The national action plan (NAP) and the activity frameworks for implementing the UNCCD in the Kyrgyz Republic for 2015-2020

Developed in the framework of implementation of the Global Environment Facility-World Bank Project «Support to UNCCD NAP alignment and reporting process» TF012759

Bishkek 2014
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BRIEF SUMMARY

The quality and quantity of the land resources directly or indirectly affect vital interests of 63% of population of the Kyrgyz Republic, which lives in the countryside, providing population with food, industry – raw materials, employment – labour resources. The National Action Plan (NAP) and activity frameworks for giving impetus to implementation of the UNCCD for the period 2015-2020 were developed on that basis, as well as fundraising, integrated financial/investment strategy for these purposes.

The favourable conditions for preparation and implementation of the UNCCD are set in proclaiming the priority of solving the problem of combat to land resources degradation processes in the National Strategy of Sustainable Development of the Kyrgyz Republic for 2013-2017, as well as approval of the Priorities to preserve biological diversity of the country for the period up to 2024 and of the Action Plan for implementation of these Priorities for 2014-2020.

Based on the 10 year UN Strategic Plan for activation of the UNCCD implementation and UN General Assembly Resolution No.64/201 of December 21, 2009 on announcing 2010-2020 the UN decade to combat desertification, the following five objectives are expected to be achieved in the National Action Plan:

- to raise the awareness at all levels on reasons and directions to combat land degradation and desertification;
- to set the policy frameworks to combat land degradation and desertification;
- to expand the research and technology basis, to stimulate and wider spread the best practices in the field of SMLR;
- to raise the potential of the stakeholders for the purpose of solving the problem of land degradation and desertification;
- to mobilize financial and technological resources for UNCCD implementation, the potential sources and mechanism of which are set in the Integrated finance/investment strategy.

The implementation measures and results are formulated for each objective. Finally, implementation of NAP measures will allow:

- to determine the circle of five specific problems and tasks, that are typical to many countries, including the Kyrgyz Republic, and which are therefore grouped in a 10 year UNCCD Strategy.
- to draw attention of the government, private business, civil society to the necessity of permanent activity on neutralisation/prevention of land degradation/desertification processes and specifically on frameworks for activating the UNCCD implementation obligations.

The list of the main objectives, measures for their implementation, the expected results, and the financial sources were brought to a single Matrix.

In conclusion, five project proposals attached for future financing by the UNCCD.

Separate provisions were reported at the regional conference “Land degradation economic evaluation” 1-2 August 2014, Ashgabat, at the Council meeting on the issues of external assistance coordination in agricultural sector, MAM, August 27, 2014.
INTRODUCTION

The role and importance of land resources. Due to the constant worsening and degradation of more and more land in the world, the United Nations (UN) announced a period from 2010 until 2020 the UN decade to combat desertification. The term “desertification” means land degradation in arid and dry sub humid areas because of impact of different factors, including climate change and human activity. (The deserts themselves usually are not included to the category of arid lands). Irrigated and rain-fed cropland, steppe footsteps, pastures are included to this category in Kyrgyzstan.

The role and importance of fertile land resources for improving of socio-economic and ecological conditions of the populations’ life are invaluable. The land resources directly or indirectly affect the vital interests of the 63% of the country’s population, residing in rural area. It provides food and raw material supply to the whole population. Due to the climate aridity, 90% of the agricultural product is produced on the irrigated land.

The agriculture, water, forestry and rational environment management for centuries represented main type of activity and life basis of the Kyrgyz people. Therefore, caring attitude to land and especially to pastures, which are the main source of forage for the traditional transhumance, to forestry and water resources. Such attitude is continuing in modern time, but transition from planned to market relations significantly complicated the opportunity of sustainable management of the natural resources, implementing scientifically proved approaches to land usage. According to the international indicators, the territory of Kyrgyzstan as a mountain ecosystem is characterized by fragility and vulnerability from different natural and anthropological factors. Nearly 50% of farmland is subject to processes of different types of degradation. Add here their “contribution” increasing by each year natural and climatic abnormalities as water scarcity, floods and other. Thus the water shortages of 2012 and 2014 decreased water supply of irrigated area up to 30–40%, as a result decrease is expected accordingly of the gross harvest.

The problems of land use, as well as the ways of their solution are adequately and fully indicated in a number of last decrees of the Government of the Kyrgyz Republic. It is inappropriate to duplicate them in this NAP. Therefore to avoid such duplication the UNCCD Secretariat recommended in development of the National Action Plan for activating UNCCD implementation to concentrate on the measures of: a) awareness raising for all interested parties on the necessity to combat land degradation and desertification; b) appropriate policy framework development; c) expanding of research knowledge; d) increasing potential and e) mobilization of financial and technological resources for UNCCD implementation1.

For example, low level of awareness of farmers on the accountability for inappropriate fulfilment of provisions on the rational use of land resources, local governing bodies and organs of self-governance on the consequences of insufficient attention to fulfilment by farmers of the norms of rational land use, lead to under evaluation of the problem.

The importance of awareness raising is currently understood by a small number of people, who take decisions and is promoted and supported by a small number of initiators,

1 See internet version of the 10 year UNCCD Strategy at www.unccd.int
who receive financing for raising awareness and for potential in SLM from international organizations.1

Insufficient economic opportunities of the country budget are not allowing undertaking all appropriate measures for degradation prevention and improvement of land productivity on a full scale. It is necessary to manoeuvre with existing finances in accordance with short-term and long-term prioritization and to set measures for attraction of domestic and external investment.

Kyrgyzstan and UNCCD. Kyrgyzstan understanding the importance of enhancing the counter measures to the processes of land degradation joined to UN Convention to combat desertification in 1999. In 2000 a National Action Plan (NAP) for UNCCD implementation was developed, which in varying degrees was implemented, mainly in the framework of joint with donor community programme ICALRM – Initiative of the CA countries for land resources management. However, 13 years has passed and a task of National plan updating, taking account of new aims adopted on the level of UN 10 year CCD Strategic plan for 2008–2018, demands its solution.

The main idea of the abovementioned 10 year UNCCD Strategy for future is forming a global partnership with the purpose of reverting and preventing land desertification/degradation process and softening of the draught consequences in the interest of poverty reduction and securing of ecological sustainability. The Strategy has long-term (for 10 years) strategic aims:

- to improve the population’s living conditions, ecosystem conditions;
- via local actions to promote solution of the UNCCD global problems;
- to mobilize resources through establishing partnership between national and international subjects.

The strategic aims are achieved through operational objectives, which determine actions for short-midterm period:

- awareness raising (awareness, education, advocacy) of key audiences about reasons and ways to combat land desertification/degradation processes;
- supporting the efforts to establish the basis and frameworks for policy to combat with such phenomena;
- increasing the scientific and research knowledge, national potential for combat land desertification/degradation and mitigating the effects of draught;
- mobilizing financial and technological resources.

The specialists of PA “AgroLid” held training for local people on the topic: “Soil and increasing soil fertility with the help of fertilizers. Technology map and seasonal calendar” on May 23-24, 2012 in the regional information centre of “Kumtor Operating Company” in the village “Barskoon”. The workshop aim – raising awareness of the participants about soil characteristics and fertilizer application at cultivation of agricultural crops. During workshop, the participants were shown a video course “Soil science”, which was developed by PA “AgroLid” specialists with support of ICCO in the framework of project “Save the Earth”. The participants received full information on soil types in Kyrgyzstan, their condition and methods of fertility increase. This training is one of the planned for the nearest half year workshops, held jointly with Public Association “Agrolid” with support of the German society for international cooperation (GIZ) programme “Assistance to the sustainable economic development of the Kyrgyz Republic”, Dutch organization “ICCO” and “Kumtor Operating Company”. After completion of this training the participants will conduct such seminars for the farmers at the Farmers Field Schools.
In order to perform this task the Ministry of Agriculture and Melioration of the KR as a Focal Point for the UNCCD implementation, together with the State Agency for Environment Protection and Forestry, as a GEF Operational Focal Point, initiated a project “Support to the UNCCD National Action Plan aligning and reporting process”, financed by Global Environment Facility through World Bank, technical grant TF012759. Note, such work is carried out by other countries UNCCD participants as well (Convention has been already ratified by 195 UN member countries).

In the framework of the abovementioned project, this National Action Plan (NAP) has been developed to activate UNCCD implementation for the period of 2015–2020.

The UNCCD NAP are interlinked to Priorities for Conservation of Biodiversity for the period until 2024 and Action Plan implementation for 2014–2020 developed the State Agency for Environment Protection and Forestry and approved by the resolution of the Government of the Kyrgyz Republic No.131 of March 17, 2014.

The methodology of NAP development consisted of the following step-by-step actions:

- review of the existing documents, information sources, scientific literature;
- development of indicators and identification of the main types of land degradation;
- discussing of indicators on the start-up workshop, workshop-trainings, roundtables, meetings with representatives of ministries, agencies, local authorities and local self-governance, scientific and nongovernmental organizations, experts, farmers;
- fieldtrips to the south and the north regions of the republic (Batken, Kemin, Issyk-Kul) to study the situation on the low local level and for collecting data on the place;
- interview with specialists of SPI “Kyrgyzgiprozem”, departments of pastures, water and irrigation, chemicalization, protection and plant quarantine of the MAM, inventory and registration of rights for immovable property of the SRS, SAEPF, National statistical committee, local authorities and local self-governing organs, farmers on the issues of land degradation.
- Discussion of the preliminary and final NAP, IFS, report on UNCCD in the country for 2013–2014 during national workshops and conferences.
I. OVERALL ASSESSMENT OF THE COUNTRY POTENTIAL

1.1. Natural-Geographic Conditions

1.1.1. Climate, Landscape, Zones

The Kyrgyz Republic is located at the Northeast of Central Asia in the centre of the Eurasian continent. The territory of the Kyrgyz Republic is 199.9 thousand square km and 54.0% occupied by agricultural land. The maximal distance from west to east is 925 km and from north to south – 453.9 km. The Kyrgyz Republic borders with the Republic of Kazakhstan, Chinese People’s Republic, Republic of Tajikistan and Republic of Uzbekistan. It is located within the system of mountain chains of Tien-Shan and Pamir-Alai. The maximal high point is peak Pobeda – 7439 m, lowest – 401 m above sea level in Leilek rayon. About 93% of the republic’s territory is at the altitude of more than 1000 m, 85% – more than 1500 m and about 42% – more than 3000 m above sea level.

The climatic conditions of Kyrgyzstan are characterised by sharp continental zone with cold winter and hot summer, strictly dependent from altitude above sea level. Precipitation mainly concentrates in autumn, winter and spring, while summer is usually dry. The diversity of the natural-climatic conditions and landscapes of the mountainous Kyrgyzstan is grouped in four natural-climatic zones:

1. Valley – foothill zone (up to 900–1200 m) is characterized by hot summer, moderately cool and snowless winter with big deficit of precipitation. The amount of accumulated positive temperature is 3600–4900ºC.

2. Mid-mountain zone (from 900–1200 to 2000–2200 m) has a typical moderate climate with warm sufficiently humid summer and moderate cold, snowy winter. The amount of accumulated positive temperature in this zone is 2700–4000ºC.

3. High mountain zone (from 2000–2200 to 3000–3500 m) differs by cool summer and cold, sometimes snowy winter. July temperature here is only 11–16ºC. Winter is long (November-March) with January temperature of 8–10ºC minus, in other cold months 3–7ºC below zero. In its upper high mountain belt, coldness period reduces to 3–4 months and less and higher it may even not exist, meaning that even warm summer months cannot do without frost. The amount of accumulated positive temperature here is 600–2600ºC.

4. Nival zone (from 3500 m and higher) characterised by harsh and very cold climate. It is a zone of snowfields, rocks, glaciers, humidity accumulation belt. Even in the lower part of this zone average July temperature do not exceed 4–7ºC and in January go dawn to 19–22ºC cold. The amount of accumulated positive temperature here would not exceed 600–800ºC.

According to soil-climatic conditions, three provinces are segmented:

1. South-Kyrgyzstan soil-climatic province, occupies the major part of Western Tien-Shan and Pamir-Alai, forming mountain framing for the Fergana depression. Limited from the North by Talas and Susamyr Ala-Too, from the Northeast – Fergana range. In the South, the border passes on the Turkestan and Alai ranges. This province has more features of subtropical dry and continental climate of the Turan facies.
2. *North-Kyrgyzstan* soil-climatic province, include Talas, Chui, Kemin valleys with framing of the mountain slopes. It is characterised by a large influence of the northern boreal mode as well as moderate continental climate.

3. *Alai-Central Tien-Shan* soil-climate province is the most large and complex. It is located at the junction of three major soil-climatic facies – Turan, Central-Kazakhstan and Central-Asian. The province is protected from all sides by huge ranges altitude of which ranges from 3000 up to 7439 m above sea level. It is limited at the North-West by Talas Ala-Too, at the North – Kyrgyz range and Kungei-Ala-Too, at the East –massif Khan-Tengri, at the South – Kok-Shaal-Too, and at the South-West – Fergana range. High mountain cold Alai valley is located to the South from the last range between Alai and Zaalai ranges.

According to the degree of comfort, only 20% of the territory of the country belongs to the areas with comfortable conditions for living. The majority of population engaged in economic activity permanently reside here. Around half of the territory of the country is assessed as areas of uncompensated discomfort. Only mining enterprises permanently work in this zone and other economic activity bears seasonal character.

### 1.1.2. Land Resources

According to land balance, the total land area within the administrative borders, as of January 1, 2014, is 19.995 mln ha. From which the total area of agricultural lands – 10.6mln. ha, including arable land – 1.2 mln ha, or 11.3% of the total area of agricultural lands. Irrigated cropland is about 788.9 thousand ha or 65.7% of all agricultural lands.

The main part of cropland is used by farmers –70% of all cropland. Twenty per cent of all cropland is in State fund of agricultural lands (SFAL) (Chart, Figure 1.1).

![Figure 1.1 – Distribution of arable land](chart.png)

Nine million ha or 45% of all agricultural lands is occupied under pasture with hay fields. The country area covered with forest is only 5.6% of the country territory, area of SPNT – 6%.¹ The lands of the forest fund –2.6 mln ha, water fund – 0.8 mln ha, protected areas – 0.7 mln ha. The country forests are located in the mountain zone, have water, and soil conservation value. There are more than 130 different tree and shrub species. Depending on the species, composition and growing conditions the forests are located in four zones (spruce, juniper, valley-floodplain, and nut-fruit). The largest area is occupied by

¹ See Factsheet of the Department of forest ecosystems SAEPF, as of July 2, 2014
juniper forest – 203.0 thousand ha, spruce – 120.6 thousand ha, nut-fruit – 41.0 thousand ha, bush – 344.0 thousand ha and other. It should be noted, that the considerable part in the category of the agricultural lands is irrigated. Such lands occupy 0.9 mln ha, while the cropland under irrigation is 0.8 mln ha. Traditionally investments only for problematic arable cropland are discussed and attracted, while the issues of water supply and irrigation of 73.8 thousand ha of perennial crops, hayfields and others often fall outside the scope of attention.

The republican statistical information on land is not paying attention to the characteristics of such important factors as territory and condition of water catchment, water protection strips, which could be a basis for forecasting research in the light of global climate change and threats of water resources reduction. This issue should be discussed in the process of solving of a problem of monitoring and evaluation.

1.1.3. Water Resources

The Kyrgyz Republic has considerable reserves of water resources. Surface average annual flow of rivers, formed on the country territory is approximately 44.5 bln m/ year (44.5 km$^3$), and taking into account the return water– 47.2 km$^3$. However, according to the agreements with neighbouring countries Kyrgyzstan can use only 25% or 11–12 km$^3$ from 44.5 km$^3$ out of that amount. Through the infrastructure of country water sector 10 km$^3$ of irrigation water or about 10–12 thousand m$^3$ of water for 1 ha for the whole period of vegetation are annually supplied to the fields. At the same time, the demand is 18 km$^3$. For information: in 1988 water supply reached 13 km$^3$, in 90$^{th}$ fell down to 5–6 km$^3$, today a growth up to 10 km$^3$ is notable.

There are 10 water reserves with useful capacity each of more than10 mln m$^3$, including Orto-Tokoi – 450 mln m$^3$, Kirov – 540, Papan – 240, as well as 24 water reserves with capacity from 1 to 10 mln m$^3$. The total net volume of all water reserves is 1.9 billion m$^3$. Twenty two percent of land is irrigated from water reserves, 78% –from natural flow of small mountain rivers or so called live drain.

In water scarce years (nearest– 2012 and 2014), there is an acute shortage of water reserves of seasonal regulation. In these years with lingering cold spring, when glaciers and snowfields melting delayed, there is no sufficient filling of river flow.

That is why the water supply to fields through irrigation systems is reduced to 30–40% and respectively the considerable part of the sown fields during the most important period of new harvest forming is not receiving sufficient for that water supply. The forecast for considerable reduction of river water flow for 2025–2030 particularly in the northern areas of Kyrgyzstan up to 32% in 2050 and to 42% in 2100 is causing a concern$^1$.

It is obvious that for securing sustainability of agriculture the Government of the KR has to instruct the appropriate entities to elaborate a State programme for water supply increase to the arable lands during the low water years, including appropriate research and development of projects for undertaking a complex of preventing measures (for midterm and long term periods):

$^1$ Second National communication on adaptation to climate change. Bishkek, 2009.
Building a network of water reserves of seasonal, decadal and day regulation;

Review of all schemes and reconstruction of water supply system taking account building of new regulatory capacities;

Review of their rogation regimes and transition to water saving technology of irrigation.

The level of water supply of the arable land also depends on the efficiency of the irrigation systems, which are in post-soviet period decreased from 0.65 to 0.56. Estimated loss reaches 700 mln m³ annually (for filtering and unproductive losses). This amount of water would be sufficient for single irrigation of 500 thousand ha.

1.1.4. Biodiversity

Biological diversity (or biodiversity) is a basis for forming necessary conditions of ecosystem functioning. Biodiversity reduction can lead to biogeocoenose destabilization, loss of biosphere integrity and its ability to support the most important qualities of environment. At the same time, the soil cover is recognized as nodal area. Not without reason V.I. Vernardskii called soil “the living matter of biosphere”, the same node through which the interaction of a human and biosphere is woven. The main “power lines” of collision of the biosphere with the techno sphere are passing via farmer’s field. The internal “energy” power of the earth is fertility¹.

According to the approved by the Government of KR Priorities of biological diversity of the Kyrgyz Republic for the period until 2024, the territory of the country differs by high level of biodiversity concentration. Despite the small area, the country has sufficiently high diversity of species—about 1 % of all known species of the Earth surface. However also here are noted the processes of so-called “degradation” of biological diversity. Because of human activity, one type of species disappeared at all and others are under the threat of disappearance. Three types of species of the fauna among big and average mammals died, 15 species are under threat; among birds – 3 species died, 15 species are under threat; the losses among the plants are less: disappeared only one type, 56 are under the threat of disappearance. The condition of the biodiversity of the Kyrgyz Republic is largely dependent on sustainability of ecosystems and soil surface. The problems of the biodiversity in most cases are connected to destruction, anthropogenic degradation of the natural ecosystems. The areas of disturbed ecosystems approached to critical level in the Kyrgyz Republic as it is noted in the abovementioned Priorities. The soil productivity and ecosystem biodiversity decrease deprives them of the ability to adapt to unfavourable climatic changes and to combat desertification that can lead to the serious economic consequences.

Therefore, for effective addressing the problem of biodiversity conservation it is necessary to maintain a close interaction of interested parties: representatives of the state organs, civil society, science, direct users of the natural resources. Large role should be assigned to the issues of awareness rising and formation of ecological thinking and individual culture in the field of rational use of natural resources on the republican and regional levels.

As specific measures, it is envisaged to develop a draft Programme of the Government of the Kyrgyz Republic for rehabilitation of the degraded lands, providing: rehabilitation of more than 10% of degraded lands; introducing of the measures for sustainable development of mountain forests and land resources under conditions of climate change on the area of 30 thousand ha.

1.2. Socio-Economic Resources

1.2.1. Population

The permanent population of the Kyrgyz Republic as of 1.01.2013, according to National statistical committee of KR, was 5.7 mln, from them rural population – 3.8 mln. Actual population – 5.5 mln, from them rural – 3.6 mln. Almost the whole population lives in oblasts, located at the altitude of 1800 m above the sea level. The average altitude is 2750 m, maximal– 7439 m, minimal– 401 m (the territory of Leilek rayon).

The total population as of January 1, 2003 was 5.0 mln. The population growth for 10 years was 700 thousand people. At such growth speed, the population could reach 6.5 mln people in 2025.

It is obvious that such approximate prognosis is possible on condition of stabilization of macroeconomic indicators of the country, observed currently, from which occur “wave” like trends of the population dynamics. For instance, in the 90th lowering of the total population growth was observed and to 2001 it reached 0.8% in average for year (in 80th – 1.9%) and in 1993 its value was negative. In 2001, slowdown is set of the population growth speed with the improvement of the economy. The more slowdown of the economic development in the 90th, the higher indicators of unemployment and poverty in rural areas increased migration of the rural, particularly of the working age, population to the cities, largely to the country capital and Chui oblast. At the same time, recently part of them after meeting unsolvable economic problems in cities are migrating back to the villages where due to more cheap living costs, farming and opening of the private business it is possible to feed the family.

1.2.2. Economic and Social Indicators

According to the Government of KR data the economic growth for the period 2008–2013 was annually in average of 3.2%, GDP per capita increased on 20% (from $1013 to $1209.7). Economic growth was mainly provided by extensive use of natural resources including irrational. Major loss and degradation of the natural capital, including fertile land resources is taking place. In general, according to expert evaluation more than 75% of the country territory is subject to the high risk of natural capital degradation.

The country economics including implementation of measures for rational use of land resources to large extent depend on provision of energy resources. Own production of energy is concentrated most of all on the electric energy production, more than 90% of which is produced by hydroelectric power stations (HPS). The country imports more than 90% of all consumed hydrocarbons as fuel for agriculture, water, forestry. Thus, all abovementioned facts cause high dependence of the country economy first from level of water availability, which feed the HPS water reservoirs, as well as from import and petroleum prices.
According to the results of 2013 38% of the country population lives below poverty level and for the period from 2008 the poverty level grew on 6.3 percentage points. The major part of the population resides in rural area. If in 2013 2153.0 people lived below poverty level in the country, overall more than 66% from them were residents of rural settlements. Their livelihoods and incomes depend to high extent from natural resources and environment. The poverty level in the high mountainous area of the country exceeds similar indicator for valley area (39.3% to 37.3%).

Large regional disproportions of poverty level preserve. The highest poverty level is observed in Jalal-Abad oblast – 55.7%, Osh oblast – 51.4% and Naryn oblast – 39.9%.

The deficit of labour resources in the rural area formed because of mass population migration, by approximate assessment from 300 thousand to 1.0 mln people, particularly of its young and more energetic part. It influences the implementation of measures for counteracting land degradation. The rural poverty motivates also increase of internal migration, concentration of population in Bishkek and other large cities of the country. The limited ability of cities to accept population coming from villages creates higher pressure on the social infrastructure causes tension in socio-economic and civil-political spheres.

The adopted National strategy of sustainable development of the Kyrgyz Republic for the period 2013–2017 puts a task of solving the abovementioned problem and building of efficiently functioning social market economy. The reaching in midterm the sustainable growth of economy and life standard “affordable”, but not because of “future generations”, will become a major key for economic stability.

The major directions of economic policy for midterm along with reduction of budget deficit, external debt and inflation, investment attraction, business environment and investment climate improvement, realisation of structural reform in key branches of economy, also are provision of food security through production increase and productivity in agriculture. The sustainable economic growth, projected in 2013–2015 at the level of 7.4% annually in average, should be supported by all sectors of real economy, including agriculture. According to the preliminary data of the National statistical committee of the Kyrgyz Republic\(^1\), country GDP for 2013 was 350.3 mln soms or 10% higher the level of 2012, GDP per capita – 64.1 thousand soms, or 8.3% higher the level of 2012.

The agriculture will remain the priority sector of economy. It is projected to reach maintaining sustainable growth in agricultural sector by the following measures: introducing species/sowing rotation, increasing the sowing area of perennial grasses in the structure of sowing, reducing unused arable land, updating the auto-tractor park, rational use of pasture, development of innovative services in villages and etc. As seen, all these measures directly or indirectly refer to land resources, which are economically a main means of production. Financial mechanisms, instruments, described in the Integrated Financial Strategy, which is a part of National Action Plan, will be used for realisation of these measures. According to the data of the National statistical committee of KR, volume of gross agricultural output in 2013 reached 53.1 mln soms or 1.2% higher the level of 2012. At the same time, the share of agriculture in the country GDP was 15.2%, reduction on 1.5% of 2012 level.

1.2.3. Institutional and Law Basis

The state organs. Currently the following state organs are responsible for different aspects of land management:

- **The National Statistical Committee** is conducting statistics for use of country land resources of agricultural purpose;

- **The Ministry of Agriculture and Melioration (MAM)** through its specialised Department of water and irrigation, Department of chemicalization, protection and plant quarantine is undertaking control over the use of lands of agricultural purpose, including pastures. Control over pastures is entrusted by associations of pasture users on the Department of pastures;

- **State Agency of Environment Protection and Forestry (SAEPF)** Maintains control over management of lands of the forest fund, including pastures (654.3 thousand ha), which were returned as lands of the state to forest fund in 1997;

- **Department of Cadastre and Registration of Real Estate Rights under the State registry** service is maintaining the functions of the cadastre evaluation and land registration;

- **State Design Institute of Land Management «Kyrgyzgiprozem»** is conducting design and survey land management and land cadastre works;

- **Research Institutions and Higher Educational Institutions** study and develop scientifically sound recommendations on the issues of land use, fertility and productive land degradation, their water supply, irrigation technology and irrigation

- **State Mapping-Geodesic Service under State Agency on Geology and Mineral Resources** is carrying functions of mapping and geodesic work;

- **Organs of local self-governance** have the rights of use of the State fund of arable land (SFAL) and pastures.

Different aspects of land management are implemented: by the Ministry of Emergency of the Kyrgyz Republic for prevention and liquidation of natural disaster; State Agency for Geology and Mineral Resources under the Government of the Kyrgyz Republic for protection and rational use of subsoil; State Inspection for Ecological and Technical Security under the Government of the Kyrgyz Republic for environmental legislation.

Nongovernmental sector. In addition to public bodies, nongovernmental organizations are acting in this sphere:

- **National Union of Water-Users Associations of KR (NUWUAKR)** unite activity of water-users associations of the republic for the rational use of water resources in irrigated agriculture. As of January 1, 2014 there are 473 juridical registered WUAs, with coverage of 731.3 thousand ha irrigated area in the republic.

- **The Association of Forest-Users and Land-Users of Kyrgyzstan** provides assistance in forming conditions for sustainable environmental use and development of entrepreneurial activity in forestry sector;

- **The Association of Pasture-Users of Kyrgyzstan «Kyrgyzjaiyty»** coordinates the activity and development of the association members (voluntary local unions of
pasture-users of regional level) in the field of effective management and use of pasture resources and infrastructure;

- **The Federation of Organic Movement BIO-Kyrgyzstan** promotes the principles of “green” development, organic agriculture, development of mountain territories;

- **CF «Ecological Development», informational Orhus-Centre** is working on implementation of the Orhus Convention «About accessibility to the ecological information and participation of the civil society in the process of decision taking and to justice on the issues of environment protection»;

- **Ecological Movement «BIOM»** promotes achieving sustainable positive changes of the quality of environment and peoples life through involving wide groups of the population into dissemination of the ideas of sustainable development and conservation of natural ecosystems;

- **The Civil Fund CAMP Ala-Too** promotes sustainable development of the mountain regions of Kyrgyzstan and together with partner organizations working in Kazakhstan and Tajikistan, forms part of the regional CAMP network.

**Legislative Basis**

The Constitution of the Kyrgyz Republic says, «The land, its subsoil, airspace, water, forests, plants and animal world are the sole property of the Kyrgyz Republic, used in the purpose of conservation of the unified ecological system as a basis of life and activity of Kyrgyzstan’s people and are under special state protection. The land and other natural resources also could be in private, municipal and other forms of property, excluding pastures, which could not be in private property». «Everyone has the right for favourable life and health friendly environment». At the same time, «everyone is obliged to take care of the environment, flora and fauna».

The National Strategy for Sustainable Development of the Kyrgyz Republic for 2013–2017, adopted by decree №11 of the President of KR of January 21, 2013, in section 10.1 «Agricultural Sector» specifically states that «the processes of land degradation for cultivation of agricultural crops and livestock currently are presenting a considerable threat for food security and move from the kind of ecological threats to the category of threats to the sustainable development of the country».


For implementation of the codes and laws the government of the republic adopted the appropriate regulations: resolutions on cultivation (rehabilitation) of land and the order of its acceptance into use, conducting inventory of the land fund of the Kyrgyz Republic (March 3, 2014, №114), approved the Programme for pastures development for 2012–2015 and Action Plan for its implementation (February 10, 2012, №89), the Priority Decrees on adaptation to the climate change in the Kyrgyz Republic until 2017 (October 2,
2013, №549), Provision on state land records (land cadastre) (March 17, 2014, №137), the Priorities of conservation of the biological diversity of the country for the period until 2024 and Action Plan for implementation of these Priorities for 2014–2020, annual resolutions of the Government of KR on measures for timely organising spring sowing and harvesting and etc.


Periodically, the above codes, laws and regulations in order to conform to the time are changed and amended. Thus, about 40 amendments were integrated into the Land Code in recent years.

However, assessing the extent of land degradation in the country, the negative prospects of extensive land use, it is necessary to continue the process of improving the legal framework regulating the use and protection of land resources. For example, in Article 32 of the Land Code to include the concept of unproductive lands, otherwise more than 500.0 thousand ha of unproductive pastures have no prospects of development.
II. ACHIEVEMENTS AND PROBLEMS OF LAND USE

2.1. Achievements in the Sphere of Land Use

Among the main achievements in the field of land use can be attributed a certain level of development of agriculture, water, forestry, land and legal relations, land market, land legislation.

Agriculture today is one of the stable sectors of the economy, which is due to the use of soil fertility more or less providing food to the population, income and employment for rural workers, raw materials to the industry, foreign currency inflow to the budget through export supplies, and in general supports macro-economic indicators and the growth rate of the economy.

According to the National Statistical Committee of the Kyrgyz Republic\(^1\), in 2013 comparing to 2012 the sown area of crops expanded by more than 4.7 thousand hectares and made up 1170.4 thousand hectares (see. Table 2.1), while increasing the grain crops, grains and legumes to 587.4 thousand hectares, and sugar beets – to 6.7 thousand hectares. Favourable weather and climatic conditions allowed to sow mainly in optimal agronomic terms, resulting in a ripening of major crops somewhat earlier than usual. Productivity and gross yields for most crops increased. Thus, the gross grain yield of wheat was 819.4 thousand tonnes, or 278.9 thousand tons more than in 2012 with an average yield of 23.7 c/ha, an increase of 6.9 c/ha. Barley harvested in the amount of 309.9 thousand tons or by 97.2 thousand tons more than in 2012, with an average yield of 21.1 c/ha, that is 6.6 c/ha more. Corn grain harvested 568.2 thousand tons, with an average yield of 60.8 c/ha, that is 0.8 c/ha more than in the 2012. Sugar beet harvest totalled 195.4 thousand tonnes, that is more than in 2012 by 93.4 thousand tonnes, with an average yield 293.4 c/ha, or 101.1 c/ha higher. Despite the decline in 2013 of the potatoes, vegetables and melons sowing area, the total yield of these crops has increased: for potatoes by 19.3 thousand tons, vegetables – by 15.6 thousand tons and gourds – 2.6 thousand tons.

With respect to state support, it should be noted that for the first time in the history of new Kyrgyzstan loan portfolio for agricultural producers reached 7.0 billion soms. Through the World Food Program, on the grant of Russia of $ 3.0 million rural communities rehabilitate irrigation systems\(^2\).

Organization of the fertilizers production from local raw materials, attraction to the republic of modern technology are encouraging. For example, a local company “ADAID” in collaboration with scientists KyrgyzNII irrigation developed and organized the production of complex organic-fertilizer “Kyrgyz-humate” that has been assigned a national standard of the Kyrgyz Republic – HIC 1131: 2010. The fertilizer includes concentrate of organic (50% or more) with highly active humic acids, as well as nitrogen, phosphorus, potassium and micronutrients. Its application in the fields of farmers with irrigation increases the humus for 1 year at 0.16-0.2%. “Bio-Bank” company created an environmentally clean dry peat-

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humic fertilizer “Flora-S”, the use of which has increased crop yields by 20-40%, soil fertility and reduced the negative balance of humus.

Several research centres, private companies and donor programs are exploring methods to prevent land degradation and improve soil fertility: anti-erosion techniques of irrigation, land irrigation, production and application of vermicomposting, fertilization with irrigation water, etc.

The presence in the country of the feedstock and the success of Kyrgyz entrepreneurs to produce soil recovery, environmentally friendly fertilizer created a real basis for the gradual transition of the farmers to organic production. The Republican federation of organic movement BIO – Kyrgyzstan, whose efforts are supported by farmers, having trouble in finding markets for traditional products, as well as donor organizations. Basic framework for the dissemination of the organic movement is also available at the farmers’ level. The experimenting with the use of organic fertilizer for crop production, crop rotation to improve soil fertility is conducted at more than 200 demonstration sites across the country.

The system of pasture co-management was introduced in the sphere of pasture management, in which responsibility and control over the management of public grazing land, except the right of disposal are transferred to local governments. Local self-governments delegated authority for the management and use of pasture resources
to associations of pasture users. Each community, represented by the population of the aïyl okmotu (local government) is organized in association with the executive bodies of pasture, called jayyt (pasture) committees. The main objectives of committees are to ensure economic, social and environmental sustainability of pasture usage with the involvement of local communities in the process of use and management of pastures; local capacity building and attraction of investments into infrastructure development.

A major role in maintaining soil fertility and agricultural production plays a timely response to irrigation.

In total in 2013, from country water resources withdrawn 6639.1 mln m$^3$ of irrigation water at the plan of 6896.0 million m$^3$ or 96 %. Transferred on irrigation 4.539.6 million m$^3$ of irrigation water, at the plan of 4.881.1 million m$^3$ (93 %), which is more than the level of 2012 by 123.6 million m$^3$. Hectare watering performed on an area of 2866.0 thousand ha at the plan of 3134.5 thousand ha or 91 %, compared with 2012 watered areas increased by more than 45.1 thousand ha$^1$.

Number of water users who have signed the agreement on the water supply was 2293, with irrigation area of 633.4 hectares, including 926 water users’ associations and cooperatives with an area of 506.5 thousand hectares. It should be noted that the moisture-accumulating spring irrigations were carried out on an area of 180.6 thousand hectares and under autumn sowing of crops – 132.7 thousand hectares.

In 2012, because of irrigation work area of land with inadequate irrigation status decreased by 8.4 thousand hectares, in 2013 – to another 1.5 thousand hectares. In 2014, it is planned to improve another 2.4 thousand hectares for 21.5 million soms.

Through the credit line provided by the Republic of Turkey for $10.0 million, trucks and construction equipment purchased for the water industry. The purchased equipment is distributed over the basin management and rayon management of water supply and will be used in the preparation of the irrigation network to the vegetation and repair-rehabilitation work on canals and structures.

In order to improve water supply to the land, as well as the development of new irrigated land the Government Decision dated May 16, 2011 № 229 “On approval of the State program for the construction of water facilities and development of new irrigated land in the Kyrgyz Republic for 2011-2015” envisages construction of 22 building facilities for total sum of 9.822.5 mln soms, with the development of 19.338 hectares of new irrigated land and increasing water availability for 37177 ha of land.

Within the framework of the NAP formulation and implementation of the tasks of the CCD for monitoring targeted use of productive land, the specialists of the KyrgyzNII irrigation and RASS began the creation of an information system, which allows performing the following operational objectives:

- creating a database on land resources and cropping pattern in the context of aïyl (rural) okmotu and WUA, with qualitative characteristic of contours and farming plots, and reflection of parameters of water availability for irrigated areas (for precautionary measures at the reduction of rivers water flow and the onset of the low water period)

$^1$ Factsheet of the Department for water management and irrigation under MAM for 2013.
preparation of scientific recommendations to the response measures: for restoration of soil fertility in a particular area and provision of irrigation water for a desired period of time (decision Strategic Objective 2 of the Ten-Year Strategy of the UNCCD);

use of information on land resources and cropping pattern in the AO and the Area (Rayon) for the tasks of creating a database on cultivated products, organization of market research and profitable sale of the grown products (to address the Strategic Objective 1 of the Ten-Year Strategy of the UNCCD);

other interrelated issues to promote SLM and Sustainable Development.

For rayons that are major business units in rural areas (about 90% of the country) and rayon departments of agricultural development (RDAD), which are the main coordinating and economic bodies, the creation of a detailed database for all subordinate AO will improve their coordination and management work. It seems the chance to create in the rayons information centres to manage land and water resources, which will become the elements of the republican computer network, with central management in the authorized body for the sustainable use of land and water resources. The system, with public support for its development, will be an effective tool for sustainable development in rural areas, i.e. rising of the rural economy with guaranteed preservation of local natural capacity for present and future generations.

There is a need in linking the use of the system being developed with the program on land resources inventory (2014-2018), revision of land and water cadastres.

The State water cadastre, which contains information about the quantity and quality of surface and ground waters of the country, as well as on the status, condition and location of major water infrastructure, will be part of an electronic information database. Water inventory is currently being in spreadsheets MS-Excel, will be upgraded and converted into a database application. All dynamic parameters that are introduced to the database will be made available throughout the network system for authorized users. A computerized information system will provide awareness of decision-making individuals complete with more information available through the web site of the Department of Water Resources and Irrigation, which will be updated in order to exchange data.

Over 50 forest enterprises, 9 state national parks ensure the protection of forests, reforestation and forest health support. From 1000 to 1200 hectares of forest plantations created annually, nurseries grow from 20 to 24 million planting materials for more than 40 breeds. Forestry operations are carried out each year on the area of 3245 ha. Due to their work, the forested territory of the country is supported at the level of 5.6%.

In the area of land, legal legislation is developing the institution on private land ownership, namely: agricultural lands are treated as objects of civil transactions of sale-purchase, lease, pledge, mortgage, and so on. The primary and secondary land markets function. The Land Code, the laws and regulations of the Land Registry, Land Management, the procedure for determining rates of land tax, on the normative price of land and other adopted for regulation of land management.

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1 See Factsheet of the Department for forest ecosystems under SAEP&F as of July 2, 2014.
2.2. Spread of Land Degradation as a Factor in the Process of Desertification

The intensive use of land, in addition to obtaining yields of crops and livestock products, leads to the spread of the processes of land degradation. Land degradation, according to experts, is classified as a factor in the beginning of the process of desertification. Since 1985, the area of degraded land in the country has increased significantly (according to various estimates, from 50 to 80% of agricultural land). It must be noted that the last comprehensive land monitoring was conducted in 1990 and the subsequent sample surveys are not fully reflect the development of processes, hence the scatter in the data.

According to the SDI “Kyrrgyzgiprozem”, large areas of agricultural land are in poor condition. Common are such processes of land degradation as erosion, salinization and alkalinisation, water logging of arable soils, trampling and contamination of inedible by animals pasture vegetation, which together lead to a reduction of soil fertility and soil depletion. Thus, water and wind erosion prone are 11.2 million hectares, of which irrigated 1.3 million hectares, 1.2 million hectares of saline land identified, of which irrigated land – 146.6 thousand hectares; alkalinized – 480.2 thousand hectares, of which irrigated – 98.8 thousand hectares; wetlands – 138.6 thousand hectares, of which irrigated – 31.1 thousand hectares; stony land – 4.0 million hectares, of which irrigated – 315.0 thousand hectares.

According to Water Department data as of January 1, 2014 from total 1.0 million hectares of irrigated land 0.8 million hectares are in good condition, satisfactory – 61.8 thousand hectares, unsatisfactory – 96.7 thousand hectares, including due to the high ground water level (GWL) – 38.0 thousand hectares, alkalinized – 51.5 thousand hectares, in complex GWL and salinity – 7.2 thousand hectares. As of January 1, 2010 in poor condition was 100.2 thousand hectares, including due to the proximity of GWL – 42.1 thousand hectares, salinization – 49.3 thousand hectares, in complex GWL and salinity – 87 thousand hectares.

According to other estimates, the total area of land subject to erosion is 6.4 million ha, of which arable land – 770 thousand hectares. Soil salinity due to improper and inefficient irrigation, withdrew from circulation 80 thousand hectares of agricultural land.

According to the Land Registry, there are saline lands of varying degrees of a total area of 1.2 million hectares on the territory of the country. The area of wetlands is growing due to a malfunction of drainage networks. Area of alkaline soils is 0.5 million hectares. Stony soils occupy 3.8 million hectares, including highly stony – 0.8 million hectares.

Development of water and wind erosion processes is due to factors and causes of natural and anthropogenic.

Natural factors: a) compartmentalization of the territory of the country, including all hydrographic formations (watersheds, slopes, ravines, gullies and river valleys); b) soil properties, parent and underlying bedrock (loess and loess-like due to its looseness blur considerably lighter than clay); c) biases areas; g) winds, hurricanes.

Anthropogenic factor, namely the activities of people associated with the improper organization of agricultural landscapes, the irrational use of irrigated land. Cutting shelterbelts amplifies wind erosion. Outbreaks of wind erosion spread localized in West
Issyk-Kul region, the eastern part of Kemin rayon, western part of the Kara-Buura rayon, Kochkor hollow and in Batken, Osh and Chui oblasts. This became particularly evident in recent years in Chui, Issyk-Kul, Talas oblasts where frequent dust storms and winds demolished the top fertile layer of soil, “scalping” the ground. Strong erosion and soil erosion occur in non-compliance with anti-erosion techniques of processing, water-saving technologies for soil irrigation, misallocation of agricultural crops. Salinity, waterlogging and ground water rise is observed in the lower zones of the country, where there is an active use of irrigated lands. They are most common in the Chui oblast. Due to decrease of investment and lack of maintenance of irrigation and drainage systems throughout are spread dysfunctional land irrigation, particularly in Osh, Batken, Chui, Talas oblasts. Primary salinity is due to saline groundwater. Secondary salinity associated with the destruction of drainage systems also expanded significantly in recent years. The work on gypsum application on alkaline soils stopped, although this technological method was one of the most effective means to restore agricultural lands.

According to some data, the percentage of humus in the fertile soil, for example heavily used grey soil of Chui valley, decreased from 2.5% in 1992 to 1-1.5% in 2012. If humus losses will continue at a pace, then after 40 years, we will lose the most fertile topsoil, and the time spent by nature on its formation. After all, it is required from 100 to 300 years for nature to create 1 cm of conditional top soil.

In addition, most valuable irrigated arable land is excluded for construction by transformation of agricultural irrigated land into non-agricultural.

On pastures, according to the SDI “Kyrgyzgiprozem”, the picture is as follows. 1.6 million hectares are degraded due to overgrazing by cattle, clogged with inedible vegetation 1.1 million hectares. According to other reports, from 9.0 million hectares of pasture 3 to 4 million hectares degraded, mainly near-village and closely spaced sites due to an overload of grazing cattle, about 2.5 million hectares clogged with inedible vegetation.

Among the countries, Kyrgyzstan is a country with a small size of arable land. Therefore, on one conditional person there is 0.22 hectares of arable land. The trend of this indicator is downward, for example, in 2010 it was 0.23 ha. For comparison: if currently every person on the planet has an average of 0.28 hectares of fertile land, then by 2030 the area will be reduced to 0.19 ha.

Limitations of land, degradation of reclaimed land in conjunction with the increase in population led to a steady decline of producing areas per inhabitant. With the increase in population and the systematic alienation of land for non-agricultural purposes the size of arable land per inhabitant of the country for the last 20 years has decreased from 0.43 to 0.22 ha, including irrigated – from 0.27 to 0.14 ha.

### 2.3. Analyses of the Problems, which Lead to Land Degradation

Kyrgyz Republic is one of the first post-Soviet states has implemented land and agrarian reform. However more organizational and legal issues of land redistribution were

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solved and less issues of increasing agricultural productivity, improvement of soil fertility, increase of crop yields and profitability of agricultural producers, building of a system of monitoring and evaluation of rational use and protection of land resources.

Today, the major unsolved problems of agriculture, leading to land degradation, preventing the effective management of land resources, are as follows:

- inter-agency and legal disunity, limiting coordinated management of land policy;
- small plots of land holdings that do not ensure the profitability of production and maintenance of rational land management;
- low culture of agriculture;
- lack of agricultural machinery, water supply and irrigation, fertilizers and other infrastructure;
- lack of a system of quality assessment, monitoring the effectiveness of the use of agricultural land;
- lack of financial resources, the various forms of government support, not going beyond the requirements of the WTO.

Combating land degradation is complex issue, since in its solution should capture participation of various ministries and agencies, local authorities and local communities, experts of different profiles, and major erosion, land reclamation activities must be carried out not on one piece of land, but in complex in a number of regions. Increase in the area of land degradation processes, shows a decline in the effectiveness of the institutions of government and local authorities in the rational management of land resources. Permanent reform of the executive branch, change of managers and mid-level staff do not allow understanding of the issues, identify and implement mechanisms for inter-agency coordination, including the development and adoption of consolidating regulations. Lack of coordination between local authorities, local self-government and civil society groups in the performance of environmental legislation leads to massive deforestation, extensive use of arable land, poaching and loss of biodiversity.

Small plots of land holdings is related to the effects of land and agrarian reform carried out since 1991. Vesting of all land on the basis of fair and equitable share has led to excessive fragmentation of land. The agricultural sector is currently represented by over 356 thousand (peasant) farms with an average size of arable land 2.7 hectares, including 1.9 hectares of irrigated arable land. Today it has become a barrier to the growth of agricultural production potential, the introduction of the simplest cultivation and crop rotation, cost-effective use of agricultural machinery, irrigation water, etc., due to the incompleteness of reforms in the direction of co-operation of economically interested business entities (clusters, territorial-production group).

Everywhere there is a low standard of farming, with some exceptions. Most farmers in their fields do not follow the rule of rotations, even simple three fields, or crops, effective technological agro methods on cultivating crops, where due to ignorance, or not thinking about the consequences of non-compliance. The Ministry of Agriculture and Melioration facilitated the Decision of the Government of the Kyrgyz Republic to increase the responsibility of land users for the preservation and improvement of soil fertility through
the mandatory use of crop rotations, complex agro methods and etc. Due to the lack of support measures at the local level in a constant mode of the abovementioned Decision, its implementation has not been properly carried out. The actions, based on soil maps and cartograms, are not complemented with the development of operational and long-term programs to improve soil fertility and combat land degradation in the nearest 15-30 years, accompanied by strong support and adequate funding and showing of the necessary anti-erosion control measures and plan for soils cultivation.

In recent years, as can be seen from the above information (see 2.1.), due to increase in state support, the issues of agricultural machinery modernization, improvement of water supply and irrigation, are being resolved. However, these measures are not sufficient. Annual investment volumes, for example in the irrigation sector, did not exceed 25-30% of the calculated indices. According to expert estimates from the World Bank, the funds for satisfactory operation of the irrigation network, serving more than 1 million hectares of irrigated land, for the year amounted to 1.200.0 million soms. In addition, the capital repairs needed annually for pumping stations and wells of 190.0 million soms, large hydraulic structures and channels – within 90.0 million soms. Currently, the capacity of a large number of irrigation and drainage channels decreased by 20-30%, pumping stations, water intake and control structures are operated at the limit of physical deterioration. This leads to a reduction in irrigated land actually used, reducing irrigation efficiency, and ultimately to additional losses in crop yields, at least to 15-20%. Modern technical condition of irrigation and drainage systems are characterized as unsatisfactory. The irrigation system output capacity decreased by 15-25%. About 9% of the total irrigated area does not correspond to the reclamation standards in terms of salinity and the level of groundwater. Most land degradation is observed in the service area of the on-farm irrigation and drainage networks, which knocked out 50% of hydraulic structures.

The system of registry and evaluation of soil resources is to be improved, as well as dynamic analysis of soil, collection and interpretation of accurate reliable information in digital form on the areas of soil and land, with the creation of the centre of automated information system of monitoring database. The quantitative indicators of the dynamics are mainly reflected in the annual State (national) reports on the status and use of the land fund of the country and qualitative indicators are not covered. Although, according to the article 106 of the Land Code, these reports should contain also qualitative indicators of the land. In order to fulfil the established norm, according to the Decision of the Government of the Kyrgyz Republic “On the inventory of the land fund of the Kyrgyz Republic” №114 dated 03.03.2014, the Ministry of Agriculture and Melioration has begun work during 2014-2018 on inventory of the country land fund, including the execution of works to establish the boundaries between business entities regardless of ownership and departmental affiliation. At the same time, it is planned to perform a qualitative account of the land, which will be reflected in the annual State (national) reports on land fund.

Most farmers do not have the necessary financial resources to conduct effective land use through the application of advanced technology, modern agricultural machinery. A direct consequence of this is the low labour productivity and capital-labour ratio, a high proportion of fixed costs and high production risks, unstable and small incomes. The government distributed 5.0 billion soms among the five commercial banks from 7.0 billion soms of credit funds intended for farmers. The mechanism is being developed for
allocating and issuing for $2 billion soms in a way that these loans by targeted direction reach to farmers. The fact is that almost half of these loans do not reach farmers. “The sums somehow find themselves in the field of trade” (Sarpashev T. Speech at the college MAM//Agrovesti. 21.02. 2014, p. 3). Referring to the Bank privacy act, the details are not disclosed on these sums; however, the government intends to make additions, changes in the aforementioned law that will allow monitoring and controlling the misuse of intended for farmers’ soft loans.

Lack of financial resources leads to the fact that in Kyrgyzstan there are considerable size areas left without processing due to the inability to obtain a sufficient amount of income and labour migration of peasants. Thus, the area of unused arable land in 2005 was 159.5 thousand hectares, 2010 – 122.4 thousand hectares, 2013 – 100.4 thousand hectares, or 8.3% of the total arable land in 1.2 million hectares. Fifty seven percent of this amount is not used due to uneconomical character, lack of seeds, fuel, and others. (See. Diagram, Figure 2.1)

The use of natural pastures is currently associated with a number of problems. For example, most farmers cannot overtake their cattle to distant pastures due to lack of funds for transportation and settling on the place. Dispersal and fragmentation of livestock farms are negatively affecting fundraising. As a result, the capacity of these pastures is not used in full. Pasture infrastructure improvement lacks significant capital investment.

The Kyrgyz Republic is an agro-pastoral country. In connection with the particular economic and social importance of pastures, certain reforms are initiated in pastures politics. In order to prevent degradation, especially of village pastures, currently regulation of transhumance livestock in remote pastures started. Natural regeneration of fodder grass pastures requires the introduction of permanently planned by time and space change of areas for livestock grazing – pasture rotation. Prior to the adoption of the Law of the Kyrgyz Republic “On pastures” (of 26.01.2009), the introduction of the practice of changing areas was hampered by a separate pasture management. Village pastures were managed by local authorities, pastures of intensive use were available for

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Figure 2.1 – The area of arable land, 2013.

[Diagram showing percentage distribution of arable land issues]

transformation for construction 6%
remouteness, stony land 17%
salinization and wetland 5%
malfunction of irrigation network, lack of irrigation 15%
shortage of seeds, fuel and lubricants 6%
oneconomical for use 51%

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rent by rayon state administration and alpine pasture land was under the jurisdiction of oblast state administration. The main pasture users – farmers, did not participate in the management of pastures. As a result, it has become one of the main causes of degradation and inefficient use of this vital natural resource.

Currently only closely located pastures are used intensively. Distant pastureland (syrts Kara Kudzhur, Aksay, Arpa Sarydzhaz etc.) are little used because of the difficulties with transportation, sheep yards destruction, housing, lack of water sources, and others. There is a need for public support. During Soviet times, about 1.5 thousand wells and water supply facilities, 1.6 thousand km of water networks for livestock watering were built on these pastures, the cost of which amounted to more than $ 10 million. Now they are conserved or out of order.

Irrational land use planning, deforestation, lack of anti-flood works, violation of slope stability also lead to an increase in natural disasters. For example, 70% of the irrigation facilities are located in mountain or foothill areas of the country. In this regard, water infrastructure is very vulnerable to natural disasters as floods, mudflows in the spring and summer, and the passage of sludge (ice pieces) in the winter-spring season.

According to expert estimates, the annual economic losses due to natural disasters, is 30-35 million dollars a year, while providing every year more than 2 thousand affected families. Degradation and poor land management increases the exposure and vulnerability of land to natural disasters natural and manmade. Therefore, measures for the development of the state system of monitoring and disaster prediction based on geo information technology and remote sensing, raising the level of understanding and awareness of the population, decision makers in disaster risk management is extremely relevant.

2.4. Climate Change and Adaptation

Climate change is creating new threats, risks to SLM, to implementation of measures to combat land degradation and desertification. In the Second National Communication on adaptation to climate change, it is noted that in the period from 1970 to 2000 mountain glaciers of the country lost 15% of its volume. It is assumed that the maximum reduction of up to 70% of the ice area, for example on the southern slope of the Kungei Ala-Too, will happen to the period of 2025-2050. Therefore, it is extremely important now to plan the future development of the country taking into account the forecast of climate change and include a set of priority actions for the transition of agriculture, water and forestry on the adaptive way of development. This is more important in view of the fact that Kyrgyzstan, while in the upper watershed of the rivers, is responsible for the water supply of Central Asian countries. At the conclusion of the Intergovernmental Panel on Climate Change (IPCC), “the only way to increase the ability to adapt is to take account of impacts of climate change in the development planning, for example, by including adaptation measures in land-use planning and infrastructure design.”

It may be necessary to change the direction of the land use for the purposes of the economy. The strengthening of the capacity of rational state management of the environment.

land resources, effective land-use policies, as well as achievement of sustainable use of land resources will be necessary. The support of national agencies, institutions of land resources, as well as training of farmers, experts in land use planning and management at local and national levels is the prerequisite for this. The principal condition is to maintain and increase the potential productivity of the land while maintaining vital eco-system functions of soil.

There is a need to incorporate adaptation measures to climate change into the main country strategy/development plans. Beginning has been made. These issues are included into the approved program of the Government of the Kyrgyz Republic for the transition of the Kyrgyz Republic to sustainable development for 2013-2017 years. Priority directions for adaptation to climate change in the Kyrgyz Republic until 2017. In the approved by the Government on March 17, 2014 № 131 Priorities for the Conservation of Biodiversity of the Kyrgyz Republic for the period up to 2024, a goal is set: to increase the resilience of ecosystems and enhance the contribution of biodiversity to carbon accumulation, contributing to climate change mitigation and adaptation to them and to combating desertification through: 1) the development of the draft program of the Government of the Kyrgyz Republic for the rehabilitation of degraded land, providing for the restoration of more than 10% of degraded lands; 2) implementation of measures for the sustainable development of mountain forests and land resources in the face of climate change on the area of 30 thousand hectares.

However, because of the extended long-term climate trends in time and space it is necessary to include these measures in the long-term strategies/plans for the development of the country in constant and increasing modes.

Particularly relevant is the inclusion of adaptation measures to climate change in local plans for social and economic development of the regions of the country. Available data on the oblasts shows that currently the issue of coming climate change and the problem of desertification/land degradation remain poorly understood on the ground. The issues of adaptation to climate change are weakly reflected in local plans of socio-economic development. Activities and plans are costly and of current character, without a vision of the future risks (trends) of water resources reduction, increasing droughts, sudden fluctuations in temperature regimes and others.
Based on the 10-year UNCCD Strategy and Resolution №64/201 of December 21, 2009 the UN General Assembly to proclaim 2010-2020 UN Decade to Combat Desertification, the National Action Plan for the period 2015-2020 outlined a series of tasks, measures for achieving the expected results.

### 3.1. Tasks, Measures and Results

#### 3.1.1. Organization of the Measures for Awareness Rising at all Levels of the Threat and Directions for Combating Land Degradation and Desertification

The analysis shows that the low level of awareness (awareness, knowledge, advice) at all levels of the threat, magnitude and direction of combating land degradation and desertification in most cases is one of the main causes of the spread of these negative phenomena, along with the lack of financial resources, managerial and scientific knowledge of farming. Many farmers do not know that, according to the laws of the country, responsibility for the management and sustainable use of land is vested on peasant (farmer’s) themselves and other subjects of agriculture.

The Rural Advisory Service (RAS), Centre for Education, consultation and innovation (CECI), NGO “Agrolead” and others are trying to fill the gaps in knowledge about the culture of agriculture among the farmers, but the coverage is insufficient, only 10-15% of agricultural and other natural resources users. Agricultural Research Institutes are making efforts to introduce resource-saving and “green” technologies, dissemination of information and education on relevant local knowledge about effective agro-technologies and best practices.

The staff of local administrations, local self-government authorities, ministries, agencies is insufficiently informed about the scope and long-term effects of land degradation and is more concerned with the current general administrative, economic and social issues, losing control over the execution by all subjects of land use of the legislation for the rational use of land.

**The task:** it is necessary to raise awareness at the level of local communities, local administrations and local self-government authorities, as well as at the level of ministries and agencies about the causes and consequences of land degradation, counter-measures.

**Measures:** Aiming to raise awareness on all levels it is recommended:

1. to the government and policy-making bodies to conduct at an on-going basis, especially in areas where land degradation, promotion activities on propaganda, informing, education in the field of combating desertification through local, national media, IT-network. The contents of outreach materials is: manifestations and factors of land degradation, comparing relevant costs and potential economic/social costs of inaction, facts and perpetrators of serious violations of land use and predatory use of soil fertility and others. The result should be the provision of rural producers, the total rural
population, especially women with knowledge on desertification and land degradation, as well as information on measures to prevent these phenomena;

b) practice participation of MAM, local authorities, the WUA, pasture committees, forestry entities in joint activities, decision-making processes on sustainable land management;

c) develop and implement the plans for: 1) awareness raising of subjects of natural resource management (rural producers, WUA, pasture, forestry) of the river basin approach; 2) training on the development of basin plans for the sustainable use of land and water resources, sharing knowledge, experience and best practices;

d) implement the pilot projects on the organization of cooperation between local natural resources users (farmers, WUA, pasture, forestry) at the level of the water basin, for example, joint forest and crops planting on sloping lands, terrace farming, payments for ecosystem services (PES), etc.;

d) to organize periodic cycles of the “Jer-Ene” programmes on TV and radio, films, stakeholder meetings devoted to issues of land use to educate and improve the ecological and environmental awareness of the population, promote careful and rational use of land, water and forest resources. Preparation and display of scientific-popular films using archival and documentary material showing the threat and the consequences of inaction on the part of land users, best practices for SLM and prevention of land degradation;

e) the wide holding of seminars, roundtables, educational lectures with experts and specialists on the problem of desertification, with the use of interactive communication with the public, students, pupils;

f) support the development and exchange of knowledge in the field of agro-ecology, especially paying attention to the aspects of economic and social consequences.

**Expected result**: awareness will be increased at all levels (local and central) of the threat, scale and impact of land degradation and desertification, directions to neutralize and combat through achieving maximum participation and involvement of all stakeholders of the population – of the central government and local government, private (peasant) farms and agribusiness, public (civil) sectors. Awareness affects the process of rethinking of the problem as among those responsible representatives of policy and management, as well as farmers and the local community.

### 3.1.2. Development of Foundations and Frameworks for Policy to Combat Land Degradation and Desertification

The effectiveness of measures to increase awareness of the population depends on the existence in the country of foundations and frameworks of land and legal policy to combat
land degradation and desertification. Certain institutions are developing the foundations and policy frameworks through the regulatory legal acts of the legislative, regulatory and institutional nature, creating a favourable policy environment for the implementation of measures against land degradation and desertification.

**Institutional sphere**

Now, various sectors of land – legal policies are dispersed in several public bodies (see Paragraph 1.2.3.). Therefore, the land inventory, land surveying, cadastral, surveying and mapping works for long time were not carried out, the boundaries of pasture use were not defined. In view of this, at the expert level it is stated that the country has not carried out a coordinated policy with regard to the rational use of land resources, the balance of rights and obligations of landowners and users, as well as their responsibility for the violation of land legislation.

**The task:** to improve the institutional sphere of land-legal relation management.

**Measures:**

a) carry out a functional analysis of the rights, duties, powers of ministries, departments, organizations active in the field of land management to determine the effectiveness of their work, including on the implementation of the UNCCD;

b) where appropriate to create a specialized state body which would take responsibility for the development and implementation of a coordinated land and legal policies for the effective management of all the resources of all categories of land ownership, and timely solution to the problems and challenges, including combating land degradation and desertification;

c) create/strengthen national institutions for the UNCCD, as well as local associations, committees, associations of land, water, forest users in order to establish working cooperation between all stakeholders, from the grassroots level and ending with the higher levels of management;

b) ensure coordination between ministries/agencies, local authorities, local self-government bodies, NGOs involved in the implementation of programs to combat desertification and land degradation at national and local levels;

e) generally to carry out policies to encourage consolidation of farms, improvement of the culture of farming and pasture use, learning of moisture saving irrigation technologies, rational use of lands of state forest fund, support of rural women and the promotion of private investment to the development of arid lands.

**Expected result:** coordination of land legal relations, effective management of the use and protection of land resources, the coordination of measures against land degradation and desertification as between central and local authorities, so between local organizations and communities (associations).

**Normative – legal sphere**

**The task:** improve normative-legal acts, creating favourable policy environment for the implementation of measures of SLM, combating land degradation and desertification,
regulating the balance of rights and obligations of the subjects of land use, as well as their responsibility for the violation of land legislation.

**Measures:**

a) to make changes and additions to land, tax laws, regulations and departmental regulations, increasing penalties for inefficient use of agricultural land, prohibiting transformation of fertile agricultural land, forest, water resources into the other categories;

b) develop programs/action plans to combat desertification, integrated with national, sectoral, regional strategies/plans for development, taking into account the international obligations under the UNCCD, and development of economic, legal and administrative instruments. In addition, the programs for adaptation to climate change, conservation / extension of biodiversity, the transition to a “green economy”;

c) increase the capacity and the rights of non-governmental organizations, civil societies for their effective participation in national processes for monitoring and evaluation of land management, the introduction of initiatives.

**Expected result:** updated Land, Water, Forest, tax codes, laws, and other NLA will create the legal framework for SLM policy, with the use of economic incentives, administrative measures of effective land use and prevention of illegal land transformation.

### 3.1.3. Expansion of Research Knowledge and Increase of their Contribution to the Prevention of Land Degradation and Desertification

Creating effective research base for action to combat desertification and land degradation – an important component in the construction of SLM. Land users can readily accept strong scientific justification, if the results meet their objectives and needs, and society as a whole. Establishment of cooperation between science and practice stimulates awareness rising of decision-makers, policy-makers about scientific discoveries, the results having practical significance. It is important to involve the local community, civil society organizations to cite the work.

**The task:** increase the research contribution to the prevention of land degradation and desertification.

**Measures:**

a) carrying out research to identify promising agricultural technologies, economic land degradation assessment, recommendations for improving the herbage (crops) of pastures, ways of effective land management and so on;

b) making predictions of climate change, water shortage onset periods, the development of adaptation measures;

c) introduction of knowledge systems for sustainable land management through a network World Overview of Conservation Approaches & Technology (WOCAT), DryNet etc.;

d) preparing recommendations for the establishment of protective forests of drought-tolerant tree species, based on the identification of adaptive capacity of natural vegetation,
for example, Haloxylon, as an effective method to combat desertification and land degradation;

e) improving of land resources monitoring using GIS technology. There is a need for the development of an information system, which allows creating technological and cartographic database (DB) and using the accumulated information for data analysis, sampling and reporting on the request of the user. The database must store all the information necessary for the assessment of land resources, data processing and activities selection to combat land degradation and mitigate the risks and losses. The enlarged structure of the software IS, database of technology data; base of electronic maps; GIS module for connection of technology and cartographic databases.

The expected result: introduction into the agricultural practice of scientific evidence-based agricultural technologies, innovations, recommendations aimed at minimizing the damage /suspension of degradation processes/increase of economic returns from the land.

3.1.4. Increasing Capacity to Address Land Degradation and Desertification

The task: increase the knowledge, skills, the ability of state organs, local self-government authorities, farmers, civilians to counter land degradation and rational land use

Measures:

a) to conduct a study and assessment of the knowledge, abilities, capacities of public authorities, local self-governments authorities, farmers, civilians to counter land degradation and rational land use;

b) to develop and implement diversified plans to increase the capacity of the following categories of people:

- to conduct seminars, round tables for the three branches of government (offices of President, Parliament, Government), local self-governments bodies on the tasks of the UNCCD, the review of the scale of land degradation and damage, the possible consequences, training on the economic assessment of land degradation, the nature sustainable (climatic sustainable) planning;

- to organize trainings, field days, demonstration plots at the local level for farmers, specialized associations and associations of water and pasture users, livestock growers on farming culture, the rational use of pastures, techniques with elements of land management, water, preparation of economic calculation of costs, income, profitability, as well as possible damage from unsustainable use, compilation of business projects and other topics of land use;

- to hold seminars for NGOs, civil society organizations on increasing capacity for public monitoring and control of actions of land users and landowners, initiating public hearings on the topics of violations of land legislation

The expected result: the abovementioned types of population will be able to execute their appropriate functions, for example, government agencies – making policy and taking decisions on SLM, rural producers – rational use of land with application of soil
conservation agricultural technologies, pasture users – sowing of nutritious grasses, using of alternating periods of “rest”, NGOs, civil society organizations – monitor compliance with the legislation.
IV. INTEGRATED FINANCE STRATEGY

4.1. Strategy Objective

The Integrated Finance Strategy (IFS) was developed to facilitate the creation of an environment for:

- more efficient use of financial resources;
- mobilizing new financial resources to address the challenges of sustainable land management (SLM) and in general – the implementation of the National Plan of Action for the UNCCD in the Kyrgyz Republic.

4.2. Financial Sources

4.2.1. Internal Financial Sources

State budget

The state budget is made up of the national budget and local budgets, or local self-government budgets. Using the expenditure part of the state budget is the main source of domestic financing for SLM.

The budget revenues for the last three years marked a significant growth. During the period of 2011-2013 state budget revenues increased 1.3 times from 77.4 bln soms (27.1% of GDP) to 101.8 bln soms (29.1% of GDP).

In the period of 2015-2017, the state budget expenditures are projected to increase average by 110.0% annually. Growth of current expenditures of the state budget in the period of 2015-2017 is to average 107.2% per year. Investment costs from external sources are projected to increase an average of 128.0% per year. Investment expenditures from internal sources in the 2014-2016 forecast period is expected with an increase of 140.2% on average each year.

Significant growth of expenditure in the 2014-2017 period is expected under section “Economic issues”, which includes the financing of agriculture and land management. Its share in total expenditure will increase from 18.3% in 2014 to 25.1% in 2017. The annual growth of current expenditure under economic issues is average 108.5%, internal investment will grow at an average of 130.4 % per year, foreign investments of 135.3%. In addition, a significant increase is planned under the title “environmental protection”: an annual average of 109.5%.

Based on the analysis of sectoral strategies of budget expenditures, it was determined that for the purposes of financing for SLM from internal budget resources would be financed ministries and agencies directly or indirectly involved in the SLM:

- The Ministry of Agriculture and Melioration of the Kyrgyz Republic on the SLM activities will be allocated 320017.50 thousand soms in 2015, in 2016 – 328416.50 thousand soms, in 2017 – 1683782.10 thousand soms.

State Inspectorate for Veterinary and Phitosanitary Security, promoting SLM, will be allocated 32001.750 thousand soms in 2015, in 2016 – 328416.50 thousand soms, in 2017 – 1683782.10 thousand soms.\(^1\)

State Agency for Environmental Protection and Forestry, promoting SLM, will be allocated 502706.6 thousand soms in 2015, in 2016 – 510548.2 thousand soms, in 2017 – 520858.3 thousand soms.\(^2\)

State Inspection for Environmental and Technical Safety is partially involved in the provision of environmental safety, and therefore only a fraction of its cost can be attributed indirectly as meeting the objectives of the SLM. For the achievement of these objectives it will be allocated 67666.60 thousand soms in 2015, in 2016 – 69892.20 thousand soms, in 2017 – 72211.70 thousand soms.

The activities of the Ministry of Emergencies also partially covers the SLM, the objectives of which is decrease of economic damage, minimizing the risks and impacts of emergencies by conducting routine preventive and protective measures.\(^3\) For the achievement of these objectives, it will be allocated 627729.30 thousand soms in 2015, in 2016 – 627729.30 thousand soms, in 2017 – 627729.30 thousand soms.

The activities of the State Agency for Geology and Mineral Resources cover the provision of the SLM on the territory of the Kyrgyz Republic and its regions with the topographic-geodetic and cartographic materials for the needs of the economic activity.\(^4\) For the achievement of these objectives it will be allocated 24681.6 thousand soms in 2015, in 2016 – 25131.6 thousand soms, in 2017 – 25566.6 thousand soms.

The activities of the National Statistical Committee of the Kyrgyz Republic is to be financed in the following amounts: – 204072.0 thousand soms in 2015, in 2016 – 208500.5 thousand soms, in 2017 – 216272.6 thousand soms.\(^5\)

SRS activity under GKR will be financed in the following amounts: in 2015 – 279648.9 thousand soms, in 2016 – 285717.5 thousand soms, in 2017 – 296368.0 thousand soms.\(^6\)

**Using the local budget of the LSG organs**

Funding for SLM may be provided through local budgets. Information on the use of local budgets for SLM is currently unavailable because the local budgets are developed and adopted after the approval of the national budget. Moreover, due to the lack of systematic data collection on local budgets, collection and processing of such information is a difficult task, and taking into account the narrow tax base of local self-governments

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\(^1\) Same place, p. 198.  
\(^2\) Same place, p. 257.  
\(^3\) Same place, p. 274.  
\(^4\) Same place, p. 218.  
\(^5\) Same place, p. 288.  
\(^6\) Same place.
and the presence of many social problems in the field, it can be assumed that it is possible that LSG do not invest significant resources to the SLM.

Based on the above, the additional sources of funding for local self-governments, which can be directed to the SLM, are described below.

**Loans to LSGO.** LSG organs may exercise the loan with the consent of the local council and the Ministry of Finance through the issuance of municipal securities. In this case, local government bodies shall be prohibited to borrow if the debt service of total debt, including the upcoming debt exceeds 20% of the annual income of local governments, excluding funds raised because of loans. The examples of borrowing for SLM by LSG organs were not observed in the Kyrgyz Republic yet. The local governments have access to external borrowing only through the state budget within the budget development, i.e. within the framework of the implementation of government programs from central budget.

**Stimulating (equity) grants.** Funding SLM at the LSGO level is possible not only from local financial resources, but from also stimulating grants, which are allocated from the national budget to finance priority investment projects. Incentive grants are allocated from the national budget as additional resources to the resources of the local budget for the implementation of investment projects in various sectors, including agriculture, water resources. In 2013, from 353.4 mln soms of equity grants for objects of infrastructure engineering (irrigation, water supply and drainage networks and gasification projects) directed 34.6 million soms or 9.8%. In 2015 600.0 million soms allocated for stimulating grants, in 2016 – 500.0 million soms, in 2017 – 600.0 million soms

### Private sources of SLM financing

According to their own priorities and aiming to build a positive image, some private companies finance activities targeted for environmental protection and sustainable management of land resources. Companies such as “Mercy Corps” and “Kumtor” have projects aimed at training in advanced agricultural technologies in land cultivation, environmental protection (see Introduction).

#### 4.2.2. External Investments

A number of projects are to be introduced in the Kyrgyz Republic for the period 2010-2015 for the purposes of the development of agriculture and water resources, including for SLM financed from external sources (see Attachment 3).

#### 4.2.3. Innovation Proposals

**A. Economic Mechanisms and Instruments of NAC Financing**

**A.1. Nature Protection Fund**

Currently, in the Kyrgyz Republic the main official sources of funding for environmental activities are:

- payments for allowable (limited type) emissions, discharges of pollutants and waste disposal into the environment;
charges for exceeding the permissible (limited type) emissions, discharges of pollutants and unauthorized disposal of waste into the environment;

- payments for the use of natural resources (payment for the use of Fauna and Flora);

- charges collected for damages caused to the environment and its natural resources in connection with the violation of environmental legislation;

- proceeds from the sale of confiscated instruments of consuming (harvesting, processing) of natural resources and illegally produced (harvested, processed) natural resources or products thereof;

- income from attracting investment into environmental protection and grants;

- the five-percent deduction from the total income of forestry, state national parks, received from the sale of products, works and services and carrying out other economic activities;

- proceeds from the activities of environmental posts;

- voluntary contributions, sponsorship contributions of natural resources users and other legal entities and individuals, including foreign ones;

- natural resources users targeted funds to finance environmental works;

- other sources that do not contradict the legislation.

The territorial bodies SAEPF are responsible for collecting payments. The payments are accumulated in the national and local environmental funds and used for financing activities in the field of environmental protection.

A.2. Exchange of External Debt for Sustainable Development

At the September plenary session of the 2010 General Assembly of the United Nations on achieving the Millennium Development Goals, President Roza Otunbayeva appealed to the international community to support a mechanism for sharing the external debt of Kyrgyzstan to protection of the environment. Realization of this initiative can make a substantial contribution to the financing of environmental protection measures, as the share of public expenditures in the Kyrgyz Republic, devoted to environmental protection measures, is infinitely small in comparison with other social sectors and is only 1% of all government spending, or 0.2% of GDP.

This initiative was proposed also earlier in the past, the attempts have been made with the support of UNDP and the OECD, conversion operations with Germany have even been carried out under the Protocol of the Paris Club to exchange a portion of the public debt of TB control in the amount of 771 thousand euros, as well as for the development of infrastructure with the use of energy-efficient technologies in rural areas for the population in the amount of EUR 5 million.

Since the reduction of poverty in the Kyrgyz Republic continues to be a priority for the government and the donor community to support this priority, it seems that the most popular would be the projects involving the maximum number of priorities for sustainable development (SD).

1 Nature protection fund is a structural unit of the SAEPF.
Priorities debt of conversion should include also the economic viability and social benefit, and preserve the environment. Projects at the intersection of economic, social and environmental priorities should be the most popular.

Thus, the projects for SLM are most preferred. For example, afforestation projects can provide employment at planting forests and subsequently be a source of income from forest products for households with low income.

Experience of countries that have successfully carried out the conversion of debt shows that regardless of the institutional structure of the resources obtained from the conversion of debt, lenders need to be convinced that the country will have the institutional capacity for the transparent and efficient management of foreign resources in accordance with the best international standards.

To obtain support for EDE to SD it is necessary to define priorities, to which adhere both creditors and GKR. The proposed program EDE to SD should focus on just a few priorities and demonstrate procedures to prepare reliable projects in accordance with its objectives.

Preparation for real transactions and financial transactions in accordance with the debt swap scheme for measures to protect the environment will not be short, simple and cheap. However, a number of internal and external factors are working in favour of the Kyrgyz Republic. The country has a certain debt structure, suitable for sharing, there is a growing “green movement” in the world and the international community represented by international donor organizations support the efforts of the Kyrgyz Republic for the preparation of EDE to SD.

To summarize, the initiative of EDE to SD can be successfully implemented if a mechanism is determined to ensure transparency in the implementation of projects, the actual relevance of the proposed project with national priorities, consistency and persistence in negotiating with creditors.


The United Nations Convention on Biodiversity (UNCBD), the UN Convention on Climate Change (UNFCCC) and the UN Convention to Combat Desertification (UNCCD) offer different financial and economic instruments to address environmental issues.

The Kyoto Protocol is the instrument for the implementation of UNFCCC, which was ratified by the Kyrgyz Republic in 2003.

In accordance with the UNFCCC, there are several funds to invest in projects or programs to combat climate change and/or to adapt to its effects. GEF is carrying out their administration.

Adaptation mechanisms under the UNFCCC and the Kyoto Protocol. Special Climate Change Fund (SCCF) was created to help developing countries for operations related to climate change, including adaptation and mitigation measures. Marrakesh Agreement (November 2001) identifies four areas that are supported by the fund:
Adaptation.

Technology.

Energy, transport, forest management and waste management.

Activities to assist developing member countries to diversify their economies.

**Mitigation under the UNFCCC and the Kyoto Protocol.** The Kyoto Protocol provides as additional measures to comply with their commitments by Parties to the Protocol economic (flexible) mechanisms, which include:

- trading for greenhouse gases (Art. 17 of the Protocol);
- Clean Development Mechanism (CDM) (Article. 12);
- joint implementation projects (JIP) (Article. 6).

**Adaptation Fund**¹. In accordance with the Kyoto Protocol Adaptation Fund was established, which has a specific purpose: to assist in meeting the costs of adaptation to the Parties to the Protocol from developing countries that are particularly vulnerable to the adverse effects of climate change, and to finance concrete adaptation projects and programs tailored to the needs of countries.

In Central Asia, there is a positive experience for mobilizing resources from the Adaptation Fund. Turkmenistan gained $ 2929500 on water management as increasing adaptive capacity in agriculture in response to the risks associated with climate change.

**Soft loans for the NAP.** Loans with a flexible form of payment or low interest help fund the activities of providing economic benefit and sustainable land management, such as eco-tourism, organic farming and the use of forest products. Currently there is only one known example in Kyrgyzstan of such an activity – funding of Eco oriented agricultural microfinance projects of “Companion” company.

**B. Potential Economic Mechanisms and Financial Instruments for NAP Financing**

**B.1. Introduction of pollution taxing and tax incentives for environment protection activity**

Currently, there is a need of improvement of legislation that regulates the system of environmental charges. In the context of the radical transformation of the entire eco-economic system in our country, giving the tax payments the legal status or compulsory collection will contribute to timeliness and completeness of the collection of payments for environmental pollution, increase of their volume and further targeted use.

The introduction of the environmental tax to replace the payments for environmental pollution, automatically would lead to the resolution of problems with low fees and expansion of the tax base.

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The introduction of the environmental tax for pollution will lead to:

- streamlining of the system of administration and payment of applicable fees for environmental pollution (emissions, discharges, waste disposal);
- reduction of inspections of businesses by the executive power.

**B.2. Creation of new markets**

Creation of new markets can improve the ability of stakeholders to understand all the benefits of biological resources and values of the various functions of natural resources. New markets can stimulate the creation of new products and services.

**B.2.1. Environmental certification of environmentally friendly products**

Environmental certification acquires significant market importance for the use of natural resources. Such schemes are usually voluntary and are offered by private agents to give the market value to green products compared to other. These schemes are designed to encourage manufacturers to introduce eco-oriented approach to production.

**B.2.2. Trading system on the use of natural resources**

Trading system to use natural resources allows avoiding over-exploitation of the environment through the introduction of quotas for hunting, fishing, gathering medicinal plants or mummies. Quotas can be sold as to legal entities and so to individuals. For example, the one who wants to reduce or minimize the use of certain natural resources may sell the quota to another at a price formed on the market.

**B.2.3. Taking advantage of the WTO and the Fair Trade Mechanism**

It is important to note that to Kyrgyzstan as a member of the WTO Doha mandate provides an opportunity to negotiate the reduction or abolition of tariff and non-tariff barriers for eco-oriented products and services. In this context, any movement of funds, technology and know-how within the rules of the WTO becomes the subject of the abolition of tariff and non-tariff barriers. This, in the end, reduces the cost of introducing of eco-friendly technologies and services that helps to fight climate change, biodiversity loss and desertification.

**B.3. Trust funds or funds of sustainable development**

The use of trusts or foundations of sustainable development as a mechanism to control the funds allocated for environmental protection measures, showed that it is a good practice. Currently, many donors have a clear preference for the use of this structure in order to participate in the initiative for the exchange of debt or financing of environment protection measures.

Main purpose of the SD Funds is to provide stable and long-term funding for

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the targets of environment protection and social objectives, including sustainable management of national parks and other protected areas, support through the Small Grants Program, non-governmental organizations (NGOs) and communities for development and implementation of the projects, aimed at biodiversity conservation, supporting local livelihoods and sustainable use of natural resources.
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<td>1. Raise awareness on the causes and consequences of Desertification, Land Degradation, counter-measures at the level of: local communities, local administrations and local self-government authorities, ministries, agencies, organizations</td>
<td>a) Conducting by authorities and policy-making entities in regions, especially in areas where land degradation process is increased, on-going activities to promote, inform, educate in the field of SLM, DHS through local, National Mass Media, IT-network</td>
<td>NFPCCD, MAM, Ministry of Economy, Ministry of Finance, ME, SAEPF, National Statistics Committee, LGA, LSGO, WUA, local community, Mass Media</td>
<td>2015–2020</td>
<td>Republican and local budgets, local and foreign investment, technical assistance projects of international organizations</td>
</tr>
<tr>
<td></td>
<td>b) Practice participation of MAM, LGA, LSGO, WUA, pasture committees, forestry in joint activity and processes of decision making on the rational land use;</td>
<td>MAM, LGA, LSGO, WUA, PC, Department of forests and biodiversity of SAEPF</td>
<td>Permanently</td>
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<td></td>
<td>c) The development and implementation of plans to: 1) raise awareness of natural resource management entities (rural producers, WUA, pasture, forestry) of the river basin approach, 2) training on the development of basin plans of sustainable use of land and water resources, sharing knowledge, experience and the best practices 3) the integration of adaptation plans to climate change in regional development plans</td>
<td>MAM, LGA, LSGO, WUA, PC, Department of forests and biodiversity of SAEPF</td>
<td>Permanently</td>
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<td>d) The development and implementation of projects, including pilot, on the organization of cooperation of local natural resources users (farmers, WUA, pasture users, forestry) for the prevention of LDD on the watershed level, for example, joint planting of forests and crops on sloping lands, terrace farming, use of pastures in Protected Natural Areas, payment for ecosystem services (PES) and other;</td>
<td>MAM, SAEPF, LGA</td>
<td>2015–2020</td>
<td>Grants of international organizations</td>
<td></td>
</tr>
<tr>
<td>e) The organization of periodic cycles of programme «Jer-Ene» video dedicated to the issues of land use, stakeholder meetings on TV and radio to educate and improve the ecological (environmental) awareness of the population, moral incentives, promote careful and rational use of land, water and forest resources. Production and display of popular films using archival and documentary material showing the threat and the consequences of inaction on the part of land users, best practices for SLM and land degradation prevention;</td>
<td>HKCKBO, MAM, SAEPF, ME, LGA, LSGO, KyrgyzHydromet, Mass Media</td>
<td>Permanently</td>
<td>Project proposals</td>
<td></td>
</tr>
<tr>
<td>f) The ubiquitous seminars, roundtables, educational lectures with experts and specialists on the problem of desertification, with the use of interactive communication with the public, students, pupils. <strong>Expected result:</strong> awareness will be increased at all levels (local and central) on the causes and consequences of land degradation and</td>
<td>NSCCD, MAM, Ministry of education and science, Department of cadastre and immovable property of SRS, SAEPF, LGA, LSGO, Mass Media</td>
<td>Permanently</td>
<td>The share projects of state-private partnership, project funds of international organizations</td>
<td></td>
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<td></td>
<td>desertification, directions to neutralize and counter them through achieving maximum participation and involvement of all stakeholders of the population – of the central government and local government, private (peasant) farms and agribusiness, public (civil) sectors. Awareness affect the process of rethinking the problem among responsible representatives of policy and management, as well as farmers and local communities.</td>
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</table>

2. Development of a basis and policy framework for combating land degradation and desertification

Basis and policy framework are developed by certain institutions through the regulatory legal acts of the legislative, regulation and institutional nature, creating a favourable policy environment for the implementation of measures against land degradation and desertification.

**Institutional sphere**

2.1. Improve the institutional field of management of land law area/

*Indicator: create a specialized government body on the development and conduct coordinated land policy in SLM area.*

*Indicator: create UNCCD National Center*

a) Carry out a functional analysis of the rights, duties, powers of ministries, departments, organizations active in the field of land management to determine the effectiveness of their work, including the UNCCD implementation;

b) Where appropriate to propose the creation of a specialized state body to develop and implement coordinated land and legal policy in the SLM sphere at the national and local level.

| NS CCD, MAM, SRS, SPI “Kyrgyzgiprozem” | 2015–2016 | No additional funding needed |

NS CCD, MAM, SRS, SAEPF

b) Create/strengthen national institutions of the UNCCD, as well as local associations, commissions, associations of land, water, forest users in order to establish working cooperation between all stakeholders, from the grassroots level and ending with higher levels of management;

| NS CCD, MAM, SRS, SAEPF | 2015–2018 | Budgets of organizations, technical assistance of the projects ICALRM 2 |
| 1 | **Normative-legal sphere**  
2.2. Improve legal acts creating a favourable policy environment for the implementation of SLM, measures against land degradation and desertification, regulating the balance of rights and obligations of the subjects of land use, as well as their responsibility for the violation of land legislation  
*Indicator: 4 Codes aligning, draft of 2 Government decrees on LDD, 1 programme/action plan on LDD, organic agriculture, BD, CC, “green economy”* |
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<tbody>
<tr>
<td>2</td>
<td><em>Expected result:</em> the coordination of land and legal relations, effective management, use and protection of land resources, the coordination of measures against land degradation and desertification as between central and local authorities, so between local businesses and unions (associations)*</td>
</tr>
<tr>
<td>3</td>
<td><strong>a)</strong> To make changes and amendments to Land, Tax Laws, regulations and departmental regulations, increasing penalties for inefficient use of agricultural land, prohibiting the transformation of fertile agricultural land, forest, water resources into other categories;</td>
</tr>
</tbody>
</table>
| 4 | MAM, SAEPF, Ministry of Finance, Ministry of Justice  
2015–2018  
No additional funding needed, technical assistance of the projects ICAL-RM 2 |
| 5 | **b)** Develop programs / action plans to combat desertification, integrated with national, sectoral, regional strategies / plans for development, taking into account the international obligations under the UNCCD, and development of economic, legal and administrative instruments. Also programs for adaptation to climate change, preservation / expansion of organic agriculture, biodiversity, transition to a “green economy”; |
| 6 | MAM, SAEPF, Ministry of Economy, State oblast, rayon administrations  
2015–2020  
Without additional funding. Assistance with funds of the projects of TA of IOs |
| 7 | **c)** Increase the capacity and the rights of non-governmental organizations, civil societies for their effective participation in national processes for monitoring and evaluation of land management, the introduction of initiatives.  
*Expected result:* updated Land, Water, Forest, Tax Codes, Laws, and other LNA will create the legal framework for SLM policy using economic, |
| 8 | NS CCD, LSGO, associations and NGO on land, water, forest use  
2015–2020  
Without additional funding. Assistance with funds of the projects of TA of IOs |
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<tr>
<td>administrative and legal instruments, moral incentives for effective use of land and prevention of illegal land transformation</td>
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<tr>
<td>2.3 Policy measures to encourage land users for SLM</td>
<td>a) To implement the policies of encouragement for consolidation of farms, improvement of the culture of farming and pasture use, development of moisture saving irrigation technologies, rational use of lands of state forest fund, support of rural women, and promotion of private investment to the development of dry lands.</td>
<td>MAM, SAEPF, Research institutes, consulting business companies</td>
<td>2015–2020</td>
<td>Private and state, domestic and foreign investments</td>
</tr>
<tr>
<td>3. Extension of research knowledge and project work, increasing their contribution to the prevention of land degradation and desertification</td>
<td>Strong scientific justification can be readily adopted by land users, if the results meet their objectives and needs, and society as a whole. Establishment of cooperation between science and practice stimulates awareness raising of decision-makers, policy-makers about scientific discoveries, results, which have practical significance.</td>
<td>Objective: to increase research contribution to the prevention of land degradation and desertification</td>
<td>a) To conduct research for identification of promising agricultural technologies and irrigation methods, economic assessment of land degradation, recommendations for improving the herbage (sowing) of pastures, ways of effective land management and so on;</td>
<td>Ministry of education and science, MAM, SDI “Kyrgyzgiprozem”</td>
</tr>
<tr>
<td>Industrial: development of research reports, forecast, database of scientific recommendations</td>
<td>b) Making predictions of climate change and adaptation measures to climate change;</td>
<td>MAM, SAEPF, Kyr- gyzhydromet LGA, LSGO</td>
<td>2015–2020</td>
<td>Project funds of the IO</td>
</tr>
<tr>
<td></td>
<td>c) Introduction of knowledge systems for sustainable land management through a network of WOCAT, DryNet etc.;</td>
<td>MAM</td>
<td>2015–2020</td>
<td>Project funds</td>
</tr>
<tr>
<td></td>
<td>d) Based on the identification of adaptive capacity of natural vegetation, preparing</td>
<td>SAEPF, SRI, projects</td>
<td>2015–2020</td>
<td>Budget and project funds</td>
</tr>
<tr>
<td>1</td>
<td>recommendations for the establishment of protective forests of drought-tolerant tree species (e.g. Haloxylon), and implementation;</td>
<td></td>
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<td>2</td>
<td>e) Organization of complex investigations of soil, development and implementation of standard, adapted (zonal, regional, landscape, local) cropping systems</td>
<td></td>
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<tr>
<td>3</td>
<td>f) Development of database systems (DB) on land and water resources and adoption of response solutions, organization of functioning of the automated information system of the State land cadastre and land monitoring; Expected result: introduction into agricultural practice of evidence-based agricultural technologies, innovations, recommendations aimed at minimizing of the damage / suspension of degradation processes / increasing profit from land use</td>
<td></td>
<td></td>
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<tr>
<td>4</td>
<td>MAM, RASS, Ministry of education and science, Department of cadastre of SRS</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>5</td>
<td>2015–2020</td>
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</tbody>
</table>

### 4. Capacity building of stakeholders on SLM to address land degradation and desertification

**Objective:** to increase knowledge, skills, the ability of government, local self-government bodies, land users, the civilian population to combat land degradation and sustainable land use

| 1 | a) Study and evaluate knowledge, skills, capacities of public authorities, local self-government bodies, land users, the civilian population to combat land degradation and sustainable land use; |
| 2 | b) Development and implementation of diversified plans to increase the capacity of the above stakeholders: |
| 3 | NS CCD MAM, Consulting company |
| 4 | IO projects |
| 5 | IO projects |
**Indicator:** Capacity-building activities captured 70% of farming entities, up to 80 training, workshops, round tables, field visits and seminars.

- hold seminars, round tables for members of the three branches of government (offices of President, Parliament, Government), local governments on the tasks of the UNCCD, on review of land degradation and damage, possible consequences, trainings for nature sustainable (climate sustainable) planning;
- organize at the local level for farmers specialized associations (associations) water, pasture users, livestock growers trainings, field days, demonstration plots for land cultivating culture, on land use techniques with elements of land management, water, preparation of economic calculation of costs, revenues, profitability, and possible damages caused by their inefficient use, on compilation of business projects and other topics of SLM;
- to conduct seminars for NGOs, public and civil society organizations for increasing capacity of public monitoring and control actions of land users and landowners, initiating public hearings on topics of violations of land legislation.

**Expected result:** the above-mentioned stakeholders will be able to execute their appropriate functions, for example, state organs to conduct policy and planning for SLM, rural producers rationally use the land with application of soil protection agricultural technologies, NGOs, civil society organizations to monitor compliance with the law.
VI. MONITORING AND EVALUATION OF CCD/IFS IMPLEMENTATION


Monitoring the implementation of the NAP/IFS will be conducted through systematic collection, analysis and synthesis of data on the implementation of the NAP/IFS and evaluation of the efficiency/impact of SLM. Data will be collected from various sources – reporting, accessible websites, the media, government agencies, private sector, NGOs and civil society, and other sectors involved in the implementation of the NAP/IFS. The National Centre will carry out data processing for the CCD, and there will be a national database on implementation of the obligations of the country under UNCCD. The progress made and gaps and obstacles in the implementation of action plans will be analysed in detail. Based on the results recommendations will be formulated for overcoming them, decision drafts for individuals and organizations, making decision.

To ensure effective implementation of these NAP/IFS and detect deviations from the goals and objectives, analyses and development of the necessary SLM measures short-term assessment is carried out. This short-term evaluation of the NAP/IFS implementation will be performed twice, on the results of two years.

The National Interagency Coordination Council of the UNCCD will determine the effectiveness of NAP/IFS implementation.
CONCLUSION

Stop/prevent land degradation/desertification and mitigate the effects of increasingly frequent cycles of low water – this is the basic problem formulation of agricultural policy in the Kyrgyz Republic. The solution could be seen as a key area of integrated multi-sectoral efforts. Ultimately, these efforts are in interests of poverty reduction and to ensuring of healthy living conditions.

Presented National Plan of Action (NPA) and Integrated Financial Strategy (IFS) in the framework of activity for enhancing the UNCCD implementation in the Kyrgyz Republic for the period 2015-2020 are aimed at addressing five objectives:

- organizing the events for awareness raising at all levels on the threat and ways to counter land degradation and desertification;
- developing basis and policy framework to combat land degradation and
  desertification;
- expanding of research knowledge and increase their contribution to the prevention of land degradation and desertification;
- increasing the capacity to address land degradation and desertification;
- mobilizing financial and technological resources for the implementation of the UNCCD NAP.

It is expected that the results of the NAP implementation will be:

The first task: awareness raising (information, education, advocacy) at all levels (local and central) of the threat scale and impact of land degradation/desertification, directions to neutralize and counter them through achieving maximum participation and involvement of all stakeholders of the population – of the central government and local government, private (peasant) farms and agribusiness, public (civil) sectors. Awareness affect the process of rethinking the problem as among responsible representatives of policy and management, so between farmers and the local community.

According to the second task: increase of coordination of land legal relations, effective management of the use and protection of land resources, the coordination of measures to counter land degradation/desertification as between central and local authorities, so between local organizations and communities (associations).

Updated Land, Water, Forest, Tax Codes, laws, and other NLA will create the legal framework for SLM policy with the use of economic incentives, administrative measures for effective use of land and prevention of illegal land transformation.

The third task: science-based agricultural technologies, innovations, recommendations aimed at minimizing the damage/suspension of degradation processes/increase of the benefit of the land use will be introduced in farming practices.

According to the fourth task: appropriate categories of the population will be able to perform competently their functions. For instance, government agencies will implement policy and planning for SLM, rural producers will rationally use the land with the application of soil protection agricultural technologies, the sowing pastures with nutritious
grasses, alternating periods of “rest”, NGOs, civil organizations to monitor compliance with the law.

_According to the fifth task:_ improvement of the budgetary allocation on target-oriented basis in order to increase efficiency and effectiveness of actions; raising funds from the international financial institutions; mechanisms and funds, including the GEF; finding innovative sources and mechanisms of financing activities to combat land degradation/desertification and mitigate the effects of water scarcity and climate change.
SOURCES


<table>
<thead>
<tr>
<th>№</th>
<th>Description</th>
<th>Participants’ number</th>
<th>Date</th>
<th>Place of training</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Review of existing NAP and priorities alignment, inception workshop</td>
<td>40</td>
<td>January 24–25, 2014</td>
<td>Bishkek</td>
</tr>
<tr>
<td>2</td>
<td>Meeting of the National Board on the GEF-WB project «Support UNCCD NAP Alignment and reporting process»</td>
<td>15</td>
<td>January 24, 2014</td>
<td>Bishkek</td>
</tr>
<tr>
<td>3</td>
<td>Establishment of appropriate consultative processes</td>
<td>46</td>
<td>March 5–6, 2014</td>
<td>Batken</td>
</tr>
<tr>
<td>4</td>
<td>Developing and/or reviewing indicators for NAP alignment and implementation taking into account national peculiarities Training national level stakeholders in the reporting methodology, procedures and tools</td>
<td>30</td>
<td>March 25–28, 2014</td>
<td>Issyk-Kul</td>
</tr>
<tr>
<td>5</td>
<td>Mainstreaming of NAP priorities in relevant sectorial policy synergies</td>
<td>20</td>
<td>April 8–11, 2014</td>
<td>Chui oblast</td>
</tr>
<tr>
<td>6</td>
<td>Regional workshop for Central Asia «Updating of NAP in accordance with the objectives and strategies of the Rio Conventions.» Evaluation by stakeholders and a workshop to launch the reporting process (impact assessment, a review of the effectiveness of activities, best practices and financial flows)</td>
<td>20</td>
<td>April 22–24, 2014</td>
<td>Issyk-Kul oblast</td>
</tr>
<tr>
<td>7</td>
<td>Round table on the preliminary results of the preparation of project documents on NAP, IFS reporting. Creation/strengthening of national coordination structures</td>
<td>15</td>
<td>June 12–13, 2014</td>
<td>Kemin rayon</td>
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<tr>
<td>8</td>
<td>Identification of technology transfer for the NAP implementation</td>
<td>40</td>
<td>June 20–22, 2014</td>
<td>Issyk-Kul oblast</td>
</tr>
<tr>
<td>9</td>
<td>Regional workshop to review and finalize the report</td>
<td>40</td>
<td>June 24–26, 2014</td>
<td>Issyk-Kul oblast</td>
</tr>
<tr>
<td></td>
<td>Event Description</td>
<td>Duration</td>
<td>Date</td>
<td>Location</td>
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<tr>
<td>10</td>
<td>The National final workshop to review and finalize report and NAP</td>
<td>30</td>
<td>October 16–17, 2014</td>
<td>Issyk-Kul oblast</td>
</tr>
<tr>
<td>11</td>
<td>Meeting of the National Board on the GEF-WB project «Support UNCCD NAP Alignment and reporting processes”</td>
<td>15</td>
<td>October 9–10, 2014</td>
<td>Issyk-Kul oblast</td>
</tr>
<tr>
<td>12</td>
<td>Field visit and meetings with the associations of water users in the ail aimak «Dara».</td>
<td>10</td>
<td>March 5–7, 2014</td>
<td>Batken rayon of Batken oblast</td>
</tr>
<tr>
<td>13</td>
<td>Field visit and meetings with the head of the pastoral committee of Temirovka Issyk-Kul district, farmers pasture-users</td>
<td>25</td>
<td>March 25–28, 2014</td>
<td>Issyk-Kul oblast</td>
</tr>
<tr>
<td>14</td>
<td>Field visit and meetings with the head of the pastoral committee Ashu Kemin raion, farmers pasture-users</td>
<td>20</td>
<td>April 10, 2014</td>
<td>Kemin rayon</td>
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</table>
**LIST OF ACTIVE PROJECTS RELATED TO THE NAP THEME**

**The projects of assistance to agriculture of the Kyrgyz Republic (2010–2015)**

<table>
<thead>
<tr>
<th>№</th>
<th>Donor and partners for development</th>
<th>Project name</th>
<th>Implementation term</th>
<th>Project’s budget ($ mln)</th>
<th>Executed actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>World Bank</td>
<td>«The second project on on-farm irrigation»</td>
<td>2008–2013</td>
<td>20.6, grant</td>
<td>Improved provision of irrigation services, which contributed to the sustainability of yields from irrigated lands and countering their degradation.</td>
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<tr>
<td>2</td>
<td></td>
<td>The project «Improving the management of water resources»</td>
<td>2006–2012</td>
<td>28.2, grant</td>
<td>Rehabilitated irrigation facilities and improved legal framework for introduction of integrated management of water resources.</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>The project «Agricultural Investments and Services»</td>
<td>2008–2013</td>
<td>32.11, grant</td>
<td>Improved institutional and infrastructural conditions for a more productive, profitable and sustainable livestock and crop production by pasture users and small farmers.</td>
</tr>
<tr>
<td>4</td>
<td>FAO UN</td>
<td>«Improvement of information system of food security in Kyrgyzstan»</td>
<td>2011–2014</td>
<td>1.8 mln euro</td>
<td>Improved information system for food security in Kyrgyzstan, statistical registering of factors of food security, the potential of the agricultural meteorology.</td>
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<tr>
<td>5</td>
<td>Project of FAO Emergency Office «Strengthening Peace – Use of irrigation farming systems to promote the use of multi-ethnic population of Kara-Suu»</td>
<td></td>
<td>2011–2012</td>
<td>0.150</td>
<td>The use of irrigation systems in agriculture to promote the use among multi-ethnic population of Kara-Suu.</td>
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<tr>
<td>6</td>
<td></td>
<td>Development of Farmer Field Schools on modern crop management and control technology for pesticides</td>
<td>2013–2015</td>
<td>0.397</td>
<td>Strengthening the capacity of farmers on the application of modern management techniques and crop pest control.</td>
</tr>
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<td>7</td>
<td></td>
<td>Development of a system of animal identification and their traceability</td>
<td>2013–2015</td>
<td>0.417</td>
<td>Improving the system of control and monitoring of animal diseases, the use of pastures and livestock productivity.</td>
</tr>
<tr>
<td>8</td>
<td></td>
<td>Building capacity for sustainable management of mountain watersheds in Central Asia and the Caucasus</td>
<td>2012–2014</td>
<td>0.060</td>
<td>Increased awareness, knowledge, experience, capacity and commitment of decision-makers and experts of forest and agricultural departments on the approaches and methodologies for planning and application of integrated (multi-disciplinary) management and joint rehabilitation of mountain watersheds. Increased national capacity to improve the management of natural resources, prevention of the degradation of mountain land.</td>
</tr>
<tr>
<td>9</td>
<td>UNDP</td>
<td>Multi-country project of the UNDP/GEF/GTZ/GM «Capacity Building Initiative of Central Asian countries on Sustainable Land Management (CACILM)»</td>
<td>2010–2012</td>
<td>Budget for Kyrgyzstan 0.595</td>
<td>Developed integrated financial strategy in the field of SLM led by Ministry of Economic Regulation of KR. The SLM principles discussed for integration into the Medium-Term Development Strategy of the country for 2012-2014. Interdepartmental Working Group on legislation improved their knowledge and skills on the types of draft laws expertise. As a result a number of recommendations to improve the law «On pastures» developed and submitted for consideration by the parliamentary Committee on land and agrarian issues, water resources, environment and regional development, etc.</td>
</tr>
<tr>
<td>10</td>
<td>UNDP/EU project «Development and</td>
<td>2010–2012</td>
<td>0.796</td>
<td>Control of Chumysh water node gates automated. The work on the preparation of the «Survey on water</td>
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<tr>
<td>1</td>
<td></td>
<td>implementation of integrated water resources management (IWRM) in Kyrgyzstan»</td>
<td></td>
<td>adaptation to climate change in the Chu-Talas basin.» completed. DCPs feasibility study for construction / rehabilitation of water supply systems of Karabulak village of Batken rayon developed. Training for farmers of Batken rayon on the methods and techniques of water-saving irrigation organized. The 2nd National Conference of country WUA organized.</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td></td>
<td>UNDP/GEF “Demonstration of mountain pastures sustainable management in Susamyr valley”</td>
<td>2007–2012</td>
<td>1.9</td>
<td>Reform measures carried out for pasture management, improvement of the ecosystems sustainability, reduction of land degradation. Introduced and applied program for register of pasture plots, of issued pastoral tickets and payment for use of pastures, of monitoring the condition of the pasture (degradation processes management).</td>
</tr>
<tr>
<td>12</td>
<td></td>
<td>Turkey Promotion of agricultural development</td>
<td>2011</td>
<td>1.15</td>
<td>Assistance rendered for the country seed sector and for enrichment of the soil with mineral fertilizers.</td>
</tr>
<tr>
<td>13</td>
<td></td>
<td>Swiss Agency for Development and Cooperation Promotion of international cooperation on water resources management of trans boundary rivers Chu and Talas. Phase 2</td>
<td>2013–2016</td>
<td>0.956</td>
<td>A system of automated monitoring of water resources management and to ensure access to reliable and timely data in the basin of the Chu and Talas is being developed.</td>
</tr>
<tr>
<td>15</td>
<td>The German Society for International Cooperation (GIZ)</td>
<td>The Programme of Sustainable Use of Natural Resources in Central Asia</td>
<td>2013–2015</td>
<td>300 thousand euro</td>
<td>Development of reforms in forestry and biodiversity, the use of pastures by local communities. Establishing a monitoring system for the protection of the environment.</td>
</tr>
<tr>
<td>16</td>
<td>USAID</td>
<td>Assistance to the Kyrgyz Republic in the form of crop seeds and fertilizers</td>
<td>2010–2011</td>
<td>4.150</td>
<td>USAID provided assistance in the form of crop seeds and fertilizers on the amount of $150.0 thousand, in 2011- crops in the amount of $ 4.0 million.</td>
</tr>
</tbody>
</table>

P.S. As can be seen, donors and development partners provide significant support for the country’s agriculture in various areas (water management, crop, seed, livestock production, pastures, etc.). However, targeted projects to improve land use, improve soil fertility and combating soil degradation number extremely insufficiently. In this connection the task is to attract targeted projects on the above topics.
LIST OF ORGANIZATIONS CONTRIBUTING TO THE PREPARATION OF NAP AND IFS

**State organizations**

National Statistical Committee of the Kyrgyz Republic
Ministry of Agriculture and Melioration of the Kyrgyz Republic
Ministry of Economic Affairs of the Kyrgyz Republic
Ministry of Finance of the Kyrgyz Republic
Ministry of Emergency of the Kyrgyz Republic
State Agency on Environment Protection and Forestry under the Government of the Kyrgyz Republic
Kyrgyzhydromet
Department of Cadastre and Registration of Rights to Immovable Property of the State Registration Service of the Kyrgyz Republic
SDI “Kyrgyzgiprozem”
Republican Agrochemical Soil Station

**Scientific and educational organizations**

Kyrgyz Research Institute of Irrigation
Kyrgyz National Agrarian University

**Local Organizations**

Batken Oblast State Administration
“Dara” JSC, Batken rayon
Pasture Committee, Temirovka village, Issyk-Kul oblast
Pasture Committee, Ashu village, Kemin

**Industry associations, Unions**

Republican Union of WUAs in Kyrgyzstan
Association of forest, land users of the Kyrgyz Republic
Centre of education, advice and innovation (CEAI)
Republican Association of the pasture of the Kyrgyz Republic
INFORMATION SYSTEM OF LAND CONDITION MONITORING OF THE KYRGYZ REPUBLIC

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2. Brief descriptions of the main blocks of information systems.
3. Composition and structure of the tables of the technological database and list of GIS layers.
4. Description of the user interface and the algorithm of the system.
4.1. Description of the user interface.
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4.3. Work algorithm of the system in a mode of analysis.
Conclusion

INTRODUCTION

Land degradation is a serious environmental, social and economic problem for the Kyrgyz Republic. It has a negative impact on the welfare of the population by reducing the productivity of land resources, affecting the food security of the country, and affects the stability and functionality of natural systems.

Many factors lead to land degradation, including the lack of knowledge among many farmers on farming culture and the lack of funds to carry out activities on sustainable land management and combating degradation processes.

It is necessary to carry out a whole range of research to develop the scientific basis for rational land use, but first it is needed to assess the resources available, and for this purpose inventory should be done on the land resources in the context of land use. An important task is to assess not only the quantity but also the quality of land resources for planning their use in agriculture.

To perform these tasks, an information system (IS) established for monitoring the status of land using geographic information technologies (GIS) that allows you to:

- organize existing information (including mapping) on land resources, to provide visibility of information, simplify data analysis, backed by a graphical representation of the results;
- assess the state of land resources.

The technical order for the development of the local information system for monitoring the state of the land of the Kyrgyz Republic is the basis for the development of an information system for monitoring the state of the land of the Kyrgyz Republic.
1. INFORMATION SYSTEM OF LAND CONDITION MONITORING OF THE KYRGYZ REPUBLIC

The IS main objective is to create an electronic accounting system of various historical and current data to monitor the condition of the land of the Kyrgyz Republic, by type of land use:

1. Agricultural land: arable land (irrigated, rain-fed); perennial crops (orchards, vineyards); hay; pasture (summer, spring and autumn, winter); shelterbelt.

2. Timberland: floodplain forests; mountain forests (coniferous, deciduous, juniper, riparian); woodlands; shrubs.

The IS main component is a database, designed to store and manage a set of interrelated indicators that display the state of the objects in the field of land use and the relationships between them.

The IS information flow diagram is shown in Figure 1.

Figure 1 – Information system of land monitoring of Kyrgyzstan

2. BRIEF DESCRIPTION OF THE MAIN BLOCKS OF THE INFORMATION SYSTEM

The developed information system is designed for the collection, storage, processing and analysis of the various historical and current data for monitoring the status of land in the country on various parameters and their usage.

IS of land monitoring includes:

- database (DB) of land condition is based on databases like Access, which is a repository of information on soil (technological DB);
database (DB) of electronic layers of selected thematic maps, created in GIS system MapInfo (cartographic database);

functional module (GIS module) connecting communication between the technological and cartographic database (attributive tables) according to the name of the selected object on the map. It is made in Map Basic language;

set of software-based databases like Access (queries, forms, reports, macros and modules), which supports the work of the system, i.e. input, storage and delivery of information in a variety of forms, reports, thematic maps;

interface, allowing the user to work with the database.

3. COMPOSITION AND STRUCTURE OF THE TABLES OF TECHNOLOGICAL DATABASE AND A LIST OF GIS LAYERS

The database contains a table containing the values of the main indicators of the state of agricultural land (Table 1)

The connections between database tables are in Figure 2.

![Figure 2 – The connections between database tables](image)

Electronic layers on the following topics are included in this version of the system:

- The boundaries of administrative division of the rayon for aiyl okmotu.
- Farms irrigation network.
<table>
<thead>
<tr>
<th>Table identification</th>
<th>Table name</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>VidZshn</td>
<td>Types of agricultural land</td>
<td>Types of land use</td>
</tr>
<tr>
<td>TypeP</td>
<td>Soil types</td>
<td>Soil types</td>
</tr>
<tr>
<td>KI_Mehsp</td>
<td>Texture of the soil</td>
<td>The structure of the soil according to the depths of placement</td>
</tr>
<tr>
<td>Moshnp</td>
<td>Thickness of the soil layer</td>
<td>The morphological features of soil</td>
</tr>
<tr>
<td>UGW</td>
<td>Level of drains from groundwater</td>
<td>The groundwater depth</td>
</tr>
<tr>
<td>Erod</td>
<td>Soil erosion</td>
<td>Indicators of soil degradation</td>
</tr>
<tr>
<td>Kam</td>
<td>Stony soils</td>
<td>Content in the soil of different stones</td>
</tr>
<tr>
<td>Zab</td>
<td>Waterlogging</td>
<td>Excessive soil moisture</td>
</tr>
<tr>
<td>STZ</td>
<td>Salinity</td>
<td>The content of soluble salts</td>
</tr>
<tr>
<td>Solon</td>
<td>The degree of alkalinity</td>
<td>The content of the bulk Na</td>
</tr>
<tr>
<td>KI_DomSKul</td>
<td>Dominant classes of agricultural breeds</td>
<td>The features cropping</td>
</tr>
<tr>
<td>PreoblRast</td>
<td>Groups of prevailing plant</td>
<td>The dominant plants, depending on the specific conditions</td>
</tr>
<tr>
<td>PKLMGWH</td>
<td>Groundwater salinity</td>
<td>Concentrations of salts in groundwater</td>
</tr>
<tr>
<td>ListOB</td>
<td>List of irrigated and non-irrigated land contours</td>
<td>Indicators of fertility and quality of soil (humus, nitrogen, phosphorus, potassium, mechanical composition, salinity, alkalinity, pH, stoniness, erosion, waterlogging, soil capacity); land degradation; condition of the soil, the dominant crops in certain regions; state of irrigation systems, irrigation water (salinity), rainfall</td>
</tr>
<tr>
<td>ListPas</td>
<td>List of pasture border</td>
<td>Type of pasture (summer, spring and autumn, winter (near-village, intense, transhumance), the yield of pastures, factors of land degradation (clean, rocky, bushy, clogged, eroded)</td>
</tr>
<tr>
<td>ListL</td>
<td>List of forest border</td>
<td>Types of forest: tree species (shrubs, nuts, leafy, juniper, pine, pistachio); area by type: cutting area; planting area</td>
</tr>
<tr>
<td>Spis_PRaz</td>
<td>List of soil indices</td>
<td>Thickness of the soil layer; erosion; mechanical composition; salinity and alkalinity, stoniness.</td>
</tr>
</tbody>
</table>
Soil erosion map.
Soil map.

Destination map files are listed in Table 2.

<table>
<thead>
<tr>
<th>File name</th>
<th>Assignment file</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>AO</td>
<td>Layer of administrative boundaries Ail Okmotu</td>
<td>Not active layer</td>
</tr>
<tr>
<td>Canal</td>
<td>Layer of the main and inter-farm canals</td>
<td>Active layer</td>
</tr>
<tr>
<td>City</td>
<td>Layer of settlements</td>
<td>Not active layer</td>
</tr>
<tr>
<td>River</td>
<td>Layer of rivers</td>
<td>Not active layer</td>
</tr>
<tr>
<td>Reservoir</td>
<td>Layer of reservoirs</td>
<td>Active layer</td>
</tr>
<tr>
<td>NcSoilOB</td>
<td>Layer of irrigated and non-irrigated land</td>
<td>Active layer</td>
</tr>
<tr>
<td>NcSoilP</td>
<td>layer of pastures</td>
<td>Active layer</td>
</tr>
<tr>
<td>NcSoilL</td>
<td>Layer of forest fund land</td>
<td>Active layer</td>
</tr>
<tr>
<td>Type_pochv</td>
<td>Layer of soil types</td>
<td>Not active layer</td>
</tr>
</tbody>
</table>

4. DESCRIPTION OF THE USER INTERFACE AND THE ALGORITHM OF THE SYSTEM

4.1. Description of the user interface

User interaction with the system is based on interactive forms using the keyboard and mouse. The keyboard is used to enter and adjust data. With the help of the mouse selected and activated various forms of interactive elements (function keys, the selection of menu commands, finding objects GIS).

User interface (Figure 3) includes **Map, Menu, Context menu, Toolbar**.

**Map** of the system is the basis of the interface and provides an interactive mode of communication with the user database technology. In the reference database update information on the project is carried out by selecting an object on the map and entering the values via the input field of thematically oriented forms.

The system **Menu** includes:

- **Menu Setting Base**;
- **Analysis menu**.

The **Context menu** contains commands:

- **Information of the object**;
- **Thematic maps** – command allowing the team to build a thematic map for the selected layer on one of the process parameters;
- **Grabber** – Grabber tool, with which you can move the image in the map window;
- **ZoomIn** – magnifying loupe tool that allows you to enlarge the image of the card;
- **ZoomOut** – decreases tool magnifying glass, through which you can reduce the image map;
- **Info** – Info tool that allows you to see what the data from the database correspond to the selected object.

**The Toolbar** includes the following elements:
- **Select** – Arrow tool to select an object;
- **Grabber** – Grabber tool, with which you can move the image in the map window;
- **ZoomIn** – tool magnifying loupe, allowing for larger image maps;
- **ZoomOut** – decreases tool magnifying glass, through which you can reduce the image map;
- **Info** – Info tool that allows you to see what the data from the database correspond to the selected object.

**Figure 3 – Users interface**

Information system operates in two modes:
- Adjustment mode technological database (storage, update);
- Analysis mode information (visualization – cartographic representation of spatial information processing, analysis and provision of information in tabular form)

### 4.2. Algorithm of work of the system in database setup mode

In this mode, the command is selected from the main menu, the context menu or the toolbar. Then on the map click the left mouse button on the contour of interest. Depending on the selection of commands and object appear different kinds of forms, the...
content of which is defined by the specificity of the selected object (irrigated and rain-fed land, pastures, forest). Example of an input value of irrigated and non-irrigated land is shown on Figure 4. Transition from one object type to another is carried out only by click on the new object. If an object type has changed, then automatically type of form changes.

Figure 4 – Form for entering parameters of irrigated and rain-fed land

Thus, an initial database is filled in. Subsequent adjustments to suggest replacing the previous value of the parameter to the new.

4.3. Algorithm of work of the system in information analysis mode

In the mode of information analysis for the selected object, information is displayed in a form or report. Selection of the data is through a Menu system.

The user interface in the mode of analysis includes:

- **the main Menu**, which allows it to print reports to the screen or printer; display process information for individually selected object on the map; build a thematic map that allows to select certain dependence;
- **Context menu**, partially overlapping functions of the main Menu and Toolbars;
- **Toolbar** that allows to perform simple mapping function.

After selecting the command, you need to click the left mouse button (Index Plus) on requested contour. On the screen appears output form with accepted in the sector designations for soil species of the selected contour. For instance, for contour with
characteristics: pastures, gray soils ordinary, powerful, slightly eroded medium loam to heavy loam, formula is shown in Figure 5.

\[
C_2 \frac{n}{IV} \downarrow \frac{3-2}{2}
\]

Figure 5.

CONCLUSION

Under terms of reference, Sokuluk district of Chui oblast of the Kyrgyz Republic has been chosen.

A local IS database on land monitoring of KR was developed, which contains data about the state of the land of Sokuluk Ail Okmotu (for 2002) and mapping information of the administrative boundaries of Sokuluk rayon, ayl okmotu, rivers, reservoirs, canals of Sokuluk rayon, soil contours on soil by type of land use of Sokuluk ayl okmotu.

The information system provides the ability to get information promptly in order to make recommendations for rational land use.

The functionality of the IS land monitoring of the Kyrgyz Republic can be expanded by adding new functions and/or improving existing ones.
PROJECT 1

**Title:** Research on evaluation and improvement of the capacity of institutions dealing with desertification, land degradation and drought.

**Rationale:** Desertification, land degradation and drought are multidisciplinary, cross-sectoral and multi-institutional problems. Functions and tasks of institutions are not clearly defined and ambiguous. In addition, the potential and the capacity of institutions dealing with desertification, land degradation and drought are a weakly bound between themselves.

**Objectives:**
1. Ensure the effective management of natural resources and the NAP/IFS.
2. Improve the quality of services, expertise, technology transfer, decision-making processes and systems.

**Expected results:**
1. Evaluation of the capacity of institutions dealing with desertification, land degradation and drought.
2. Capacity building plan of the institutions/entities dealing with desertification, land degradation and drought.

**Project activities:**
1. Review and assess the current state of institutions, legal framework and human resources.
2. Identify the need for improvements and upgrade the capacity and opportunities to combat desertification, land degradation and drought.
3. Prepare a capacity-building plan for the institutions, legal framework and human resources.
4. Present and discuss the plan with relevant national stakeholders, donors and UN agencies.

**Implementing Agency:** MAM

**Potential partners:** SAEPF, ME, State Inspectorate for Veterinary and Phytosanitary Security, the State Inspectorate of Environmental and Technical Safety, environmental NGOs.

**Period:** 1 year.

**The required amount** 50 000.00 USD

**Sources of funding:** state budget, donors
PROJECT 2

Title: Raising awareness of land and natural resource users on the best practices in the field of sustainable land and natural resource management.

Rationale: The process of land degradation is increasing in Kyrgyzstan (statistical data needed on disposal of the agricultural land). The practices used by the land and natural resource users are largely irrational and leading to the land and ecosystem degradation. Funds to conserve land productivity is not sufficient to maintain ecosystems in a stable state, but the losses of natural ecosystems and the economy are enormous.

Objectives:

1. To raise awareness of decision-makers, land and natural resource users, as well as other stakeholders on the best practices in the field of sustainable land and natural resources management

2. To increase a number of practices on sustainable land and resource management.

3. To raise funding on non-traditional and innovative financial assets for the rational land and natural resources management.

Expected results:

1. Increased number of references, reviews, etc., in the media; assessed by the main and subsequent monitoring content-based analysis.

2. Increased number of practices of sustainable land and resource management;

3. Growth of projects on sustainable land and resource management, funded by non-traditional and innovative financial sources.

Project activities:

1. The experience of various international projects on sustainable land and resource use practices in the Kyrgyz Republic will be accumulated, compiled, analysed and systematized.

2. The script will be written and documentary footage made in all regions of the Kyrgyz Republic. The film will be produced and replicated in two languages: Kyrgyz and Russian. The film and television programs on SLM broadcast at the national channels will allow maximum coverage of land and natural resources users and inform them on the SLM best practices.

3. Various public awareness activities (media tour, demo tours) will be organized focused on the media, decision makers and other stakeholders.

4. Communication strategies for the implementation of the Rio Conventions will be developed for the public authorities, directly or indirectly involved in SLM.

5. Impact assessment on awareness raising of the decision-makers, land and natural resources users, as well as other stakeholders for the widespread introduction of the SLM best practices.

Implementing Agency: MAM

Potential partners: SAEPF, ME, MES, State Inspectorate for Veterinary and
Phytosanitary Security, the State Inspectorate of Environmental and Technical safety, the National Bank, environmental NGOs, business associations, the Union of Banks and the Association of Microfinance Institutions.

**Period:** 3 years.

**Required amount:** 1000 000.00 USD.

**Sources of funding:** state budget, donors.

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**PROJECT 3**

**Title:** Creating a database and monitoring systems for DLDD.

**Rationale:** The data and information on desertification and land degradation mainly are not available, scattered, unreliable and sometimes contradictory. In addition, the relevant data is a prerequisite for system of desertification and land degradation monitoring, for the proper planning and decision-making.

**Objectives:**

1. Raise the level of knowledge and understanding, and support decisions on desertification and drought combating.
2. Systematic monitoring desertification and land degradation dynamic.

**Expected results:**

1. Increased number of references, reviews, etc., in the media; assessed by the main and subsequent monitoring content-based analysis
2. Increased number of practices of sustainable land and resource management;
3. Growth of projects on sustainable land and resource management, funded by non-traditional and innovative financial sources.

**Project activities:**

1. Evaluation of existing data and data collection systems, institutions and activities on DLDD monitoring.
2. Development and creation of database and monitoring system for DLDD at the national level.
3. Strengthening institutional capacity of relevant entities.
4. Update the possibility of human resources involved in the harmonization and integration with other national and sectorial databases, users’ needs and requirements.

**Implementing Agency:** MAM

**Potential partners:** SAEPF, ME, State Inspectorate for Veterinary and Phytosanitary Security, the State Inspectorate of Environmental and Technical Safety.

**Period:** 2 years.

**The amount required:** 2 000 000.00 USD.

**Sources of funding:** state budget, donors.
PROJECT 4

Title: Economic evaluation of land, water resources and ecosystems.

Rationale: There is no understanding of the economic value and loss of ecosystem in Kyrgyzstan. In the light of trends of introduction of “green growth” terminology there is a need to assess the land, water resources and ecosystem in order to make preventive decisions on land degradation.

Objectives:
1. Develop a methodology for the land, water resources and ecosystem assessment.
2. Conduct land, water resources and ecosystem assessment.
3. Raise awareness of decision-makers, land and natural resources users, as well as other interested parties on the ELD, water resources and ecosystem.

Expected results:
1. Methodology for assessing the land, water resources and ecosystem is developed and validated.
2. Assessment of land, water resources and ecosystem has been done.
3. Awareness of decision-makers, land and natural resources users, as well as other interested parties of the economic value of land, water resources and ecosystem increased.

Project activities:
1. Review international practices in the area of land, water resources and ecosystem assessment.
2. Customize international experience to develop a national system of evaluation of land, water resources and ecosystems.
3. Adoption of a methodology for assessing land, water resources and ecosystems.
4. Assessment of land, water resources and ecosystems.
5. Raising awareness of decision-makers, land and natural resources users, as well as other interested parties of the economic value of land, water resources and ecosystems.

Implementing Agency: MAM

Potential partners: ME, SAEPF, State Inspectorate for Veterinary and Phytosanitary Security, the State Inspectorate of Environmental and Technical Safety, environmental NGOs.

Period: 3 years.

The required amount of 200 000.00 USD.

Sources of funding: state budget, donors.

PROJECT 5

Title: Support for “green” start-ups in land and resource use.

Rationale: The process of promoting “green economy” and “green growth” has been supported by the Global Summit of Rio +20. There is a need to address the issues of
poverty reduction and sustainable development supported through the creation of “green jobs”. It is especially important to engage in economic processes of marginalized groups and education of sustainable practices. It is also important for the development of local initiatives and support of small and medium-sized businesses.

**Objectives:**

1. Finding funds to support “green” start-ups in land and natural resource management.
2. Development and legislative approval of financial incentives to support “green” start-ups in land and natural resource management.
3. Increase the involvement of non-traditional and innovative financial assets to support “green” start-ups in land and natural resource use.

**Expected results:**

1. A list and description of non-traditional and innovative financial tools and funds to support “green” start-ups in land and resource management, which is common among land users, are developed.
2. Developed legislative initiatives are integrated into the tax and budget legislation
3. Financial support of several “green” start-ups in land and resource management is identified.

**Project activities:**

1. Search of funds to support “green” start-ups in land and natural resource management.
2. Development and legal approval of financial incentives to support “green” start-ups in land and natural resource management.
3. Increase of non-traditional and innovative financial assets to support “green” start-ups in land and natural resource management.
4. Various communication events are conducted for media, decision makers, entrepreneurs, banking, start-ups, and other stakeholders.
5. Results and the impact evaluation of programs to support “green” start-ups in land and natural resource management for the widespread introduction in the Kyrgyz Republic.

**Implementing Agency:** MAM, SAEPF and LSG.

**Potential partners:** ME, SAEPF, SALS@IR (State Agency for Local Self-Government and Inter-ethnic Relations), National Bank, environmental NGOs, business associations, the Union of Banks and the Association of Microfinance Institutions.

**Period:** 3 years.

**Required amount:** 1000 000.00 USD.

**Sources of funding:** state budget, donors.
THE NATIONAL ACTION PLAN (NAP) AND THE ACTIVITY
FRAMEWORKS FOR IMPLEMENTING THE UNCCD

Developed in the framework of implementation
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