THE KYRGYZ REPUBLIC

MINISTRY OF AGRICULTURE AND MELIORATION

PASTURE and LIVESTOCK MANAGEMENT IMPROVEMENT PROJECT

ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

April 2014

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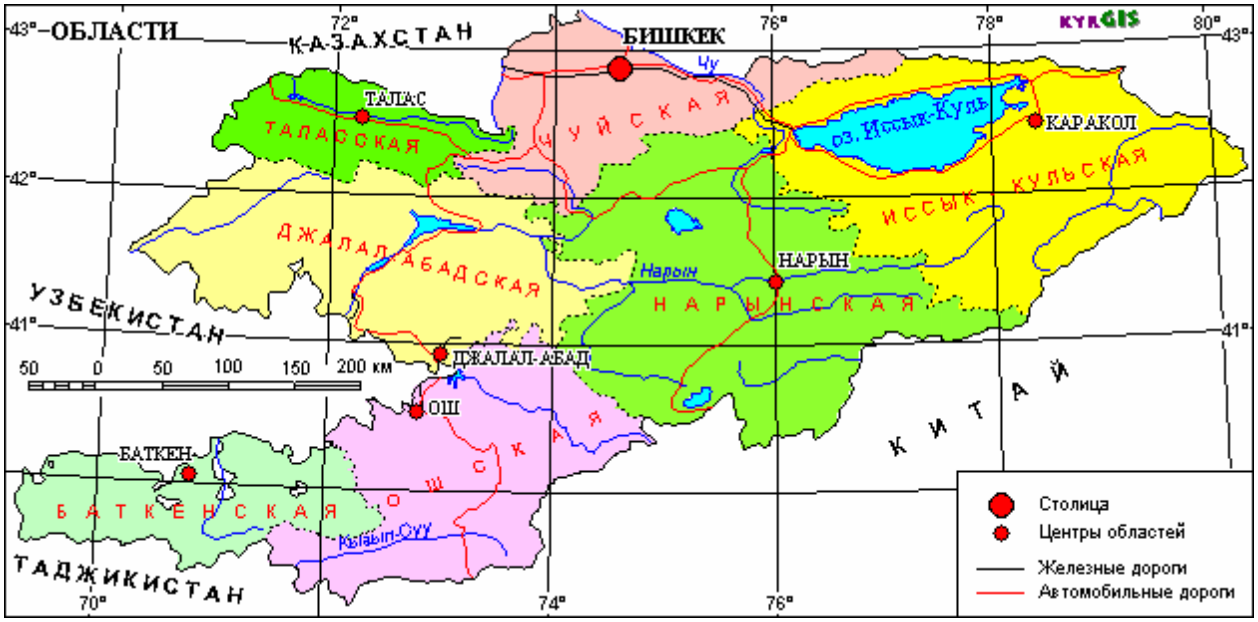
ABBREVIATIONS AND ACRONYMS

AO	Ayil Okmotu (local self-government authority)
ARIS	Community Development and Investment Agency of the Kyrgyz Republic
WHO	World Health Organization
GDP	Gross domestic product
SIVPS	State Inspection on Veterinary and Phytosanitary Safety under the Government of the Kyrgyz Republic
SIETS	State Inspection on Environmental and Technical Safety under the Government of the Kyrgyz Republic.
SAEPF	State Agency on Environmental Protection and Forestry under the Government of the Kyrgyz Republic
SEEE	State Environmental Expert Evaluation
PD	Pasture Department (MAM)
DCPQP	Department of Chemicalization, Protection and Quarantine of Plants at MAM
KR	Kyrgyz Republic
KNAU	Kyrgyz National Agrarian University
IDA	International Development Association
MAM	Ministry of Agriculture and Melioration
MP	Micro projects implemented under community grants for pasture investments
NGO	Non-governmental organization
NSC KR	National Statistics Committee of the Kyrgyz Republic
APIU	Agricultural Projects Implementation Unit
PUU	Pasture Users Union
EMP	Environmental Management Plan
PMIP	Pasture Management and Livestock Management Project
AISP	Agricultural Investments and Services Project
CPMP	Community Pasture Management Plan
PC	Pasture Committee or Jayit Committee (executive body of PUU)
KRG	Government of the Kyrgyz Republic
CDS	Country Development Strategy
EA	Environmental Assessment
EAMP	Environmental Assessment and Management Plan
SVD	State Veterinary Department (MAM)
PV	Private veterinarians
CDSO	Community Development Support Officer/ARIS

1. Background information

Map of the Kyrgyz Republic



Agriculture constitutes the leading branch of the national economy. This sector employs the majority of able-bodied population in Kyrgyzstan.

As a result of the land reform which started in 1990s, in agriculture, the main inputs of agricultural production have been privatized: land, agricultural machinery and equipment, animals. However, the implemented reforms failed to answer expectations: random policy of the state caused this strategic branch to acquire subsistence-economy and small-commodity forms of production. At present, about 97% of the agricultural produce is delivered by private farms, and that constitutes a significant limitation for the organized efficient agricultural production and growth in labor productivity.

Since livestock production prevails in the livelihoods of rural population, recently there has been a steady increase in the total animal population. At the same time, the productivity of livestock farming is significantly below its potential yields. Animal health has deteriorated with the decay of veterinary services, though attempts were made to strengthen this sector. Animals suffer from such wide-spread diseases, as brucellosis, echinococcosis and foot-and-mouth disease, as well as parasites that excessively affect the productivity and profitability of farms and pose a significant risk to human health.

Farmland degradation currently constitutes a great threat to food security of the country and is changing from environmental to the category of perils threatening the sustainable development of Kyrgyzstan. Pasture conditions have deteriorated in recent years, since village pastures and middle (winter) pastures faced excessive grazing and degradation, while remote winter pastures have been underused due to their poor accessibility primarily caused by worn-out infrastructure. There decreased the share of farm animal housing, since the majority of animals had been shifted to the grazing system.

The pasture load increase to the excess of permissible norms threatens with possible digression of pastures[1]. Poor capacity in land-use management aggravates the situation. Works to recover the soil fertility are not sufficiently effective. Detailed background information is provided in Annex E.

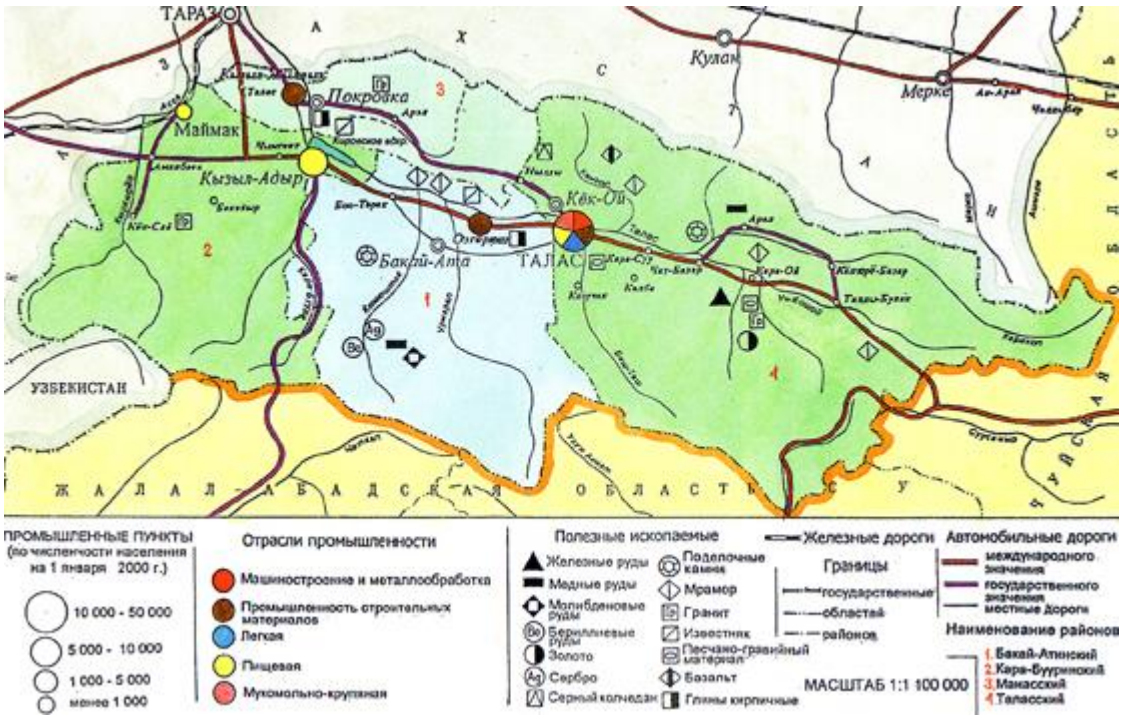
2. Main data on the project region

Talas oblast is located in the north-west of the Kyrgyz Republic. It occupies Talas valley. It borders with Kazakhstan in the north-west and with Uzbekistan in the west, while in the south with Jalal-Abad and in the east with Chui oblasts. It was formed on 22 June 1944, and its center is the town of Talas. The oblast consists of four administrative rayons: Talas rayon (rayon center is Kok-Oy village), Bakay-Ata rayon (village Bakay-Ata), Kara-Buura (Kyzyl-Adyr village), Manas rayon (Pokrovka village), town of Talas, urban type settlement of Maymak, 37 ayil okmotus and 90 rural centers of population. The area reports 11.4 thousand km^2 (5.7% of the whole country territory).

***Population*.** According to the National Statistics Committee of the Kyrgyz Republic (NSC of the KR), the oblast population reported 239.5 thousand people at the end of 2012. Of them, 15% live in urban areas and 85% in villages. The population is multinational with the predominant ethnic group of Kyrgyz. The average population density is 21 people per 1 km^2 (average on the country is 28 people). Migration outflow as of 2012 reported 1.4 thousand people.

Poverty is wide-spread in rural and mountainous areas of the oblast. In 2010, Talas oblast demonstrated the highest concentration of poverty equal to 44%, while the average on the country made 34%. The absolute poverty reported 7% as opposed to the country average of 3%. Further, inequality has been on an increase, in particular, among the rural population, and food insecurity becomes a growing concern. In 2011, 46% of the population faced food insecurity (32% to a moderate degree; 14% to the extreme degree). The most food-insecure households spent almost half of their funds on food, and that affects their ability to pay for other needs, including expenses on means of agricultural production and animal husbandry.

[1] *Pasture digression* is a gradual degradation of grass communities under the impact of excessive grazing load. Pasture digression causes exhaustion of species, deterioration of the structure and productivity of grass stands, forage types get replaced with weed plants.



Nature. The frame of Talas valley resembles of a triangle with one vertex in the east, while Talas and Kyrgyz Ala-Too in the east, coming close to each other, form plexus of mountains called Ak-Suu. To the west, the valley amplifies, and in the north-western part it borders with semi-deserts and deserts of Turan depression. Within Talas valley and its mountain frame, one can identify the following geomorphological complexes: mountainous, piedmont plain and plain.

Talas valley is located in the moderate climatic zone. The valley insularity (surrounded by ridges) and complex terrain contribute to the formation of dry and continental climate. The average July temperature makes 15—25°C, January temperate is —6...—14°C. The frost-free season lasts for 157—163 days. From the west to the east, from the foot of mountains and up along the slope, there grows the amount of precipitation. The average precipitation makes 300—400 mm. Maximum precipitation falls in the valley in April-May and on mountainous slopes in May-June. Summer is dry. The permanent snow cover forms in the plain in December and in the foothill in the middle of November.

The largest river is Talas, which is formed by the confluence of the rivers Uch-Koshoy and Karakol, flows westward and loses in the sand of Moyunkum. The large inflows are: Urmaral, Kara-Buura, Kenkol, Besh-Tash, Kumushtak, Nyldy, Kalba, etc. In the west, there flows the right inflow of the river Assa, called Kyukyuryoo. The oblast has only a few lakes. The main part of glaciers is located in the northern slope of Talas Ala-Too. There are 281 glaciers with the total area of 164.7 km^2 .

Soil cover changes in the plain in latitudinal zonality, while on mountainous slopes in altitudinal zonality. In the plain (at the elevation of 700—1100m), there occur common grey soils; semi-deserts (1100—1600m), low-hill terrain and foothills are widely covered with mountain-plain chestnut soils. On mountain slopes, the widespread soils are: light and dark chestnut soils (elevation of 1400—2100m), black soils (2200— 2600m). Mountain forest black-soil type soils occur in forest areas. On the southern, south-western and eastern slopes, there occur meadow subalpine soils (elevation of 2800—3100m), subalpine meadow-steppe soils (2700—3400m). Alpine-meadow soils are wide-spread at the elevation of 3100—4300m.

Vegetation cover spreads following the altitudinal belt pattern. Desert plants occur at the absolute elevation of 700—1200m. The vegetation cover is represented mainly by sagebrush. One can see Tenirtosskaya sagebrush, Ala-Too prickly thift, Jambyl tick trefoil, thorny sainfoin. In spring, the dominant types are ephemeras and ephemerals, while summer background is sagebrush. Steppe vegetation is widespread in low- and middle-hill terrain at the elevation of 1300—2300m. In the valley, there are more than 40 types of steppe plants. The predominant ones are feather grass, ship fescue, sedge, beard grass. In some places, the wide-spread types are shrubs. Meadow-steppe vegetation grows at the elevation of 2300—2800m. There occur more than 70 types of plants. On steep slopes of mountains, at the elevation of 2200—3200m, there occur fir, juniper and abies forests (Besh-Tash, Urmaral, Kalba). Among fir-tree forests, one can see mountain ash, hawthorn, meadowsweet, dogrose. In the high-water bed of the river Talas and Kenkol gorge, the wide-spread forests are willow-birch, shrubs. Meadow plants form small areas (Besh-Tash, Kumushtak, Nyldy, Uch-Koshoy). Subalpine meadows occur on the northern slopes of mountains at the absolute elevation of 2600—3100m. There predominate the following formations: bluegrass, barnyard grasses, lady's mantle, *flemisoviye*[*]. Also, wide-spread types are: *shemyur**, crane's-bill, Altay globeflower. Alpine meadows occur at the elevation of 3300—3800m. The main background is represented by *kobrezieviye** formations. Moreover, one can see cinquefoil, bluegrass, crane's-bill, sedge, primrose. High-altitude alpine steppes occur on the southern slope of Kyrgyz Ala-Too. The predominant formations are oat-grass, sagebrush-oat-grass, oat-grass-*kobrezieviye**, bluegrass-oat-grass.

Economy. The oblast economy has all branches that are most convenient from the natural and climatic perspective. The basis of economy is agriculture which shows a variety of forms of ownership: state-owned farms, collective peasant farms, private peasant farms. As of the end of 2012, in the oblast, there were registered 20411 peasant farms and farms of individual entrepreneurs. The oblast has a well-developed arable farming: farmers cultivate crops, tobacco, potato, vegetables; in recent years, they have started growing sugar beet and oil crops. However, the main branch of agriculture is animal production. The population breeds sheep, cows, horses and draws their products. In 2012, all farms in the oblast reported 65.4 thousand cows, 483.1 thousand sheep and goats, 11.6 thousand horses.[2]

As regards industrial production, in comparison with the general country level, it is weak in the oblast. More than 90% of the industrial produce fall under food, flower and forage industries. They produce meat, cheese, butter, flour. The main role in the transportation of national economic cargo and passengers and support to internal economic ties is that of automobile transport. In the western border, through the city of Maymak, there goes a railway of 17 km that plays an important role for cargo transportation.

Education, healthcare, cultural activities. The oblast has 115 general secondary educational institutions, of which 103 provide full secondary education, and 6 technical vocational schools. Also, there is one higher educational institution.

As regards healthcare, in 2012, there worked 9 hospitals for 735 hospital beds, 21 rural outpatient clinics, 4 feldsher-midwife points, 4 sanitary and epidemiological stations, narcological dispensary, 2 polyclinics and other medical institutions. At the same time, the portion of population lacking access to healthcare services reports 1.6% in the oblast.

In the oblast, there work libraries, clubs, recreation centers and other cultural institutions.

[*] Translator's note: terms marked with asterisk are transliterated from Russian.
[2] Source: NSC of the KR.

In the oblast territory, there are entombments of Tash-Dyobyo, Kyzyl-Say, Besh-Tash, Zhol-Dyobyo, Tash-Aryk, which date to the bronze century, and the ancient burial site of Ken-Kol (III – II centuries BC), site of Nushzhan ancient town (near Uch-Bulak station). As regards epigraphic memorials, in the river Ayirtam-Oy valley, there have been found ancient Talas signatures on stones cut in the Ancient Turk language. Architectural monuments are represented by the complex of Manas Ordosu (burial site of Manas, reserve-museum 'Manas', museum 'Manas', a mosque, etc.) and ancient archeological and architectural monuments.

Chui oblast occupies the northern part of the Kyrgyz Republic. The oblast borders with Kazakhstan from the northern and western sides, with Talas oblast in the south-west, with Jalal-Abad and Naryn oblasts in the south and with Issyk-Kul oblast in the east. The oblast consists of 8 administrative rayons (Alamedin, Jayil, Kemin, Moskovskiy, Panfilovskiy, Sokuluk, Chui, Issyk-Ata). It has a subordinate town: Tokmok. The listed rayons host 3 towns (Kant, Kara-Balta, Shopokov), 6 urban-type settlements (Ak-Tyuz, Kayindy, Kashka, Kemin, Orlovka), 105 ayil okmotus, 327 villages. In the oblast territory, there located the country capital, Bishkek city. The number of oblast population reports 838.4 thousand (except for residents of Bishkek city). The occupied area equals to 20.2 km^2 (10.2% of the country territory).

The oblast center is Bishkek city. Till 1939, in the present territory of oblast, there were formed various administrative-territorial forms (district, canton, province, etc.). 1939—1959: Frunze oblast; 1959—1990: rayons under the republican subordination; from 14 December 1990, Chui oblast.

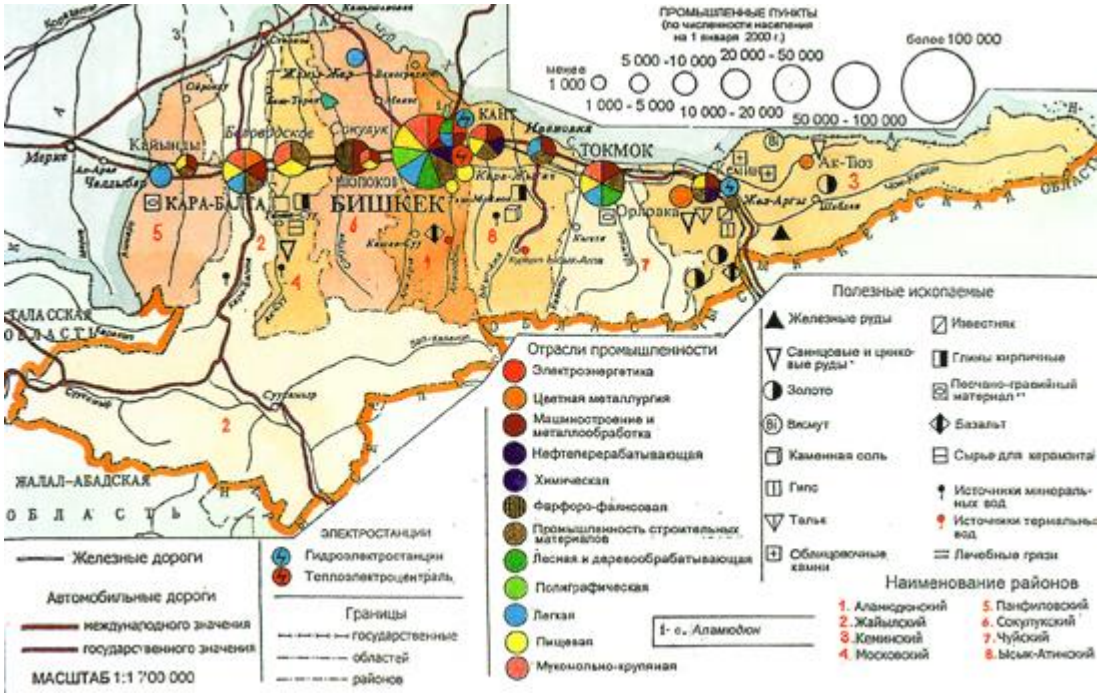
Nature. The oblast territory includes Chui valley and intermountain basins of Chon-Kemin and Suusamyr along with the slopes of their framing ridges: Ile, Kyrgyz, Kungey, Talas Ala-Too, Suusamyr and Zhumgal. The absolute elevation varies from 550 m (northern outskirt of Kamyshanovka village in Chui valley) to 4895m (Alamedin peak of Kyrgyz Ala-Too). The significant part of the oblast area is occupied by Chui valley that has a slope towards north-west, while in the west and in the middle part, approaching the river Chu, it transforms into a wide plain. Elevations located higher and adyrs[3] (close to Bishkek city) as well as foothills elevate gradually. The first layer of mountains is split by river valleys of Ala-Archa, Alamedin and Norus into isolated elevations of Besh-Kungey (1150m), Basbelter (1400m), Shoro-Bashat (1750m), etc. Further to the south, there lies the second layer, a higher one and separated from the first by a longitudinal descend: Baytik depression. Mountain slopes of Kyrgyz Ala-Too in their structure are asymmetric: southern spurs are short and high, northern ones are wide, some spurs reaching 20km. There are many river valleys and gorges; large ones are Ashmara, Kara-Balta, Ak-Suu, Sokuluk, Ala-Archa, Alamedin, Issyk-Ata, Kegety, Shamshy, Konorchok, Baydamtal, Northern and Eastern Karakol, etc. At the elevation higher than 3500m, there starts a belt of rocks, snow and glaciers. In the east, Chui valley transforms into Kichi-Kemin valley. Between the mountains of Ile and Kungey Ala-Too, in the east, there lies the valley Chon-Kemin. The aforesaid ridges in the eastern part approach each other and form a plexus of mountains called Kemin-Chelek. To the east from Chon-Kemin valley, there lies a summer pasture (jayloo) Kok-Oyrok. The southern part of the oblast is occupied by one of the largest high-altitude pastures: Suusamyr valley. It is located at the elevation of 2000—3200m. Westward, the bottom of the valley goes up gradually.

The available mineral resources include: gold (Taldy-Bulak, Dalpran, Kamator), iron, titan, chrome, nickel, lead, zinc, rare-earth elements (Ak-Tyuz). There are many deposits of a non-metallic

[3] Adyrs [Turk] refer to low foothills or independent uplands in intermountain, intramountain and foothill basins formed by rather young mountain rocks than the adjacent mountains. Their distinctive feature is the deep, labyrinthine ravine disjunction, steep grassless slopes. Adyrs are typical of semi-desert and desert areas of Central Asia and Kazakhstan.

nature: sand, clay, marlstone, sault, talc, granite-syenite, lime, marble, granite, quartzite. In the areas located closer to tectonic fractures, there are mineral and hot wells (in the gorges of Issyk-Ata, Alamedin, Ak-Suu).

The climate is noted for its diversity. In the north, on the plain part, the climate is continental, dry with hot summer and moderate and cold winter. The average temperature of July reports 17—25°C; in January, it is —7°C. The average amount of precipitation makes 270—400mm. The average temperature of July at the high-elevated Suusamyr valley makes 13— 14°C, of January —20...—27°C; the average amount of precipitation is 350—370mm. On mountain slopes, in the upward direction, the air temperature goes down, while the amount of precipitation increases (on certain mountain slopes turned to the north and west). In Kyrgyz Ala-Too, there are 582 glaciers of the total area of 520km^2. Their majority is located in the central part of the ridge. The upper river of Chon-Kemin is considered a large pocket of glaciation.



Waters refer to river basins of Chui and Naryn. After exiting Boom gorge, the river Chu has its right inflows joining: rivers of Chon-Kemin and Kichi-Kemin; from northern slopes of Kyrgyz Ala-Too, there join left inflows: rivers Shamshy, Kegeti, Isyk-Ata, Alamudun, Ala-Archa, Jylamysh, Sokuluk, Ak-Suu, Kara-Balta, etc. Since, at present, they are fully used for irrigation, their waters fail to reach the river Chui. Suusamyr river joints the river Kyokyomyoryon. Chui valley has some large irrigation structures: water reservoirs (Chumysh, Lower Ala-Archa, etc.), canals (Eastern, Western and Southern Big Chui Canal).

Soil and vegetation cover develops along the altitudinal belts. Plain parts of the valleys of Chu, Kichi-Kemin and Chon-Kemin, as well as piedmont strips are covered with semi-desert-dry-steppe belt that has predominant gray soils and light chestnut soils. As regards natural vegetation cover, there occur sagebrush-ephemera semi-desert, sagebrush-gramineous, sheep fescue-sagebrush steppes, swamp meadows, rush banks and scrubs (sea buckthorn, barberry, dogrose). Piedmont areas, low and medium slopes of mountains are occupied by steppe and forest-meadow-steppe belts with the predominant chestnut, black soil, black-soil type, grey, meadow and other soils. The most widespread type in the piedmont areas is sheep fescue steppe, wheat grass, forb steppes; in the higher areas, these are meadow-

steppes and high-grass meadows. On the sunlit slopes, we find steppe vegetation, while on shaded ones, meadows, shrubs and light forests. On the slopes of northern exposure (higher than 1300m), there grow scrubs (dogrose, meadowsweet, barberry, etc.) and forests. In the gorgers of Kyrgyz Ala-Too, in the valley of Chon-Kemin, there occur light forests of fir-tree, juniper, birch, maple, mountain ash, etc. The major part of Suusamyr valley is covered with chestnut and light-chestnut soils typical of mountain-steppe terrain (feather grass, wheat grass, *kobreziya**, sagebrush, etc.). Subalpine meadows and meadow-steppes start from the elevation of 2400m and are noted for the variety of vegetation cover. Alpine meadows are located at the elevation higher than 2800m: these areas are usually covered with *kobreziya** and motley grasses. In the grass vegetation of Alpine steppes, there dominate sheep fiscues. As regards shrubs, there only occurs small mountain ash, some types of dogrose, horizontal juniper. Higher than 3600m, there lies the glacial-nival belt.

Population. According to the NSC of the KR, the oblast population as of 2012 reported 838.4 thousand. The portion of urban population made 18%, while rural population accounted for 82%. The population is multinational, and predominant ethnic group is the Kyrgyz. The average density of population in the oblast is much higher than in the country: 42 people per 1 km^2 (the country average is 28 people). The migration inflow of 2012 made 1.1 thousand people. The densely populated centers are located along automobile roads and the railway of Chaldybar – Bishkek – Balykchy that goes from the west to the east.

Economy. In recent years, in its economic development, the oblast has been trying to adapt to the market economy. Industrial plants and enterprises of services sector were privatized, and the influence of state monopoly decreased. The structure of production industry changed, and competition increased.

The oblast is the industrially developed region of the country. The main branches of industry are: nonferrous metallurgy, food industry, production of construction materials, mechanic engineering and light industry. The oblasts is noted for the production of the following: affined gold (Kara-Balta), rare-earth elements (Ak-Tyuz, Orlovka, etc.), glass, cardboard, woven wool and knitted goods (Tokmok), asbestos sheeting and cement-asbestos pipes (Kant), linoleum (Kemin), sand sugar (Kayindy, Shopokov). In addition to this produce, the oblast is a source of: electricity (Kemin, Alamedin rayons), cement (Kant), legwear (Lebedinovka), sausage goods, milk, cheese, flour, pasta, canned vegetables, grape wines, etc. The majority of this produce is exported abroad and sold in other oblasts of the country.

In the oblast economy, the important role is that of agriculture, which is represented by various forms of ownership: state-owned farms, collective peasant farms, private peasant farms. The year 2012 witnessed 57213 registered peasant farms and farms of individual entrepreneurs.

The predominant specialties in the agriculture are as follows. In arable farming, collection of grain and sugar beet, oil crops, production of seed corn and clover, vegetable production. As regards animal husbandry, the population breeds sheep, cows, horses, and draws their products. In all farms of oblast, in 2012, the animal population reported 248.9 thousand cows, 559.3 thousand sheep and goats, and 47.7 thousand horses[4].

Despite the fact that Chui oblast has an active railway of the total length of 270 km (Chaldybar – Bishkek – Balykchy), the main role in the development of external and internal economic ties is that of automobile transport. In the passenger transportation, the significant share is reported by air transport.

[4] Source: NSC of KR.

In the oblast western part, there lies the gas pipeline of Mubarek – Bishkek – Almaty intended for the delivery of natural fuel to cities and large centers of population.

Education, healthcare, cultural life. The oblast has 323 general secondary educational institutions, of which 256 offer full secondary education, including 2 orphanages, 5 boarding schools for orphans and abandoned children, 11 vocational schools. There are also 3 higher educational institutions.

In the area of healthcare, as of 2012, there worked 24 hospitals for 2962 hospital beds, 5 health resorts, rural outpatient clinics, feldsher-midwife points and other health organizations. At the same time, the portion of population having no access to healthcare services makes 3.5% in the oblast.

In the oblast, there function public libraries, the National Theatre of Comedy named after Sharshen, work more than 200 clubs as well as recreation and other cultural centers.

The oblast territory hosts archeological monuments of ancient times: Georgievskiy Hill dated to the Stone Age, Alamudun staying point of ancient people, dwelling sites of Bronze Age in Kainda and Jayilma, staying points of *Sack-and-Usuni** period in Kara-Balta. Among remaining archeological and architectural monuments of Middle Ages, there are sites of ancient towns of Ashmara, Suyab, Nevaket, Balasagyn, Ak-Beshim and others, as well as Burana tower, statues portraying the ancient Turk ethnos, etc.

2.1 Environmental conditions in the project oblasts

Protected areas (PAs)

The network of PAs has been inherited from the former USSR. At present, it is getting amplified with the establishment of new natural reserves, has many ramifications and covers, for the most part, all types of Tyan-Shan and Pamir-Alay ecosystems.

In accordance with the classification adopted by the International Union for the Conservation of Nature (IUCN), the PAs of the country fall under 4 categories:

I category: *natural reserves*, where any economic or other activities that violate genuine development of natural complexes are prohibited.

In the territory of project oblasts, there is one state natural reserve of Kara-Buura (59067 ha) in Talas oblast that has been formed to preserve unique biological complexes of Kara-Buura rayon (mid-mountain savannoids, Alpine and subalpine meadows that host 90-120 types of plants endemic to Western Tyan-Shan) and protect rare disappearing types of animals and plants registered in the Red Book of Endangered Species of the Kyrgyz Republic, such as argali, snow leopard, saker falcon, golden eagle, water-lily tulip, etc.

II category: *national natural parks (NNPs)*, which establish differentiated regime of protection (reserves, recreation zone, etc.) and use of natural complexes.

The territory of project oblasts has:

– in Chui oblast, first national natural park (NNP) Ala-Archa established in 1976 in the headstream of the river Ala-Archa close to the capital of the country, Bishkek city, in the area of 19400 ha. Here grow more than 600 types of higher plants, live 26 types of mammals and more than 100 types of birds. National park Chon Kemin (123654 ha) was established in 1997 in Chon-Kemin river valley and includes almost all tree farms in Kemin rayon. The park was established to safe the unique flora and fauna of this place. The park also includes the hunting and botanic reserves and mausoleum of Shabdan Batyr.

- Talas oblast has the natural park Besh-Tash (13650 ha) organized to save unique natural forests and high-altitude meadows. The park territory is a home for unique and rare types of animals and birds: snow leopard, golden eagle, Eurasian lynx, Hymalayan griffon, saker falcon and lammergeyer. There grow 800 types of plant kingdom representatives: 20 types of rare trees and more than 40 types of shrubs. For the most part, the trees are represented by fir-trees, pine, abies, non-typical of Central Asia birch, elm, aspen, poplar, willow and other rare types of trees. More than 11 types of plants are registered in the Red Book of Endangered Species, including Persian rowan and Semyonov's abies. There are more than 2000 types of insects, several representatives of the water world, of which the most unique ones are such types of fish as Osman, marinka and trout. Among large animals that live in Besh-Tash, the Red Book of Endangered Species has records of Tyan-Shan mountain bear, Tyan-Shan muflon, snow leopard, Turkestan lynx and argali.

III category: natural monuments and geological reserves.

IV category: *reserves* established for the protection of particular components of natural complexes. Reserves, in their turn, are categorized into 5 groups: forests, botanic reserves, hunting, complex and geological reserves.

In the territory of project oblasts, the following ones are located:

– in Chui oblast: 8 reserves, of which 1 complex reserve (7631 ha), 4 botanic reserves (2378.5 ha), 2 geological reserves, 1 zoological reserve (3000 ha).

- in Talas oblast: 5 reserves, of which 1 complex reserve (2511 ha), 3 botanic reserves (310 ha), 1 zoological reserve (13557 ha).

The atmosphere

Main sources of atmospheric air pollution in the population centers of Chui and Talas oblasts are enterprises of energy sector, building materials industry, community facilities, mining and processing industry, private sector and automobile transport. Pollutants arrival in the atmosphere and water resources, for the most part, depends on the economic situation in the branches that cause the greatest impact on the environment, condition of the community facilities in the cities. Moreover, the absence of own natural fields of gas in Kyrgyzstan has forced the majority of private houses to shift back to the use of solid fuel of local origin that has a relatively low calorific capacity and high ash level. According to experts, more than 80% of pollutants come from mobile sources. In recent years, Kyrgyzstan has been receiving a big number of automobiles produced before 1990 that have an elevated content of hazardous substances in exhaust gases and physically cannot comply with the standards of emissions quality.

During micro projects implementation, it will be necessary to take measures on reduced discharge of pollutants to the environment. Among them:

-equip motor vehicles transporting loose material with removable awnings;

-monitor cleanliness of the adjacent territory, preventing accumulation of construction wastes to avoid dustiness and pollution in the territory;

- control dust with watering or installation of dust shields at the site during air drilling, demolition of walls, performance of concrete works;

-avoid burning construction wastes and structures at the work site.

Water resources

Water resources include renewable surface, underground water and return water of a man-made nature (water intake for industrial needs and irrigated agriculture; its further discharge with chemicals and salts back into rivers).

Water use in the project territory in 2012 (*thousand cubic meters)*

Table 6

	Used, total	Of which for				
		Domestic needs	Industrial needs	Irrigation	Agricultural water supply	Other needs
Kyrgyz Republic	4862763.2	243446.1	82246.1	4198063.6	284528.0	54479.4
Talas oblast	640315.8	3037.3	199.2	636916.0	162.5	0.8
Chui oblast	1143848.0	20171.0	20301.7	1093633.3	7353.8	5388.1

Source: NSC of the KR

As the table shows, more than 90% of water consumption is spent on the needs of irrigated agriculture. There is no reliable information about the amount of discharge of pollutants from agricultural activities, whether local pollution (animal manure) or dispersion (fertilizers and pesticides affecting the quality of river water). Unorganized discharge from agricultural facilities, effluents from fields constitute the main sources of pollution in water bodies. Thus, untreated manure that contains effluent wastes of livestock constitutes one of the most dangerous sources of pollution.

The current poor state of irrigation systems and imperfect methods of irrigation cause unorganized losses and discharge from fields during irrigation; this discharge saturated with the products of mineral fertilizers and decaying toxic chemicals constitutes a source of surface water pollution. According to the State Agency on Hydrometeorology, the most affected in terms of pollution are water inflows of the river Chu basin. Chemical composition of these rivers is heavily affected by polluted waste water from industrial and agricultural facilities, discharge water from fields saturated with the products of mineral fertilizers and decaying toxic chemicals, and effluents from economic activities of the population. In the rivers Chu, Alamedin, Chon-Kemin, Issyk-Ata, Kechi-Kemin and others, the regularly observed picture includes high concentration of ammonium and nitrite nitrogen, compounds of copper, zinc, oil and oil products, organic and other hazardous substances and residual amounts of toxic chemicals from the group of DDT, HCCH.

The deteriorated economic situation has caused serious problems in the work of sewage systems and sewage treatment plants.

Various complexes of treatment plants available in Chui and Talas oblasts, for the most part, are in an unsatisfactory technical condition, fail to effectively treat the arriving effluents, and constitute potential environmental hazards. At present, with donor assistance, there are projects under implementation to rehabilitate treatment plants in the cities of Talas, Kant, Tokmok, Kara-Balta that are in a critical condition.

One of the challenges is the recording and control of waste water discharge into collectors outside big cities. More than half of towns and rayon centers of the country do not have centralized sewage systems and treatment plants. The domestic and industrial waste water annually accumulates in the absorbing pits or cesspools and get disposed in water-collection areas (lower terrain, collector-

drainage networks, dry narrows and river beds, etc.) or directly in water bodies. As a result, there get polluted the soil, water, and damage is caused to flora and fauna, while the hazard of bacterial inoculation of people gets stronger.

Discharge of effluents in the project territory, 2012 (*thousand cubic meters*)

Table 7

	Effluents discharged per year	Of which				
		Without treatment		After treatment		
		Standard clean	Polluted	Standard treated in treatment plants		Insufficiently treated
				biologically	mechanically	
Kyrgyz Republic	115692.6	2508.9	3903.0	99655.8	1129.4	117.0
Talas oblast	378.0		298.0	80.0		
Chui oblast	103346.9	1009.5	2880.0	99340.4		117.0

Source: NSC of the KR

A significant factor affecting the quality of water resources is also the non-systemic economic activities in water-protected areas and areas of surface water bodies, as well as unsatisfactory condition of the areas of sanitary protection of underground water bodies.

Necessary systems of collection, storage, treatment and disposal of effluents are absent at the majority of animal production farms. The available environmental structures are out of order or obsolete, or neglected, require capital repairs and reconstruction. Untreated manure-containing effluents and wastes of animal production have lately become one of the most dangerous sources of water ecosystems pollution.

Thus, the increase in the amount of pollutants discharge into the environment, unsatisfactory storage, treatment and disposal of industrial and domestic wastes, poor practices of agricultural production constitute sources of pollution in open reservoirs and underground water of the oblast.

Soils

Recent years for the country are described as disastrous ones from the perspective of land degradation. Due to economic activities and the influence of several natural factors, a significant part of the soil cover has undergone the process of ablation. Of the existing 10.7 million ha agricultural lands, more than 88% are recognized as degraded and prone to the processes of desertification. The area of secondary salinization has increased and reports 75% of the whole arable fund of the country; more than half of the arable lands in the country are affected by outwash and soil drifting. About half of pasture territories are categorized as degraded both from the vegetation point of view and due to the soil condition. A significant reduction is reported on the areas under perennial plantations and vineries; trees and shrubs of field shelter-belts get eradicated extensively.

Soil degradation causes a big economic damage. Soil degradation of various degrees decreases yield capacity of agricultural crops by 20-60 %. With the change in ownership form, the agricultural sector has experienced disintegration of the system of collective land use, while the introduced institute of private ownership of land gave birth to small-field land-use (84% of households have the area of arable land under 1 hectare), which are constrained in terms of their ability to undertake crop rotation, resource-intensive melioration, activities to support soil fertility with the sufficient use of organic and

mineral fertilizers, organization of anti-erosion works that contribute to the saving and improvement of fertility on arable lands.

Soils (*thousand ha)*

Table 8

	Saline soil	Alkaline soil	Bogged soil	Stony soil	Deflation-hazard (wind erosion)	Prone to water erosion
Kyrgyz Republic	1180.8 220.0	471.2 81.8	118.6 33.1	4021.2 196.1	5689.8 651.1	5626,8 764,8
Talas oblast	15.4 5.6	7.2 6.5	5.0 0.5	451.4 13.6	711.4 94.2	626,9 73,9
Chui oblast	286.1 160.0	96.8 60.0	18.6 0.3	314.5 38.6	746.2 138.5	438,7 134,6

Source: NSC of the KR

Note: numerator – all lands of agricultural enterprises;
denominator – arable lands of agricultural enterprises.

The majority of areas of permanent living and economic activities have poor soils with a low-capacity log and small reserve of humus, nitrogen, phosphor, potassium. In the conditions of arid climate, soils are rather sensitive to external impact. Saving potential fertility of such soils in cultivated lands requires strict compliance with agrotechnical, agrochemical and melioration measures. The country does not have its own plants on the production of mineral fertilizers; that is why their supply is limited and has been shrinking year to year. In 2011, Talas oblast registered the use of 33.4 thousand tons, if compared to 175.2 thousand tons in 2006; in Chui oblast, respectively, 2011 witnessed 22.7 thousand tons, while 2006, 34.6 thousand tons.

One can observe the salient trend of soil degradation in cultivated lands as a result of salinization, bogging, impoverishment and desertification.

Local territories demonstrate soil pollution with heavy metals as a result of mining operations and industrial production.

The most important from them are:

- industrial sites of the Kyrgyz Mining and Metallurgical Industrial Complex (KGMK) and adjacent territories (urban-type settlement Aktyuz with mining-and-processing integrated works and urban-type settlement Orlovka with chemical and metallurgical integrated works) in Chui oblast.

Since 1985, the use of many pesticides in the territory of Kyrgyzstan has been either limited or prohibited. The list of prohibited substances includes persistent chloroorganic pollutants: hexacholorcyclohexan, dichlor diphenyl thrichlormehtylmethane, aldrin, dieldrin, heptaclor, hexachlorbenzene. The majority of these pesticides were buried in places located far away from population centers. However, warehouses poorly adjusted for storage and very often half-ruined, aviation sites still contain unused pesticides or their remains in package without marking that till present pose a threat of environmental pollution. According to the findings of the research carried out by the toxicological laboratory of the Department of Chemicalization, Protection and Quarantine of Plants of the MAM, the pollution of soils adjacent to these sites and at a significant distance from them multiply exceeds the admissible concentrations. The remains of pesticides (from insignificant to multiply exceeding the admissible concentrations) are found in waters of collector-drainage networks from where they usually get discharged into other water bodies.

When implementing PMIP, it is necessary to pay attention to the qualitative condition of soils. Due to the multiple types of pastures in terms of their vegetation and different soil and climatic conditions on vertical belts, a big importance is that of a correct selection of mineral fertilizers. Fertilizer may be utilized in some cases, including in cases where reseeding is being undertakento increase yields of natural forage lands in the country. Community maps should have relevant marks showing places polluted with heavy metals and banned pesticides, since grazing in such areas causes pollution of animal products and, eventually, poses a threat to human health.

Waste products

Over the long period of economic activities, the territory of project oblasts has accumulated an enormous amount of industrial and domestic wastes containing radionuclides, salts of heavy metals and toxic substances that adversely affect the environmental conditions and human health. In this connection, the problem of waste management becomes rather topical.

Due to the absence of incinerators and rubbish recycling plants, a big challenge is the solid waste products which are brought for disposal to primitive landfills and disposal fields. Landfills (disposal fields) of domestic wastes annually receive hundreds of hectares of lands that could be used for other needs, let alone the lands polluted by multiple unsanctioned dumps.

The existing disposal fields are exploited in an unsatisfactory manner, fail to have sufficient number of machinery, violate the natural landscape and constitute a source of pollution of soil, underground and ground water, atmospheric air. The official statistics fails to provide full accounting of the generated wastes. Very often, domestic wastes are brought to disposal fields together with hazardous toxic substances and products that have lost their consumer appeal. This is caused by the absence of specialized landfills for such wastes disposal. According to the NSC KR, 2012 reported domestic wastes in Talas oblast to the amount of 9030.0 thousand tons, in Chui oblast to the amount of 31914.8 thousand tons.

A potential environmental hazard is the biological wastes that create a tense sanitary and epidemiological situation and require special measures on decontamination. A significant factor of environmental pollution is formed by almost all unregistered wastes from agricultural facilities. A special challenge refers to the management of medical wastes that constitute a hazard to human health.

In the complex of environmental issues, including those inherited from the Soviet mining and metallurgical industry and those acquired recently after the collapse of the USSR, the first place is taken by the problem of safe disposal of a big amount of mining production wastes.

Numerous stockpiles and tailings dams of mining enterprises that dispose radioactive substances, salts of heavy metals, cyan-containing substances raise serious concerns. As a rule, they are located in intermountain basins and hollows, alluvial cones and high-water beds. With the recent acceleration of man-made disasters, landslides, mudslides, erosion process, there increases the threat of pollution of surface and underground water.

During PMIP implementation, when preparing maps at the community level, there is a need to mark all places hazardous for grazing, since grazing in such areas causes contamination of animal products and, as a result, poses a threat to human health.

Natural disasters/emergencies

Due to its unique natural and climatic conditions of the mountain terrain, the Kyrgyz Republic constitutes a country prone to numerous natural disasters. Altitude and temperature difference, fluctuation in precipitation rates, water balance and underground water level, soil geomorphology,

tectonics and seismic activity cause serious natural hazards to sustainable development and permanent adverse impacts on the people and economy of the country.

Every year, the country reports about 200 disasters of a different nature, their direct damage, according to the Ministries of Emergencies of the Kyrgyz Republic, making about USD 30-35 million, while their prevention and management is supported from the state budget in the amount of about USD 6 million per year, and the number of disasters occurring in the country has been constantly increasing.

The project oblasts territory demonstrates more than 20 hazardous natural phenomena or processes: earthquakes, mudslides and floods, landslides, avalanches, landfalls and rockslides, firn-ice avalanches, gales, ice-covered ground, ice gorge, hale, frost, drought, downpours, ice surge, collapsing soil, karst and thermokarst, forest fires, locust outbreak, etc.

The spread, frequency and damage caused by the listed phenomena vary year to year; nevertheless, one can say that in a multi-year run the most dangerous for the people and economy are earthquakes, mudslides and floods, landslides, avalanches, spring frost and snowfalls, forest and grass fire, hurricanes and gales.

The natural disasters demonstrate a seasonal pattern.

In winter-spring period, the predominant ones are avalanches, while, in spring, there start mudslides and floods; closer towards summer, there activate landslides, and August-September is the season when forest fires start. Earthquakes can occur the whole year round, but they are also noted for seasonal variations.

The territory of Chui oblast belongs to high-altitude ecological systems with a high seismicity rate. The territory of Chui oblast disposes the following tailings dams of radioactive and toxic wastes:

-four tailings dams are located in Kichi-Kemin valley adrift the river Kichi-Kemin near the urban-type settlement of Ak-Tyuz and constitute deposits of wastes from complex ore processing (thorium contamination);

-tailings dam of Kara-Balta Mining Integrated Plant;

-tailings dam in the urban-type settlement of Orlovka (Buurdinskoye tailings dam) was intended for depositing wastes from Buurdinskaya Dressing Plant (thorium-bearing lanthanum and other metals).

All the aforesaid tailings dams are located in the zone of 7-9 magnitude. Earthquakes can activate landslides, landfalls, cause the formation of dammed lake and other natural disasters of a man-made, biological and sociological as well as environmental nature.

During PMIP implementation, when making maps at the community level, it is necessary to mark all areas dangerous for grazing to limit grazing there. Random grazing can also provoke certain disasters, for example, landslides.

3. Purpose

The purpose of this general EMP is to provide the Project implementing partners (ARIS, Community Development and Support Officers and technical experts) with a set of guidelines and procedures that will assist them in determining the potential environmental impacts of activities to be financed under the PLMIP, to identify mitigation measures to be built into the activities to minimize negative impacts and maximize positive ones, and to determine monitoring requirements to ensure that agreed mitigation measures are carried out and are effective in minimizing environmental impacts.

4. Strategic Legal and Institutional Framework

National Regulations

Environmental strategies, plans and programs

Two decades after the collapse of the USSR have passed in a 'survival' mode for the people of Kyrgyzstan and in many respects are considered a period of 'lost opportunities'. No few attempts were made to improve the situation, including those with a significant support from donor-countries and international organizations (programmes: Complex Development Framework of 2001, National Poverty Reduction Strategy of 2003, New Economic Policy of 2009, numerous sectoral programmes of development, etc.). However, they failed in conveying a sufficient positive impulse to development in the country and, to a significant degree, in achieving the objective.

In this connection, the National Council on Sustainable Development of the Kyrgyz Republic offered its own vision of the country's future, identified main lines and priorities of activities that should be invariable even in case of government change. The five-year ***National Strategy of Sustainable Development of the Kyrgyz Republic for the period of 2013-2017*** constitutes the first state document outlining the main components of political, economic and social development of the country and following a new format of the country's political system.

In the nearest five years (the period of 2013-2017), the objective for Kyrgyzstan is to actualize as a democratic state with a sustainable political system, dynamically developing economy and steadily growing income of the population.

The shift to sustainable development makes it necessary to include the environmental factor into the system of main economic indicators of development. Underestimated environmental factor in decision-making, in many respects, is a result of traditional economic indicators of development lacking the cost reflection of the natural capital use, the so-called balance of natural resources that reflects their use (retirement) and economic assessment of the damage caused by environmental degradation.

The National Strategy of Comprehensive Security of the Population and Territories of the Kyrgyz Republic in Emergency and Disaster Situations for 2010-2015 adopted by the Government in 2012 constitutes the main document that identifies the state policy at this stage to ensure the guaranteed protection to the population and territories from emergencies within the range of acceptable risks.

Implementation of this strategy targets the strengthening of the country's sustainability via prevention and significant reduction of losses caused by disasters, reduction of potential casualties and social, economic and environmental damage.

The Kyrgyz Republic is a party to 13 international environmental treaties and conventions, which obligations fulfillment facilities the environmental sustainability and allows drawing foreign grant proceeds for the stabilization and prevention of degradation processes of natural resources.

At the UNO Conference on sustainable development 'Rio+20' in 2012, Kyrgyzstan expressed its commitment to sustainable development for a long-term perspective through the promotion of priorities of green economy that combine the income and employment growth at the expense of foreign and domestic green investments targeting promotion of new technology for the improved energy and resource efficiency of both production and consumption, reduction of emissions and environmental pollution, as well as prevention of losses to the biodiversity.

Legal background for environmental and social assessment and management

While Kyrgyzstan has more than one hundred and fifty laws and regulatory acts, there is no clarity in the system of legal relations in the area of natural resources management, and that causes conflicts between users of natural resources and local communities, hampers foreign investments inflow in the production within the Kyrgyz Republic, often impedes fully-fledged environmental activities. The lack of mechanisms regulating water and land legal relations also constitutes a potential source of the originating social, environmental and political conflicts.

Constitution of the Kyrgyz Republic (2010) is a starting point for the whole regulatory framework and endows all citizens of the country with the right for the natural environment favourable for life and health and compensation for the damage caused to the health or property by actions in the area of natural resources use.

The fact that the legal framework on reasonable use of natural resources does exist constitutes an important condition for the effective regulation of relations related to the use of land, water, forest and other natural resources.

According to the **Constitution,** the Kyrgyz Republic has developed a structure of laws on environmental protection and management. The fundamental laws on environment relevant for **PMIP include the Law on Environmental Protection, the Law on the State Environmental Expert Evaluation, the Land Code, the Law on Agricultural Land Management, the Law on Pastures, the Law on Veterinary.** The section below offers a short description of data on fundamental environmental measures and their interrelation with **PMIP**.

The main law on environmental protection is the Law on Environmental Protection (1999) that establishes basic principles of environmental protection and ensures legal powers in relation to the establishment of environmental quality, marking of preferentially protected territories, publicity of rules and procedures of the natural resources use, establishment of the system of environmental monitoring and control, and fixing the procedures of disaster management. Among the standards and norms of environmental quality authorized within this law, there are the following activities relevant for **PMIP**:

-norms of maximum safe concentration of hazardous substances in the air, water, soil and subsoil;

-norms of the maximum safe use of chemicals in the agriculture;

-standards of the natural resources use;

-norms of maximum safe level of noise, vibrations and other hazardous physical impacts.

And, finally, this law establishes requirements on the carrying out of environmental surveys (environmental assessment) of the planned economic or other activities to prevent possible detrimental environmental impacts. Moreover, it prohibits financing or implementation of projects related to the use of natural resources in the absence of affirmative conclusions issued by the State Environmental Expert Evaluation Agency.

The Law on Environmental Expertize (1999) constitutes the main legislation related to environmental assessment. Its objectives include prevention of adverse impacts on human health and environment that take place as a result of economic and other activities, and ensured compliance of this activity with the environmental requirements of the country. This law is used extensively in the 'development projects' that could make certain environmental impacts, including:

Feasibility study and designs for construction, reconstruction, development, retrofitting and other projects irrespective of their estimated cost, origin or type of ownership, which implementation can make environmental impacts.

According to this law, the project initiator is responsible for the submission of necessary documentation on the project and its environmental impact to the state environmental expert evaluation (SEEE). The review of the submitted documentation is made by the Expert Committee of SAEPF. Favourable decision of the SEEE constitutes the prerequisite of the started financing or implementation of a project. A negative conclusion prohibits the project implementation.

The KR Law 'General Technical Regulations on Environmental Safety in the Kyrgyz Republic' (hereinafter, the Technical Regulations), in accordance with the KR Law 'On the Bases of Technical Regulation in the Kyrgyz Republic', is used with a view to protect the environment and identifies main provisions on technical regulation in the area of environmental safety; also, establishes general requirements to ensuring environmental safety while designing and implementing activities at the facilities of economic and other agents for the processes of production, storage, transportation and disposal of produce.

The requirements of this Technical Regulations are active in the Kyrgyz Republic in relation to the processes of production, storage, transportation and disposal of produce and binding for all legal entities and natural persons implementing these processes.

The KR Law on Pastures has been developed to ensure economically viable and sustainable use of pastures. Pasture use employs an approach based on the involvement of local communities and entailing their participation. The Law on Pastures provides a legal framework for the sustainable management of pastures, elimination of the three-tier management and transfer of all functions and powers to ayil okmotu.

The main specifics of new legal framework includes:

-the KR Law on Pastures decentralizes management of all pastures till the local level of government with the further opportunity to decentralize it to the level of pasture-users who shall establish the Pasture Users Union (PUU);

-PUUs develop Community Pasture Management Plans that should be used as the basis for the management, maintenance, improvement and use of pastures;

-pastures are considered within the framework of ecosystems, and the new law substitutes the rent with the right of use to facilitate the mobility and pasture rotation and ensure fair access to them for all users;

-fees for pasture use get collected in PUUs and, it is expected, that they will be used for pasture improvement;

-other users, in addition to livestock farmers, will take part in the process of decision-making and are represented in the Pasture Committee.

The Law on Veterinary identifies the general, legal, organizational and financial framework of veterinary. The law regulates operations in veterinary in accordance with the international requirements, identifies the legal status and structure of the veterinary service, establishes necessary veterinary and sanitation requirements and bases of veterinary control. It targets protection of animal health, protection of people from diseases common for humans and animals, ensured production and sale of animal products of high veterinary-and-sanitary quality.

The Law on Chemicalization and Protection of Plants (1999) identifies the legal, economic, environmental, social and organizational framework of chemicalization and plants protection in the interest of protected health of people, animals, environment, prevention or elimination of consequences of soil, vegetation and animal products contamination.

In order to implement the Law, there has been adopted the KR Government Resolution 'On the Measures of Environmental Protection and Protection of People's Health from Adverse Effects of Certain Hazardous Chemical Substances and Pesticides' dated 27 July 2001 No 376 that includes the List of Chemical Substances and Pesticides which use is prohibited or strictly limited.

In accordance with Article 3 of the law 'On Chemicalization and Protection of Plants', there is a ban on the supply and use of pesticides that have not passed registration tests and are not included into the List of Pesticides and Agrochemicals allowable for the use in the Kyrgyz Republic.

Also, there was adopted the KR Government Resolution 'On Approved State Catalogue of Pesticides and Agrochemicals Allowable for the Use in the Kyrgyz Republic for 2011-2019'.

As regards special technical regulations on the safe use of pesticides, it does not exist yet as an official document. There is a draft though, and the MAM has been instructed to submit draft Technical Regulations to the Government for consideration by 1 February 2014.

The Land Code of the Kyrgyz Republic regulates land relations in the Kyrgyz Republic, origin, procedure of execution and termination of the rights for land and their registration; it also targets the establishment of land-market use in the conditions of state, municipal and private ownership of land, and rational use of land and its protection. The Land Code constitutes the main document that regulates the land-use, but it contains few provisions related to pastures. Nevertheless, it stipulates state ownership of pasture resources. Finally, the Land Code identifies forms of economic activities on agricultural lands.

The law 'On Mountainous Areas of the Kyrgyz Republic' (2002) was developed to establish the social, economic and legal framework for the sustainable development of mountainous areas of the Kyrgyz Republic, protection and rational use of natural resources, the historical, cultural and architectural heritage. The law should become a basis for the regulation of people's activities in mountainous areas.

The law 'On Agricultural Land Management' (2001) regulates legal relations on agricultural land management and targets the ensured efficient and safe use of lands in the interest of people of the Kyrgyz Republic.

The Forest Code of the Kyrgyz Republic establishes legal framework of rational use, protection, conservation and reproduction of forests, improvement of their environmental and resource capacity, their rational use; it also regulates land-use within the State Forest Fund.

The law 'On the Animal World' (1999) establishes legal relations in the area of protection, use and reproduction of the animal world units. The animal world constitutes the asset of the Kyrgyz Republic and an integral element of the nature, a natural resource, an important regulating and stabilizing component of the biosphere, the utmost protected and rationally used for the satisfaction of material and spiritual needs of the citizens of the Kyrgyz Republic.

The law 'On Protection and Use of the Vegetable World' (2001) establishes legal framework for the ensured efficient protection, rational use and reproduction of plant resources.

The law 'On Local Self-Government and State Administration' (2002) establishes principles for the organization of local power at the level of administrative and territorial units of the Kyrgyz Republic, identifies the role of local self-government and local state administration in the administration of public power, establishes organizational and legal framework of their activities, competence and principles of interactions between local self-government authorities and local state administrations, public guarantees of the local communities' rights for self-government.

Land acquisition/resettlement issues in the Kyrgyz Republic are regulated by the following regulatory legal acts:

Land Code of the Kyrgyz Republic edition of June 2, 1999 No. 45 - a comprehensive set of rules governing the relationships that arise in the process of ownership, use and disposal of land;

The Civil Code of the Kyrgyz Republic, which defines the legal status of actors of civil turnover, and the bases for emergence and order of exercising the rights, contractual obligations, property and non-property relations;

Civil Procedure Code of the Kyrgyz Republic, which defines the order, rules and terms of legal protection in the event of litigation on involuntary resettlement.

Law of the Kyrgyz Republic "On Roads", edition of June 2, 1998 N 72, which defines economic, legal basis and principles of management of territories and facilities adjacent to the road, area and the order of using the right-of-way;

Decree of the Government of the Kyrgyz Republic No. 668 "On Liability for Losses Caused by Damage of Land", dated September 7, 2004, in the Edition of the Decree of the Government of the Kyrgyz Republic No. 696 as of September 27, 2006, which establishes the order for compensating losses to land users;

5. Project description

5.1 Project objectives

The Project Development Objective is to improve the quality of services provided by PUUs and Private Vets and to PUU members.

5.2 Geographical coverage

The PMIP Project will ensure implementation of all activities at the community level (first of all, support to the work of pasture committees and private veterinarians) in Chui and Talas oblasts (140 pasture committees) on the basis of assistance provided to these pasture committees and private veterinarians within AISP, and support a number of public bodies and agencies at the national level that are competent in pasture management and private veterinary services development.

5.3 Project components and subcomponents

Component 1 Community Pasture Management

Component 1 will contribute to the Project objectives through improvement of pasture productivity and animal nutrition and through improving pasture governance by: (i) improving public awareness of the pasture related legislation; (ii) demarcating internal pasture boundaries, resulting in more accurate land tax charges and resolution of land use disputes; (iii) building more inclusive PUU governance and increasing women's participation in decision making, resulting in more equitable access to pastures; (iv) improving the technical competency of PUUs, rural advisory service providers and state agencies (Pasture Department, SAEPF and the LPRI) resulting in improved community pasture management planning and implementation; (v) demonstrating to pasture users of the benefits of aligning stocking rates with pasture carrying capacity, resulting in reduced pasture degradation and higher pasture productivity; (vi) demonstrating to pasture users the benefits of pasture improvement, winter fodder and

feed improvement, pasture infrastructure improvement and advisory services, leading to greater willingness to pay for PUUs services; (vii) funding community based investments in pasture, feeding and livestock improvement; and finally by (viii) introducing community based pasture management into leskhoz pastures. Component 1 will include three sub components described below.

Sub Component 1.1 Community Pasture Management and Investment (US$10.59 million): This subcomponent will finance five main activities: i) Legal support for PUUs including a public awareness campaign at community level and advice to PUUs to resolve legal queries; (ii) Pasture boundary demarcation and inventorization including digitisation of some remaining external boundaries (between PUUs) and demarcation of internal boundaries between pastures and other land (within PUUs); (iii) Strengthening community pasture governance including an assessment of the standards of governance with each PUU including the extent to which different groups of pasture users are represented, transparency of decision making and conflict resolution and training of PUUs to improve governance ; (iv) Strengthening community based pasture management by providing long- term field training to a team of about 25 pasture advisors and funding of their services to PUUs on a declining basis; and (v) Pasture, feeding and livestock improvement grants to PUUs for micro-project investments in pasture infrastructure improvement (pasture tracks, bridges and watering points), as well as for a range of other complementary investments such as in feed storage, livestock handling facilities, fodder seed and livestock breed improvement. Communities will contribute 25 percent to the cost of the micro-project investments.

Sub Component 1.2 Strengthening State Pasture Institutions (US$0.57 million): This subcomponent will finance: (i) Pasture Department capacity building, including consultancy to support the Pasture Department to respond to legal queries and draft legislative amendments, to oversee pasture boundary demarcation, to produce technical guidelines on pasture management, and to raise public awareness about the pasture law. The Project will also support the Pasture Department in improving of its management information systems to monitor PUU progress in pasture management; (ii) Rayon Departments for Agrarian Development (RUAR) capacity building, including minor upgrading of knowledge and facilities to enable RUAR to work more effectively with the Pasture Department; and iii) LPRI capacity building, including the continuation a small program of pasture improvement field research.

Sub Component 1.3 Leskhoz Pasture Management (US$0.29 million): This subcomponent will finance following activities through which PUUs would assume responsibility of community based management of leskhoz pastures under a medium term lease agreement with leskhoz in five pilot locations: (i) Legal and administrative support to the SAEPF and Pasture Department to draft amendments to the law and to develop a model agreement between PUUs and leskhoz, as a basis for the introduction of community based pasture management in five pilot leskhoz; (ii) An inventory of land use, preparation of land use plans and identification of environmentally sensitive areas, in the five pilots to determine which leskhoz areas would be available to grazers and which areas would require environmental risk mitigation measures; (iii)Support to PUUs in to integrate leskhoz pastures into their community pasture management plans including environmental management plans in the pilots; and (iv) Leskhoz pasture improvement grants to PUUs for improvement of pastures and related infrastructure in the pilots.

Component 2 Community Based Animal Health and Husbandry

Component 2 will contribute to the Project objectives through improvement of animal health and husbandry by: (i) building the capacity of each PUU's Animal Health and Husbandry (AHH) Group - a group of up to seven PUU members appointed by the PUU pasture committee to plan and oversee implementation of PUU animal health and husbandry activities - resulting in improved AHH plans; (ii) equipping and training private vets and facilitating contracts between vets and PUUs, resulting in

stronger implementation of AHH plans; (iii) demonstrating to pasture users the benefits of veterinary services and improved animal health, resulting in greater willingness to pay for veterinary services; (iv) supporting the establishment of rayon associations of private vets to provide some centralized input supply services and represent their interests to government; (v) supporting the development of training material for vets in cooperation with the Veterinary Chamber and the Agrarian Academy; and (vi) building the capacity of the Veterinary Chamber to support the accreditation and professional development of private vets, resulting in higher private veterinary standards. Component 2 will include two sub components:

Sub Component 2.1 Community Animal Health and Husbandry Planning and Investment (US$0.54 million): This subcomponent will finance: (i) Animal health and husbandry grants to PUUs of US$1000 to contract a private veterinary services to assist with AHH planning and implementation; (ii) Supervision of Private Vet Support to AHH Groups and Training AHH Groups - this will include guidance to AHH groups and private vets by five project veterinary trainers (hereafter master vets) on implementation of national strategies for control of animal diseases including for Brucellosis, Echinococcosis, Rabies, Anthrax, PPR and FMD at community level as well as approaches to dealing with other animal health and husbandry issues such as parasite control; and (iii) Specialist disease specific advice provided by expert international consultants to oversee the implementation of national disease control strategies in the project area and to provide advice to national level agencies including the State Inspectorate for Food and Veterinary Safety on further development of the strategies.

Sub Component 2.2 Private Vet Development (US$1.26 million): This subcomponent will finance: (i) Private vet training and professional development- the project will contract five master vets (to be accredited as veterinary trainers by the Veterinary Chamber) and other specialist expertise where necessary, to delivery formal training to approximately 420 private vets in the project area covering topics including business planning, pharmacology, therapeutics, clinical skills and national disease control strategies; (ii) Private vet grants of US$1500 will be provided to 280 private vets, to finance essential equipment, drugs and medications, buildings repair and partial funding of the purchase of a means of transport; (iii) Strengthening rayon associations of private vets – the project will provide advice on the legal establishment and operations of rayon associations where there is strong demand from private vets; (iv) Veterinary student incentive program – to fund 48 interns to work for two years along-side private and public vets in the project area and will provide scholarships for 4 students to study a degree in Veterinary Medicine at the Agrarian Academy; and (v) Veterinary Chamber capacity building - to support the Chamber in developing tools for assessment, accreditation and professional development of vets and will fund operating costs of the Chamber for a period of two years.

Component 3 Project Management

This component will finance MOA Agricultural Projects Implementation Unit (APIU) and the Community Development and Investment Agency (ARIS) project management activities including budgeting, work planning, financial management, procurement, monitoring and evaluation, including reporting on implementation progress and on the impact of the PDO and intermediate outcome indicators, and coordination with the technical agencies involved in the Project including the Pasture Department, Veterinary Chamber, LPRI, SAEPF, RUAR and the Agrarian Academy.

6. Environmental Category and environmental impacts

The project is assigned World Bank environmental category B, as it presents moderate environmental risks that can be readily mitigated during implementation.

The planned project's activities may generate some positive or adverse environmental and social impacts. The identified positive impacts of the project include: (a) the integrated, fair and sustainable management of pastures by communities which brings environmental and social benefits in relation to the natural resources management; (b) increased food security and household income for the smallholder farmers, due to higher livestock and agricultural productivity; (c) improved farmer skills from training in technologies, seed breeding, and land use; and (d) increased opportunity for engagement in other income generating activities or small scale businesses by smallholder farmers due to increased food security for the households.

The potential negative impacts that may result from implementation of the project's activities are mainly related to the Component 1(community and leskhoz pasture investments for pasture roads, bridge and watering point improvement, stock handling, fodder and feed improvement and storage) and Component 2 (providing animal health committee grants for pasture committees, grants to private vets) and include: (a) increased pollution due to construction waste; (b) increased pollution of ground and surface waters due to soil erosion and use of fertilizers and herbicides; (c) some of the possible pasture management measures (e.g. reseeding, establishment of watering points) could affect the plant species composition or other ecological parameters of the surrounding habitats; (d) threats to human health and wildlife due to improper handling of treated seeds, fertilizers and herbicides, due to the management and disposal of livestock vaccines and other drugs; (e) potential increased use of pesticides for pasture management and fodder production; and (f) increased siltation of water bodies due to soil erosion.

All these potential negative impacts will be mitigated through the capacity building component and this EMP, to ensure sustainable agricultural practices are introduced in participating farmer communities. The project will not finance purchase of genetically modified organisms (GMOs) nor finance Category A sub-projects under the Credit Line.

According to the Law on Pastures adopted with the direct involvement and under the initiative of the World Bank AISP project, pasture management and use shall be ensured directly by pasture users through communities they establish.

During AISP implementation, 454 pasture committees were established including137 in Talas and 103 in Chui oblast.

PLMIP will provide further assistance to the communities, including pasture management. Communities are interested in the improvement and development of pastures and pasture infrastructure. At the same time, potential adverse environmental impacts of this project (risks), in the first turn, will refer directly to the investments in infrastructure for the improved pasture management. Impacts that, for the most part, relate to design, construction and implementation of infrastructural investments are expected to be easily identifiable, insignificant in terms of scale and minimum in terms of their adverse effect. For social risks, see Annex A for details.

In 2011-2012, pasture users of pilot oblasts implemented 303 micro projects on the rehabilitation of infrastructural facilities: 87 in Talas and 216 in Chui oblasts. The acquired experience on MP implementation will be used by them in PLMIP implementation as well.

The process of identification and selection of potential investments will be part of the community pasture management planning (CPMP). This will ensure investments matching the objectives and priorities identified in the community pasture management plan.

During the project implementation, specific attention should be paid to pasture management. Farmers should be encouraged and provided with incentives to use summer pastures since an increase in animal population strengthens processes of pasture degradation, especially in winter pastures near

centers of population. Pasture degradation also causes disappearance of certain types of plants most sensitive to grazing, loss of original mountainous landscapes, deterioration of biodiversity and genetic resources.

Expected potential environmental impacts during the implementation of measures intended to address the problems in the animal production sector with the objective of its increased capacity will be both positive and negative.

Environmental risks are also caused by the fact that farmers, as a rule, are not aware of environmentally sustainable approaches and practical methods of farming or environmental safety. Thus, farmers cannot foresee possible negative consequences related to poor use of pastures. Environmental risks can occur as a result of incorrect use of pesticides or herbicides in pasture management and burning of vegetation in pasture lands. EMP will control potential environmental risks, through the process of mitigation, reduction and prevention via appropriate preventive measures.

The EMP will also foresee the preparation of a limited “positive list” of pesticides which would be eligible for financing for field trials/demonstrations

Finally, positive benefits of project activities should overpass all potential risks.

The above-stated problems and measures on their prevention are presented below in Table10.

Environmental and social impacts of the project implementation

Table 10

Issue	Proposed measures to address issue	Expected positive environmental impacts	Expected negative environmental impacts	Measures to prevent/mitigate negative impacts
1	2	3	4	5
Component 1. Community pasture management				
1.Community pasture management including (i) insufficient seasonal movement of livestock causing over-grazing of spring, summer and autumn pastures and (ii) inadequate resting of severely degraded pastures to allow recovery.	According to the law 'On Pastures', pasture management and use shall be ensured directly by pasture users through communities they establish.	Increased responsibility of pasture users for high-quality management and use of pastures. Implementation of the proposed project will cause a significant increase in environmental sustainability of pasture use in project oblasts.	Insufficiency of activities under implementation on the improvement of natural forage lands, overgrazing.	Community Pasture Management plans should include grazing plans which define the number of livestock and period of grazing for pasture areas based on an assessment of the condition and carrying capacity of pasture areas. Farmers should be encouraged and provided with incentives to use summer pastures. In summer pastures, rotation grazing should be introduced to ensure necessary period of rest for plants and opportunities for seeds ripening. One can also envisage annual rotation of pastures used for grazing. Animal farmers should always monitor changes taking place in pasture vegetation. Resting of pastures is the main tool for improving pasture quality. Undersowing may

Issue	Proposed measures to address issue	Expected positive environmental impacts	Expected negative environmental impacts	Measures to prevent/mitigate negative impacts
				have potential to improve species composition in some locations. In some exceptional cases where pastures have been degraded beyond a critical point, reseeding and fertilizer application may be appropriate. Rehabilitation of pasture infrastructure (cattle tracks, bridges, roads, stock watering point, etc.) will improve access to remote pastures and reduce grazing pressure on other pastures.

Issue	Proposed measures to address issue	Expected positive environmental impacts	Expected negative environmental impacts	Measures to prevent/mitigate negative impacts
1.1 Faulty use of pastures. Overloading pastures; lost productivity	Many problems take place due to the lack of knowledge in animal breeders	No	Animal owners fail to fully understand the importance of pasture improvement measures. Change in the vegetation cover caused by over-grazing cases qualitative and quantitative impoverishment of pastures, decrease in their forage value and productivity, degradation of vegetation and then soils. Consequences of pasture degradation: -loss of fodder base and animal production distress; -loss of original mountainous landscapes; -impoverished biodiversity and genetic resources; - soil erosion.	Pasture monitoring to timely detect faulty use of pastures. Community Pasture Management plans should include grazing plans which define the number of livestock and period of grazing for pasture areas based on an assessment of the condition and carrying capacity of pasture areas. Introduction of environmentally justified pasture rotation with the observed load close to optimal. Need to carry out trainings for pasture users. Information, including radio and TV programmes that improve understanding in agricultural communities of new organizational conditions and agreements in relation to pasture management. Inform population about causes of pasture degradation and encourage them to preserve fodder.
1.2. Pastureland rest	Grass stand recovered in the pasture after trampling and grazing. The main	Over the period of recovery, there grows the root system of plants and the soil structure improves.	Pasture site is removed from the grazing schedule for the period of up to two years or more.	Timely detection of such sites. Recommended: - preclude grazing within the two-year period; - light grazing in September to

Issue	Proposed measures to address issue	Expected positive environmental impacts	Expected negative environmental impacts	Measures to prevent/mitigate negative impacts
	objective is to give an opportunity to perennial grasses to sift, and their seeds to spring and form young plants.			tramp seeds into the ground. - cutting in those sites where the grass has undesirable plants after the autumn grazing and before spring grazing to avoid weed development in the future; -mowing of hay before blossoming in May-June in the year after the year of rest.
1.3 Fertilization of pastures	Correct selection of mineral fertilizers	Mineral fertilizers do not only increase yields, but to a significant degree improve botanic and chemical composition of the natural pastures grass stand.	Farmers have no sufficient education on the correct use of fertilizers (timeframe, quantity, types, etc.). They have no knowledge on the objectives of fertilizers application on pastures as well.	Application of fertilizer will not be economically be viable in all pasture areas. It may be appropriate in some cases such as where areas have been reseeded. Need for guidance and trainings for pasture user unions on where fertilizer application would be appropriate.. Need to implement micro projects aimed at pasture improvement. Organized demonstration sites can serve an example of improved pasture quality.
1.4 Non-chemical methods of pasture weeds control	Use of biological methods of weeds control. On plains and smooth hill slopes, the efficient method is their topping prior	No threat to flora and fauna. The soil has no residuals of chemical substances.	Efficiency is lower than in case of herbicide use. Farmers having insufficient skills of using this method of pasture weeds control.	Need for trainings for pasture users. Information on pasture management.

Issue	Proposed measures to address issue	Expected positive environmental impacts	Expected negative environmental impacts	Measures to prevent/mitigate negative impacts
	to seeding. Mixed grazing can also contribute to the decrease in some weeds.			
1.5 Pasture undersow and reseeding	Undersow entails pasture improvement without violation of the grass cover integrity or with its partial violation. Reseeding is recommended for heavily degraded pasture sites and for the recovery of rough (poorly productive) natural pastures on foothills, stony sites, heavily weedy and shrubby sections.	Reseeded pastures (man-made ones) give rather high-quality forage up to 200 days a year and last for more than 20 years.	Not expected	Organization of seed farming for pasture grass seed production. Need for trainings for pasture users. Specific attention should be paid to local forms, types and varieties of wild fodder plants that are well adapted to the environmental conditions.
1.6 Use of pesticides, herbicides and agrochemicals	Consultations with specialists from DCPQP of MAM, approval with environmental bodies	Efficient way of control over young weeds on mountain pastures.	Potential contamination of soil and ponds. In case of faulty use, potential damage to animal and human health.	Safe handling of pesticides, herbicides and agrochemicals requires special conditions of labour that protect environment and preclude or mitigate to a maximum degree the hazard of adverse impact on animal and human health. Farmers training to build knowledge and capacity on the use of biological or environmentally safe methods

Issue	Proposed measures to address issue	Expected positive environmental impacts	Expected negative environmental impacts	Measures to prevent/mitigate negative impacts
				of pest management and decreased dependence on synthetic chemical pesticides.
1.7 Burning plants on pastures	Used as a last resort only after consultations with the environmental bodies	Burning is applicable only in those locations that have accumulated too many remains of vegetation hampering growth of sprouts.	Vegetation burning causes an increase in downwash and aggravated erosion of soil. Burning, especially in autumn, significantly affects the changes in hydrological regimes towards drying up, which is most undesirable in this country conditions with prevailing dry climate. On the slopes nude after burning, snow can hardly withhold. As a result, soil absorbs little moisture, and, all the more, there can start erosion. In sunny days, on the burnt land sections, soil (due to black ash colour and lack of vegetation remains that perform and important function of mulch) warms up to a higher degree than on those non-burnt ones. It is absolutely impossible to burn out all shrubs.	It is recommended to further monitor the situation with a view to reduce potential impact of the practice of mountain pastures vegetation cover burning. It is recommended for the project to disseminate the relevant information on environmental impact of this practice and carry out trainings on alternative practices of pasture management as a component of their training programme on advanced agricultural practices.
1.8 Pasture deterioration with weediness	Killing of weeds and unwanted thornbushes and their substitution with fodder grass should be used after	Qualitative composition of pastures improves.	Thornbushes on natural forage grassland cause big damage to animal, especially sheep, production. They reduce area of pastures, impede	The project should advice pasture committees on how to survey pastures for contamination with weeds. Together with environmentalists,

Issue	Proposed measures to address issue	Expected positive environmental impacts	Expected negative environmental impacts	Measures to prevent/mitigate negative impacts
	consultations with environmental bodies.		with grazing, make forage plants inaccessible for livestock, traumatize animals, contribute to sheep sickness with contagious ecthyma, constitute accommodation for all sorts of ticks, blood-sucking insects and exophytes, cause losses of wool up to 0.5-1.5 kg/ha during grazing.	agronomists, pasture users, need to take a collegial decision on the ways of thornbushes control on pastures, where these bushes have no, even slight, significance of erosion prevention, water protection, medical drug production, etc. (see the KRG Resolution No 224 dated 3.05.2013 'On Approved Rates to Estimate the Amount of Compensation for the Damage Caused to Animals and Plants by Legal Entities and Natural Persons').
2. Infrastructural investments to improve pasture management	Implementation of micro projects to improve pasture quality and rehabilitate pasture infrastructure (cattle walks, bridges, roads, watering points, etc.) will improve access to summer pastures, and that will contribute to the increased income of livestock owners through a rather high-quality management of	Quality of pastures will be improved. Access to summer pastures will be improved. Income of livestock owners will increase.	Will make a limited impact on the environment, for the most part during construction.	When preparing and implementing MPs, need to take into account activities to reduce the negative load on the environment in the process of construction works and operation. Framework agreements between ARIS and Pasture User Union will indicate that microproject may not include construction of dams. In cases where the community proposes micro-projects involving temporary or

Issue	Proposed measures to address issue	Expected positive environmental impacts	Expected negative environmental impacts	Measures to prevent/mitigate negative impacts
	pastures and animal production, control of long-term degradation of pastures.			permanent acquisition of private land, the PUU would be required to seek the land owners' agreement and the terms of land acquisition and the land owner must have the right of refusal. This will be clearly stated in the ARIS framework agreement with each PUU.
3. Forestry pasture management	The plan includes extension of forest pasture use by local pasture communities, namely about five sites in project oblasts.	Animal producers will get additional forage grasslands.	Animal producers graze animals in the area of cultivated forests, causing damage to nursery plants. In some cases, pasture users did unauthorized clear-cutting of forests in the territory of forestry agencies, as a rule, to prepare firewood.	Grazing on the land of the state forest fund shall be allowed only in those locations where it does not hamper the growth, renewal and other activities on forest recovery. Plans of grazing in forests, i.e. allocation of sites for grazing of agricultural animals, shall be established during preparation of community pasture management plans for forestry pasture areas. An inventory of environmentally sensitive areas forest areas (including forest pasture and areas of pastures adjacent to pastures which could be affected by grazing) will be undertaken under the project before any other project activities in areas under the

Issue	Proposed measures to address issue	Expected positive environmental impacts	Expected negative environmental impacts	Measures to prevent/mitigate negative impacts
				management of the State Agency for Environmental Protection and Forestry (SAEPF). The project will not undertake any activities in environmentally sensitive areas including protected territories, national parks or other environmentally sensitive areas until an environmental management plan for such areas to mitigate any environmental risks has been approved by the SAEPF and the Bank. There exists a model of Community Forest Management, which is presented in the Government Regulation, but till present it has not been used in practice. Application of the principles of the Pasture Law to leskhoz pastures has been explored under a memorandum of understanding between the Ministry of Agriculture and Melioration (MOA) Pasture Department and SAEPF. This will be piloted under the Project. The project will prepare

Issue	Proposed measures to address issue	Expected positive environmental impacts	Expected negative environmental impacts	Measures to prevent/mitigate negative impacts
				recommendations, provide advisory services and trainings for pasture committees in relation to how include forest agency pastures into the plans of community pasture management, offer methodology and recommendations to identify environmentally sensitive areas in forest agencies that can be impacted by arrangements and conditions of the organized grazing. Inventory-taking of such areas will make an important foundation for environmental management plans that will be prepared by forest agencies.
Component 2. Protection of animal health and animal services at the community level				
1.Animal production wastes. Laboratory and veterinary wastes.	Animal production wastes shall be collected, used and destroyed in the conditions that fully prevent the origination and spread of animal	Localization of negative environmental impacts, prevention of animal diseases spread, reduced zoonotic morbidity among people.	Pollution of environmental components: living environment of all animal and plant bodies, as well as human beings. Elimination of the existing problems is not always possible by the efforts of	The risk related to vaccination programme is small in scale, minimal in terms of impact and can be effectively prevented and mitigated via destruction of expired vaccines and other dangerous materials in accordance with international

Issue	Proposed measures to address issue	Expected positive environmental impacts	Expected negative environmental impacts	Measures to prevent/mitigate negative impacts
	diseases and detrimental impact on the environment; there shall be ensured compliance with veterinary rules and the procedure established by local self-government authorities.		JCs due to poor collection rates of fees.	procedures and standards. Veterinarians' training within the project includes procedures of safe handling and use of vaccines. Need for financial support from the state to purchase vaccines, construct Becker's pits, etc.; Need to continue explanatory works and informing people on zoonotic diseases, on the prohibition to feed dogs and cats with affected bodies of animals, especially liver and lungs, to prevent further spread of echinococcosis. Global experience of biological wastes treatment is about conversion into fodder additives, industrial oils. In this connection, need to construct a veterinary and sanitary plant (better, two). Earlier, there was one in Chui oblast.

Issue	Proposed measures to address issue	Expected positive environmental impacts	Expected negative environmental impacts	Measures to prevent/mitigate negative impacts
2. Anthrax burial sites and other burial of animals	Need for inventory-taking to register and attribute a special protection status to the anthrax burials and other burials of animals.	Community maps will have marks of places where grazing should be prohibited.	Unregistered cases of animal death from anthrax cause uncontrolled contamination of pastures and environment and continued cycle of infection. Today, animal burial sites have no owners. Therefore, nobody is responsible for their proper maintenance.	There is the National Strategy and Strategic Plan on Anthrax Control in the Kyrgyz Republic for 2012-2016. The strategic plan stipulated establishment of the Republican Committee on Zoonotic Diseases (RCZD) responsible for the control and analysis of the national programme on zoonotic diseases control. Oblasts, rayons and ayil districts will have branches of the Republican Committee on Zoonotic Diseases. The only way to prevent new outburst of the disease is to vaccinate animals. To ensure disposal of corpses, need to build burial sites or Becker's pits in each center of population.
3. Financial sustainability of community private veterinarians.	The project will assist PVs in the establishment of their business via trainings and issuance of grants to purchase veterinary preparations, equipment and machinery to	Establishment of a vital and sustainable business will contribute to the reduction of animal morbidity and mortality rates.	Some animal breeders' reluctance to pay for services can affect the sustainability of veterinarian services, contribute to new outbursts of diseases among animals and people.	Need to continue raising people's awareness on zoonotic diseases, the importance of establishment of sustainable veterinary services within their communities. "The project will support the preparation and implementatoin of animal health plans which will

Issue	Proposed measures to address issue	Expected positive environmental impacts	Expected negative environmental impacts	Measures to prevent/mitigate negative impacts
	provide services to animal breeders.			includes measures to implement national animal disease control strategies at local level".

7 Safeguards

The specification of IDA safeguards categorizes PLMIP as a project of 'B' category, with partial assessment. The carried out environmental assessment has not found data on significant, irreversible, growing or long-term adverse impacts, but confirmed the environmental classification of this project as the one belonging to 'B' category that triggers the following safeguards:

OP 4.01. Environmental assessment;
OP 4.04. Natural habitats;
OP 4.09. Pest management

OP 4.12 Involuntary resettlement (TBD)

7.1 Environmental assessment (OP 4.01). The proposed environmental impacts of the project, including those caused by the activities on improved pasture management and certain improvement of pasture infrastructure, trigger this strategy of safety measures. In accordance with the Operational Policy of the World Bank OP 4.01, there is a need to carry out environmental assessment and prepare EMP for all projects proposed for the World Bank financing in order to ensure their environmental safety and sustainability. Also, there takes place assessment of possible negative and positive environmental impacts of the project, and measures are recommended for prevention, minimization, mitigation or compensation of damage from the adverse impact, as well as improvement of environmental indicators. In order to mitigate environmental risks of PLMIP activities, the project will pay specific attention to the system of MP environmental assessment, monitoring and evaluation that will be carried out during the whole project jointly with specialists from ARIS, SAEPF, SIETS, as well as in close cooperation with the specialists from PD and SIVPS. EMP will envisage implementation of the recommended preventive and mitigation measures and monitoring of PLMIP environmental impact, in case of need.

7.2 Natural habitats (OP 4.04). Within the planned project activities on pasture management, need to apply the World Bank norms of OP 4.04 related to natural habitat, which is identified as the land and water area where (i) biological communities of ecosystems form, for the most part, via local types of vegetable and animal world, and (ii) human activities have not significantly changed the original environmental functions of the area. All types of natural habitat play an important biological, social and environmental role. *Natural habitat of a particular importance* includes: the existing protected areas and areas that are officially identified by the state as specially protected areas; areas originally acknowledged as protected by traditions of local communities (for example, sacred groves); areas where the supported favorable conditions play a vitally important role for the sustainability of these protected sites (as it is identified in the process of environmental assessment), or sites specified in additional lists by the authorized party, which has been identified by the oblast environmental department of SAEPF. Such sites can include territories acknowledged by traditional local communities; territories with a known high suitability for saving biological diversity and areas that are crucial for rare, vulnerable, migrating or endangered species. The existing lists are based on systematic assessment of such factors as variety of species, degree of endemity, rarity and vulnerability of certain species, representativeness and integrity of ecosystem processes. In accordance with the OP 4.04, the proposed project will welcome those types of activities which target preservation of

natural habitat and its recovery, and prohibit those activities that can cause a significant loss or degradation of any significant natural habitat. Nevertheless, project activities aimed at the improved access to distant pastures, improved conditions for animals can create a risk of over-exploitation of grass cover, deterioration of the condition and fragmentation of the natural habitat in project-affected zones, especially in remote high-altitude areas with valuable biological diversity in alpine and sub-alpine belts. For these regions, it is very important to carry out basic assessment of the original condition of biological diversity on pastures to ensure control over potential negative impact of the project on mountain ecosystems. In order to demonstrate positive impact of the project on biological diversity, it is equally important to initially assess the possibility of recovering the population of animals that have suffered as a result of poor agricultural production management and the imbalance which occurred in the food chain and, in its turn, caused the vanishing of animals or their escape from traditional habitats. This should be implemented no later than during the first year of the project implementation.

7.3 Pest management (OP 4.09). EA confirmed that pasture management initiates the application of safeguards on pest management. Initially, improved use and management of pasture lands (Component 1) and elimination of detrimental pasture weeds may require selected use of herbicides/pesticides in rather small quantities due to the introduction of practice of integrated protection of plants from agricultural pests on pilot and demo sites. The project will be able to procure certain herbicides or pesticides, if community pasture management plans in certain cases include selected use of herbicides and pesticides. Procurement of any herbicide/pesticide will depend on the assessment of the nature and degree of the related risks with due regard for the proposed use and potential users. The country has sufficient institutional capacity within its regulatory framework to encourage and support safe, efficient and environmentally sustainable control of pests. At the same time, during this project implementation, attention will be paid to alternative environmentally safe methods of pest management, reduced dependence on synthetic chemical pesticides. PLMIP will support activities on farmers training to build knowledge and capacity on the use of biologically and environmentally safe methods of pest management. The project approach to pest management is specified in the Pest Management Framework, Annex D.

8. Environmental Management Plan (EMP)

Environmental Management Plan (EMP) presents a mechanism that will be duly applied during PMIP implementation and includes: Guidelines For Environmental Review Of Micro-Projects including detail on the section 'Environmental Protection' (when necessary), state environmental expert evaluation, actions that ensure environmental mitigation measures, institutional framework for preventive and mitigation measures.

8.1 Manual on Environmental Investments Selection

1. Guidelines for Environmental Review of Micro-Projects will be developed on the basis of the one earlier developed by ARIS (dated 2006). These guidelines will supply Community Development Support Officers (CDSOs) and technical experts of ARIS with a set of procedures, technical manual and procedures that will help them to:

- identify potential environmental and social impacts of the micro projects financed by the community grants provided by ARIS;

- identify mitigation measures and include them into micro projects for these impacts minimization;

- identify monitoring requirements to guarantee that coordinated activities on mitigation are implemented and effective in environmental and social impact minimization.

1. The objective of this Manual includes a review of the financed small infrastructural investments to identify and manage (prevent, mitigate or eliminate) potential adverse environmental and social impacts.

The micro project format will remain the same as during AISP implementation, but there is a need to revise *the checklist* on environmental and social selection. In the active checklist, the list of environmental components under impacts lacks such item, as 'impact on air', which is present in all types of planned works. *Within PMIP, during first three months of the project implementation, ARIS will revise these Guidelines to adjust it with due regard for the modifications and amendments that have been introduced into the environmental and social (land acquisition/resettlement/decentralization) legislation.*

8.1.1 Investments subject to environmental and social assessment

PMIP includes financing of a number of various investments. At this stage of project preparation, it is not possible to anticipate all types of activities eligible for project financing. In order to increase income and economic well-being of rural residents, apart from the MPs that target update, rehabilitation and expansion of pasture infrastructure, there is a need to encourage MPs aimed specifically at pasture productivity, namely: ensuring that stocking rates are aligned with pasture condition and carrying capacity, resting of pastures, improvement with mineral and organic fertilizers where appropriate, pasture irrigation (where economically viable), removal of stones, interplanting of grass to improve the quality of grass stand.

Since micro projects implementation can make adverse environmental impacts, they are subject to selection criteria and procedures listed in this section in accordance with environmental safeguards of the World Bank and environmental legislation of the Kyrgyz Republic.

ARIS and Pasture Department will prepare a short list of projects and carry out preliminary evaluation of expenditure. Based on the preliminary evaluation findings and criteria that will be identified by the Project (including financial impact, environmental and social impacts, mechanisms of ownership and maintenance), there will be selected the final list of investments. ARIS will inform pasture committees on the results of selection and officially disseminate information on the evaluation and selection criteria.

Each pasture committee will have a community pasture management plan approved by Ayil Kenesh prior to the submission of a request to the Project for grant proceeds. The process of potential investments identification and selection will be part of the process of community pasture management planning. This guarantees that investments are agreed and compatible with the objectives and priorities identified in the community pasture management plan, and mechanisms are available for the financing of regular operating expenses.

Micro-project groups that can include informal groups of pasture users, informal self-help groups or pasture committee itself will prepare investment proposals. Micro-project groups will submit proposals to the pasture committee that will review and identify priorities, and select

micro projects. Pasture committee will present results of the selection process to the general meeting that will approve the selection.

Eligible investments will include those on pasture infrastructure, pasture improvement (such as seed multiplication, resowing, fertilizing and other improvement activities), small irrigation works for the improved production of forage, equipment and warehouses related to forage provision or equipment/means for animal care. ARIS will administer the provision of grants.

Design: Micro project initiators (Pasture Committees, PCs) will make contracts with local design companies to prepare a full design/plan that will be reviewed and approved by ARIS engineers. PCs will be responsible for the acquisition of relevant permits that can be required by local authorities. The design will include environmental and health & safety measures which, based on the project's general EMP, will be transposed into a site-specific EMP prepared by the contractor and approved by the supervising engineer and ARIS.

Construction: PCs will make contracts with construction companies for civil works. Upon completion, ARIS specialists and PC Chairman will sign Certificate on Accomplished Works to verify the acceptance of civil works.

8.1.2 Procedures for environmental assessment of investments

Environmental assessment will be included into the standard cycle of project development on all investments financed within PMIP, starting from the initial identification of investments by the pasture committee (for the pasture infrastructure) with further review and approval by technical personnel of ARIS and finishing with the implementation of investments under the supervision of ARIS technical personnel. Procedures of environmental assessment and monitoring for micro projects will be developed to ensure their compliance with the state environmental requirements of the Kyrgyz Republic and World Bank safeguards. Thus, the assessment for each micro project will be carried out as to its environmental impact.

Each project proposal will contain a section or piece of information on environment that will describe key specifics of the project site environment: likelihood of its impact on the quality of land and soil, air, natural habitat of a special importance, forests, rare or endangered biological species, potential damage to the main water courses or underground sources of water. Moreover, if natural resources are used within the project, one will specify whether it will cause accumulation of wastes and pollutants that usually appear during rehabilitation works and other processes, and whether the project includes activities on agricultural pest control that would employ chemicals, etc. Depending on the nature and scale of impact, technical personnel of ARIS will inform project initiators on the need for additional environmental documentation for the micro project.

At the stage of identification, technical personnel of ARIS, jointly with local specialists will review criteria of environmental assessment (Table 10) to identify potential environmental risks, propose relevant practices, mitigation or prevention measures and, if necessary, start further review of the environment within the requirements of the Kyrgyz environmental legislation.

In those cases when potential risks are insignificant they will be addressed via preventive actions or common measures of mitigation identified in the EMP. In relation to rather significant impacts, probably, there will be required the state environmental expert evaluation (SEEE) within the Kyrgyz legislation to prevent potential adverse impacts of the planned

activities on the people's health and environment. Pasture committees will prepare all documents necessary for the SEEE at SAEPF. The objective of environmental expert evaluation will be projects of construction, reconstruction, expansion, retrofitting and other projects, irrespectively of their estimated costs, administrative origin and form of ownership, which implementation can cause an environmental impact.[1]

8.1.3 ARIS's review and approach

ARIS will ensure proper review of all investments with the use of selection criteria prior to the approval of investments within PMIP. The project will ensure provision of relevant advanced practices, actions, measures or trainings as well as subsequent implementation of these practices and measures during the implementation of investments. In those cases, when, according to the selection criteria, there is a need for SEEE within the Kyrgyz legislation, technical specialists of ARIS will control the quality of 'Environmental Protection' section developed by the local design company for consideration in SAEPF, as well as implementation of investments after the receipt of positive statement from the SEEE.

Pasture committees will provide all additional information necessary for the SEEE in SAEPF.

8.1.4 Approval in SAEPF

According to the environmental legislation, projects that make environmental impacts shall be subject to the state environmental expert evaluation in SAEPF prior to the decision-making on project implementation.

The statement of opinion of the state environmental expert evaluation can be positive or negative.

Positive statement of opinion of the state environmental expert evaluation is one of the mandatory conditions of financing, lending, investments and implementation of the project submitted for expert evaluation.

Positive statement of opinion of the SEEE is legally effective within the period identified by the specially authorized public body on environmental expert evaluation.

The legal implication of the SEEE negative statement of opinion is the prohibition to implement the subject of expert evaluation.

In case of a negative statement of SEEE, the project initiator (PC) shall have a right to provide materials for the repeated state environmental expert evaluation on the condition of their revision with due regard for comments listed in the statement of opinion. In order to address potential environmental impact, there is a need to apply advanced practices, preventive actions and mitigation measures identified in this document in relation to the location, design, construction and management of the project.

8.1.5 Field supervision and monitoring of civil works

Technical personnel of ARIS will monitor the implementation of all microproject investments under PMIP to ensure implementation of site-specific EMP containing all environmental and social provisions, application of best practices, preventive and mitigation measures. State inspectors of the Department for Architectural and Construction Supervision of SIETS will control implementation of design solutions during construction and assembly works or reconstruction of facilities, quality of used construction materials, structures and take part

[1] The KR Law 'On Environmental Expertize', page 3.

during the procedure of accomplished facilities acceptance for commissioning. Project implementation completed, technical personnel of ARIS will have to verify that relevant practices, actions or measures have been applied or that all required mitigation measures have been taken. ARIS specialists will monitor compliance with the environmental and social requirements. State Inspectors of the Environmental Safety Department of SIETS responsible for the state control in the area of environmental protection will check, as per the established procedure and upon presentation of their ID, the compliance with the requirements of environmental legislation, environmental standards, implementation of activities on protection and recovery of the environment during project implementation.

8.2 Environmental Management Plan (site-specific)

Preventive measures recommended in the project's general EMP are shown in the site-specific EMP (mitigation plan), Table 11. This plan identifies measures in accordance with those phases of project implementation that can be a source of potential impacts:

-construction phase covering actual construction financed by this project on selected community pastures and involving direct impacts of construction and impacts described above in Section 7;

-operation phase covering the period after completion of actual civil works and involving the continued and long-term impacts on environmental conditions, as well as potential impacts taking place as a result of pasture operation, use of pesticides, herbicides and burning as specified above in Table 10.

Then, this plan identifies the recommended preventive measures, estimation of costs on their implementation, and, when necessary, works to implement these activities, and establishes institutional responsibility (i.e. ARIS, APIU, PD, SIETS or SAEPF) in order to ensure efficient use of these measures.

Environmental Management Plan

Table 11

Environmental parameters	Types of activity	Main types of environmental impacts	Preventive actions/ mitigation measures	Responsible	Monitoring
Infrastructure facilities construction					
Atmospheric air	Work of motor transport, construction machinery	Emissions from fuel combustion during machinery work. Dusting during motor vehicles movement. Dust during transportation of loose materials.	It is allowed to use motor transport of the environmental standard Euro 2 and Euro 3, and that will decrease toxicity of exhaust gases of diesel engines; need to use special additives for fuel that increase combustion temperature. Limitation on the speed of vehicles and selection of appropriate transportation routes for the minimization of impact on receptors sensitive to dust; Construction machinery at sites will not stay idle during the day for too long. Motor vehicles transporting loose materials will be equipped with removable awning. Cement will be brought to construction sites only in hermetical sacks; Need to monitor the cleanliness of the adjacent environment and prevent	Contractor organization Project initiators	1. Inspection of construction sites will be made by ARIS to ensure compliance with the EMP. 2. State inspectors from the Department of Architectural and Construction Supervision of SIETS will control implementation of project decisions during the performance of construction and assembly works or reconstruction of facilities, quality of the used construction materials, structures, and take part during the procedure of acceptance of accomplished facilities;

			pollution with construction wastes to minimize the dust and pollution in the area. In no case, construction wastes and structures will be burnt on open fire right on the site.		3. State inspectors of SIETS responsible for the state control on environmental protection shall be entitled to check compliance with the environmental legislation, measures on protection and recreation of environment while project implementation as per the established procedure upon presentation of their IDs.
	Welding, insulation, finishing works	Emission of pollutants into the air	Arrange correct warehousing and transportation of flammable materials and materials emanating hazardous substances (gas cylinders, bitumen materials, paints, paint strippers, glass and cinder wool).		
	Stone and concrete works	Dusting	During pneumatic drilling/demolition of walls, concrete works, dust should be controlled via watering and/or installation of dust shields at the site. Treatment of natural stones should take place in specially designated areas in the territory of construction site.		
	Loading and unloading	Dusting	Reduced level of dust owing to watering.		

	Burning wastes in the construction site	Smoke pollution. Emanation of toxic substances while burning.	Burning of garbage and construction materials/wastes will not take place at the site.		
Water resources	Organizing construction site	Impact as a result of leaking oil products during operation of vehicles.	Timely cleaning of the territory from oil products to prevent their leakage into local water courses and underground water together with atmospheric precipitation; • ban on washing cars and mechanisms in the construction site; • daily inspections of equipment for lubricant leakage.	Contractor organizations Project initiators	ARIS, SIETS
	Work in a river bed	Pollution and littering of water bodies	Work sites with machinery, concrete mixers and containers for fuel and lubricant storage will be arranged outside water-protection areas and belts. Relevant measures will be taken at the site to prevent formation of bottom sediments, including installation of hay bales and/or sludge catch basin to prevent effluents from the sites and excessive muddiness in brooks and rivers located nearby.		

Soil	Organizing construction site	Violation of soil and vegetation layer Soil compaction	Organized stripping and piling of the vegetation cover for its preservation and further use. Relevant measures will be taken at the site to prevent erosion and soil compaction. Excessive number of idle construction machinery at the site will not be allowed.	Contractor organizations Project initiators	ARIS, SIETS
Flora and fauna	Organizing the construction site	Damage and clear-cutting of green spaces. Violation of animals' natural habitat.	Replanting and fencing of trees to be protected. Necessary demolition of trees shall be agreed with environmental bodies. All identified natural habitats and protected areas adjacent to the project site shall not be affected or by any means used during the works; it should be prohibited to all workers to go hunting, prepare forage and grazing, cut trees and take other actions causing damage to such zones and territories. If there are big trees growing near the site, they should be clearly marked and protected with a fence that would protect both the trees and their root systems; even small damage to such trees should be prohibited.	Contractor organizations Project initiators	
			Edging the fauna outside the	Contractor	

			construction site, etc. During work performance, there shall be prohibited the going and parking of vehicles, working of mechanisms at the distance closer than 1 m from the edge of the trees heads. If compliance with this requirement is not possible, special protection cover should be laid for the protection of root system. Elevation of the ground near the tree trunks should not exceed 0.05m.	organizations Project initiators	

Construction and domestic wastes	Organizing the construction site Performing construction works	Pollution and littering of the adjacent area, potential pollution of water resources. Dusting.	There will be identified methods of collection and removal of wastes, as well as places of emplacement of the main types of wastes generated by demolition and construction. Mineral wastes of construction and demolition works shall be separated from the common litter and organic, liquid and chemical wastes via wastes sorting at the place of works; after, these wastes shall be placed into appropriate containers. All materials and documentation on the registration of removal and recovery of litter shall be properly kept as the evidence of proper management of wastes at the site in accordance with the design. In all cases, when possible, the contract shall ensure secondary use of applicable and durable materials (except for asbestos). Proper collection and removal of construction wastes will be ensured by specialized enterprises under a contract. For domestic wastes, installing storage hoppers and timely removing garbage to the places agreed with the local bodies of SES.	Contractor organizations Project initiators	

Noise	Work of compressors, chisel hammers	Noise reduces attention and increases the number of errors during the performance of various works. Noise oppresses the central nervous system, causes metabolic disease, cardio-vascular diseases, gastric ulcer, hypertensia.	Use of vibrating devices that match the standards, as well as vibro- and noise-protection devices, etc. During works, taps of generator engines, air compressors and other control gears should be covered; the equipment should be located at a maximum distance from residential buildings. Noise caused by construction works will have a limited timeframe.		
Historical and cultural sites Cultural heritage sites	Damage of site structures. Degradation of sites.		Considering alternative sites for MP implementation. If works are performed at the site which constitutes a protected historical monument or near such object or in the protected historical territory, these works will be communicated to local authorities, and, if necessary, special permit will be requested. After that, all construction works should be performed in strict compliance with the provisions and norms of the local and national legislation. Works will be organized in	Contractor organizations Project initiators	Local residents

			such a way that all artifacts or other accidental findings discovered while excavation and construction will be registered and documented as appropriate. After that, officials should be informed about such findings, and all works at the site should be suspended or re-arranged to avoid causing damage to such findings.		
Information, trainings and ensured safety of employees	General conditions of work	Occupational injuries	Local inspectorates controlling construction works and environmental safety, as well as local residents will be duly informed about future project works. Local community will be duly informed about the works via relevant publications an/or messages in the mass media and/or notices in public places (including the work site). There should be received all permits required by the legislation (in particular, the permit for the use of land, natural resources, piling of wastes, permit from the sanitary inspectorate, etc.) for	Contractor organizations	SIETS

			performance of construction or rehabilitation works at this site. All works will be performed in the safest and most disciplined production process and organized in such a way to cause the minimum impacts on local residents and natural environment. Personal protective equipment of employees should comply with the international best standards of work (mandatory wearing of hard hats all the time, protective masks in those conditions where it is necessary, safety glasses, belts and shoes). The site will have appropriate indicative and information tables informing the employees on the main rules and norms of work performance that should be followed.		
Using infrastructural items					

Atmospheric air	Work of motor vehicles		Equipping motor vehicles transporting loose materials with movable awning. In case of dusting, water roads near centers of population.	Pasture committee	Specialists of ARIS, SIETS, selectively specialists of APIU
Water resources	Impact on banks of rivers, brooks (operation of bridges)	Destruction of banks of rivers, brooks	Strengthening banks with gabion structures, stone paving. Planting trees to strengthen banks.		
Soil	Faulty use of water points.	Bogging, soil compaction in the areas of water points. Soil compaction under the impact of heavy-duty trucks causes deterioration of the soil structure, process of aeration, water permeability, violation of the water and heat regime.	Training on pasture management practices. Explanatory works.		
Use of pastures					
		Grazing in the amounts	The primary objective is to		

Pasture degradation	Overgrazing	that exceed the capacity of pastures for recovery causes land degradation, disappearance of vegetation, development of erosion	decrease load on pastures via using remote pastures, organizing pasture rotation. Trainings on the practices of pasture management.	Pasture committees/pasture users unions Pasture users	Specialists of PD, environmentalist of APIU, state inspectors of the State Inspectorate on Environmental and Technical Safety under the KR Government
	Impoverishment of soil	Excessive use of pastures. Destruction and removal of the upper most fertile horizons of soil as a result of water and wind.	Fertilization, interplanting with forage crops.		
	Shrub, weeds, inedible grass invasion	Unauthorized clear-cutting of trees and shrubs. Grazing in cultivated forests that causes damage to transplants.	Cleaning from weeds and stones in ensured compliance with technical requirements and environmental legislation.		
Flora and fauna	Destruction of fauna and flora. Poor environmental culture of the majority of citizens and officials.	Loss of biodiversity.	Awareness raising. Prohibition of hunting, unauthorized gathering of medicinal grasses, berries, mushrooms, clear-cutting of trees and other activities causing damage to the ecosystems.	Pasture committees Pasture users	SIETS, Specialists of PD, specialists of ARIS, selectively specialists of APIU

Water resources	Arranging dippers, piling manure in water-protection area of water. Arranging stock watering near the water body.	Pollution and infection of water bodies	Training on legislation. Informing about administrative and criminal liability for the violated legislation.		
Soil	Slaughtering points without special infrastructure. Arranging watering points, piling manure.	Pollution with animal production wastes. Bogging, consolidation of soil in the areas of watering points. Soil erosion as a result of pasture degradation.	Arranging slaughtering units with special infrastructure. Arranging water points with taps for cutting water supply. Training on the practices of pasture management.		
Animal production wastes	Manure, wastes from slaughtering agricultural animals, aborted and dead-born fetuses, dead bodies of animals, veterinary condemned materials (meat and other products of animal origin) identified after veterinary-sanitary expert evaluation at slaughtering points, markets, trade organizations and other facilities	Pollution of ponds, parasite infection of pastures. Problem of animal corpse disposal. Proliferation of diseases among animals. Threat to human health.	Arranging slaughtering units. Arranging Becker's pits in each ayil district. Raised public awareness, training, dissemination of information.	Cattle-breeders; local administration bodies	Bodies of the state veterinary supervision, APIU Bodies of state veterinary supervision

Veterinary wastes: (expired veterinary preparations, ampules, syringes, biological wastes).	Veterinary activities: performance of preventive, recreational, diagnostic, treatment work in animal production; veterinary expert evaluation of animal products and other veterinary services.	Problem of disposal of expired veterinary preparations, biological wastes.	Bodies of state veterinary supervision will keep records of the places of biological wastes disposal and control compliance with veterinary rules while disposal and destruction of the specified wastes.	Private community veterinarian doctors, rayon veterinary services, bodies of local administration	Bodies of state veterinary supervision, APIU
Anthrax burial sites and other burial sites of animals	Pollution of the environment. Threat to animal and human health	Problem of anthrax burial sites and other burial sites of animals	Need for inventory-taking with the objective of registration and attribution of a special protection status to the anthrax burial sites and other burial sites of animals. On community maps, it is necessary to mark places where grazing should be prohibited. There have been developed the national strategy and strategic plan for anthrax control in the Kyrgyz Republic for 2012 - 2016.	Bodies of local administration. Rayon veterinary services	Bodies of state veterinary supervision

8.3 Environmental M&E plan

M&E plan will include:

- monitoring environmental indicators of project investments as part of preventive activities and proposed measures for their mitigation in order to ensure that micro projects under implementation make favorable impacts on the environment;
-monitoring project environmental indicators in general.

As regards general responsibility for PMIP implementation, ARIS will ensure regular monitoring of environmental indicators and assessment of project activities. This will need field trips to verity the application of relevant preventive actions and/or mitigation measures. The results of such monitoring will be recorded, analyzed and kept in ARIS till the end of the whole project. APIU will also carry out evaluation of a number of project sites by random sampling to identify efficiency of the applied measures and project impacts on the environment. ARIS will reflect the monitoring and evaluation finings in current reports on the project implementation submitted to IDA; IDA supervision missions will review results of the monitoring programme on a regular basis.

8.3.1 Environmental monitoring of the micro projects

Project initiators (PCs) jointly with the laboratories of SAEPF, DCPQP, according to the approved price schedules, will monitor the key soil and water properties in pasture areas receiving project investments implying the use of pesticides/herbicides. Financing of this monitoring should be envisaged in the micro project budget. Project initiators in cooperation with PD will monitor vegetation resources of pastures.

According to the provided details of the monitoring plan (Table12), this monitoring will include regular analysis of:

-quality of pasture effluents in the areas of project investments with the use of pesticides/ herbicides;

-quality of soil, especially in relation to the concentration of pesticides/herbicides;

-quality of vegetation cover of pastures involved in the project.

Efficient monitoring carried out by specialists from PD, state inspectors of the State Inspectorate on Veterinary and Phytosanitary Safety under the KRG, State Inspectorate on Environmental and Technical Safety under the KRG, laboratories of SAEPF and DCPQP will contribute to the minimization or elimination of potential adverse environmental impacts of some of the proposed micro projects. The capacity of these agencies in the area or monitoring is limited, especially in rural area, which will be the center of the majority of project activities. In this connection, pasture monitoring aimed at the prevention of soil erosion and overgrazing should be included into the monitoring of those micro projects that imply the use of rather productive and sustainable methods of pasture management. High-quality monitoring can demonstrate the adequacy of the applied management practices, as well as their success or failure.

PC representatives in cooperation with the laboratory of SAEPF, laboratory of DCPQP will take samples of water, soils in the areas of project investments implying the use of pesticides/herbicides. Jointly with PD, will take samples of vegetation in selected project sites, make records of the results and report on the findings. Results of such monitoring will be documented, analyzed and kept in ARIS office during the project life. ARIS will inform on

the results of monitoring in regular progress reports that will be submitted for consideration to IDA; IDA supervision missions will regularly examine the monitoring results.

Environmental M&E plan to mitigate environmental impacts during microprojects implementation[1]

Table 12:

						Responsibility	
Project phase	Parameters	Location	Method/equipment	Frequency	Objective	Responsible	Monitoring
Design	Water resources, soil	Pasture territory where use of pesticides/ herbicides is planned.	Laboratory tests/ laboratory equipment for sampling.	Once prior to the start of implementation of micro projects with the use of pesticides/ herbicides	Identify the condition of environment prior to the use of pesticides/ herbicides. Qualitative composition of water and soil. Concentration of pesticides/ herbicides	Pasture committees with the assistance of ARIS specialists	Laboratories of SAEPF, DCPQP
	Landscape. Condition of the flora and fauna. Condition of water resources.	Project pastures where the plan includes construction of pasture infrastructure, pasture improvement	Visual observations	Annually in spring and autumn	Identify the condition of flora and fauna	Pasture committees	Local cattle-breeders assisted by specialists of PD and ARIS

[1] This is the monitoring framework that will be clarified and approved at the beginning of the project implementation with due regard for the funds allocated for such monitoring.

	Water resources	Selected water-supply points for drinking needs of animals	Laboratory tests. Laboratory equipment for sampling	Once prior to the micro project implementation starts	Qualitative composition of water	Pasture committees with assistance from ARIS	Laboratory of SAEPF
Construc-tion	Landscape. Condition of environmen-tal components as per the micro project EMP	Construction sites. Area near the infrastructural objects under construction	Visual observations	Regularly during construction period	Inspections at construction sites. Identified impact of construction works on the environment, application of mitigation measures	Pasture committees	Specialists of ARIS, pasture committees
Operation	Water resources, soil	Territory of pastures where pesticides/ herbicides were used	Laboratory tests. Laboratory equipment for sampling	Once after completion of the main project activities	Identify impact of the MP activities on the environment. Residual concentration of pesticides/herbicides in the environmental components	Pasture committees with assistance from ARIS specialists	Laboratories of SAEPF, DCPQP

	Landscape. Condition of environment-tal components as per the micro project EMP	Project pastures where pasture improvement works have taken place	Inspections on the sites of infrastructural facilities. Visual observations	As per the micro project EMP	Identified condition of the environment after completion of project works	Pasture committees	Specialists of ARIS; pasture committees. Selective monitoring by APIU specialist
	Expired veterinary preparations, ampoules, syringes, biological wastes	Laboratories of veterinary services, conditions of vaccines storage, observance of cold chain by PV	Visual monitoring	Randomly during the project implementa-tion	Control over the compliance with veterinary rules while disposal and destruction of the specified wastes	Private community veterinarians Rayon veterinary services	State Inspectorate of Veterinary and Phytosanitary safety under the KRG; specialists of APIU
	Animal production wastes	Manure, wastes from slaughtering agricultural animals, aborted and dead-born fetuses, veterinarian condemned materials (meet and other animal products) identified after veterinary and sanitary expert evaluation at	Visual monitoring	Randomly during project implementa-tion	Control over the compliance with veterinary rules while disposal and destruction of the specified wastes	Private community veterinarians Rayon veterinary services	State Inspectorate of Veterinary and Phytosanitary safety under the KRG; specialists of APIU

		slaughtering points, markets, organizations of trade and other facilities					

8.3.2 Monitoring the general project environmental indicators

This project will target the stimulation of potential capacity of pasture users in relation to the environmental monitoring and general management of the environmental situation. In this connection, the project envisages that the monitoring programme should include the monitoring of pasture condition and state of animal health during the project implementation. Results of this monitoring will vividly demonstrate and help to evaluate the results of PMIP implementation.

The objective of pasture monitoring is to document the changes in the vegetation, soil and other environmental aspects. During monitoring, the project will use the following guidelines developed by AISP specialists that will help pasture users in the independent monitoring of pastures at the community level:

-Manual on the Procedure of Pasture Use by Local Communities of the Abolished Administrative and Territorial Units (Restructured Ayil Districts);

-Manual on the Preparation of Preliminary Plans of Pasture Use that includes data on the existing pasture areas, inventory-taking of animals, annual instructions on the grazing, identification of fee for pasture use;

-Manual on evaluation of pasture conditions;

-Manual on the preparation of Community Pasture Management Plan;

-Manual on the establishment of pasture borders approved by the Decree of the Minister of Agriculture of the Kyrgyz Republic, Chairman of the Republican Committee on the Pasture Borders Establishment;

-Manual on Joint Monitoring and Evaluation of Micro Projects;

-Brochures 'Main Pasture Grasses', 'Pasture Weeds', 'Grazing Impact on the Grass Stand', 'Ways to Improve Pastures', 'Recommendations on Environmental Protection during Pasture Use'.

Regular monitoring will help strengthening responsibility of animal breeders for the pasture grazing lands, their ownership of rational use and improvement of pasture sites.

In order to simplify the monitoring of animal condition and health during the project implementation, there will be used the following guidelines developed by AISP specialists:

- Brochures 'Farmer's Handbook', 'Feeding Livestock', 'Breeding, Livery and Feeding Horses in Farms of Kyrgyzstan', 'Assisting Farmers in Mastering Methods of Artificial Insemination of Cows', 'Specifics of Sheep Husbandry and Breeding in Farms of Kyrgyzstan', 'Jayit Komitetter Uchun Eskertme';

-Developed manual 'Animal Production and Pastures';

-Developed and issued 'Handbook on Animal Production for Farmers of Kyrgyzstan';

- Materials on legal issues: booklet 'On the Modifications and Amendments to the KR Legislation', booklet 'On Administrative Violations in the Pasture Area'.

In order to simplify the monitoring of pasture conditions and animal health during the project implementation, starting from the first year and till its termination, communities will fill in checklists (see Tables 13 and 14) that will vividly show the results of PMIP implementation. At the communities' discretion, these checklists can be enhanced with additional qualitative and quantitative indicators that will allow evaluating the environmental efficiency measures taken by the project.

Analysis of the checklist components will be made by farmers jointly with ARIS specialists, and the results will be entered into the annual reports.

Checklist on Pasture Monitoring

Table 13

Name of Ayil Okmotu: Pasture Committee:

Pasture_____

/п	Indicators	Project year			
		2015	2016	2017	2018
	Area				
	Pasture load, beasts/ha (assessment of over-, under-grazing)				
	Assessment of the conditions of water provision (availability, condition of water points, bogginess)				
	Assessment of soil condition (consolidation, erosion, etc.)				
	Assessment of infrastructure condition				
	Weeds				
	Bushing				
	Stoniness				
	Name of predominating grasses				

Checklist of Animal Health Monitoring

Table 14

Name of Ayil Okmotu: _____

/п	Indicators	Project year			
		2015	2016	2017	2018
	Population in rural communities (number of people)				
	Number of brucellosis incidents among people				
	Number of people living with the diagnosis of brucellosis				
	Cattle population				
	Cattle population with brucellosis diagnosis				
	Sheep and goat population				
	Sheep and goat population vaccinated for brucellosis				
	Sheep and goat population with the diagnosis of brucellosis				
	Number of echinococcosis incidents among people				

9. Institutional framework in the implementation of recommendations of environmental assessment

MAM will act as implementing agency responsible for the project management, while the general responsibility for the project implementation, coordination, supervision and reporting to WB and Government will be placed on the APIU under MAM.

In the project, implementation of the environmental assessment recommendations will be the responsibility of the following participants:

APIU responsibilities will include:

- close liaison with ARIS who will act with a relatively independent set of activities and, nevertheless, report to the APIU as a project implementation team member;

- general monitoring and evaluation of the project, reviews of impacts, management of knowledge, reporting on all project activities;

- information campaigns, including radio and TV programmes that will improve the rural communities' understanding of new organizational conditions and arrangements in relation to pasture management;

- responsibility for all activities, including technical and associated contributions of the national organizations, to ensure their efficient immersion and support implementation of project activities at the community level that are within ARIS's responsibility;

ARIS will be responsible for the following:

-general responsibility for the project implementation at the community level, targeting PCs and PUUs, including administration of all grant proceeds of the project.

-monitoring and evaluation of their own activities, including monitoring of associated indicators of performance, collection and dissemination of information on knowledge management and relevant reports on their own management, as well as general ones to APIU in order to ensure that the APIU is fully informed and able to timely give relevant guidance to ARIS.

Responsibilities of the **Pasture Department (PD)** will include:

-the main responsibility of the PD will be the provision of general technical assistance and contributions to the project, which implies pasture management, and, doing so, PD will serve a resource for the APIU in project implementation and for ARIS in implementation of the community activities, which are a responsibility of ARIS, including technical contribution necessary for the preparation of CPMPs of PCs.

PD will play a leading technical role in the activities on the development of institutional capacity of pasture committees on the issues of pasture management.

State Inspectorate on Environmental and Technical Safety under the KRG (SIETS) is the authorized public executive body exercising state supervision and control over the issues of environmental and technical safety.

As per the established procedure, ensures supervision over the compliance with:

- environmental protection and natural resources use;
- environmental legislation, established rules, limits, quotas and norms of natural resources use, standards of emissions and effluents of pollutants and disposal of wastes in the natural environment;
- environmental protection requirements;
- control over the implementation of project decisions during construction and assembly works or reconstruction of facilities, quality of used construction materials, structures; participation in the procedure of completed facilities acceptance for commissioning.

10 September 2013 witnessed the signature of bilateral Agreement of Cooperation and Joint Activities between the Ministry of Agriculture and Melioration of the KR and State Inspectorate on Environmental and Technical Safety under the KR Government.

SAEPF will closely cooperate with ARIS when implementing EMP via its functions on the state environmental expert evaluation. SAEPF will become the main agency ensuring environmental laboratory monitoring, in accordance with EMP, for the micro projects employing pesticides/herbicides. SAEPF will play a leading role in relation to forestry agencies' pastures.

State Inspectorate on Veterinary and Phytosanitary Safety under the KRG (SIVPS). The inspectorate will be responsible for the following:

-main responsibility will be the provision of general technical assistance and guidance for the project re veterinarian activities and actions on animal health protection covered by Component 2.

Department of Chemicalization, Protection and Quarantine of Plants at MAM will closely cooperate with ARIS when implementing EMP during the implementation of MPs aimed at pasture protection from pests, diseases and weeds, supervise safe handling of pesticides and agrochemicals. The

laboratory of DCPQP will ensure laboratory monitoring in accordance with the EMPs of the micro projects employing pesticides/herbicides.

10. Institutional strengthening

To ensure proper implementation of environmental activities (preventive actions, monitoring) recommended in this EMP, the project will include training programmes, workshops, information work to develop and enhance skills and capacity of the staff, partners and beneficiaries involved in the plan implementation on the following topics:

-rights and duties of PCs and pasture users;

-monitoring and evaluation of pasture condition;

- development of Community Pasture Management Plans (CPMPs);

- other use of pastures;

- control of weeds and thornshrubs on pastures, conditions of pesticide, herbicide use;

- non-chemical methods of weeds control;

- health protection and feeding of animals;

- issues of diagnostics, treatment and prevention of brucellosis, tuberculosis, echinococcosis, anthrax, foot-and-mouth disease, pox, etc.;

-procedure of tax base establishment and other legal issues.

Among training participants, there will be CDSOs of ARIS, members of the PUUs, specialists from the oblast departments of SAEPF, state inspectors from SIETS, staff members responsible for the dissemination of agricultural knowledge, officials from ayil okmotu and rayon authorities, farmers.

Activities on institutional strengthening will be carried out during the whole life of the project on the basis of project communities' needs identified at the beginning of the project implementation.

During the implementation of previous projects, there were developed modules on many of the above-stated topics.

Training programme will be developed by environmental specialist of the APIU and approved by the project director. First environmental trainings and workshops should be organized at initial stages of the project implementation and, then, continue during the project implementation on the topics of arising problems. The trainings will help the specialists to anticipate agricultural problems, identify destructive thresholds, take informed decisions of control, safely and rationally control land degradation and manage agricultural pests.

Changing Chairman and members of PCs negatively affects its general work. PCs are expected to finalize and amend their CPMPs with relevant sections on monitoring and evaluation of pasture condition, animal health and feeding after the trainings and consultations.

Moreover, the environmental specialist will assist to activities on the environmental coverage by community-based pasture committees, raising their awareness of sustainable pasture management and environmental requirements applicable to the investments into pasture infrastructure.

The project will also:

- ensure institutional strengthening of public organizations and agencies responsible for pastures: Pasture Department, Research Institute of Animal Production and Pastures, MAM and its territorial departments;

- provide legislative and administrative support to the State Agency of Environmental Protection and Forestry (SAEPF) as regards modifications and amendments introduced into the regulatory framework in relation to the forestry agencies' pasture management;

- provide financial support to forestry agencies for the improved pasture conditions, private veterinarians for equipment, medical drugs and preparations, vehicle or other procurement.

ANNEX A

SOCIAL RISKS, BENEFITS AND IMPACTS OF PASTURE AND LIVESTOCK MANGEMENT AND IMPROVEMENT PROJECT (PMIP)

Livestock are an important source of incomes and food security for rural households in the Project area including amongst landless households. Rural and landless households represent the poorest segments of society in the Kyrgyz republic. Consequently there is strong demand for access to pastures and disputes over access to pastures have contributed to social tensions in rural communities in the past. Community based pasture management supported by the Project has a strong potential to help alleviate such tensions through more transparent PUU decision making, that recognizes the interests of all pasture users, including small livestock owners, herders (*choban*) and women. However at this early stage in community based pasture management, there are a number of threats to achieving these benefits and risks of causing social conflict, which the Project will help mitigate.

The first risk is that interests of various types of pasture users (grazing/ non grazing/ large and small livestock owners/ vulnerable groups/ male / female) are not reflected in the decisions by pasture committees, leading to elite capture, particularly by those who leased large pasture areas before the Pasture Law, sometimes on preferential terms. This may result from low PUU member awareness of their rights and weak member representation in PUU general assemblies and PUU pasture committees. Furthermore, a high level of pasture committee administrative staff turnover, lack of knowledge transfer from old administrative staff to new staff, and weak record keeping negatively impacts the committee management and performance. To mitigate this risk the Project will: (i) assess standards of governance in each PUU; (ii) assess changes in the distribution of pasture rights within PUUs over time; (iii) assess fee payment rates by different user groups over time; and (iv) provide tools and training to address weaknesses in governance.

The second risk is that disputes relating to pasture boundary demarcation are not satisfactorily resolved. The project will mitigate this risk by; (i) verifying that there are no unresolved disputes remaining from external boundary demarcation in each PUU and helping to address any remaining disputes; (ii) establishing clear guidelines for public disclosure of complaints and disputes resolution for internal pasture boundary demarcation, similar to those used for external boundary demarcation, and monitor whether such procedures are adhered to.

With respect to pasture boundary demarcation, OP 4.12 on resettlement is not triggered for the Project for the following reasons: (i) the internal pasture boundary demarcation to be supported by the Project involves boundaries between community managed pasture land and private or state land – it does not involve state acquisition of private land; (ii) proposals for boundary demarcation will be prepared by community based organizations (pasture working groups) including PUU representatives; (iii) most boundary demarcation disputes are expected to be resolved at community level. Where disputes cannot be resolved at community level, the final decision on disputes may be made by the state boundary demarcation commission - in this case the state is acting as the arbitrator of last resort to define the borders of community managed pasture land and no state acquisition of land is involved.

With respect to pasture, feeding and livestock improvement micro-projects, in cases where the community proposes micro-projects involving temporary or permanent acquisition of private land, the PUU would be required to seek the land owners' agreement and the terms of land acquisition and the land owner must have the right of refusal. This will be clearly stated in the ARIS framework agreement with each PUU. Overall, ARIS has significant knowledge of Bank safeguards policies and has already

developed tools for screening for resettlement and other social impacts. It has implemented the first and second phases of the Village Investment Project (a Community Driven Development operation) and has managed five Bank-funded projects. ARIS has laid out in detail Guidelines for Environmental Review of Micro-Projects, which will be updated for PMIP by adding sections on 'social review of micro-projects. Each sub-project will be reviewed for environmental and social risks in line with the OP4.01.

Gender impacts: The project activities will benefit both men and women. In terms of gender roles in the pasture and livestock sectors, women are responsible for small livestock and poultry keeping, farming on household plots, and dairy farming. Men are typically responsible for large livestock, and marketing. Among pasture users and pasture tickets holders' women composed 10-20% of all users. Mainly women pasture users are from female headed households whose partners have either passed away or migrated Although there are no cultural constraints to women's participation in the PUU pasture committees in the project areas, heavy household and childcare duties prevent them from participating in large numbers. When they do, women often assume the role of accountants. In strengthening the governance arrangements of the PUUs, special emphasis will be given for encouraging broader participation of women in the pasture committees and ensuring that PUU support will include support for activities that are assigned to women as well as men in the pasture and livestock sectors.

In order to manage the social risks and enhance the positive social impacts, the project will include the following assessments, awareness-raising and training activities to increase the capacity of the staff, partners and beneficiaries involved in the project implementation. These activities will include

- Develop 'social sections' under the "Guidelines of Environmental and Social Review of Micro-Projects and conduct a training on how to conduct a social review of micro-projects.
- Prepare simple materials explaining the guidelines for internal pasture boundary demarcation, translated in Russian and Kyrgyz, and conduct training on procedures for (i) public disclosure of internal boundary demarcation proposals by pasture working groups (temporary community level groups responsible for preparation proposals on boundary demarcation); (ii) disputes resolution specific to this issue possibly including the use of rayon, oblast and state pasture boundary demarcation commissions.
- The Project will fund ARIS to undertake assessments of PUU citizen engagement measures. Governance assessments will also include assessing the level of citizen/community participation in the PUU and any preferential arrangements in place to provide subsidized access to pastures for vulnerable groups, a practice currently used by some PUUS. Based on the findings of the assessment, the Project will fund ARIS training of selected PUU where community engagement and representation of vulnerable groups needs to be improved.
- Conflict resolution and training –The Project will fund ARIS to undertake assessments of the extent of conflicts within PUUs, including disputes related to access to pasture, payment of pasture fees, pasture boundaries, land use, encroachment forest fund or neighboring PUU pasture areas and on access to secondary (non-grazing) pasture resources. Based on the findings of the conflict assessment, the Project will fund the preparation of guidelines and tools to deal with the specific form of conflict identified and the provision training for PUUs on how to resolve such conflicts.
- Capacity building for rayon associations of PUUs–The Project will fund local consultancy including the strengthening of the information disclosure, communication and dispute resolution/feedback mechanisms of these rayon associations' vis-a-vis the PUU pasture committees and pasture users.
- Community based mapping – The project will fund Community based mapping, which is a tool to help PUUs prepare community pasture management plans. Community Based Mapping will encourage member participation in pasture planning and can be used during resolution of conflicts on boundaries and land use.

As much as possible, the training and awareness-raising activities will be organized in the winter time at times convenient for pasture users, and in particular women, who have had difficulties participating in such activities due to domestic duties.

Project-level Grievance Redress Mechanism: There will be a robust grievance redress mechanism in place that will be available to project beneficiaries to submit feedback, queries complaints on all project-funded activities (including but not limited to boundary demarcation, potential resettlement, community-based mapping, technical assistance on pasture, livestock management etc.) The first contact point for citizen communication/consultation, grievance redress procedures at the local level will be the PUU pasture committees, APIU and ARIS field staff. The feedback/complaints /queries will be documented in a logbook manually (or entered in a basic database electronically if feasible). Short quarterly reports will be prepared by ARIS to document what has already been resolved and document what is still pending. The results of these reports would become part of project monitoring reports and will also be discussed during World Bank missions. The grievance redress mechanism (GRM) involves the following 3 stages appeals: Local level, Regional level and Central level.

Table 1: Grievance Redress Procedures under PMIP:

Grievance Resolution Process Steps	**Action level**	**Process**	**Timeline**
Step 1	Local Level	The grievances will be first lodged at the local level. The complainant will report his/her case to the PUU pasture committee, and or field officer of ARIS. In case the grievance is still not re-solved at local level in the complaint or statement of claims, the relevant information is sent to the applicant and the regional level focal points.	15 days
Step 2	Regional level	In case within additional 15 days the grievance is still not resolved at local level, the complainant with support of the local authorized persons will further raise the issue to Rayon Association of PUU or Rayon Association of Private Vets (where one exists) or ARIS regional office staff. In case the grievance is still not resolved at local level, the relevant information is sent to the applicant and the central level focal points.	15 days
Step 3	National Level	In case within additional 15 days the grievance is still not resolved at regional level, the relevant information by the applicant is sent to the APIU and ARIS Central Unit. These actors decide on the eligibility of the complaint, on ways how to resolve the issue. In case the grievance is still not resolved at central level, the relevant information is sent to the applicant together with information on his/her rights to appeal in inter-national organizations.	15 days

ANNEX B

THE LAW OF THE KYRGYZ REPUBLIC 'GENERAL TECHNICAL REGULATIONS ON ENVIRONMENTAL SAFETY IN THE KYRGYZ REPUBLIC'

dated 8 May 2009 No 151 (abstracts)

Chapter 1. General provision

Article 1. Force of the General Technical Regulations

According to the law of the Kyrgyz Republic 'On the Bases of Technical Regulating in the Kyrgyz Republic', this law (hereinafter, technical regulations) shall be used for the purposes of environmental protection and identify main provisions of the technical regulating in environmental safety, establish general requirements for the ensured environmental safety at the designing stage and during operations at the sites of economic and other activities for the processes of production, storage, transportation and disposal of the produce.

Article 6. Principles of technical regulating in environmental safety

Technical regulating in environmental safety shall be ensured in accordance with the following principles:

1) mandatory state environmental expert evaluation and environmental impact assessment prior to the taking of decisions on economic and other activities;

2) compliance with the established level of environmental impact of economic and other activities based on the requirements of environmental safety established by these and other technical regulations;

3) reduced negative environmental impact of processes of economic and other activities via the use of best available technology with due regard for economic and social factors, rational use of natural resources;

4) prohibition of processes of economic and other activities which consequences are unpredictable for the environment and implementation of projects that can make adverse environmental impacts;

5) priority of saving natural ecological systems;

6) openness: publicity during planning, launch of processes of economic and other activities having environmental consequences, close connection with civil society organizations and population, encouragement and stimulation of measures aimed at the protection and rational use of natural resources.

Chapter 2. Bases of Environmental Safety

Article 7. Means of ensured environmental safety

Environmental safety of economic and other activities shall be ensured via the following:

1) machinery and equipment with design characteristics and application of technological processes that ensure the reduction of a negative environmental impact, safety of personnel and prevention of accidents;

2) efficient methods and technology of treating discharged pollutants, technologies of subsequent wastes disposal that allow minimizing the strength of the negative environmental impacts;

3) environmental impact assessment of the site for proposed economic and other activities prior to the making of decision on these activities implementation with due regard for the requirements of environmental safety established by these technical regulations.

Article 8. Methods to ensure environmental safety during economic and other activities

1. Compliance with the requirements on environmental safety during economic or other activities will be achieved via the application of a set of necessary means of protection of the environment and population from the negative impact that occurs during the implementation of these activities that will be identified by the subject of economic and other activities upon consultation with authorized environmental bodies.

2. Environmental safety of subjects of economic and other activities shall be ensured via:

1) selection of the location of buildings, structures, production sites and other solutions complying with the environmental safety requirements;

2) compliance with the work regime of technological and environmental equipment established by operational documents;

3) compliance with the requirements that ensure environmental protection during the processing (treatment) of hazardous raw products, materials and final products that contain them;

4) establishment of conditions of safe storage, transportation of hazardous types of raw products, materials, industrial and consumption residue that prevent their unauthorized discharge into the environment;

5) replacement of technological processes and operations related to the adverse environmental impacts with the processes and operations which use allows minimizing the intensity of adverse impacts or preventing the excess of the admissible levels of the adverse impact;

6) use of low-waste technologies and technologies with complete cycle of production, and, if it is not possible, technology of modern disposal (elimination, deactivation, burial, etc.) of production wastes that constitute a source of adverse environmental impact; use of circulating water supply system; use of other measures and ways to comply with the requirements of environmental safety with due regard for the best available technologies;

7) improving technological processes and operations to minimize their negative environmental impact;

8) application of reliable and regularly checked gauges, emergency protection devices, means of receipt, treatment and transfer of information.

Chapter 3. Requirements of environmental safety for economic and other activities

Article 9. General requirement to ensure environmental safety of actual and planned economic and other activities

1. Stabilization and improvement of environmental condition shall be ensured via compliance with the requirements of staged reduction of negative environmental impacts by the subjects of economic and other activities that cause negative environmental impacts.

2. The amounts of production wastes subject to disposal (limits on the emplacement of wastes) shall not exceed the capacity available within the subordinate territories of the facilities for the organized emplacement of wastes less the wastes under processing, sold or transferred to other enterprises for disposal.

3. Establishment of thresholds of admissible negative impacts on the environment caused by the entities of the actual and planned economic and other activities shall be ensured as per the procedure identified by the authorized environmental public body in accordance with the legally established procedure.

4. Entities of economic and other activities shall exercise their operations in accordance with the approved permits that reflect the indicators of negative environmental impacts and, when necessary, the plan for the reduced negative impacts with qualitative indicators and description of planned activities on the reduced amount of emissions, discharge of pollutants and formation of wastes.

5. The procedure to establish levels of admissible negative impact (maximum admissible emissions, maximum admissible discharge, wastes disposal limits) shall be identified as per the legally established procedure.

6. Economic and other agents shall annually report on the composition and actual amounts of emissions, discharge of pollutants and the handling of wastes to the bodies of national statistics, special authorized public body on environmental protection and bodies of state administration for the purposes of accounting on adverse environmental impacts.

7. Economic and other agents shall ensure production, administration and environmental control in accordance with the rules of procedure approved by the agent management.

8. In case pollutants find their way into the environment in the concentration above the admissible levels of negative impact, including as a result of accidents, the economic and other agents shall compensate the environmental damage and damage to people's health in accordance with the legislation of the Kyrgyz Republic.

9. In relation to the planned economic and other activities that can cause direct or indirect impact on the environment, there shall take place the state environmental expert evaluation. Types of economic activities subject to mandatory state environmental expert evaluation are listed in Annex 1 to this Law.

Article 10. Environmental safety requirements for atmospheric air protection

1. For the purposes of atmospheric air protection, it is prohibited to:

1) commission and operate immovable objects of economic and other activities that are not equipped with devices for discharge treatment and control instruments and do not use low-waste technologies, which results in the failure to comply with the norms of pollutants emission into the atmospheric air;

2) operate motor vehicles failing to comply with the requirements of special technical regulations as to the composition and amount of pollutants emission into air and noise level;

3) dispose, deactivate and burn industrial and consumption residue polluting the environment in the territory of economic agents.

2. There shall be placed limits on the concentration of pollutants in the discharge of immovable and moving sources in accordance with the requirements established by special technical regulations.

3. There shall be established sanitary protection zones for the economic and other agents and fulfilled requirements on the compliance with their regime.

4. In order to protect the ozone layer of the Earth, the special authorized public body on environmental protection shall ensure state regulation of the production and consumption, importing and exporting of ozone-destroying substances and products made thereof.

5. Economic and other agents that have at their sites immovable and moving sources of pollutants and greenhouse gas emissions into the air shall:

1) comply with established norms of admissible emission of pollutants into the air and implement planned activities on the reduction of established limits on polluting emissions;

2) take an inventory and keep records of discharge of pollutants, green-house gases and ozone-destroying substances on each source on the basis of the data of production environmental control;

3) comply with the rules and regimes of using equipment and structures intended for the cleaning and control of discharge of pollutants, greenhouse gases and ozone-destroying substances into the air.

6. State control over the discharge of pollutants, greenhouse gases and ozone-destroying substances from all sources despite their form of ownership shall be ensured by the special authorized body on environmental protection.

Article 11. Environmental safety requirements for water bodies protection

1. Industrial effluent water shall be used to a maximum degree in the systems of circulating water supply of economic and other agents.

2. For the purposes of water bodies protection, it is prohibited to:

1) place hazardous facilities within water conservation zones and water protective belts;

2) discharge untreated, non-neutralized and non-purified effluent water into water bodies used for domestic consumption, public supply and fishery, as well as for agricultural, recreational and health-improvement purposes, and into the underground water table and irrigated fields;

3) use the systems of city and village sewage to divert industrial effluent water failing to comply with the requirements of its acceptance into the sewage system without preliminary treatment at local treatment plants;

4) use the sewage systems to discharge industrial effluent water containing substances for which methods of identification have not been established;

5) commission and operate immovable facilities of economic and other activities that fail to be equipped with the required plants for effluent treatment and means of their work control;

6) operate propelled and non-propelled vessels and other objects floating on the surface of water bodies that have no devices for the collection of effluent water, wastes and refuse that form on these vessels and objects;

7) use water bodies for discharge and disposal of industrial, domestic and other wastes, including the littering of water bodies and their banks with wastes;

8) discharge sediments of effluents in unauthorized locations for the placement and storage;

9) discharge industrial untreated effluent water and divert untreated storm sewage in the areas of subdued topography;

10) make volley of sewage into water bodies.

3. Agents of economic and other activities that result in effluent water shall:

1) ensure compliance with the established limit on pollutant discharge into water bodies and implementation of planned activities for their reduction;

2) keep records of the amount of water taken from the surface and underground sources;

3) take inventory of pollutants discharge into water bodies and sewage systems and keep records of effluents transferred for treatment to other organizations on the basis of the data of industrial environmental control and/or based on the time and regime of work of technological and treatment equipment, consumption of fuel, raw products and materials, amounts of the produce;

4) comply with the rules and regimes of the use of equipment and structures intended for the treatment of effluents for their discharge in water bodies and sewage systems.

Article 12. Environmental safety requirements for fauna and flora protection

1. In order to protect objects of fauna and flora during design, construction and operation of economic and other agents, it shall be prohibited to:

1) burn vegetation, store and use pesticides, fertilizers, chemical reagents, fuel and lubricants and other materials, raw products and wastes hazardous for fauna objects (except for pests) without measures that guarantee prevention of diseases and death of fauna objects, deterioration of their habitat;

2) establish continuous fences an structures, uninterrupted by special passes, on the ways of massive migration of animals;

3) clear-cut cross holes for the purposes of construction of economic and other facilities that are grown with trees and shrubs during the animal reproduction period;

4) discharge any effluent water and wastes in the places of spawning, wintering and massive gathering of animals living inside and near water;

5) remove fauna and flora objects without permission from the special authorized body on environmental protection;

6) remove fauna and flora objects registered in the Red Book of Endangered Species of the Kyrgyz Republic except for the removal for the purposes envisaged by the legislation;

7) ensure water intake by hydraulic works from water bodies of fishery purpose without installation of devices (fish protection systems) that prevent fish entry therein;

8) use receptacles and reservoirs without effective system of protection from animals entry therein;

9) gather wild plants registered in the list of drug-containing plants, their parts, products and stubbles as well as remains of the natural drug-containing raw materials approved by the KR Government for personal consumption, sale or treatment;

10) provide flora objects located on the lands of environmental, health-promotional, recreational, historic and cultural purpose for use or rent to natural persons and legal entities whose activities contradict their purpose and established regime.

2. Limitations shall be imposed on:

1) the taking of commercial fauna and gathering of medicinal grass within the rules, timeframe and lists of admissible tools and ways of taking;

2) carrying out of works in the period of massive migration, in the places of reproduction and molt, feeding of young animals, spawning, fattening and hanging of young fish;

3) speed of vehicles moving on the ways of migration and in the places of fauna objects concentration, for which special signs shall be installed.

3. When designing and constructing objects of economic and other activities, there shall be ensured measures for the protection of fauna objects, including limitation of works for the period of massive migration, in the places of reproduction and molt, feeding of youngsters, spawning, fattening and hanging of young fish.

4. Pipelines shall be deepened (placed under ground at a certain depth). During construction of pipelines in easily vulnerable places of animal life, where it is not possible to deepen pipelines underground, there shall be envisaged the construction of passes for migrating animals, having elevated certain parts of pipelines till the height of at least 3 meters. In case of crossing of a river, the pipeline shall be deepened and fixed (to prevent floating). When pipelines cross river and brook headwaters, there shall be constructed overpasses. Pipelines shall not cross breeding sites and wintering holes.

5. In the place of crossing of a water body, site of land animals concentration or on the ways of their migration, the pipeline shall be equipped with technical devices that ensure cutting off of the pipeline section damaged as a result of accident.

6. After the completion of construction, reconstruction or renovation of the pipeline, it shall be prohibited to leave structures, equipment and open sections of trenches.

7. Industrial and hydroeconomic processes shall take place at production sites having special fences that prevent the appearance of wild animals in the territory of these sites.

8. To prevent death of fauna objects from the impact of hazardous substances and raw materials located at production sites, there is a need to:

1) store materials, raw products and wastes only in fenced places on concrete pads and diked areas with a closed-loop sewage system;

2) place domestic and industrial effluents in the treatment receptacle in the production site or for transportation to special landfills for further disposal;

3) ensure full encapsulation of the systems of collection, storage and transportation of the mined liquid and gas raw products;

4) equip receptacles and reservoirs with a system of protection to prevent animals entry therein.

9. When designing and constructing transport highways, there shall be limited their passing on the borders of various types of landscapes, migration routes and places of fauna objects concentration.

10. Vehicle owners and organizations operating traffic arteries shall take measures to prevent the damage caused to fauna objects. Traffic arteries shall be furnished with special warning signs and signs of transport speed limitation.

11. Dangerous sections of traffic arteries in the places of fauna objects concentration and routes of their migration shall be fenced, and special passes shall be arranged accordingly.

12. When traffic arteries cross small rivers and brooks (surface water courses), there shall be ensured free migration of fish and land animals.

13. When designing traffic arteries, to reduce the impact on fauna objects caused by the noise of moving transport, there shall be established sanitary protection zones.

14. When designing and constructing new lines of communication and power transmission lines, there shall be envisaged measures on prevention and reduction of the risk of birds death in case of contact with power-bearing lines in the sections of fixation to poles. Power transmission lines, poles and insulators shall be equipped with special bird-protecting devices, including those that prevent birds from arranging nests in the places that allow birds contact with power-bearing lines. It shall be prohibited to use non-insulated metallic structures as special bird-protecting devices.

15. When designing, constructing and operating traffic arteries, there shall be installed fencing devices with special passes at dangerous sites of traffic arteries, in the places of fauna objects concentration and on the routes of their migration, free migration of fish and land animals, when traffic arteries cross small rivers and brooks (surface water courses).

16. To prevent death of fauna objects from the impact of electromagnetic field on the power transmission line, along these lines, there shall be established sanitary and protection belts.

17. Transformer substations on power transmission lines, their joints and working mechanisms shall be equipped with devices (fences, outer covers and others) that prevent animals penetration into the substation territory and their entry into the special joints and mechanisms. In the areas of massive migration of birds, in order to prevent their death from the contact with communication lines, it shall be recommended to replace the air wire communication system with underground cable or radio relay system.

18. When taking water from ponds and water courses, there shall be envisaged measures on prevention of death of the animals living inside and near the water via the selection of places of water intake, types of fish protection devices, amount of water and other measures.

19. In regulated water bodies, during the period of spawning, there shall be ensured fishery ways-through that establish optimal conditions for their reproduction.

20. There shall be ensured compliance with the requirements of import and export, as well as the use of seized wild animals and plants, their parts or derivatives falling under the action of Convention on International Trade in Endangered Species of Wild Fauna and Flora.

21. There shall be a need to protect places of inhabitation of types of plants, animals and other organisms registered in the Red Book of Endangered Species of the Kyrgyz Republic.

22. Users of natural resources shall comply with the rules, timeframe and lists of admissible tools and ways of taking commercial types of fauna objects and gathering of medicinal grasses.

23. Users of natural resources shall comply with the conditions, rules of taking and caging fauna objects.

Article 13. Environmental safety requirements for soils and natural landscapes protection

1. During works related to the violation of soil cover, the fertile layer of soil shall be removed, stored and further used for rehabilitation.

2. Laying of tracks of temporary access roads shall be ensured with the maximum use of the existing road network with due regard for local natural conditions.

3. Moving of transport and special machinery shall be ensured only on specially built roads providing for safe movement and causing no violation of the vegetation and soil cover.

4. When developing a mineral deposit, the economic agent shall:

1) carry out activities that preclude or prevent development of water and wind erosion of soils, salination, genesis of bog soils and other types of land fertility reduction;

2) upon completion of works, dismantle the equipment, rehabilitate damp-proof covers of sites, concrete foundations, clear the area from scrap metal, construction wastes, remove the contaminated layer of the ground in the area of works and adjacent territory;

3) ensure technical rehabilitation (planning of the surface, transportation and laying of the fertile layer, if it has been removed) and biological rehabilitation, which methods shall depend on natural and climatic conditions and target use of the land. Technical rehabilitation shall be performed by the economic and other agents by the own efforts.

5. Economic and other activities on specially protected natural territories shall be limited in accordance with the legislation of the Kyrgyz Republic.

Article 14. Environmental safety requirements on industrial and consumption waste handling

1. For the purposes of complied requirements of environmental safety on industrial and consumption waste handling, it shall be prohibited to:

1) commission economic and other facilities that are not equipped with technical means and technologies of deactivation and safe emplacement of industrial and consumption wastes in accordance with the requirements established by these technical regulations and special technical regulations;

2) generate and handle wastes with an unidentified class of hazard for the environment;

3) import wastes into the Kyrgyz Republic for the purposes of their disposal and deactivation;

4) bury industrial and consumption wastes in the territory of population centers, forests and parks, resort, medical and health-promotional, recreational and water protecting areas, catchment basins of underground water bodies that are used for drinking, domestic and public supply;

5) ensure arbitrary emplacement of wastes in the environment;

6) ensure arbitrary burning of wastes;

7) ensure arbitrary excavation of buried wastes.

2. Industrial and consumption residue, depending on the degree of their negative impact on the environment and human health, shall be categorized into hazard classes in accordance with the criteria established by the relevant legislation of the Kyrgyz Republic.

3. Wastes subject to disposal shall be registered in the State Roster of Wastes for Disposal which constitutes part of the state record-keeping of objects causing negative environmental impacts.

4. Hazardous wastes shall be documented by a passport in a form established by the special authorized public body on environmental protection. The passport of hazardous wastes shall be prepared on the basis of data of their composition and properties of hazardous wastes, assessment of their danger. The procedure of passportization shall be identified by the special authorized public body on environmental protection.

5. Import of wastes (raw products) into the territory of the Kyrgyz Republic for the purposes of their use shall be ensured on the basis of a permit issued as per the legally established procedure. The procedure, rules and list of wastes subject to regulation in case of their trans-border relocation shall be identified by the procedure established in the legislation of the Kyrgyz Republic in accordance with the international requirements.

6. During design, construction, operation, reconstruction, conservation and elimination of economic and other facilities, there shall be envisaged special areas for collection and/or accumulation of wastes. These areas shall be equipped in accordance with the requirements established by special technical regulations.

7. Transportation of hazardous wastes to the places of accumulation, storage, disposal, burial and/or destruction shall be ensured, if the following conditions are fulfilled:

1) available passport of hazardous wastes;

2) available specially equipped and marked vehicles;

3) available documentation for the transportation and transfer of hazardous wastes with the specification of hazardous wastes, their objective and destination.

8. When storing (disposing) wastes at the sites of wastes emplacement, there shall be ensured compliance with the requirements of their isolated and resource-saving storage for further operations of processing, loading, transportation, unloading, recovery and destruction.

9. In accordance with the degree of negative impact, economic and other agents shall:

1) develop and approve, as per the established procedure, the draft norms of wastes generation that would take into account the amount of used raw products and materials;

2) keep records of the generated, used, deactivated, given to or received from other people wastes and also wastes for emplacement;

3) take inventory of wastes and sites of their emplacement;

4) monitor the environmental condition in the territory of wastes emplacement facilities;

5) carry out works on the recovery of damaged lands till the condition matching the target purpose of lands;

6) ensure compliance with established limits for wastes emplacement and implementation of planned activities on their reduction.

Article 15. Environmental safety requirements for using natural resources

1. When implementing activities related to the use of subsoil, it shall be prohibited for the users of natural resources to:

1) locate stockpiles and wastes deposits in population centers, when the former constitute a source of atmospheric air pollution with dust, hazardous gases, foul-smelling substances;

2) arbitrarily use subsoil;

3) perform works violating the integrity of land surface and its subsoil before the receipt of affirmative statement from the state environmental expert evaluation;

4) arbitrarily build structures in the areas of mineral resources location and use these areas for other purposes.

2. When implementing activities related to the use of subsoil, the users of natural resources shall:

1) protect mineral deposits from flooding, watering, fires and other factors that decrease the quality of mineral resources and industrial value of deposits or hamper their development;

2) prevent subsoil pollution during performance of works related to the use of subsoil, especially in case of underground storage of oil and other substances and materials, burying of hazardous substances and industrial wastes, discharge of effluent water;

3) carry out special activities on forecasting and preventing unexpected emission of gases, water breakouts;

4) eliminate or conserve mine workings and drill holes not intended for use;

5) fulfill other conditions of subsoil use established by permits.

3. When implementing activities related to forest use, it shall be prohibited for the users of natural resources to:

1) perform works by the methods that cause soil erosion and other above-normal negative impacts on the condition and reproduction of forests and also condition of water and other natural objects;

2) perform works that cause deterioration of protective features of forest, anti-fire, environmental and sanitary condition of forests and condition of their reproduction;

3) commission new and reconstruct objects that are not supported with devices preventing detrimental impact on the condition of ecosystems and reproduction of forests;

4) lose wood, convert commercial timber into fire wood and spend it inappropriately;

5) ensure all types of timber cutting and other types of forest use in reserve forests, except for when they are related to research objectives;

6) log secondary forest materials, graze, ensure commercial preparation of non-timber forest products in the forests of national natural parks, forest wildlife reserves, natural monuments, forests of a research and historical significance, forest parks, city forests, forest-park sections of green zones around centers of population and industrial centers, state forest belts, gorge forests and subalpine forests, prohibited belts of forests on the banks of rivers, lakes and other water bodies;

7) leave undercuts and logged wood in the places of cutting after the timeframe of its preparation and transportation expires.

4. When ensuring activities related to forest use, the users of natural resources shall ensure:

1) compliance with the norms of fire safety on the sites allowable for use in forests and performance of anti-fire measures, and, in case of a forest fire, its extinguishing;

2) reafforestation at cutting areas and sites on which as a result of activities there have been eliminated young growth, died trees and shrubs;

3) compliance with sanitary rules in forests;

4) systemic monitoring of the condition of the state forest fund and forests that do not make part of the state forest fund; identification of sources of forest pests and diseases, taking measures on the prevention of specified sources, their localization and elimination;

5) compliance with other conditions of permits in the area of forest use and use of sites of the state forest fund.

Article 16. Environmental safety requirements for economic and other activities implemented in the territory of population centers

1. When designing and placing economic and other agents causing negative impact on the quality of atmospheric air, within city and other centers of population, there shall be taken into account the background pollution level of atmospheric air and forecast of changes in its quality when implementing the specified activities.

2. In case of changes in the condition of atmospheric air that are caused by accident emissions of pollutants into the air and create the threat to human life and health, economic and other agents shall take emergency measures on population protection in accordance with the legislation of the Kyrgyz Republic.

3. Items of amenity planting in cities and centers of population that constitute a complex of green areas, including those covered with trees, shrubs and grass plants shall be subject to protection and development within the borders of these centers of population. In the territory of amenity planting areas, there shall be prohibited economic and other activities causing negative impacts on the specified territory and hampering the fulfillment of their functions of environmental, sanitary, hygienic and recreational purpose.

4. When joining sewage networks diverting industrial effluent waters to the sewage system of a center of population, there shall be built inspection wells.

5. It shall be prohibited to bury wastes in the territory of cities and other centers of population, forest-park, resort, medical and health-promotional, recreational and water-protection areas, catchment basins of underground water bodies that are used for drinking purposes and domestic water supply.

ANNEX C

ADMINISTRATIVE CODE

Bishkek city, No 114 dated 4 August 1998

Chapter 17
Administrative violations in agriculture

Article 186. Damaging natural and cultural pastures on the lands irrespective of their ownership form

Damaging natural and cultural pastures on the lands irrespective of their ownership form through grazing on natural pastures that should be out of use in accordance with the pasture rotation schedule, or grazing that takes place earlier than the established timeframe, and cattle driving through natural and cultural pastures without relevant permit,

shall carry an administrative fine: for citizens, from two to five specified rates; for officials, from ten to fifteen specified rates.

Driving on grass stand at natural and cultural pastures on the lands irrespective of their ownership by car, tractor, combined harvester and other vehicles,

shall carry an administrative fine from two to five specified rates.

(In the version of the KR Law No 239 dated 16 December 2011)

Article 187. Violation of rules on the control of quarantine pests, plant diseases and weeds

Violation of rules on the control of quarantine pests, plant diseases and weeds,

shall carry an administrative fine: for citizens, up to one specified rates; for officials, up to three specified rates.

Article 189. Violation of rules on safety and operation of agricultural, road-construction, reclamation and other machinery

Officials and citizens violating rules on safety, traffic, agrotechnological requirements, rules on use and technical operation of tractors, trailers, combined harvesters, road-building, reclamation and other machines, equipment, weight-measuring means, fuel and lubricants and other materials that can cause traumas, injuries, breakage of equipment, decreased integrity and quality of products, materials, yield capacity of crops as well as soil erosion and environmental pollution,

shall carry an administrative fine: for citizens, from one to five specified rates; for officials, from ten to twenty specified rates.

Article 190. Failure to comply with the prescriptions of the Main State Technical Inspectorate on Safety and Operation of Agricultural, Road-Building, Reclamation and Other Machinery

Failure to comply with the prescriptions of the Main State Technical Inspectorate on Safety and Operation of Agricultural, Road-Building, Reclamation and Other Machinery,

shall carry an administrative fine: for citizens, from one to two specified rates; for officials, from two to five specified rates.

Article 191. Failure to take measures on destruction of wild drug-containing plants; small planting or growing of drug-bearing crops prohibited for cultivation

Failure to take measures on the destruction of wild drug-containing plants by persons disposing of land spots or small sowing or growing of drug-bearing crops prohibited for cultivation -

shall carry an administrative fine: for citizens, up to one specified rate with the sending for public works for two hours; for officials, five specified rates with the sending for public works for four hours.

(In the version of the KR Laws No 91 dated 25 June 2007, No 233 dated 12 December 2011, No 2 dated 10 January 2013)

Article 192. Violation of rules on production and sale of seed (planting) material of agricultural plants

Violation of rules on production and sale of seed (planting) material of agricultural crops and ornamental plants

shall carry an administrative fine: for citizens, from one to three specified rates; for officials, from three to ten specified rates.

Article 193. Violation of the established regime of pasture and hay-field use

Violation of the schedule established in the community management and use plan for pastures and hay-fields adopted and effective as per the established procedure

shall carry an administrative fine: for citizens, from two to five specified rates; for officials, from five to ten specified rates.

(In the version of the KR Law No 239 dated 16 December 2011)

Article 196. Using lands contaminated with chemical compounds, pesticides, industrial wastes and effluent water for agricultural production

Using lands contaminated with chemical compounds, pesticides, industrial wastes and effluent water for agricultural production

shall carry an administrative fine: for citizens, from two to five specified rates; for officials, from five to fifteen specified rates.

Same action stipulated by part 1 of this Article committed repeatedly within a year after application of administrative measures

shall carry an administrative fine: for citizens, from five to ten specified rates; for officials, from seven to twenty specified rates.

Chapter 18

Administrative violations causing breach of veterinary-sanitary norms and rules

Article 197. Violation of animal quarantine conditions

Violation of animal quarantine conditions shall carry an administrative fine: for citizens, from one to three specified rates; for officials, from five to ten specified rates.

Article 198. Violation of veterinary-sanitary rules on productive animals maintenance

Violation of veterinary-sanitary rules on productive animals maintenance

shall carry an administrative fine: for citizens, up to one specified rate; for officials, from two to five specified rates.

Article 199. Violation of veterinary-sanitary rules on import and export of animals and other cargo and goods within the control of veterinary service

Violation of veterinary-sanitary rules on import and export of animals and other cargo and goods within the control of veterinary service

shall carry an administrative fine: for citizens, from one to three specified rates; for officials, from five to ten specified rates.

Article 200. Violation of veterinary-sanitary rules on transportation (driving) of animals, products and raw products of animal origin

Violation of veterinary-sanitary rules on transportation (driving) of animals, products and raw products of animal origin

shall carry an administrative fine: for citizens, up to one specified rate; for officials, from three to five specified rates.

Article 201. Violation of veterinary-sanitary rules on preparation of animals, products and raw products of animal origin and their processing

Violation of veterinary-sanitary rules on preparation of animals, products and raw products of animal origin and their processing

shall carry an administrative fine: for citizens, from one to three specified rates; for officials, from five to ten specified rates.

Article 202. Failure to provide (concealment) of livestock, poultry and other animals for mandatory veterinary activities

Failure to provide (concealment) of livestock, poultry and other animals for mandatory veterinary activities

shall carry an administrative fine: for citizens, up to one specified rate; for officials, from three to five specified rates.

Article 203. Violation of rules on unproductive animals maintenance

Violation of rules on unproductive animals maintenance

shall carry an administrative fine: for citizens, up to one specified rate; for officials, from two to three specified rates.

The same action stipulated by part 1 of this Article, if causes damage to health or property,

shall carry an administrative fine: for citizens, up to three specified rates; for officials, from three to five specified rates.

Article 204. Slaughtering animals in unauthorized places

Slaughtering animals in unauthorized places

shall carry an administrative fine: for citizens, up to one specified rate; for officials, from three to five specified rates.

Article 205. Sale of meat, meat products and other animal products without permission of veterinary supervision bodies

Sale of meat, meat products and other animal products without permission of veterinary supervision bodies

shall carry an administrative fine: for citizens, up to two specified rates; for officials, from ten to twenty specified rates.

Chapter 19

Administrative violations implying breach of plant chemicalization and protection rules

Article 206. Failure to take measures on weed control

If land users fail to take measures on the control of weeds, pests and diseases, it

shall carry an administrative fine: for citizens, from one to five specified rates; for officials, from three to ten specified rates.

Same action stipulated by part 1 of this Article made repeatedly within a year after the application of administrative measures

shall carry an administrative fine: for citizens, from one to three specified rates; for officials, from five to ten specified rates.

Article 207. Violation of rules on storage, transportation and application of agrochemicals and pesticides

Violation of rules on storage, transportation and application of agrochemicals and pesticides

shall carry an administrative fine: for citizens, from three to five specified rates; for officials, from five to ten specified rates.

The same action stipulated by part 1 of this Article, if committed repeatedly within one year after administrative measures,

shall carry an administrative fine: for citizens, from three to five specified rates; for officials, from ten to twenty specified rates or deprivation of a license (permit) for these activities.

Article 208. Operations for production and sale of chemical substances (of an agrochemical nature), and performance of agrochemical works without license (permit)

Operations for production and sale of chemical substances (of an agrochemical nature), and performance of agrochemical works without license (permit)

shall carry an administrative fine: for citizens, from three to five specified rates; for officials, from ten to twenty specified rates.

The same action stipulated by part 1 of this Article, if committed repeatedly within one year after administrative measures,

shall carry an administrative fine: for citizens, from five to ten specified rates; for officials, from twenty to fifty specified rates with the deprivation of license (permit) for engagement in these activities.

Article 209. Failure to comply with the prescription of the state service on chemicalization and protection of plants

Failure to comply with the prescription of the state service on chemicalization and protection of plants that fulfills functions of the state control and supervision over the compliance with regulatory acts and performance of activities on chemicalization and protection of plants from pests, diseases and weeds in the territory of joint-stock companies, agricultural organizations, farms, household plots, as well as urban and other settlements

shall carry an administrative fine: for citizens, up to two specified rates; for officials, from five to ten specified rates.

Article 210. Preventing state control officials from performance of activities on chemicalization and protection of plants

Preventing state control officials from performance of activities on chemicalization and protection of plants

shall carry an administrative fine: for citizens, from five to ten specified rates; for officials, from ten to twenty specified rates.

ANNEX D

PEST MANAGEMENT FRAMEWORK

Despite the fact that during AISP implementation, there was found no testimony of wide abuse of pesticides and herbicides, this issue requires a through approach with the objective of proper pesticide and herbicide management in the project implementation regions. Therefore, EA presents recommendations on a number of preventive measures and further monitoring to address issues of pesticide management, and also proposes a system of pest control in order to structure the PMIP approach towards all potential issues of pest management within project interventions.

Current situation of pest management

The Kyrgyz Republic has no special law that would fully regulate management of any chemical substances, including pesticides, at all stages of their life cycle. Legal norms on pesticides can be found in various regulatory acts. The most important one is the KR Law 'On Chemicalization and Protection of Plants' No 12 dated 25 January 1999 and the Instruction on Safe Use, Storage and Warehousing of Pesticides in Agricultural Production approved by the KR Government Resolution No 361 dated 5 July 2011.

It should be also noted that the Kyrgyz Republic has no own production of pesticides. Agricultural needs are satisfied by various commercial agents via importing allowable pesticides that do not contain CO3.

The special authorized body on chemicalization and protection of plants is the Department of Chemicalization, Protection and Quarantine of Plants of MAM (DCPQP) under the Ministry of Agriculture and Melioration (MAM). It performs activities to implement the state policy on protection of agricultural plants from pests, diseases and weeds, and also phytosanitary quarantine activities.

The objective of DCPQP is the ensured phytosanitary safety and safe handling of pesticides and agrochemicals as well as the increased productivity of crops.

As of today, the number of registered and allowable pesticides reports more than 400. Lately, the total amount of pesticide supply to the Kyrgyz Republic has significantly decreased. Consequently, there decreased the load on acreage.

At the same time, markets openly sell packed preparations 'against fruit and berry pests', 'against melon-field pests' and others of unknown manufacturers or manufactured in PRC, Pakistan, India. Their uncontrolled use in the agriculture progressively causes serious violations in different chains of the ecosystem, deteriorates main properties of soil, water, air, vegetation and food products, thus, affecting people's health. It is not possible to assess the detrimental impact of the use of infringing and smuggled pesticides on human health and environment.

The need for and stock of pesticides as well as their movement are controlled by the plant protection service.

State registration of pesticides and agrochemicals is made by DCPQP for the period of: 2 years in case it is necessary to carry out additional research on the evaluation of the negative impact hazard; 20 years in other cases.

A pesticide or agrochemical is registered in the State Catalogue of Pesticides and Agrochemicals allowable for use in the territory of the Kyrgyz Republic which is maintained by DCPQP.

Special requirements for the proliferation (distribution) of pesticides are absent in the legislation. The law 'On Chemicalization and Protection of Plants', Article 17, establishes that natural persons and legal entities involved in wholesale and retail trade are entitled to purchase and sell

pesticides and agrochemicals that have passed the state registration and been registered in the State Catalogue of Pesticides and Agrochemicals allowable for the use in the Kyrgyz Republic. The sale of pesticides of limited use shall be ensured only by citizens that have taken special professional training. It is not allowed to sell (re-sell) empty containers from pesticides and agrochemicals.

The distribution of imported pesticides across regions of the country is done with due regard for the structure of acreage. The need for and stock of pesticides and their movement are controlled by the plants protection service[7].

Storage of pesticides and agrochemicals is allowed in specialized warehouses intended only for their storage. Bulk storage of pesticides is prohibited. There is no need in recycling of the newly brought pesticides, since the need and supply are strictly regulated. At the same time, there are facts of import and use of infringing and smuggled pesticides and agrochemicals. The existing monitoring fails to ensure necessary laboratory control over the used infringing and smuggled pesticides.

The analysis of materials received for the whole period of observations shows that the level of soil pollution with residual pesticides and products of their decay in the country is rather high. As regards particular oblasts, with due regard for the intensity of crop farming and assortment of agricultural crops, Osh and Jalal-Abad oblasts have a high level of soil pollution, Chui oblast has a middle one, while Talas and Issyk-Kul have a low level of pollution. It is not possible to evaluate the detrimental impact of the used infringing and smuggled pesticides on human health and environment.

At present the list of Stockholm Convention has 21 prohibited substances:

- Aldrin
- Chlordane
- DDT
- Dieldrin
- Endrin
- Heptachlor
- Hexachlorbenzene (HCB)
- Mirex
- Toxaphene
- Polychlorinated biphenyls
- Dioxins
- Furanes
- Pentabromdiphenyl ether
- Octabromdiphenyl ether
- Chlorodecone
- Lindan
- Alpha-hexachlorocyclohexanes
- Beta-hexachlorocyclohexanes
- PFOS
- Hexabrombiphenyl
- Pentachlorobenzene

The Government of the Kyrgyz Republic has adopted the Code of Rules and Manual of FAO on the Use and Handling of Pesticides. Also, within the framework of integrated pest control, ARIS will ensure the application of these rules as to the purchase, dissemination or use of pesticides or herbicides within the project.

[7] National Report on Environmental Condition in the Kyrgyz Republic for 2006-2011 approved by the KR Government Resolution No 553 dated 7 August 2012.

Project recommended measures to improve weed and pest control

Given the current situation of insect pest control, as described above, EA recommends PMIP to use a tripartite approach to the prevention or minimization of any potential damage to people's health and environment caused by the use of pesticides (including herbicides and insecticides) in relation to the project interventions:

- Environmental selection. The first element of this approach is the requirement of environmental selection for all interventions of PMIP that envisage procurement or use of pesticides, and preparation of a specific Environmental Management Plan (EMP) to eliminate any potential negative impact on the environment. During the selection process described in the EMP of the project and developed as one of the sections of Operations Manual, there will be studied the environmental impact of all interventions financed within the project, in particular infrastructural investments initiated by communities that can include the use of pesticides for the elimination of weeds and other purposes (for example, use of insecticides for washing). The selection result will be the prepared EMPs that envisage measures on prevention or minimization of any negative impact from the use of pesticides.
- Dissemination of information and training. The second element is based on the work that has been recently initiated by AISP on supplying farmers and livestock breeders with the information, advisory services and training on proper and efficient use of pesticides, as well as promotion of the use of environmentally harmless alternatives of pest control. Within PMIP, there will be widened the information work with the population, as well as advisory services and training programmes to cover a rather wide circle of farmers and communities with necessary information on improved methods of pest control.
- Monitoring. The third component includes selective use of environmental monitoring in those cases when it is necessary for the identification of impact caused by the use of suspicious substances. Within PMIP, ARIS will make observations and monitor the use of any pesticides, herbicides or insecticides on pastures, at farms or investments under the initiative of communities where the project is implemented. Where necessary, regular monitoring of soil and water quality will take place as to the remains of pesticides in the soil or effluent ground water. This monitoring and analysis requires the involvement of specialists from the laboratories of SAEPF and DCPQP for the necessary analysis of water and soil quality.

The Code of Rules and Technical Guidelines of FAO

FAO has assumed a leading role among international organizations in the propaganda of safe use of agricultural pesticides and adopted the International Code of Conduct on the Distribution and Use of Pesticides (2002). Adopted first in 1985, the Code establishes voluntary standards of behavior for all public and private persons that take part in or relate to the distribution and use of pesticides and also serves a generally accepted global standard of control over pesticides. The Code along with auxiliary technical manuals serves an instrument of assistance to the countries in the establishment or strengthening of systems of pesticide control. Having been revised in 2002, the Code combines a modern approach based on the rational management of pesticides, where the main attention is paid to the risk reduction, protection of human health and environment, with the assistance to sustainable agricultural development via efficient use of pesticides. Among technical guidelines of the Code relevant for PMIP, one can identify the following:

- **Guidelines on Good Practice for Ground Application of Pesticides (2001)** that present practical steps (i.e. decision-making, safety issues, procedures of application, etc.) for those who

uses pesticides when producing food and fabrics and are aware that, since pesticides cause threat for people, other forms of life and environment, the decision on the use of pesticides should be taken only after thorough consideration of all alternative methods of control.

- **Guidelines on Good Practice for Aerial Application of Pesticides (2001)** that presents similar practical steps (i.e. decision-making, safety issues, procedures of application, etc.) for those who uses airy pesticides, again emphasizing that pesticides should be used only when all other alternative methods are considered and their use constitutes a part of integrated programme of control. SIETS
- **Guidelines on Organization and Operation of Training Schemes and Certification Procedures for Operators of Pesticide Application Equipment (2001),** that ensures general framework as to the need in preparation, assessment and verification of the operator's competence to improve safety and efficiency of the pesticides use in farms with the understanding of high importance of the fact that people using pesticides should be familiar not only with the equipment they use, but also general principles of plant protection and the specifics of applied pesticides.

The Code promotes the use of less toxic pesticides, recommends avoiding pesticides which use requires personal protective equipment and informs about the prohibition of import, sale and purchase of highly toxic and hazardous products, for example, those that are listed in the WHO classification of 2004 on the most hazardous (Ib) pesticides.

APIU guarantees the project compliance with the Code, in particular as regards the prohibition of the purchase a use of highly dangerous pesticides identified by WHO.

The EMP will also foresee the preparation of a limited "positive list" of pesticides which would be eligible for financing for field trials/demonstrations. These will include pesticides list in the WHO Classification of Pesticides by Hazard, Guidelines to Classification 2009 and included below in Table 1.

Table 1. Technical grade active ingredients of pesticides unlikely to present acute hazard in normal use [8]

Common name	CAS no	UN no	Chem type	Phys state	Main use	GHS	LD_{50} mg/kg	Remarks
Aclonifen	74070-46-5			S	H	5	>5000	
Acrinathrin [ISO]	101007-06-1		PY	S	MT	5	>5000	
Aminopyralid [ISO]	*150114-71-9*			*S*	*H*	5	*>5000*	*JMPR 2009b*
Amitrole [ISO]	61-82-5			S	H	5	5000	EHC 158, DS 79; HSG 85; IARC 79; ICSC 631; JMPR 1998b
Anthraquinone	84-65-1			S	RP (birds)	5	>5000	*ICSC 1605*
Azimsulfuron [ISO]	120162-55-2			S	H	5	>5000	
Azoxystrobin [ISO]	131860-33-8			S	F	5	>5000	*JMPR 2009a*
Benfluralin [ISO]	1861-40-1			S	H	5	>10000	
Benomyl [ISO]	17804-35-2			S	F	5	>10000	EHC 148, DS 87; HSG 81; ICSC 382; JMPR 1996b. *See note 1*
Benoxacor [ISO]	98730-04-2			S	H	5	>5000	This molecule is not an active substance as such but is a "safener"
Bensulfuron-methyl	83055-99-6			S	H	5	>5000	
Bifenazate [ISO]	*149877-41-8*			*S*	*AC*	5	*>5000*	*JMPR 2008*
Bifenox [ISO]	42576-02-3			S	H	5	>6400	
Bioresmethrin [ISO]	28434-01-7		PY	L	I	5	>7000	DS 34; EHC 92; HSG 25; ICSC 229; JMPR 1992
Bitertanol	55179-31-2			S	F	5	>5000	JMPR 1999
Boscalid [ISO]	*188425-85-6*			*S*	*F*	5	*>5000*	*JMPR 2008*
Bromacil [ISO]	314-40-9			S	H	5	5200	*ICSC 1448*
Bromobutide	74712-19-9			S	H	5	>5000	
Bromopropylate [ISO]	18181-80-1			S	AC	5	>5000	JMPR 1994
Captan [ISO]	133-06-2			S	F	5	9000	Irritant to skin; DS 9; HSG 50; IARC 30, Suppl 7; ICSC 120; JMPR 1996b, 2005

[8] WHO Classification of Pesticides by Hazard, Guidelines to Classification 2009.

Common name	CAS no	UN no	Chem type	Phys state	Main use	GHS	LD_{50} mg/kg	Remarks
Carbendazim [ISO]	10605-21-7			S	F	5	>10000	DS 89; EHC 149; HSG 82; ICSC 1277; JMPR 1996b, *2006b*
Carbetamide [ISO]	16118-49-3		C	S	H	5	>10000	
Carpropamid [ISO]	104030-54-8			L	F	5	>5000	
Chloransulam methyl	14750-35-4			S	H	5	>5000	
Chlorantraniliprole [ISO]	*500008-45-7*			*S*	*I*	5	*>5000*	*JMPR 2009a*
Chlorfluazuron	71422-67-8			S	IGR	5	8500	
Chlorothalonil [ISO]	1897-45-6			S	F	5	>10000	EHC 183; HSG 98; IARC 30; ICSC 134; JMPR 1993
Chlorotoluron [ISO]	15545-48-9			S	H	5	>10000	*ICSC 1327*
Chlorpropham [ISO]	101-21-3		C	S	PGR	5	>5000	IARC 12; JMPR 2001; *ICSC 1500*
Chlorsulfuron	64902-72-3			S	H	5	5545	
Cinosulfuron [ISO]	94593-91-6			S	H	5	>5000	
Clomeprop	84496-56-0			S	H	5	>5000	
Cloxyfonac	32791-87-0		PAA	S	PGR	5	>5000	
Cryolite [C]	15096-52-3			S	I	5	>10000	
Cycloprothrin	63935-38-6		PY	L	I	5	>5000	
Cyclosulfamuron [ISO(*)]	136849-15-5			S	H	5	>5000	
Cyhalofop [ISO]	122008-85-9			S	H	5	>5000	
Daimuron	42609-52-9			S	H	5	>5000	
Dalapon	75-99-0			S	H	5	9330	
Daminozide [ISO]	1596-84-5			S	H	5	8400	JMPR 1993
Desmedipham [ISO]	13684-56-5			S	H	5	>9600	
Dichlofluanid [ISO]	1085-98-9			S	F	5	>5000	JMPR 1985a
Diclomezine	62865-36-5			S	F	5	>10000	
Diclosulam [ISO]	145701-21-9			S	H	5	>5000	
Diethofencarb	87130-20-9			S	F	5	>5000	

Common name	CAS no	UN no	Chem type	Phys state	Main use	GHS	LD_{50} mg/kg	Remarks
Dikegulac [ISO]	18467-77-1			S	PGR	5	>10000	
Dimethomorph [ISO]	110488-70-5			S	F	5	>5000	
Dimethyl phthalate [C]	131-11-3			L	RP (insect)	5	8200	ICSC 261
Dipropyl isocinchomerate [C]	3737-22-2			L	RP (fly)	5	5230	
Dithiopyr [ISO]	97886-45-8			S	H	5	>5000	
Ethalfluralin [ISO]	55283-68-6			S	H	5	>10000	
Ethirimol [ISO]	23947-60-6			S	FST	5	6340	
Ethofumesate [ISO]	26225-79-6			S	H	5	>6400	
Ethyl butylacetylaminopropionate	52304-36-6			L	RP (insect)	5	>5000	
Etofenprox	80844-07-1			S	I	5	>10000	JMPR 1994
Famoxadone [ISO(*)]	131807-57-3			S	F	5	>5000	JMPR 2004
Fenchlorazole [ISO]	103112-35-2			S	H	5	>5000	
Fenclorim	3740-92-9			S	H	5	>5000	
Fenfuram [ISO]	24691-80-3			S	FST	5	>10000	
Fenhexamid [ISO]	126833-17-8			S	F	5	>5000	*JMPR 2006b*
Fenoxycarb	79127-80-3		C	S	I	5	>10000	
Fenpiclonil	74738-17-3			S	FST	5	>5000	
Ferbam [ISO]	14484-64-1			S	F	5	>10000	DS 94; EHC 78; IARC 12, 42; ICSC 792; JMPR 1997b
Florasulam	145701-23-1			S	H	5	>5000	
Flucarbazone-sodium	181274-17-9			S	H	5	> 5000	
Flucycloxuron [ISO]	94050-52-9			S	AC	5	>5000	
Fludioxonil [ISO]	*131341-86-1*			*S*	*F*	5	>5000	*JMPR 2006a*
Flumetralin	62924-70-3			S	PGR	5	>5000	

Common name	CAS no	UN no	Chem type	Phys state	Main use	GHS	LD_{50} mg/kg	Remarks
Kasugamycin	19408-46-9			S	F	5	>10000	
Lenacil [ISO]	2164-08-1			S	H	5	>10000	
Maleic hydrazide [C]	123-33-1			S	PGR	5	6950	IARC 4, 42; JMPR 1997b CAS10071-13-3
Mancozeb	8018-01-7			S	F	5	>8000	Irritant to skin on multiple exposure; DS 94; EHC 78; ICSC 754; JMPR 1994
Mandipropamid [ISO]	*374726-62-2*			*S*	*F*	5	*>5000*	*JMPR 2009a*
Maneb [ISO]	12427-38-2			S	F	5	6750	Irritant to skin on multiple exposure; DS 94; EHC 78; ICSC 173; JMPR 1994
Mefenacet	73250-68-7			S	H	5	>5000	
Mepanipyrim [ISO]	110235-47-7			S	F	5	>5000	
Mepronil [ISO]	55814-41-0			S	F	5	>10000	
Methoprene [ISO]	40596-69-8			L	IGR	5	>10000	DS 47; JMPR 1987b, 2002
Methoxychlor [ISO]	72-43-5		OC	S	I	5	6000	DS 28; IARC 5, 20; ICSC 1306; JMPR 1978
Methozyfenozide	161050-58-4			S	I	5	>5000	Dermal LD_{50} > 5000; JMPR 2004
Metiram	9006-42-2			S	F	5	>10000	JMPR 1994
Metosulam	139528-85-1			S	H	5	>5000	
Metsulfuron methyl	74223-64-6			S	H	5	>5000	
2-(1-Naphthyl) acetamide	86-86-2			S	PGR	5	6400	
Napropamide	15299-99-7			S	H	5	5000	
Naptalam	132-66-1			S	PGR	5	8200	
Neburon [ISO]	555-37-3			S	H	5	>10000	
Niclosamide [ISO]	50-65-7			S	M	5	5000	DS 63
Nicosulfuron [ISO]	111991-09-4			S	H	5	>5000	Irritant to eyes
Nitrothal-isopropyl [ISO]	10552-74-6			S	F	5	6400	
Norflurazon [ISO]	27314-13-2			S	H	5	>8000	
Novaluron [ISO]	*116714-46-6*			*S*	*I*	5	*>5000*	*JMPR 2006b*

Common name	CAS no	UN no	Chem type	Phys state	Main use	GHS	LD_{50} mg/kg	Remarks
Flumetsulam [ISO]	98967-40-9			S	H	5	>5000	
Fluometuron [ISO]	2164-17-2			S	H	5	>8000	
Flupropanate	756-09-2			S	H	5	>10000	
Flupyrsulfuron [ISO]	144740-54-5			S	H	5	>5000	
Flurenol [ISO]	467-69-6			S	PGR	5	>5000	
Fluridone [ISO]	59756-60-4			S	H	5	>10000	
Fluroxypyr	69377-81-7			S	H	5	>5000	
Fluthiacet	149253-65-6			S	H	5	>5000	
Flutolanil	66332-96-5			S	F	5	>10000	ICSC 1265; JMPR 2003b
Folpet	133-07-3			S	F	5	>10000	HSG 72; ICSC 156; JMPR 1996b
Fosetyl	15845-66-2			S	F	5	5800	
Gibberellic acid	77-06-5			S	PGR	5	>10000	
Hexaflumuron [ISO]	86479-06-3			S	I	5	>5000	ICSC 1266
Hexythiazox	78587-05-0			S	AC	5	>5000	JMPR 1992, *2009a*
Hydroprene [ISO]	41205-09-8			L	IGR	5	>10000	
2-Hydroxyethyl octyl sulphide [C]	3547-33-9			L	RP (insect)	5	8530	
Imazamethabenzmethyl [(ISO)]	81405-85-8			S	H	5	>5000	
Imazapyr	81334-34-1			S	H	5	>5000	Irritant to eyes
Imazaquin	81335-37-7			S	H	5	>5000	
Imazethapyr	81335-77-5			S	H	5	>5000	
Imibenconazole [ISO]	86598-92-7			S	F	5	>5000	
Inabenfide	82211-24-3			S	PGR	5	>10000	
Iprovalicarb	140923-17-7			S	F	5	>5000	
Isoxaben	82558-50-7			S	H	5	>10000	

Common name	CAS no	UN no	Chem type	Phys state	Main use	GHS	LD_{50} mg/kg	Remarks
Noviflumuron	121451-02-3			S	I	5	>5000	Dermal LD_{50} > 5000
Oryzalin [ISO]	19044-88-3			S	H	5	>10000	
Oxabetrinil	74782-23-3			S	H	5	>5000	
Oxadiazon [ISO]	19666-30-9			S	H	5	>8000	
Oxine-copper [ISO]	10380-28-6		CU	S	F	5	7792	
Oxyfluorfen [ISO]	42874-03-3			S	H	5	>5000	
Pencycuron	66063-05-6			S	F	5	>5000	
Penoxsulam	219714-96-2			S	H	5	>5000	Dermal LD_{50} > 5000
Pentanochlor	2307-68-8			S	H	5	>10000	
Phenmedipham [ISO]	13684-63-4			S	H	5	>8000	
Phenothrin [ISO]	26002-80-2		PY	L	I	5	>5000	DS 85; EHC 96; HSG 32; ICSC 313; JMPR 1989
Phosphorus acid [C]	13598-36-2			L	F	5	>5000	
Phthalide	27355-22-2			S	F	5	>10000	
Picloram [ISO]	1918-02-1			S	H	5	8200	ICSC 1246
Piperonyl butoxide	51-03-6			Oil	SY	5	>7500	IARC 30; JMPR 1996b; *ICSC 1347*
Pretilachlor [ISO]	51218-49-6			L	H	5	6100	
Primisulfuron [ISO]	113036-87-6			S	H	5	>5050	
Procymidone [ISO]	32809-16-8			S	F	5	6800	JMPR 1990, *2009b*
Prodiamine [ISO]	29091-21-2			S	H	5	>5000	
Propamocarb	24579-73-5			S	F	5	8600	JMPR 1987a
Propaquizafop	111479-05-1			S	H	5	>5000	ICSC 1271
Propazine [ISO]	139-40-2		T	S	H	5	>5000	ICSC 697
Propham [ISO]	122-42-9			S	H	5	5000	IARC 12; JMPR 1993
Propineb [ISO]	12071-83-9			S	H	5	8500	DS 94; EHC 78; JMPR 1994
Propyzamide [ISO]	23950-58-5			S	H	5	5620	

Common name	CAS no	UN no	Chem type	Phys state	Main use	GHS	LD_{50} mg/kg	Remarks
Prothioconazole [ISO]	*178928-70-6*			*S*	*F*	5	*>6200*	*JMPR 2009a*
Pyrazolynate [ISO]	58011-68-0			S	H	5	9550	
Pyrazosulfuron [ISO]	98389-04-9			S	H	5	>5000	
Pyriminobac	136191-56-5			S	H	5	>5000	
Pyriproxyfen [ISO]	95737-68-1			S	I	5	>5000	ICSC 1269; JMPR 2000
Quinmerac [ISO]	90717-03-6			S	H	5	>5000	
Quinoxyfen [ISO]	124495-18-7			S	F	5	>5000	*JMPR 2008*
Quintozene [ISO]	82-68-8			S	F	5	>10000	EHC 41; HSG 23; IARC 5; JMPR 1996b; *ICSC 745*
Rimsulfuron [C]	122931-48-0			S	H	5	>5000	
Siduron [ISO]	1982-49-6			S	H	5	>7500	
Simazine [ISO]	122-34-9		T	S	H	5	>5000	ICSC 699
Spinetoram [ISO]	*187166-40-1*			S	*I*	5	*>5000*	*JMPR 2009a*
Sulfometuron	74223-56-6			S	H	5	>5000	
Tebufenozide	112410-23-8			S	I	5	>5000	Dermal LD50 > 5000; JMPR 1997b, 2004
Tebutam	35256-85-0			Oil	H	5	6210	
Tecnazene [ISO]	117-18-0			S	F	5	>10000	EHC 42; HSG 12; JMPR 1995b
Teflubenzuron	83121-18-0			S	I	5	>5000	JMPR 1995b
Terbacil [ISO]	5902-51-2			S	H	5	>5000	
Tetradifon [ISO]	116-29-0			S	AC	5	>10000	EHC 67; HSG 11; ICSC 747
Tetramethrin [ISO]	7696-12-0		PY	S	O	5	>5000	EHC 98; HSG 31; ICSC 334
Thifensulfuron-methyl	79277-27-3			S	H	5	>5000	
Thifluzamide	130000-40-7			S	F	5	>5000	Dermal LD_{50} > 5000
Thiophanate-methyl [ISO]	23564-05-8			S	F	5	>6000	JMPR 1996b, 1999, *2008*
Tiocarbazil	36756-79-3		TC	L	H	5	10000	
Tolclofos-methyl [ISO]	57018-04-9			S	F-S	5	c5000	JMPR 1995b

Common name	CAS no	UN no	Chem type	Phys state	Main use	GHS	LD_{50} mg/kg	Remarks
Tolylfluanid [ISO]	731-27-1			S	F	5	>5000	JMPR 1989, 2003b
Transfluthrin [ISO]	118712-89-3		PY	S	I	5	>5000	
Triasulfuron	82097-50-5			S	H	5	>5000	
Tribenuron [ISO]	106040-48-6			S	H	5	>5000	
Trifloxystrobin [ISO]	*141517-21-7*			S	F	5	*>5000*	*JMPR 2006a*
Triflumuron	64628-44-0			S	PGR	5	>5000	
Trifluralin [ISO]	1582-09-8			S	H	5	>10000	IARC 53; ICSC 205
Triflusulfuron-methyl [ISO]	126535-15-7			S	H	5	>5000	
Triforine [ISO]	26644-46-2			S	F	5	>6000	JMPR 1998b
Validamycin	37248-47-8			S	F	5	>10000	
Vinclozolin [ISO]	50471-44-8			S	F	5	10000	JMPR 1996b
Zineb [ISO]	12122-67-7			S	F	5	>5000	DS 94; EHC 78; IARC 12; ICSC 350; JMPR 1994
Zoxamide [ISO]	*156052-68-5*			*S*	*F*	5	*>5000*	*JMPR 2009b*

EHC = Environmental Health Criteria Monograph; DS= Pesticide Data Sheet; HSG = Health and Safety Guide; IARC = IARC Monographs on the Evaluation of Carcinogenic Risks to Humans; ICSC = International Chemical Safety Card; JMPR = Evaluation by the Joint FAO/WHO Meeting on Pesticide Residues.

Notes to Table 5

1. The international trade of benomyl is regulated by the Rotterdam convention on Prior Informed Consent (see http://www.pic.int/), which entered into force on 24 February 2004. See Table 7, p. 51.

THE FINAL CLASSIFICATION OF ANY PRODUCT
DEPENDS ON ITS FORMULATION
See Pages 7 & 8, and the Annex

ANNEX E

PROVISIONS ON ENVIRONMENTAL PROTECTION IN CONTRACTS FOR CIVIL WORKS

Environmental provisions for bidding documents and contracts:

Measures on the mitigation of damage caused to the environment by a contractor during civil works (namely, noise, dust, solid wastes, sediment rocks and other materials) that are performed on the irrigation and drainage systems and structures, including the damage caused to vegetation, etc., constitute an integral part of design and implementation and make the contractor be obliged to fulfill obligations on environmental protection during the construction. Standard provisions on environmental protection will be included into the structure of each contract and at the design stage as well. In the contract to be awarded, there will be items on regions presenting additional detailed data on preventive measures of environmental protection.

The project envisages key measures on potential negative impacts mitigation:
'Natural landscape shall be preserved. Civil works shall be performed in such a way to avoid unnecessary destruction and deterioration of the natural environment. Apart from the places that require cleaning for regular works, all trees, bushes, vegetation, fences and walls shall be preserved and protected from the damage that can be caused by civil works. The construction completed, the inevitable damage shall be recovered and, if advisable, returned into the original state;

'The Contractor shall perform civil works in such a way to prevent leaking of pollutants, litter and other contaminating substances into river beds and underground water resources. Such pollutants include scum, domestic wastes, tailings, oil products, chemicals, biocides, mineral salts and thermal pollutions. Effluent water shall not enter water courses without prior sedimentation, filtering or other control to avoid a decrease in water quality or damage to flora;

'The Contractor shall remove wastes and garbage. In case of burying or burning of wastes or garbage, it shall cause no negative impact on air, soil or ground water;

'The Contractor shall minimize pollution of air and water, formation of dust as a result of transportation of aggregates, cement, etc. via dispersion or other methods. Solid materials, bushes or trees can be burnt, if there is permission from their owners, and in case of favorable weather conditions;

'Contractor's service facilities, such as warehouses, trolleys for workers, shall be planned beforehand to know how the place will look like after the construction is completed. Service facilities shall be placed in such a way that allows saving the natural habitat (trees, vegetation) till a maximum degree. Upon completion of construction, trolleys and buildings can serve a place of permanent residence or create future communities, if this is envisaged or approved. Otherwise, the site shall be returned into the original state to avoid appearance of hovels. There is a need to even pits and cavities and plant green belt as per the environmental requirements to avoid destruction of the natural habitat'.

ANNEX F

BACKGROUND INFORMATION

1.1 Current condition of pastures in the Kyrgyz Republic

Agricultural lands include two main types: arable cultivated lands for cropping, and pastures, which refer to the uncultivated part used for grazing. Some 85% of agricultural lands are pastures, while arable land reports the remaining 15%. Pastures in the country are quite diverse in terms of their botanical composition, productivity, quality of forage and a number of other economic parameters.

Uneven distribution of pasture areas by seasons and their varying capacity of yield cause the varying degree of pasture forage availability for animals.

The currently used pastures are for the most part concentrated in village areas. As regards remote pastures, the most popular ones are located near roads and sources of water. Such pastures suffer from excessive grazing, since the remotest pastures have been underused: people depend on infrastructure for their produce transportation and sale.

Economic condition of natural pastures by Shikhotov V.M. [9]

Table 1

Surveyed pastures	Total in the country, thous. ha	Period		
		1980s	1990s	2000s
Surveyed pastures, thous. ha	8475.1			
Conventionally clean		3544.8		2741
Subject to erosion and bushing, stony pastures		2153.1		3470
Degraded to a various degree			1661	1700

Over the past 20 years, the area of conditionally clean pastures has decreased from 3544.8 thousand ha to 2741 thousand ha or by 23%.

1.2 Yield capacity

Yield capacity is the main measure of pasture condition. It also constitutes the main indicator of pasture degradation.

According to the findings of data analysis on the pasture yield capacity received from various sources (Kyrgyzgiprozyom, KyrgNIIZh, publications of the Academy of Science):

-In intensively used grazing lands, especially used in spring-autumn period, and in the majority of high-altitude areas that before were famous for their pastures (Kara-Kudzhur, Solton-Sary, Son-Kul, etc.), the grass vegetation is heavily suppressed by random grazing and tramped to a considerable degree.

-Intensive grazing has caused a significant change in the grass species composition towards a decrease in forage grass and dramatic increase in weed non-forage plants.

[9] Shikhotov Vladislav Mefodievich is an agricolist scholar, candidate of biological science, professor of botanics.

The situation is aggravated by the fact that weed infestation for the most part takes place in the most productive and precipitation nourished meadow and meadow-steppe pastures where weeds up to 70-90 % of the grass vegetation.

Geobotanic surveys of pastures confirm the data about dramatic deterioration of the grass stand: country-wide decrease in the yield capacity, loss of valuable forage grass and wide-spread proliferation of weed non-forage plants.

A thick brushwood of weeds can be seen on the northern slopes of mountain ranges Kyrgyz Ala-Too, Terskey and Kungey Ala-Too, Alay and Fergana, etc. The reason is the under-use of remote summer pastures.

Insufficient provision of forage can be observed in all regions and reports from 6.18 to 6.96 centners of fodder units per 1 sheep unit[10] (in accordance with the zootechnic norm, with due regard for age, productivity and physiological condition, the requirement is at least 18 centners of fodder units).

Pastures over-use has caused a decrease in their productivity. As a result, animal breeding annually faces the gap of 11.5 million of natural forage.

Pasture productivity by oblasts. Source:

Table 2

Name of oblast	Area of pasture, thous. ha	Of which			Yield capacity, c/ha		
		Spring-autumn pasture	Summer pasture	Winter pasture	Spring-autumn pasture	Summer pasture	Winter pasture
Chui	859	292	448	119	6.9	8.1	3.6
Talas	633	252	205	176	3.3	5.5	2.7
Kyrgyz Republic	9188238	2955	4129	2063	3.9	5.5	1.7

Source: Kyrgyzgiprozyom

1.3 Load

The increase in animal population, insufficiency of implemented activities on the improvement of natural forage lands have been year to year causing the excessive load on pastures.

Heads of livestock in the Kyrgyz Republic, 2006 -2012 (beasts)

Table 3

Type	2006	2007	2008	2009	2010	2011	2012
Cattle	1,052,865	1,094,340	1,145,236	1,224,563	1,278,070	1,338,583	1,367,466
Yaks	21,899	22,393	22,790	24,753		31165	31,537
Livestock	3,059,072	3,197,076	3,379,097	4,502,651	4,815,539	**5,288,115**	**5,423,881**
Horses	345,174	347,526	355,553	362,433	372951	388971	398,796

Source: NSC of the KR

[10] As of 1.01.2011, sheep units are converted into animal units as follows: 1 cattle unit equals to 5 sheep units, 1 horse unit equals to 6 sheep units

Heads of livestock by oblasts in 2010; estimation of load on pastures

Table 4

Name of oblast	Heads of livestock, of which, thous. beasts			Total livestock, unit equivalent	Area of pastures, thous. ha	Animal load per 1 ha of pastures
	Cattle	Sheep and goats	Horses			
Talas	64.1	456.8	22.9	914.7	615.8	1.5
Chui	239.8	546.4	45.4	2029.7	869.2	2.3

Source: NSC of the KR

The table shows data from the National Statistics Committee of the Kyrgyz Republic. However, surveys of the GEF/UNDP project 'Demonstrating Sustainable Mountain Pasture Management in the Suusamyr Valley' carried out during the household survey of animal population have identified that the actual data are bigger than the statistical ones. Therefore, it cannot be ruled out that in project oblasts the actual number of animal population is bigger than it is reflected in the table.

The pasture load estimation describes impact on the system of land-use as a whole, since the surpassing of optimal environmentally sound norms causes degradation, decrease in biological production of pastures and their falling out of the agricultural use.

At present, Chui oblast has already exhausted potential growth in animal population, and future efforts should focus on the increased productivity of animals, improvement of the species composition, since recent years have witnessed a significant increase in the share of cattle in all oblasts of the country, especially young animals that constitute an environmentally dangerous form for the pasture grass in the Kyrgyz Republic.

Animal productivity by all categories of farms

Table 5

	2008	**2012**
Average annual milk yield from one cow, *kg*	2090	2030
Average annual wool clip from one sheep (gross weight), *kg*	3,1	2,6
Average live weight of one beast for slaughter, *kg*		
Cattle	302	284
Sheep and goats	42	38
Horse	299	277
Young animals output per 100 dams, *beasts*		
Calves	82	80
Lambs and goatlings	96	95
Colts	75	74

Source: NSC of the KR

The increased number of animal population in villages has caused a decrease in winter pasture productivity and, as a result, a decrease in the animal husbandry productivity. Therefore, the priority task in pasture management is to decrease pasture load through the use of remote pastures, organized pasture rotation and improvement.

Unregulated grazing is the reason for *pasture erosion*. The grass of natural forage lands destroyed, the soil loses its water-absorbing and water-holding capacity (because of dispersion, consolidation and destruction of structural aggregates of soil), and that conduces to its ablation. Pastures convert into wastelands and ravines. Thus, pasture erosion constitutes a complex process that involves animals, vegetation, soil and water. Moreover, pasture erosion on mountain slopes facilitates outwash which is an irreversible process. As regards vegetation cover deterioration, the destructive role is that of wind, since mountainous areas are characterized by a rather tense wind regime and higher speed of winds.

Regulation of pasture load is one of the most important elements of their sustainable use that will allow ensuring their high productivity in a long run.

Existing livestock of all categories (thousand beasts)

Table 9

	Cattle		Sheep and goats		Horses	
	2008	2012	2008	2012	2008	2012
Talas oblasts	60.8	65.4	381.6	483.1	10.4	11.6
Chui oblast	221.4	248.9	459.5	559.3	40.6	47.7

Source: NSC of the KR

Surpassing of optimal environmentally justified norms causes a decrease in the biological productivity of pastures and their withdrawal from agricultural use, and that means inevitable loss of fodder base and, consequently, decline in animal production. Already, at present, animal husbandry productivity is significantly lower than its capacity (Table 5).

Factors causing decreased productivity of animals include: poor feeding, diseases, parasites and poor management of farming and animal production, insufficient level of veterinary services at the local level. Taking into account the big number of livestock owners, it should be made a priority to control diseases, properly feed animals (pasture management and winter forage), increase literacy of farmers, strengthen infrastructural capacity of private veterinarians. Many animal breeders are still reluctant to pay for PV services, claiming that veterinary services should be provided free of charge as it was during Soviet times. This reluctance of a number of animal breeders to pay for services can affect the opportunities of PVs to establish a vital and sustainable business.

A serious environmental problem is the disposal of *animal production wastes*: manure, wastes from slaughtering of farm animals, aborted and dead-born fetuses, spoils; disposal of veterinary condemned materials (meat and other animal products) found after veterinary and sanitary expert evaluation at slaughtering points, markets, trade organizations and other facilities, used solutions, remains of vaccines, etc.

The country has 1223 pockets of infection with officially registered anthrax, of which 438 are registered as fenced pockets, 511 as cemented and 457 as having identification tags, but exact location is known only for 532 pockets. The majority of pockets are located in Chui oblast (453 registered pockets of which 133 are known) and in Talas oblast (there are 15 registered pockets of which 15 are known). This figure is likely to be underestimated, because some cases, such as slaughtering of sick animals by their owners, are not registered or not detected. An additional complication is the fact that cases occurring in summer pastures are difficult for veterinarian detection.