementation of programs and projects in the field of climate change. Other ministries, departments and institutes are also responsible for environmental (see Fig. 6.1).

Ministry of Economy (MoE) is the authorized body in the field of state economic and sustainable development policy. The Ministry is in charge on an ongoing examination of all strategic documents for compliance with the principle of sustainable development of the country (which also includes the aspect of environmental sustainability).

⁶⁴ GovKR Decree, August 14, 2017, No. 478

Ministry of Finance (MoF) is the central state executive body that implements functions for the development and implementation of the state policy in the field of public financial management, as well as internal audit and public procurement policies.

It is the Ministry of Finance that plays a key role in making up the decisions on reforming the public finance system, including the introduction of the program budget, issues of potentially negative subsidies and other existing and new financial mechanisms.

Ministry of Agriculture, Processing Industry and Land Reclamation (MAPILR) is the authorized state executive body for the management of land (agricultural) and water resources, which implements the public policy in the field of agro-industrial complex, including livestock, fish farming (aquaculture), plant growing, plant quarantine, melioration lands, soil fertility, land, water resources, irrigation and amelioration of infrastructure, food and processing industry.

The structure of the ministry includes five departments: the Department of Pastures Livestock and Fisheries, the Department of Chemicalization and Plant Protection, the Department of Water Management and Land Reclamation, the Department of Plant Quarantine, the Department for Crop Expertise, and the State Design Institute “Kyrgyzgyprozem”.

State Committee on Industry, Energy and Subsoil (SCIES) is the authorized body for the development and implementation of the state policy in the field of industry, the fuel and energy complex and subsoil use. This department has powers and capabilities to define rules in these sectors that prescribe the application of technologies that are most appropriate to the goals of sustainable development, i.e. introduction of renewable energy sources, rational use of water and energy resources, control over geological prospecting and exploration, suspension and recall licenses for the right to use subsoil etc., aimed at implementing the principle “the polluter pays” and the preservation of biodiversity.

State Inspection on Environmental and Technical Safety (SIETS) carries out state supervision and control over ensuring compliance with the standards and safety requirements for the life and health of people, animals and plants, the environment, and the prevention of negative consequences.

Ministry of Emergency Situations (MES) implements monitoring and forecasting of dangerous natural, technogenic processes and phenomena, predicting, holding preventive activities from ES; carries out measures for the safe maintenance of mothballed tailings, dumps and radioactive waste under the Ministry’s control.

The Agency for Hydrometeorology under the Ministry of Emergency Situations provides activities in the field of hydrometeorology (including climate indicators and weather forecasts) and monitoring the level of environmental pollution.

Ministry of Transport and Roads (MTR) is the policy-maker department in the field of transport development. Accordingly, the ministry has the authority and the capacity to develop rules for the road and transport complex that prescribe the application of technologies reducing environmental burden at the design stage, including through mandatory Environmental Impact Assessment (EIA) agreed with SAEPP, and further on in the process of construction and operation of transport infrastructure.

The Department of Tourism in the **Ministry of Culture, Information and Tourism (MCIT)** forms the public policy in the field of tourism. Within the framework of the Tourism Development Programme until 2020, the Department mainly promotes the information component in order to enhance the country’s image in the international arena and the contribution of tourism to the economy and, therefore, is interested in preserving the attractive landscapes of the country as the main tourist asset. Thus, the agency can use its information potential and, in cooperation

with the SAEPF, local self-governance agencies and other institutions, form a set of environmental protection measures.

- Under local self-governance agencies (LSGA) jurisdiction there are the following issues of local significance in the field of environmental protection 65:
- supply of drinking water to the population;
- ensuring the operation of the sewerage system and treatment facilities in populated areas;
- improvement and gardening of public places;
- ensuring the functioning of parks, sports and recreational facilities;
- organization of collection, removal and disposal of domestic waste;
- establishment of rules for land use and ensuring compliance with the norms and rules of urban planning and architecture;
- assistance in the prevention and elimination of the consequences of emergency situations;
- exercise of authorities in the sphere of subsoil use, which are assigned by the legislation of the Kyrgyz Republic on subsoil use to the jurisdiction of local governments;

The above authorities are not comprehensive and do not restrict local communities and their bodies in exercising other powers not prohibited by the legislation of the Kyrgyz Republic. LSGA may be empowered with special state authorities, for example protection of forest shelter belts and forest tracts; development and implementation of measures for environment protection.

Scientific institutions and universities can participate in the planning process of the state bodies activities related to environmental management. The **National Academy of Science of the Kyrgyz Republic (NAS)** includes more than 20 research institutions, including the Forest Institute named after P.A. Gan, Biology and Soil Institute, Institute of Biotechnology.

International agencies, donor and implementing organizations are the key institutions that assist national partners in the implementation of their obligations under international environmental agreements, with significant financial contributions.

- Thus, the Global Environment Facility (GEF) in the field of biodiversity conservation and adaptation to climate change supports such projects as:
- - GEF Small Grants Program in Kyrgyzstan. The main purpose of this program is to provide advantages of the global environment through activities based on local communities' initiatives. The program enables local communities through their organizations (jamaats, NGOs) to contribute to the preservation of the global nature in their place of residence and economic activities.
- UNDP / GEF project "Improvement of Coverage and Management of Protected Areas in the Central Tien Shan Mountains", 2013-2017. (950.0 thousand US dollars).
- UNDP / GEF project "Strengthening of Institutional and Legal Capacities for Improving the National Environmental Information Management and Monitoring System", the main objective of which is intensification of the capacity in making more environmentally sensitive decisions to support the implementation of commitments under the three Rio UN Conventions (UNFCCC, CCD, CBD). The focus is on data and information management with a view to greening the formulation and implementation of sectoral development plans, 2015-2018. (950.0 thousand US dollars).
- FAO / GEF project "Sustainable Management of Mountains, Forests and Land Resources in Climate Change Conditions", which aims at enabling environment improvement in the forest and agricultural sectors and ecosystem services enhancement, including carbon stocks in forest and agro-ecosystems (5.45 million US dollars).

65 Law of the Kyrgyz Republic "On Local Self-Government" (Article 18), July 15, 2011, No. 101

- UNDP / GEF project “Preservation of Globally Significant Biodiversity, Adjacent Land and Forest Resources of Mountainous Ecosystems of the Western Tien Shan and Support of Sustainable Livelihoods”, the activities are aimed at increasing the area of SPAs and strengthening the reserves and natural parks of the republic, 2017-2020. (4.2 million US dollars).
- WB / IBRD / GEF project “Integrated Management of Forest Ecosystems”, aimed at strengthening capacity of government institutions and communities to improve sustainable management of forest ecosystems (US Dollars \$ 16.11 million).
- In order to institutionalize the process of adaptation of the SDG and their further implementation in the country’s program documents, the Coordinating Committee for Adaptation, Implementation and Monitoring of SDG in the Kyrgyz Republic until 2030⁶⁶ is formed which includes all ministries and departments of the Kyrgyz Republic.
- The capabilities of the above institutions are limited to the level of knowledge, human resources and funding. Since current expenses are financed, the measures available to these agencies are, first of all, “not requiring additional financing⁶⁷”. These are constantly held measures, norm-setting activities.
- However, not all functions defined by departmental regulations are fully implemented.
- During the meetings, representatives of all ministries and departments identified the following common negative factors / reasons for this:
 - lack of effective management, insufficient investment of measures aimed at preserving and increasing natural resources, inadequacy or even lack of financing of capital expenditures (for example, for forestry works (development of forest nurseries and planting of forests), machinery and equipment, improvement of buildings, etc.). This is mainly due to relatively low budget priorities in environment protection, biodiversity and climate change adaptation issues. In its turn the reason could be low level of knowledge of decision-makers about the contribution of sustainable management of natural resources and ecosystems to the national economy and the well-being of the population.
 - existence of contradictions / deficiencies in the legislative framework, institutional and legal framework, and lack of clear coordination mechanisms that would facilitate the integration of environmental protection, biodiversity conservation and adaptation to climate change in the economic sectors;
 - weak staff potential in the territorial subordinated units, which is due to low salaries, irregular working hours, hard and large volume of work. This fact leads to staff turnover and decrease in the capacity of ministries and departments, and especially subordinated institutions, where salaries are even lower (for example, in the leskhozes (forest farms) of the SAEPF system). At the same time there is no systematic selection of professional staff;
 - outdated methodology and approaches to reserve management and studies, monitoring and assessment of biodiversity, environmental monitoring, as well as lack of calculations of the limit loads on ecosystems. Accordingly, the data used in making decisions do not reflect a full picture of what is happening and lead to management errors.

The main results of the analysis of institutions potential important for financing the environment, biodiversity conservation and adaptation to climate change are shown in Table 6.2. In this case, the potential means the technical capabilities of an agency, the number of staff of specialists and their knowledge of the issue.

66 GovKG Decree, December 22, 2015, No.867

67 This is the standard wording for such measures, applied in action plans to strategic documents

Table 6.1. Impact matrix of existing financial mechanisms and environmental category (EC), biodiversity (BR) and climate change (CC)

Categories in EC, BR and CC		Water	Soil	Pastures	Forests	Wetlands	Fauna	Flora, herbal ecosystems	Human health, poverty, gender	Climate change	
Mechanisms / Agency (institute)											
Potentially negative subsidy											
Financing of fuel stocking by population, subsidies to housing and utilities sector / SCIES, LSGA	Pollution									Respiratory disease	Contribution to GHG emissions
Pest control / Ministry of Agriculture		W a t e r pollution	Soil pollution				Destruction of useful insects, reduction of population of pollinators			Indirect human health impact via food and water	
Irrigation development projects / Ministry of Agriculture			Soil erosion			Change of hydrological regimes		Change of flora species composition			
Attraction of tourists / MCIT, Department of Tourism		Water pollution (lack of waste water treatment facilities)	Pollution by solid wastes		Resorts, household wastes, increased number of holiday resorts	Load to coastal zones, sewage and household wastes	D i s t u r b a n c e factors	increased number of holiday resorts			
Tax incentives to agricultural producers. Regulation of tariffs to irrigation water / Parliament / Govt/R			Water logging			Dewatering		Potentially: expansion of farmlands in wildlife areas			Contribution to GHG emissions

6. Institutions Important for Financing Environmental Protection, Biodiversity Conservation and Adaptation to Climate Change

Categories in EC, BR and CC Mechanisms / Agency (institute)	Water	Soil	Pastures	Forests	Wetlands	Fauna	Flora, herbal ecosystems	Human health, poverty, gender	Climate change
Tax incentives to individuals to use electric and heat energy and gas. Tariffs to electricity / SCIES, parliament, GovKR		Flooding during HPES construction			Increased number of HPES – impact on ecosystems due to runoff regulation	Disruption of pathways, habitats fragmentation	Build-up of HPES capacity, herbal ecosystems flooding		Contribution to GHG emissions
Positive subsidies									
Projects to improve agricultural efficiency / Ministry of agriculture	Water saving	Improved soil productivity	Grazelands reclamation	Reduced load onto forest resources					Accelerated GHG emissions
Projects to improve energy efficiency / SCIES					Hinder energy capacities growth	Hinders energy capacities growth	Hinders energy capacities growth		Mitigation measures
Work against invasive organisms (fall webworm moth) / Ministry of agriculture	Protect water from pollution	Preserve soil from contamination	Ecosystems preservation	Preserve forest ecosystems		Wildlife habitats protection	Herbal ecosystems protection	? Pesticides ban	
Programs to preserve and restore forests / SAEPF	Filtration of water	Improved soil quality, termination of erosion of slopes	Ecosystems preservation	Increased afforestation areas	Filtration of water	Increase wildlife habitat areas	Increase of herbal ecosystems under forest cover	? Revenues from tax, recreational value	Adaptation / mitigation
Programs to preserve biodiversity / SAEPF	Protect water from contamination	Preserve soil fertility	Ecosystems restoration	Endemics species protection	Wetlands protection, increase of migratory birds population	Increase of rare and endangered species	Protect and increase herbal ecosystems areas	? Revenues from sell of organic products, recreational and educational value	Adaptation / mitigation

Categories in EC, BR and CC	Water	Soil	Pastures	Forests	Wetlands	Fauna	Flora, herbal ecosystems	Human health, poverty, gender	Climate change
Mechanisms / Agency (institute)									
Tax incentives to degraded lands users / Parliament, Ministry of agriculture		Land improvement / reclamation	Pastures restoration	Increased afforestation				Increased revenues	
Concessional lending for energy efficiency on housing (KYRSEFF) / GovKR				Reduced load onto forest resources	Hinder energy capacities growth			Inaccessible to the least poor people	Mitigation
Payments and taxes									
Payments and taxes for nature use and environment pollution / SAEPF									
Fines / SAEPF									
Entrance fee to SPA / SAEPF									
Other financial mechanisms									
Effective procurement / KR MoF									
Ecotourism / Tourism Dept, MCT, LSGA								Use and production of local organic produce and services	
Result-oriented budgeting – programmatic budget / KR MoF									
Wide sectoral approach / SAEPF, GovKR									
Mining recultivation funds									

Ineffective, impact difficult to assess

The impact will depend on a set of criteria including on environment protection and climate and they shall be included in the selection criteria and how are they applied in practice.

Will depend on the principles content and implementation / criteria / certification of ecotourism

Table 6.2. Analysis of potential of institutions important to finance environment, biodiversity and adaptation to climate change (material and technical potential / staffing availability / knowledge&expertise) within their mandates

Function Institution	Analysis of strategies and policies and their viability towards EV, BD and ACC	Communication between sectoral and national development v/s ecosystems and ecosystem services	Draft strategies and policies to remove causes of BD loss and EV worsening	Draft ACC policies	Implementation of strategies and policies	Potentially negative subsidies impact estimates	Draft options to reform financial instruments with negative impact on EV, BD and ACC	Ensuring effective use of financial instruments	Transparent monitoring, evaluation and reporting on the use of finance and achieved results
SAEPF	NA / 2 / 2	NA / 2 / 2	NA / 1 / 2	NA / 1 / 2	2 / 1 / 2	NA / 1 / 1	2 / 1 / 1	1 / 1 / 1	1 / 2 / 2
MoF	NA	NA	NA	NA	NA	NA	2 / 2 / 2	3 / 2 / 2	3 / 2 / 3
MAPILR	NA / 2 / 1	NA / 2 / 1	NA / 1 / 2	NA / 2 / 2	1 / 1 / 2	NA / 1 / 2	2 / 1 / 1	1 / 1 / 2	1 / 2 / 2
SIETS	NA / 1 / 1	NA	NA	NA	2 / 1 / 2	NA	NA	2 / 1 / 2	1 / 1 / 1
SCIES	NA / 2 / 1	NA / 2 / 1	NA / 2 / 1	NA / 2 / 1	2 / 1 / 2	NA / 1 / 2	NA / 1 / 1	2 / 1 / 2	1 / 2 / 2
MTR	NA / 2 / 2	NA / 2 / 1	NA / 2 / 1	NA / 2 / 1	2 / 1 / 2	NA / 1 / 2	NA / 1 / 1	2 / 1 / 2	1 / 2 / 2
MCIT	NA / 1 / 2	NA / 1 / 1	NA / 1 / 1	NA / 1 / 1	2 / 1 / 2	NA / 1 / 2	NA / 1 / 1	2 / 1 / 2	1 / 2 / 2
MES	NA / 1 / 2	NA / 1 / 1	NA	NA / 1 / 2	2 / 1 / 2	NA / 1 / 2	NA / 1 / 1	2 / 1 / 2	1 / 2 / 2
MoE	NA / 1 / 2	NA / 1 / 1	NA / 1 / 1	NA / 1 / 1	3 / 2 / 2	NA / 1 / 2	NA / 1 / 1	3 / 2 / 2	3 / 2 / 3
LSGA	NA / 1 / 1	NA / 1 / 1	NA / 1 / 1	NA / 1 / 1	1 / 1 / 1	NA / 1 / 2	NA / 1 / 1	1 / 1 / 1	1 / 2 / 2
Civil society (except for Civil Society Councils)	NA / 3 / 3	NA / 3 / 2	NA	NA	NA	NA	NA	NA	1 / 3 / 3
Civil Society Councils	NA	NA	NA	NA	NA	NA	NA	NA	1 / 2 / 2
Coordination commission on climate change	NA	NA	NA	NA	NA	NA	NA	1 / 1 / 1	1 / 1 / 1

Legend:

- 1 – low, 2 – moderate, 3 – high. E.g. SAEPPF potential in the function “Analysis of strategies, measures and policies from the standpoint of their direction towards EV, BD and ACC” was scored as «**3 / 2 / 2**». It means that *technical potential of an agency is **high** / staffing availability is **moderate** and level of knowledge – **moderate***.

- NA – «not applicable», i.e. agency has no mandate, or this function does not require this specific potential.

6.2. Private Sector and Public Institutions

Currently, there is little information on private sector involvement into environmental protection, biodiversity conservation and implementation of measures to adapt to climate change.

Official statistics collects data on private sector spending on environmental protection associated with mandatory payments made by business entities (see Section 5.2.2). However, it is clear that this information does not reveal the attitude of the private sector of Kyrgyzstan to the problems of environmental protection, biodiversity and climate change.

Nevertheless, during interviews and speeches, business representatives demonstrate their willingness to support government initiatives related to nature protection.

At the same time, businessmen put forward the following conditions for their participation in these initiatives:

- Transparency of the work of state and municipal authorities with funds that will be used for accumulation of private sector funds for further financing of environmental activities. Business is distrustful of the RNCs and LNCs, which can be formed through donations and sponsorship assistance from businesses;
- Increase in efficiency and effectiveness of state bodies in implementation of the activities related to nature protection and climate change. For example, business representatives give examples of extremely low survival rates of leskhozov' (forest farms) plantations;

The presence of even intangible benefits from their participation in environmental protection measures is an additional attractive factor.

Businessmen are ready to discuss financial mechanisms that would allow the private sector to work on the principles of "green" economic growth. The following financial mechanisms are already under discussion:

- Certification schemes for "green" products have a high potential for growth in business opportunities (including exports).
- The Corporate Social Responsibility (CSR) mechanism is being promoted in the Republic, which includes environmental issues. The idea of CSR can be used to involve the private sector in initiatives to protect the environment, conserve biodiversity and adapt to climate change.

However, here again, it is necessary to overcome their distrust of state bodies expressed in the uncertainty about the rapid elaboration of all issues that depend on state bodies and are related to the introduction of new "green" business models and mechanisms.

In autumn 2017, the BIOFIN-Kyrgyzstan initiative conducted a survey of private companies of different profiles in order to reveal the level of responsibility understanding and dependence on natural resources for business⁶⁸. According to the survey results, conclusions were drawn and recommendations were proposed, many of which confirm the information of the BIOFIN team:

1. In general, the country has a fairly low level of responsibility of the private sector in relation to environmental protection.
2. The private sector mostly considers the natural environment as a source of income, but not as an object for which it is necessary to bear responsibility and undertake environmental measures. In most cases, companies make environmental protection activities only if this will bring financial benefits to the enterprise.
3. Awareness of companies on the activities of both state and international organizations remains at a fairly low level: every second of the surveyed companies either has little information, or notes a complete lack of access to it.

4. With certain explanatory and information work, companies are ready to increase their role in environmental matters and are ready to conduct their business more consciously in relation to environmental protection, which is also confirmed by the results of qualitative research. It is stated that the information campaign is the most effective tool in raising awareness and developing a conscious approach of the private sector for their participation in environmental issues.
5. Organizations working in the environmental field (both state and NGOs) have different picture of the current situation in terms of interaction with business and their responsibility to protect the environment. This also indicates an actual lack of systematic collection of information on the environmental performance of the private sector and the quality of interaction between stakeholders in this area.
6. Over the past 10 years there has been a slow growth of companies consciously and responsibly approaching their activities in terms of influence and conservation of nature.
7. Almost every fifth surveyed company, despite the environmental payments, does not understand that these payments are related to their contribution to the protection of the environment and the conservation of biodiversity.
8. When conducting business related to use of natural resources, the private sector of the country does not initially have an eco behavior culture, as this is not part of the public life of the population in view of the lack of explicit manifestations of state policy or ideology on this aspect.
9. Currently, the private sector is passive enough in the use of energy-saving resources: every third company does not participate in any initiatives to protect the environment and preserve biodiversity. In cases of their use, companies pursue primarily economic benefits, but not the goal of environmental protection and biodiversity conservation.
10. Among state bodies, local self-governance agencies are the most active and successful in matters of cooperation with the private sector on environmental protection.
11. From the point of view of the private sector, the activities of SAEPF and SIETS are not effective or efficient in environmental issues: among all state organizations, these structures received the lowest evaluation of their work.
12. According to the interviewees, the interaction between state bodies is not sufficient, which leads to a different understanding and vision of the real situation of the environment protection and participation of the private sector in this process.
13. The most acceptable financial solutions for business, are corporate social responsibility, effective procurement, standards and certification of sustainability, as well as foundation of a fund for financing of entrepreneurship in the field of biodiversity. Many companies are ready to invest into development of such a fund, they also regard it as an important source of information.

The importance of **public institutions** is high. First of all, these are environmental NGOs that draw public attention to important for the society issues of environmental protection, biodiversity conservation and adaptation to climate change. They conduct researches, public discussions and, if necessary, public environmental expertise when considering these issues. However, their efforts are not always enough to block harmful to the nature decisions of the authorities and overcome negative trends.

Another important for nature management institution are public associations of users of natural resources. The most sustainable in the Kyrgyz Republic at the moment are the Water Users

Association of Kyrgyzstan and the Kyrgyz Jaiyt Association (Association of Pasture Committees). These associations define the procedures and rules for the use of natural resources and tariffs. Associations of forest users, land users, organic movement, beekeepers, producers of bottled water, tourism based on local communities are actively operating in Kyrgyzstan.

Public councils⁶⁹ operating under state agencies as advisory and supervisory bodies, established on a voluntary basis from representatives of civil society for interaction and cooperation with ministries, state committees and administrative departments, as well as public monitoring over their activities.

The goals of the foundation and activity of public councils are as follows: promotion and discussion of public initiatives; assistance to state bodies in preparation and adoption of qualitative decisions having a socially significant or strategic character; increase of transparency and efficiency of financial resources use by state bodies; improvement of services quality provided to the public. The decisions of the public councils are of advisory nature.

6.3. Consistency of Activities in Environmental Protection, Biological Diversity Conservation and Adaptation to Climate Change. Coordination Mechanisms

The involvement of various institutions in the definition of policies in the field of environmental protection, biodiversity conservation and climate change adaptation require the coherence of their actions. There are at least 3 mechanisms for coordinating the activities of agencies.

1) The procedure for mandatory coordination of new NLA and strategic documents with government members. From the point of view of environmental issues, this mechanism sometimes does not work. The SAEPF being an authorized body on environment and biodiversity conservation, is not a member of the government, and may not be included in the list of NLA approvals, so some bills may be kept out of its approval. The legislation establishes the procedure for strict state environmental review of NLAs and strategic documents, but not all NLAs are going through expertise, due to the small number of staff in the relevant SAEPF unit and the contradictions in the legislation (see Section 3.2).

In this regard, we can observe conflicting trends in strategic documents, where tasks and measures potentially negative for the environment and consequently for sustainable development are identified as priorities.

2) Another mechanism used in the Kyrgyz Republic for coordination of government agencies activities is foundation of interdepartmental working groups. This is a good mechanism for making concerted decisions on issues affecting the powers of several agencies. At the meetings of the working groups, various options for solving a particular problem are tested, the most balanced of which can be embodied in the NLA.

However, this mechanism has one important drawback: the level of representation at meetings of working groups is often not high, moreover, the qualifications of specialists attending these meetings are not guaranteed. Thus, it is not always possible to ensure the necessary quality of discussion of important issues for the solution of which interdepartmental working groups have been established.

3) Coordinating councils chaired by the Prime Minister or one of the Vice Prime Ministers. This mechanism allows to take a certain issue or problem to a very high level of discussion and control, and draw attention of not only national partners, but also international ones. A working example of this mechanism is the Coordinating Commission on Climate Change⁷⁰, chaired by the Vice Prime Minister of the Kyrgyz Republic.

Powers of SAEPF, which has the status of an agency (below the status of the ministry), is not

69 Law of the Kyrgyz Republic "On Public Councils of State Bodies", May 24, 2014, No 74

70 GoVKR Resolution, November 21, 2012, No.783

sufficient to initiate and strengthen cooperation between ministries and sectors. So, SAEPP is not a member of the National Council for Sustainable Development under the President of the Kyrgyz Republic and the Government of the Kyrgyz Republic, respectively, it is not a mandatory agency for the approval of NLA drafts (according to the law, NLA drafts are agreed by the members of the Government). Therefore, many decisions affecting the environment are taken without the participation of the Agency.

In order to improve interdepartmental and intersectoral coordination, the following measures should be implemented:

- As already discussed, more than once in other sections of this Review, ensuring the integration of environmental issues, biodiversity conservation, adaptation and mitigation to climate change into the new Strategy for Sustainable Development of the country is of paramount importance. This will require direct interaction with the Council for Sustainable Development, and with key ministries and departments. In addition, special attention should be given to development performance/efficiency indicators for economic sectors. One possible approach is use of aggregated indicators that reflect the elements of all three aspects of sustainable development (economic, social and environmental).
- At the level of economic sectors, development priorities are mainly determined in sectoral strategic documents, implemented by ministries and agencies. Therefore, it is very important to build such a system that strategic documents of the national level determine the main priorities, measures and indicative financing plans that serve as binding guidelines for all state bodies. A key role in the evaluation of all strategic documents in terms of their compliance with the principles of sustainable development is played by the Ministry of Economy. Using this potential of the Ministry of Economy and expanding its role in actively promoting sustainable development and intersectoral integration of strategic documents is another way to improve the coordination of sectoral strategic documents and their budgets.
- Plans for the implementation of national and sectoral strategic documents should be included in medium-term public financing plans and annual program budgets. Ensuring this connection is a common task of the Ministry of Finance, the Ministry of Economy and, potentially, an interdepartmental / intersectoral working group.

Analysis of the situation in the field of environmental protection and biodiversity conservation shows the existence of a weak partnership between state bodies, local state administrations and local self-governance agencies, the lack of a clear delineation of responsibilities, which prevents timely and full interaction in making environmentally meaningful decisions.

6.4. Role of Institutions Important for Decision-Making in the Field of Environmental Protection, Biological Diversity Conservation and Adaptation to Climate Change

In order to determine what kind of measures are needed to solve the problem of financing environmental protection, biodiversity conservation and climate change adaptation, the “influence (power)-interests” matrix was compiled for institutions important for making political and technical decisions on these issues, as well as stakeholders.

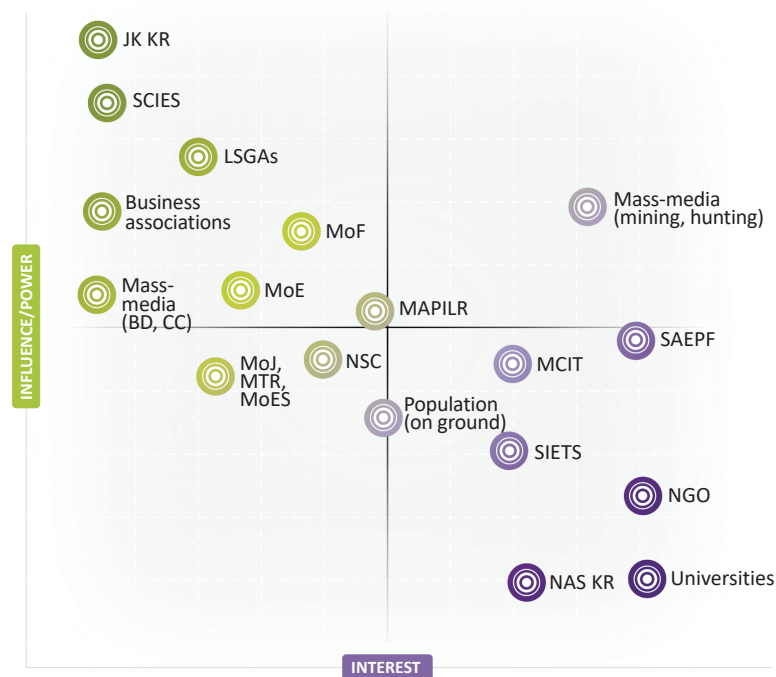
The matrix shows that all institutions in the Kyrgyz Republic can be conditionally divided into 4 groups.

Group 1. According to the representatives in various spheres, *the high influence (power)*

of the department / institution in the process of making managerial decisions in the field of environmental protection, biodiversity conservation and climate change adaptation *is combined with a low interest* in these issues. These are institutions such as Jogorku Kenesh, SCIES, LSGAs and business associations. Thus, the task is to increase the interest of these institutions in environment, biodiversity and climate change adaptation measures. First of all, this is education, awareness raising that protecting the environment, conserving biodiversity and adapting to climate change are not only necessary functions, but also functions bringing economic, social, and if done in the right way, political benefits to the country and society.

It is important to “move” these institutions to the right, in order to achieve a combination of “high opportunities and power- high interest”.

Figure 6.2. “Influence (power) – interest” matrix for institutions relevant to environmental protection, biological diversity conservation and climate change adaptation



Group 2. These institutions, on the one hand, have certain capabilities and moderate interest in environment, biodiversity conservation and climate change adaptation. These are ministries and agencies that determine the policy in sectors of the economy that actively use natural resources (MTR, MAPILR, MCIT), and MoE, MoF, Ministry of Education and Ministry of Justice. The population also got into this group. Representatives of this group also need higher awareness on the issues of environment, biodiversity and climate change adaptation, as well as direct involvement into management of natural resources and environmental protection.

Group 3. This group includes institutions with the greatest interest and the least opportunities: non-governmental organizations (NGOs), the National Academy of Sciences (NAS), higher education institutions (universities). The low level of their capabilities is first of all due to the fact that the scientific approach is now little used in managerial decision-making process. And the opinion of NGOs “works” only with a wide resonance, which is rather difficult to achieve. Thus, the task is to achieve that managerial decisions in the field of environment be made with regard to the opinions of scientists and civil society. Also, this group should play a basic educational role.

Group 4. These are departments directly responsible for environmental protection, including biodiversity conservation - SAEPF and SIETS. They are the most interested and knowledgeable

institutions, but they have limited capabilities and influence. The reason for this is the low level of funding, and the status of SAEPF, which in some way limits the opportunities for lobbying environmental issues in the Government. The task for this group is to increase the resource potential (including human resources), develop mechanisms for financing environmental protection measures from sources other than the national budget.

A special place on this matrix is taken by the two institutions:

- The National Statistics Committee (NSC), an institution essentially neutral to any issues. NSC is interested in improving the quality of statistics for all statistical indicators including those relating to environmental protection.

- Mass media. Their interest in the topic of the environment, biodiversity and climate change is determined more by the intensity of the real and potential public interest. Mining and hunting at the time of matrix development (February 2017) caused great interest in the media, as they were broadly discussed at the social and political levels. However, the issues of biodiversity and climate change were not covered.

6.5. Conclusions

1. The capacity of ministries and departments is limited by the amount of budgetary allocations. Basically, current expenses, ongoing activities, norm-setting activities are financed. Moreover, not all functions defined by departmental regulations are fully implemented. Reasons: lack of financing, contradictions in the NLA, insufficient level of monitoring and evaluation of processes occurring in sectors that obstruct decision making.

2. Coordination of ministries and departments is mainly formal and ineffective. The existing coordination mechanisms do not guarantee the adoption of balanced solutions aimed at sustainable “green” development of the country.

It is also necessary to solve the problem of weak partnership between state bodies, local state administrations and local self-governance agencies, lack of clear delineation of responsibilities, which prevents timely and full interaction in making environmentally significant decisions.

3. Institutions with the greatest power in the country demonstrate the least interest in environment, biodiversity and climate change issues. And, vice versa, the most interested institutions have relatively little power.

4. The private sector demonstrates interest in promoting “green” economic growth and participation in the implementation of new financial mechanisms for financing the environment, biodiversity conservation and climate change adaptation. At the same time, the State must guarantee mutually beneficial partnership and a high degree of transparency in their actions.

Business representatives offer several financial mechanisms that will increase the involvement of the private sector in environmental activities or, at least, contribute to the conservation of biodiversity and ecosystems. This is corporate social responsibility, effective procurement, standards and certification of sustainability, as well as the creation of a fund for financing entrepreneurship in the field of biodiversity.

Many businessmen noted their low awareness of the value of the environment and biodiversity. They noted the need to create an information system using the education system, the media and other communication channels.

7. SUMMARY OF KEY RECOMMENDATIONS

This section provides recommendations based on the findings of the analysis in Sections 3, 4, 5 and 6 of this review. The recommendations will form a basis for proposals that will be developed at the subsequent stages of the BIOFIN project.

7.1. Policy Recommendations

There are positive factors in Kyrgyzstan that can be used to improve the situation in environmental protection, biodiversity conservation and climate change adaptation (see Section 5). Among them: public policies taking into account the principles of sustainable development; availability, although not developed, of financial mechanisms recognized as contributing to environmental protection, biodiversity conservation and adaptation to climate change; implementation of program budgeting, etc.

Revision of the strategic documents in the sphere of environmental protection, biodiversity conservation and other spheres having a direct impact on the environment should be done considering current trends of sustainable development. Herewith, the monitoring system should be based not only on the implementation of a number of activities, but also on the system of assessment indicators of the environment and biodiversity components. Integration of the Millennium Development Goals into strategic documents of all sectors and at all levels will be helpful here. In its turn, the strategic documents of other sectors should integrate issues reducing the impact on the environment, both at the measures and indicators level.

Strategic documents in the field of environmental protection and biodiversity conservation require updating. The SAEPF has already initiated biodiversity conservation strategy revision process, which provides opportunities to improve the situation in this sphere.

It is necessary to implement communication measures to promote environmental protection, biodiversity conservation, climate change adaptation, and the special role of government bodies, the international community, business and the population in this process. The targeted group should be the entire population of the country, especially the users of natural resources from the informal sector, business and government officials and local self-governance agencies. It is advisable to work on consolidating the communication system to continue advocacy of these issues in the future – upon the completion of the BIOFIN project.

The SAEPF, the Ministry of Education and other agencies, development partners, and NGOs should pay attention to the issues of environmental education. The comprehension by the population of the need to preserve nature will save money used for environment protection.

International integration associations, such as the Eurasian Economic Union, World Trade Organization, etc., suggest introduction of new regulations, standards and certificates, including those related to environmental safety. For Kyrgyzstan, this is one of the “entry points” for the introduction of modern production standards in the country. At the same time, Kyrgyzstan should adhere to the policy of sustainable development and the principles of a “green” economy.

It is important to involve the private sector in solution of problems of environmental protection, biodiversity conservation and adaptation to climate change.

7.2. Sectoral Policy Recommendations

The economy has a predominantly negative impact on the environment, biodiversity and climate change adaptation measures. Section 4 outlined the results of the analysis of priority sectors and defined the negative **drivers** of environmental and biodiversity change inherent in each of them.

Below there are the recommendations to reduce the impact of negative drivers in the priority sectors of public policy and in the informal sector.

Agro-industrial sector (Agriculture)

The following measures are possible in this sector:

- Assessment of the existing irrigation and subsidy systems for irrigation, taking into account the potential for reducing of water losses. Since reforming of these systems provides potential savings in the state budget, the expenditures can be redirected within the sector to encourage environmentally friendly methods for controlling plant pests and diseases, using water-saving irrigation technologies, using high-yielding seeds and thoroughbred animals.
- Introduction of scientific and rational management of agriculture, especially in pasture lands.
- Development and implementation of rules for pasture use.
- Strengthening control over the use of irrigation water.
- Training of rural population in environmentally friendly technologies.
- Use of self-produced organic fertilizers.
- Explanatory work on the damage to ecosystems.

The policy of “green” economic growth, presupposing a certain framework for the development of the country, should become a determinant. A positive driver of biodiversity change- the world trend of growing consumption of organic food – must be used.

Energy Sector

In the energy sector, a consistent policy of transition from brown energy resources (coal, oil products) to the environment friendly hydropower, renewable energy, natural gas, and introduction of energy efficient systems should be implemented. Balanced tariff policy in relation to heat and electricity should be done. The non-poor households should be removed from the socially-conditioned tariffs. Herewith, as expected, rise of energy costs will be less than the price increase, as there will be a tendency to save heat and electric energy. *The introduction of energy-efficient systems will reduce the current load on the electrical and thermal networks and release a certain amount of energy for the further development of the country.*

Mining industry

The driving forces for negative influence from the sector are mainly economic and political factors. The special conditions must be introduced in licensing agreements with mining companies. It can be optimization of system for formation and use of recultivation funds in mining sector. In particular, it is necessary to introduce mandatory adherence to international principles for mining mineral resources, taking into account environmental and biodiversity issues, such as the International Finance Corporation’s Environmental, Health and Labor Guidelines for the Mining Industry (2004) or the Mining Industry Principles of the European Bank for Reconstruction and Development (2012). This may be due, for example, to a license agreement.

Transport

Developed transport and the related infrastructure is a necessary condition for economic development and improving the welfare of the country and regions.

The government should consistently implement measures to minimize and mitigate the harmful impact of roads and transport on the environment. First of all, this is a detailed consideration of the impact of roads and vehicles moving on them on the environment and biodiversity, as a part of the state environmental examination, and the development of regulations

on minimizing and mitigating harmful effects, as well as compensatory measures on the impact that cannot be mitigated. The follow-up control of the planned activities is very important.

Tourism

Tourism plays an important role in solving social problems in the regions and the development of eco-tourism and tourism in specially protected areas (SPA). Nevertheless, tourism-related activities are difficult to account for and control. Therefore, measures to reduce the burden on the environment and ecosystems should be associated with increased attention of relevant state bodies (MCIT, SAEPF, SIETS, LSGA) to the areas popular among tourists. These measures may include, among others, voluntary eco-certification of tourism operations and public-private partnerships in the management of protected areas or other areas of high environmental value.

Awareness raising activities should be done among the entrepreneurs engaged in the tourist business.

Informal sector

The subjects of the informal sector are by definition the least controlled entities of the country's economy.

Therefore, in order to reduce the burden on nature, it is necessary to significantly improve the accounting of informal activities carried out in the territories accountable to the central authorities - the State Forest Fund and the SPAs. Raising awareness is needed both among the population and decision-makers, especially in the LSGAs. Since the informal sector is often associated with illegal activities, which often implies ignoring the principles of rational nature management and conservation, it is necessary to improve the work of state bodies in suppressing such activities and improve enforcement with respect to unscrupulous users of natural resources.

Assessment of ecosystem services is very important, since it will allow to determine the development of unique natural territories and their optimal environmental management regimes. This will facilitate the resolution of issues related to financing biodiversity conservation, as well as allow taking timely measures to conserve biodiversity and ecosystems.

7.3. Recommendations for Legal Frames

An audit of NLAs that regulate the activities of ministries and departments authorized for environmental protection, biodiversity conservation and adaptation to climate change is needed.

It is required to determine the status of environmental funds for their budgetary authority and further reform of the environmental management system, as well as to develop mechanisms for financing environmental protection measures.

The coordination mechanisms of ministries and departments in the field of environmental protection, biodiversity conservation and adaptation to climate change require improvement.

The enforcement of NLAs that define the mechanisms for environmental monitoring of economic activities (regulating the EIA and environmental assessment) and environmental safety (general technical regulation on environmental safety) should be ensured. At the same time, amendment of the regulatory legal framework and regulations in the field of the environment, biodiversity and climate change, and removing contradictions, gaps and duplication should be done.

7.4. Organizational Capacity Recommendations

Nowadays, it is clear that the existing institutional structures of state bodies which responsibilities include issues of environmental protection, biodiversity conservation and adaptation to climate change are not effective enough in solving the problematic aspects of these issues.

In order to overcome this problem, the following problems should be solved:

- to increase knowledge and skills of specialists of ministries and agencies in the field of environment, biodiversity conservation and adaptation to climate change.
- to implement mechanisms of material motivation of the staff of the SAEPF territorial offices (leskhozes, SPAs), Ministry of Agriculture (Water Management Department units, etc.), SIETS.
- to develop an effective coordination mechanism on environmental issues, conservation of biodiversity and climate change between ministries and agencies. The mechanism should consider these issues when making any decisions related to the impact on nature.
- to improve technical equipment.

However, in view of the limited budget possibilities, it is advisable to use the support of development partners. They can help to conduct a sufficiently expensive functional analysis, then develop mechanisms to increase organizational capacity and assist in the implementation of recommendations.

To improve coordination, it is recommended:

- to ensure the integration of environmental issues, biodiversity conservation and climate change into the new Sustainable Development Strategy, including results and indicators level. Indicators should reflect all three aspects of sustainable development (economic, social and environmental).
- to improve strategic planning at the level of sectoral strategic documents, by ensuring that key priorities, measures and indicative financing plans that are obligatory guidelines for ministries and agencies are mandatory for implementation.
- to ensure that medium-term public finance plans include measures of sectoral strategic documents and annual program budgets.

An independent, full functional analysis of ministries and agencies will contribute to better understand the ways in which the organizational potential of these departments will develop.

7.5. Budget Process Improvement Opportunities

In terms of the budget process, the environment, biodiversity and climate change have the same status with other areas of government policy. This leads to the fact that environmental issues compete for budgetary resources with areas such as health, social protection, education, emergencies and, as a rule, they lose.

When developing action plans, environmental protection agencies should include priority measures identified in strategic documents in the field of environmental protection, biodiversity conservation and adaptation to climate change. In turn, the process of these measures' budgeting should include assessment of funding not only of the relevant department, but also of other government agencies' budgets involved in the implementation of the proposed activities. Preliminary analysis of possible extrabudgetary funding sources, both for development projects, private sector and local governments, should also be done. The advantage of this approach is

that the developed strategic document will be intersectoral, combining the efforts of the relevant government agencies and taking into account the more realistic situation with financial support. At the same time, their monitoring system should be based not only on the implementation of measures, but also on a system of indicators for assessing the environmental components condition.

When implementing new principles of budgeting, the following activities to be conducted:

- Training of agencies' specialists in strategic planning and development of budgetary measures and programs.
- Training of Heads of ministries and departments to manage the budget development process of their departments.
- Training of financial specialists to develop financial plans in accordance with the priorities proposed by the functional units.

Assessment of financial needs for activities and events, set in the strategic documents on biodiversity conservation, should be done for a better prioritization.

In addition, it is important to analyze the impact of existing subsidies and other supporting mechanisms, especially from budget sources. This activity should include the social functions of some of them, but the basis should be an assessment of the effectiveness of their influence on the state of the environment and the promotion of nature-resource-saving technologies. This approach will allow more efficient use of limited resources, as well as reduce the burden on the environment, which will have positive effect, including on future budget expenditures.

List of financing arrangements and instruments adopted in Kyrgyzstan, which contribute to biodiversity preservation

Name of arrangement	Description	Category of the Catalogue of financial solutions BIOFIN	Type of impact	Who implements
Corporate social responsibility	Corporate social responsibility is not mandatory in Kyrgyzstan	Corporate sustainability	Generating new income	Private companies
Mobile banking	A majority of commercial banks in the Kyrgyz Republic introduced mobile banking, which enables to make transactions using computers and mobile devices.	Mobile banking	Effective financing	National Bank
Compensation of the fee for special use of game animals in hunting	A part of the fee (40%), received as a payment for special use of game animals accumulated in SAEPF's accounts is returned to hunters to co-finance the work on preservation and reproduction of natural resources according to the plans to encourage the implementation of measures aimed at wildlife preservation.	Allocation and repayment of revenues from biodiversity (independent income)	Effective financing	State Agency for Environment Protection and Forestry (SAEPF)
Voluntary standards and certification	Certification is voluntary for agriculture, food production and services, hotels and industry. They include environmental stamps, organic and fair trade certificates	Sustainability standards and certification (voluntary)	To avoid expenditures for environment protection in future/ Effective financing	Ministry of Economy / certification agencies
Effective public procurement	The Kyrgyz Republic is improving its legislation on procurement. The new Law of the KR "On Public Procurement" (2015) introduced an e-procurement system, which saves significant resources, including energy resources. This reduces the pressure on nature. The next required step is to introduce, as one of the key criteria, the environmental nature of goods and services.	Effective procurement	Financing reallocation	Ministry of Finance

Crowd funding campaign (under the Snow Leopard Trust Fund)	The Snow Leopard Trust Fund is operating in 5 key countries (including Kyrgyzstan), which are a home for more than 75% of the world snow leopard population. Crowd funding and charities are part of activities to collect resources for the Fund.	Crowd funding	Generating new income	Snow Leopard Trust Fund
Risk insurance in emergency situations	According to the Law “On Mandatory Insurance of Houses from Fires and Natural Disasters” (2016), house owners shall insure their houses and assets	Risk insurance in emergency situations	To avoid expenditures for environment protection in future	Private and public insurance companies
Islamic financing	There is only one bank in Kyrgyzstan operating based on Islamic financing principles according to the Regulation “On Implementation of Islamic Financing in the Kyrgyz Republic under a Pilot Project”.	Islamic financing	Generating new income	Eco-Islamic Bank
Fee for grazing	The Law of the Kyrgyz Republic “On Pastures” (2009) ensures the required legal framework for implementation of community-based pastures. The pasture fee is payable per cattle head and is accumulated in pasture committees to be used to improve the quality of pasture land.	Pasture fees (and charges for grazing)	Generating new income	Pasture committees
Official development aid	The Kyrgyz Republic is one of the countries most dependent on external aid. In recent 25 years the country received more than US\$9 billion of foreign loans (72% of total aid) and grants (28%).	Multilateral official development aid	Generating new income	Government of the KR
Climate assistance	1. The project financed by the International Climate Initiative and implemented by the GIZ 2. Projects financed by the Green Climate Fund (FAO, GDP).	Multilateral official development aid	Generating new income	Government of the KR
WB project “Comprehensive Forest Eco-Systems Management”	The goal of the comprehensive forest eco-system management for the Kyrgyz Republic is to enhance the capacity of public institutions and communities to improve sustainable forest eco-system management through investment in management planning, eco-systems and infrastructure rehabilitation.	Other official aid	Generating new income	SAEPF

Piloting the environmental-economic accounting system	Piloting of forest accounts in the EEAS was launched in 2015 by the National Statistical Committee of Kyrgyzstan. The operational analysis indicated that the contribution of the forestry sector to GDP is 25 times higher than the official statistics. Integration of forest accounts of the EEAS in the national plans is envisaged by the WAVES.	Accounting for natural capital – national accounts	Reallocation	National Statistical Committee
Compensation for expected/projected environmental damage	The compensation is regulated by environment protection laws and bylaws: 1) on evaluation (normative cost) of forest lands with compensation of losses and damage to the forestry sector in cases when forest plots are used for purposes not related to forestry, and 2) transformation of agricultural land.	Compensation for expected/projected environmental damage	Generating new income	SAEPF
Reclamation funds	According to the KR Law “On Subsoil”, the concessioner shall make payments to the Reclamation Fund during its operations and then use these funds for reclamation once the mining works are completed	Compensation for expected/projected environmental damage	Generating new income	Ministry of Economy, Ministry of Finance
Fines and other compensations for unplanned environmental damage	Regulated according to the KR Law “On Environment Protection” and other bylaws.	Fines and other compensations for unplanned environmental damage	Generating new income	SAEPF, State Inspectorate on Environmental and Technical Safety and the Ministry of Finance
Fee for forest use	About 20 thousand tenants used lands of the State Forestry Fund. The use of forest plots is regulate by the Regulation on the Procedure for Leasing Lands of the State Forestry Fund and Their Use.	Fee for forest use	Generating new income	SAEPF

Fee for the finishing permit	Sport finishing in mountain rivers and water reservoirs, commercial fish breeding in 4 water reservoirs are specified in the Law on Finishing.	Fee for the finishing permit	Generating new income	MAPIM (Ministry of Agriculture, Processing Industry and Melioration)
Water tariffs	The fee for using water as a natural resource is established annually by the Jogorku Kenesh (Parliament) of the KR for each key water reservoir based on actual costs for the examination, evaluation and protection of water resources, as well as the costs for operation of government water management institutions.	Tariffs, charges and taxes in the water sector	Generating new income	Associations of water users
Fee for entrance to protected areas	There are 10 reserves and 13 national parks in Kyrgyzstan. The entrance fee is accrued to special accounts of each protected area.	Entrance fee	Generating new income	Protected areas of the SAEPP
Hunting permits and licensing	Hunting is regulated by laws on hunting and environment protection. Quotas for trophy hunting are allocated based on annual reporting, monitoring and survey. Main trophy animals are ungulates, including the argali (70 heads annually are provided to CITES).	Hunting permits	Generating new income	SAEPP
Fines and charges for illegal hunting	Fines for hunting and poaching have been increased (for example, for killing a snow leopard – US\$22,000; a Marco Polo sheep – about US\$14,700).	Fines and charges for illegal hunting	Generating new income	SAEPP

*The fee is set for 120 major pollutants in emissions into the air and 31 for emissions into water bodies. However, government agencies do not have sufficient resources to control the entire list of pollutants. Emissions are determined in relation to a limited number of substances, and payments are made mainly by indirect calculation, due to the complexity of the instrumental method of calculation, the absence and high cost of modern test equipment. As a result, the **cost of administering payments for most pollutants is higher than the value of the revenues themselves**. Such a system is very burdensome for both payers and government agencies.