Development Issues in the Traditional Livestock Sector of the Kyrgyz Republic

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Executive Summary

The Kyrgyz Republic is a country in Central Asia with an area of 199.9 square kilometers and a population of 6 million. More than three-quarters of the territory is covered by mountains. The share of agriculture in GDP is 14.7 percent. Livestock production is one of the leading sectors of Kyrgyz agriculture. The share of livestock products in the total volume of agricultural gross output was 47.6 percent in 2014 [1].

As a result of historical, cultural, and geographical factors, for centuries Kyrgyz farmers practiced a nomadic type of livestock farming with three kinds of pastures: near-village pastures (usually used during the winter and located close to the villages in the valleys), intensively used pastures (used during spring and autumn, located at the foot of the mountains), and nomadic or distant pastures (for summer grazing in the highlands).

The Kyrgyz Republic is a mountainous country with a rather fragile natural environment. Nomadic livestock production is one of the few options available for reclaiming desert and mountain landscapes. The stability of this interaction depends on many factors: the traditions of livestock farming, public policy, government development strategies and livestock legislation, market conditions and access to information, the institutional environment, and the effects of climate change, among others [2].

At present, the grazing situation varies for different livestock owners. There are nomads who drive their herds to summer pastures (nomadic type), and there are small farmers (who make up the bulk of the country’s farmers) who use only near-village pastures all year round for various reasons. This imbalance causes pasture degradation that has a direct impact on livestock nutrition. The other stakeholder groups are state authorities of the Kyrgyz Republic; organizations representing the interests of farmers; donors and organizations with interests in the region and in neighboring states. All of these stakeholders have different interests, mechanisms, and power for changing the situation.

The pressure from intense grazing, especially in near-village pastures, is several times higher than recommended. This naturally leads to lower productivity—since 1990 the productivity of near-village pastures decreased threefold, from 300 to 100 kilograms per hectare [3]. On the other hand, remote pastures are often degraded because of lack of use (for example, they become overgrown with weeds, which are not suitable for feeding cattle). Access to distant pastures is limited because of problems with the infrastructure, financial difficulties, legal restrictions, and so on.

This study is devoted to the analysis of possible changes that could be made at the local and national level to improve Kyrgyz nomad livestock farming. Policy recommendations—such as integrating databases that monitor pasture conditions; broadening the pasture committees so that they include all groups of pasture users; supporting farmers who have a small number of cattle; investigating the experience of neighboring countries; and reconstructing infrastructure—are suggested.

Background

In the Kyrgyz Republic, the tradition of nomadic livestock farming has been formed over many centuries. The development of animal husbandry in the country began about 8,000 years ago with the domestication of yaks, sheep, goats, and horses [4]. Most of the pastures could be used only for a short time period each year because of the low level of rainfall and other weather conditions, so the cattle was continuously moved from place to place to adapt to seasonal changes in pasture vegetation [5].

A number of specific features characterize environmental zones that are predominantly suited to nomadic farming. These zones are characterized by their arid climate, continentality, the low productivity of forage vegetation, lack of rainfall, high solar radiation, variable climatic conditions, recurrent droughts, limited water and soil resources, high predisposition of soil erosion and desertification, among other factors. The nomadic pastoral economy under such conditions is often the dominant or the only possible way to use these ecosystems [6].

These features have determined the need for vast territories of pastures that require periodic migrations in search of suitable grazing areas. Minimum pasture resources during the year were 5 to 7 hectares per sheep in the steppes and 12 to 24 hectares per sheep in the desert and semi-desert [7]. A sedentary lifestyle is usually not effective in arid ecosystems, even in an industrial society. Therefore the transition from a nomadic to sedentary lifestyle for farmers in arid ecosystems has repeatedly led to the degradation of millions of hectares [6], and thus is not effective.
One of the features of nomadic livestock breeding is the special structure of the herd, which has a high proportion of small animals like sheep and goats (up to 90 percent of the herd). According to historical records, in Kazakh agriculture the share of ordinary cattle (cows, bulls, and calves) used to be 12.3 percent [6]. In Mongolia the share of cattle in the herd structure did not exceed 14 percent [8]; for Buryats it was 16 percent [9]; in Tuva, 14.6 percent [10].

Nomadic grazing farming is highly adaptable to the environment. Thanks to the sensible use of local plant resources, Kyrgyz farmers managed to avoid degrading pastures from trampling or allowing them to get overgrown from lack of use.

Because the local people have lived in the same region for decades, they had a very precise idea of the feeding capacity of local pastures, nearby water sources, and the most favorable time to use a particular area.

Before the Kyrgyz Republic became part of the Soviet Union, the land used for extensive nomadic livestock farming did not have clearly defined boundaries [11]. Most pastures in the region, depending on the climatic conditions, are suitable for only a short period of time. Animals are constantly moved from place to place to use the seasonal growth of vegetation in the lowlands and the highlands, and to get access to water. Although the boundaries of land were not clearly defined and everything was resolved at the local level without a common set of laws, overgrazing was not an issue for a long time [12]. This system used a particular pasture rotation, where grazing on each individual pasture occurred only every third or fifth year [13].

When the Kyrgyz Republic became part of the USSR, this well-established system that had been used for centuries collapsed and the traditional animal husbandry skills were quickly lost. People in rural areas were educated for their new jobs in the newly forming agricultural system, but without a comprehensive knowledge of the local nomadic traditions. So the pastures were owned by the collective and state farms, and the policy was aimed at maximizing the number of livestock. Other features of the Soviet system were that the winter feedstuff was supplied from other regions of the USSR and livestock movement and pasture rotation was controlled from the center [3]. Intensive economic growth in the Soviet period contributed to a significant improvement in economic performance but also led to significant environmental issues. However, it should be noted that the plowing of virgin lands (often former pastures) was done in the Kyrgyz Republic less intensively than in many other regions of the Soviet Union. Therefore degradation of Kyrgyz ecosystems was significantly lower than, for example, in Kazakhstan [6].

In the USSR the following system of driving the herds was formed: from lowland winter pastures the cattle were taken to the plains in the early spring; then in late spring the cattle were moved to hill pastures, and in summer they were taken to the highland pastures [13]. Spring pastures were at some distance from the main settlements. Animals grazed there starting from the period when grass and plants appeared until the plants were mature, when the pasture productivity decreased. Then the animals were driven to the highland alpine and sub-alpine meadows, where they fed on young grass until mid-autumn. These pastures were called summer pastures, remote or jalloo pastures. Then, in late autumn, the animals were moved back to the lowlands closer to the village. To maintain the animals in good condition during the winter months, farmers used different kinds of additional forage—hay, grain, and so on.

Plans for pasture management have been developed on the basis of forage pasture productivity, calculated on the base of an analysis of 80 major species of plants in Kyrgyz pastures. Despite the scientific approach, pasture productivity in the period from 1960 to 1990 decreased by 36 to 67 percent, depending on the type of use. The negative consequences were that in an area of 50,000 square kilometers, woody and inedible plants started growing, and 5,400 square kilometers have become unsuitable for grazing [14].

After the collapse of the USSR, the distribution and marketing systems for agriculture products were ruined. Along with a decrease in the world prices for wool, among other reasons, this led to a sharp decrease in the number of livestock in the Kyrgyz Republic [3]. Since 1991 the number of collective farms has been reduced, and now 96.5 percent of the cattle are in private households [15].

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1 Buryats are the local people of Buryatya, a region in Russia located east of Baikal Lake.
2 Tuva is the region in Russia's South Siberia, bordering on the northwest part of Mongolia.
The Current State of Livestock Management and Legislation

About 64 percent of the Kyrgyz Republic’s population (3.5 million people) live in rural areas [16]. Agriculture is their main source of income [3]. For these people, breeding and livestock is a key factor in ensuring financial status [17]. In recent years there has been evidence of an increasing number of cattle because local people see the ability to save income only in this kind of activity [3].

Until 2009 the pasture management system was three-tiered, run by an aiylokmutu (rural council) that had no information about the boundaries of pastures, the location of infrastructure, the capacity of pastures, or other characteristics necessary to manage this resource. The system was opaque, control was missing, and farmers used only near-village pastures because renting them was the easiest, although often the formal contract for that rental was not even concluded [12].

Pastures (unlike other real estate) in the Kyrgyz Republic cannot be privately owned because of their public importance [17]. Decisions establishing the boundaries of pastures are made at the level of the Government of the Kyrgyz Republic, which indicates the high importance of this issue for the Kyrgyz authorities [18].

The new law concerning pasture management was accepted by local residents with appreciation for several reasons: prior to implementation the rural population was consulted and it increased their interest in the new law; the new legislation is based on the local tradition of nomadic farming [19].

The new law created a new structure—the pasture (zhayyt) committee—which is the executive body for administrating pastures. The committee develops and implements plans for pasture use, monitors pastures, issues grazing tickets and use permits for other purposes, establishes and collects payments, and manages revenues. When making decisions, the members of the pasture committee must also take into account the federal government’s plans for environmental protection [20].

Pasture tickets (that grant the right to use the pastures) are issued after payment is made to the pasture committee. The amount of payment is calculated annually for each pasture system and for every type of agricultural practice, and then approved by the local authority. The fee depends on the type of livestock being grazed on the pasture. Taxes go to the government budget, and the rest of the fee (no less than one-third of the total) is divided between the local budget and pasture improvement [20]. The authorized state body assesses and controls the preservation of the natural state of pastures. Violators are liable for criminal and administrative prosecution [20].

Despite the significant positive changes in the law, there are still some drawbacks. For example, all the “other activities” that take place on pastures (collecting wild plants, hunting, beekeeping, etc.) are combined and the fee for each of these activities is, by default, the same.

The Condition of the Pastures

About 20 percent of the population of the Kyrgyz Republic work in the Russian Federation and Kazakhstan [21]. Typically, remittances are used to buy cattle, because this is the main channel for investment in rural areas. In this case, animals serve as an investment fund, which increases thanks to natural reproduction.

Most pasture farmers are trying to maximize their income by increasing the size of their herd without caring about the state of pastures. According to official statistics, the number of livestock animals is growing [5]. Most farmers, especially those with a small number of cattle, use only near-village intensive pastures, so many remote pastures are not used intensively enough or not used at all [3].

The near-village pastures frequently exhibit deteriorating grass; turf destruction; soil erosion; and a growing number of grazing paths, gullies, and ravines. Furthermore, certain types of plants are disappearing and there is also evidence of changing dominant plant communities. In the remote pastures, yields and fodder reserves are decreasing, and researchers are noticing the growth of weedy inedible, harmful and poisonous plants, or an increase in shrubs with thorns. According to the State Design Institute Kyrgyzgipromzem, about 25 percent of pastures are moderately or severely degraded [17].

The degradation process is advancing, and in some areas of the Kyrgyz Republic it has become irreversible. Irreversible consequences can be prevented only by taking appropriate measures that require large financial investments. The increase in
the number of livestock, along with the deterioration of natural grassland, has led to an excessive load on the pastures. As of 2010, the pressure from intense grazing exceeds the norm by 1.5 to 2 times [22]. In some village pastures (especially in the southern regions) the pressure exceeds the norm by 3 to 4 times [17]. Since the separation of the Kyrgyz Republic from the Soviet Union in 1991, the productivity of village pastures decreased threefold, dropping from 300 to 100 kilograms per hectare [3].

Policy Issues

The current Kyrgyz farmer faces a number of problems:

Loss of Continuity and Organization

The lack of continuity and loss of the organizational skills of nomadic farming has introduced multiple problematic issues. Over the course of the past 25 years, since 1991, farmers have worked by trial and error, and it is too early to speak about the revival of the traditions of the nomadic livestock.

The local population either does not know how to use their pastures with sustainable environmental management, or their economic situation is forcing them to use the pastures too intensively. This can lead to desertification and poverty and can fuel the progression of rural population migration [3].

Historically, only a few members of the village knew all the nuances and peculiarities of natural cycles and the geographical location of seasonal pastures. They also were aware of the shortest routes to the pastures and water bodies, cycles of vegetation productivity, the fattening processes and the physical condition of the animals, precipitation and inundation rhythms, snow settling time and loss of snow cover. The accumulation of such knowledge may need the lifetimes of several generations [6]. Most of the members of pasture committees have little education and are simply pasture users. Because of the lack of experience in planning of pasture management certain problems can arise [5].

During the Soviet Union period, some of the arable land was used for growing fodder crops with irrigation. Lack of experience and knowledge about the cultivation of fodder crops, together with the breakdown of irrigation systems, has led to lower yields compared to opportunities for basic fodder such as sainfoin (French grass), barley, and forage grasses [3].

Pasture Distribution

Although since 1991 pastures have been under the jurisdiction of the Federal Registration Agency State Committee, pastures were often distributed on the local level. In fact, the villagers lived outside the law before the adoption of the Law On Pastures in 2009 [18]. It can be assumed that some agricultural land was distributed on the basis of nepotism [5]. Current legislation, in fact, increases the opportunities for these kinds of corrupt transactions (because now the government officially presents an opportunity to deal with all the matters related to pastures on the local level) and needs to be improved.

Some farmers receive the right to graze cattle on pastures near settlements, including grazing in the summer period. At the same time, not all farmers receive pastoral areas with water, infrastructure, and access to roads.

Another problem is the illegal construction of sheds and barns for animals on pastures. It is de facto a form of privatization and leads to limited access to pastures and migration routes [19].

Before the 2009 Law On Pastures, any farmer could take a pasture for a long-term period, which limited the opportunities of other farmers. Now it is written in the Constitution that the owners of the pastures are the people of the Kyrgyz Republic, and technically any farmer can buy the right to pasture on any field. However, this can be viewed from the other side: now the elite with their power have an opportunity to choose the best pastures on a yearly basis.

The Degradation of Pastures

The first two challenges are closely linked to the third—the degradation of pastures. Here two extreme options can be traced. Near-village (winter) pastures are used too intensively because they are easily accessible. This leads to a reduction in natural productivity and degradation of these lands. On the other hand, highland summer pastures are often not used in practice, which leads them to become overgrown with weeds and sometimes poisonous vegetation. It also leads to degradation and reduced productivity of the pasture, although of a very different kind: in the
case of insufficient grazing, the ecological balance is broken because it starts overgrowing pasture grasses and bushes [23]. In the coming years the Kyrgyz Republic may have an additional factor that contributes to pasture degradation—the greater number of dry years as a consequence of climate change [3].

But the most common cause of pasture degradation is overgrazing. This leads to a reduction in productivity, loss of biodiversity, dominance of inedible food plants, soil erosion, and other processes [24]. It may also lead to soil compaction and an increased susceptibility of animals to diseases [25].

Maintaining a Healthy Herd

The incidence of cattle diseases is very high in the Kyrgyz Republic, especially when compared with advanced countries. This is partly the result of farmers’ lack of knowledge and lack of understanding of the need for regular check-ups and vaccinations of cattle. It is also a consequence of overcrowding and lack of sufficient food for animals on near-village pastures.

Along with the lack of knowledge of veterinary best practices another problem emerges: non-optimal calving and lambing. The calves and lambs should be born in the spring so that they can gain weight and prepare for the winter (when their mothers decrease lactation). Currently many calves and lambs are born in the summer or the fall when there is a lack of grass, which naturally leads to high rates of mortality among the young.

Access to Pastures for Unprotected Farmers

Access to pastures for unprotected categories of farmers is another serious issue. More than 80 percent of farms have fewer than 10 head of cattle, so they are called small farmers. For small farmers, access to remote pastures is limited because it is unprofitable to move to remote pastures on their own and they cannot afford to hire a shepherd. This, as well as the poor condition of roads to remote pastures, is often the cause of overgrazing of land located closely to the village. The situation is complicated by the fact that, because of the extensive type of farming (as opposed to intensive farming), the costs of maintaining large herds in a period when natural vegetation is plentiful (summer) are almost the same as the costs for maintaining a small herd, but the revenues, on the contrary, can be significantly higher for only large herds [3].

Less wealthy livestock owners (for example, single women or persons with disabilities) are not able to increase the size of their herd because of a lack of funds. Women are rarely represented in the pasture committees, which greatly reduces their role in decision-making. At the same time, these single women are often forced to manage a herd of their own because their male partners are working in Russia and Kazakhstan.

Furthermore, city dwellers engaged in animal husbandry do not always have the opportunity to use the pastures, especially remote pastures [19].

Absence of Reliable Statistics

All these issues are not reflected in official statistics. For example, despite the fact that in reality almost 100 percent of the pastures located near villages are used, in terms of the official statistics they are used by only 17 percent [5]. The negative effect of these incorrect statistics lies not only in the fact that the budget loses the relevant taxes (their share in the total budget of the country is negligible), but also in the fact that reality is misrepresented when looking at official numbers. This may lead to wrong decision-making.

In the Kyrgyz Republic, the monitoring of the state of pastures is carried out at the local level by the pasture committees and at the national level by the Institute of Land Management (Kyrgyzgiprozem). At the moment these two systems are not interconnected [19].

Farmers often hide information about the real number of their cattle to pay less in taxes and tickets. The actual number of cattle in the Kyrgyz Republic could be 30 to 50 percent higher than indicated in the official statistics [5].

Lack of Infrastructure in Remote Pastures

The remote pastures, as a rule, have a lack of any infrastructure. Farmers have to live in these remote locations in a yurt without electricity. In the 21st century, few villagers are willing to spend their time
in such conditions for several months at a time—an unwillingness that also leads to the greater use of pastures near the villages.

After the privatization process in Kyrgyz agriculture most of the facilities, such as bridges and wells, in the pastures were disabled because of a lack of funds for their repair and maintenance. Almost 40 percent of pastures (especially remote summer pastures) are not used because of the erosion of livestock roads and bridges by mudflows. Infrastructure repairs are conducted at an insufficient pace. For example, from 1997 to 2010, only 99 out of 1,368 wells and dams were repaired in the entire country [17].

Providing Sufficient Feed in Winter

Since land has been depleted near the villages, additional feed is needed in winter. The potential of winter pastures cannot always provide sufficient fodder for the herd, and farmers have to use additional feedstuff. The production of fodder in the Kyrgyz Republic after the Soviet collapse decreased significantly [3]. Cropland in the country makes up only 7 percent of the total area of agricultural land [5] and the feedstuff, especially high-protein feedstuff, is a scarce commodity.

Prior to the adoption of the Law On Pastures in 2009, the use of pastures in the Kyrgyz Republic was haphazard [5]. Near-village pastures were managed by local governments, intense pastures (for autumn and spring grazing) were rented to regional state administrations, and remote (summer) pastures were managed by federal public administrations. This arrangement meant that farmers had to pay rental fees to three different governmental bodies! Official rental contracts were not issued, and payments were often made in kind or in cash without being registered as budget revenue [17].

Prior to the introduction of the new legislation on pastures in 2009, local people were faced with many problems in attempting to ensure enough feed for the winter. These include a lack of access to pastures for small farmers as a result of their inability to enter into a lease agreement, and the need to apply to various authorities to register their rental contract (see Figure 1) [19].

Since 2009, the responsibility for pasture management has been transferred to the local authorities in the ayl (rural) districts (see Figure 2).

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**Figure 1.** Previous System: Allocation of Responsibility among Various Government Bodies to Manage Different Types of Pastures, before 2009

- **Federal Registration Agency.** Border registration, development of administration plans, investigation and preparing for leasing pastures and registration of leasing acts
- **Remote pastures**
- **Intensive pastures**
- **Near-village pastures**
- **Forest pastures**
- **Regional administration**
- **District administration**
- **Rural administration**
- **Federal agency of forestry and environmental protection**
The pasture management system has undergone significant changes and has become much easier since 2009. Assigning value and distributing pasture tickets for all three types of pastures is now conducted locally. Thus one of the major difficulties—the administrative one—has been almost solved by now.

Pastures located in the forest area are now classified into a separate category and are the responsibility of the federal agency of forestry and environmental protection. These pastures, as before, can or may be rented. Their registration in the State Register is no longer required, which has significantly simplified the situation from the administrative point of view.

Stakeholder Groups

Farmers with Large Herds

As a rule, it is wealthy villagers who have been engaged in livestock breeding for many years who have a large herd. They may handle the herd on their own, but often hire shepherds for this purpose, including hiring less affluent family members. This category of users can afford grazing in several types of pastures: distant (summer), intense (spring), and near-village (winter). Many of these farmers can afford additional winter feed for livestock, but actually prefer to use near-village pastures. Despite the small number of farms (less than 5 percent), this category of farmers owns approximately 30 percent of cattle [5].

These users tend to increase the number of livestock as much as they can (without any regard for the condition of the pastures), and often use their special position and power to get access to the best land.

Farmers with Small Herds

This is the largest group of farmers in the Kyrgyz Republic. Because they do not have enough funds they cannot use the labor of hired shepherds, and for them moving a small number of livestock over long distances is not efficient. The share of farmers with fewer than seven head of livestock in a herd accounts for about 40 percent of the total number of livestock. The share of small farmers among the total number of farmers is more than 80 percent [5].

Figure 2. Current system: Allocation of Responsibility among Various Government Bodies to Manage Different Types of Pastures, after 2009
A significant part of this category is comprised of women whose husbands work in Russia and Kazakhstan. These women have much less capacity than other farmers, in part because their interests are hardly taken into account in the decisions of pasture committees (women are rarely included in these committees).

Small farmers only use near-village pastures, and do not have enough funds to purchase winter fodder. This naturally leads to increased morbidity and mortality of livestock belonging to this user group.

Farmers with Average Herds

This is a vague group of farmers that may include the owners of hundreds of animals, although the official number will be only 10 head. About 15 percent of pastoralists have medium-size herds while such farmers own about 30 percent of the total number of livestock. Their interests and opportunities are in the middle between the two other groups of farmers, although their interests are more like those of rich farmers with large herds.

State Authorities of the Kyrgyz Republic

Since 64 percent of the Kyrgyz population lives in rural areas [16] and the share of agriculture in the Republic’s GDP is 14.7 percent [1], the state should be interested in the development of this sector. At the same time, there is a shortage of funds for implementing and developing state programs in agriculture.

In 2009 the Law On Pastures was implemented. This law suggests ways to solve many of the challenges listed above, and it is constantly updated with additional secondary legislation. There is a movement in the direction of gradually improving policy regarding livestock, and in some instances the Kyrgyz Republic is the most advanced of the Central Asian countries (for example, only the Kyrgyz Republic has adopted a special law concerning pasture resources). Currently, at the state level there is an understanding that the further development of agriculture depends on the effective and efficient use of pasture resources [17].

Before 2010 many government programs related to livestock had been proposed, but none of them have been implemented in full [17]. This is both because of a lack of funds and because this issue must be approached comprehensively. In addition, some of the provisions of the state programs contradict each other, which signals the absence of a focused long-term policy in this direction.

Since 2009, when On Pastures was implemented de facto, all matters relating to pasture have been transferred to the local level. This simplified the lives of farmers, because it reduces red tape. At the same time, it increases the risk of making incorrect decisions dictated by short-term needs and increases the possibilities that the elite will obtain the most convenient pastures.

Although the restoration of roads and bridges and making water available for animals in remote pastures could significantly improve the situation and reduce the pressure on constantly used pastures, this does not happen because of both a lack of funds and a lack of political will. For the same reasons, other reforms that could lead to positive changes are not carried out.

Organizations Representing the Interests of Farmers

In the Kyrgyz Republic several professional associations and unions are represented at different levels (for example, the Breeders Association of the Issyk-Kul Region, the Kyrgyz Republic Association of Sheep Breeders, and so on.). These organizations have a very little power and practically cannot influence the situation in the country’s agricultural sector. The situation might change if the local farmers knew of the existence of these organizations (at the moment they are usually unaware of the fact that there are organizations that defend their rights).

Donors and Organizations with Interest in the Region

There are more than 10 organizations that provide assistance to farmers and conduct case studies in the region (including the World Bank; the Deutsche Gesellschaft für Internationale Zusammenarbeit, or GIZ; the German Society for International Cooperation, or GmbH; the University of Central Asia, etc.). Assistance and research carried out by these organizations have a narrow focus and are poorly coordinated; these organizations do not cooperate either between themselves or with public policy in the region. But these organizations do have some positive impact in solving local problems.
Neighboring States

In addition to conflicts that arise periodically in the border areas because of the lack of international law relating to grazing resources, there are opportunities from neighboring countries for positive interaction with the Kyrgyz side. For example, Russia is an exporter of wheat and an importer of beef, while the Kyrgyz Republic has a lack of fodder and there are opportunities for beef exports. A possible exchange of relevant products between these states, including in the form of barter, is possible.

Policy Options

The Kyrgyz Republic has great potential for the development of animal husbandry. There are significant opportunities for the realization of meat products in the domestic market (especially considering the growing prosperity of the population, and as a result the increasing demand for meat), as well as great potential for export to neighboring countries. At the same time, the potential of Kyrgyz livestock is not fully exploited either in terms of genetics or in terms of the use of natural resources. The state is interested in the development of the agriculture sector both from a financial point of view and from the point of view of employment.

At the moment, there are several options for the development of the situation.

1. The State Does Not Intervene: The Situation Is Developing by Itself

Many farmers are not aware of the existence of problems with pasture, and convincing them that “you need to take some measures” is not always easy [5]. Probably the preservation of the current situation will lead to further degradation of pastures. This, together with factors such as climate change, could lead to an environmental disaster.

2. Learning from and Adopting Other Countries’ Experiences

In many Asian countries with vast pasture lands, for the past 25 years there has been a transition from state control to a system of individual and common ownership. In this transition there are often similar problems and challenges (creation of wealth, access to pastures for poor users, environmentally sustainable management, etc.). Currently the potential benefits to be derived from the experiences of other countries with similar conditions and problems are the most promising.

Listed below are just some of the solutions adopted in other countries in the region, which can be taken into account or applied to the Kyrgyz Republic.

In Mongolia, the government subsidizes the construction of roads and wells based on the proposals of local pastoral committees. At the same time, farmers are actively involved in the work as a labor resource. Also Mongolian herders contributing to pasture degradation pay fines, but the shepherds with rational use of pasture resources receive federal subsidies.

In China, support mechanisms were provided by religious organizations. In some cases all farmers in a certain area swore an oath in a Buddhist monastery that they would not increase the number of cattle above a certain level. This mechanism increases accountability and could be applied with certain modifications in the Kyrgyz Republic [19].

Combining state- and local-level monitoring systems can lead to a better understanding of the current status of degradation of pastures in the Kyrgyz Republic. Other countries’ experiences should be taken into account in this process. For example, in Mongolia, the union of these systems did not immediately become a success—the key for the success of the monitoring technology is that it must be easy to use. At the same time, in Switzerland this practice of associating state- and local-level information about the condition of pastures has shown its effectiveness. In addition, the Swiss system is very efficient, cost-effective, and quite reliable because a mechanism of public control was introduced by the members of the cooperative [19].

The condition of pastures in the Kyrgyz Republic is much better than it is in some neighboring countries. For example, in Tajikistan, more than 90 percent of pastures are degraded and inedible grasses and shrubs make up 75 to 90 percent of the grass cover [26]. At the same time, Tajikistan uses several mechanisms that exhibit high efficiency in pasture management and can be successfully used in the Kyrgyz territory. For example, many households use the common grazing system. In the spring and autumn when cattle graze near villages, locals come together in groups of up to 15 people. The group members alternate every day, keeping an eye on the cattle that belong to all of them. In the summer the group sends cattle to graze on the high
pastures, tended by a shepherd who gets paid for this. Shepherds often take their families with them and get payment in dairy products [19].

One of the best ways to maintain the productivity of pastures is to control the movement of animals and the composition of mixed herds, so that different animal species can feed on different plants [23].

The experience of the Republic of Buryatia (in Russia) shows that one of the major problems in rural areas is the agricultural producers’ lack of knowledge about their rights and the opportunities they possess. Information on existing national and regional programs is usually located on the Internet and in local offices of the administration. As a result, and because several dozen regional programs may be in effect simultaneously, agricultural producers may not be aware of the existence of specific programs. To solve this problem, the installation of information boards is necessary (e.g., near the central store settlement) [27].

3. Changes at the National Level

Many remote pastures are not used because of destroyed or missing roads and flooded territories. Restoration of infrastructure can contribute to a more sensible redistribution of pressure between different types of pastures. Project or focused investment in the water supply of pastures can promote the use of large areas of pasture that are currently ruined. This will reduce the pressure on pastures where an excessive number of livestock is grazed.

The Kyrgyz Republic has a great need for the creation of pasture plans based on scientific understanding, because at the moment this activity is often based on short-term needs. Pasture management plans must contain guarantees that the best grazing lands will not be entirely at the disposal of the elite. Pasture plans outlining regulations for an equitable distribution of pastures could be developed. In addition, a special controlling organization dedicated to this task could be set up. It is also necessary to review the legislation concerning the construction of pasture facilities and improved enforcement mechanisms.

The main difficulties for households occur in winter, the period of adverse weather conditions and low productivity of pastures. Assisting farmers to sell meat in the fall through an especially established organization can help to avoid a too high concentration of livestock on pastures near villages and related veterinary complexities.

In the fall and early winter the price of meat and livestock usually decreases, so many farmers are reluctant to sell their animals in this period, even considering the lack of feed conditions. Fodder can be offered in the form of micro-credits during this period, which one will have to pay back after selling the livestock when meat prices are high. Central government support should be available in the form of livestock procurement at guaranteed prices (for the prevention of seasonal price reductions).

Compensating for the decline in pasture productivity by producing additional fodder in the territory of the Kyrgyz Republic is impossible since arable land is severely limited and the irrigation system is largely destroyed. Arable land should be used to produce crops for human consumption. The federal government may exercise the wholesale purchase of winter fodder (including from other countries) so that the prices for winter feed are not too high for farmers. This technique has been shown to be very effective in Inner Mongolia [19].

Organization of the wholesale purchase of fodder with the subsequent sale or issuance of a long-term loan on livestock could significantly improve the situation with the winter feeding of livestock and reduce the pressure on pastures.

In the Kyrgyz Republic, at the legislative level there are conversion coefficients of the number of animals of different species to the “animal unit.” Cattle, horses, donkeys, and camels are accounted for as 1 animal unit, young cattle are considered 0.7 animal units, and goats and sheep are 0.2 animal units [18]. This ratio is roughly equivalent to animal feed needs—that is, the same amount of dry matter to feed one cow is needed to feed five sheep [2].

The legislation does not forbid entering one’s own conversion coefficients in the animal unit calculation. Perhaps a recalculation of coefficients will help with a more sensible distribution of pastures. The food type and preferred types of vegetation differ for cattle and sheep (even if the same amount of dry matter is fed), so one of the solutions for reducing pasture pressure would be recommendations of species composition in a herd grazing at the same time on a particular pasture.

Fines imposed on users contributing to the deterioration of pasture conditions could be used to organize a lottery among the shepherds who use pasture resources efficiently. The lottery committee could also use the prize money to improve pasture
infrastructure (road rehabilitation, water meadows, etc.) of the aïyl (rural) areas where violations were recorded in the current year. Methods based on organizing lotteries have been shown to be highly effective in other fields [28].

The state can assist in marketing and branding livestock products. For example, the state could certify products derived from the meat of animals reared by nomadic farming to be both healthy and high-quality. The state could also promote tourism in the summer pastures (jailoo-tourism).

4. Taking into Account Local Peculiarities

Each settlement could have its own special situation. For example, some settlements may not have near-village pastures, and some pastures may belong to the national forest fund and thus not be used for grazing (in this case it is possible to lease the land for grazing purposes). The approach to the distribution of pastures should be individual—the situation in each individual case can be totally different. In this sense, we can only welcome the transfer of pasture management on the level of aïyl (village).

Livestock grazing is highly dependent on the geographical features of the area. For example, in areas with stable snow cover, winter should be spent in a stationary arranged camp for livestock, even if the herd spends most of the year migrating from pasture to pasture. In the areas with little snow, nomadic farming is possible throughout the year [6].

Weather conditions must be considered in the distribution of pastures. Droughts may lead to local grazing areas becoming unusable. In this case, the local government must provide alternatives for grazing.

Pastures have varying degrees of stability depending on their geographical location. Lowland pastures are located in more arid conditions and their vegetation is well adapted to droughts. These pastures are relatively resistant to grazing. But highland pastures are more influenced by grazing and tend to degradation [5]. Thus geographical features should be considered when grazing is planned among community members.

Getting precise data on the number of animals is very difficult because farmers try to hide evidence of the size of their herds. Creating pasture committees and introducing pasture tickets is a right step in this direction. Without knowledge of the exact number of animals involved it is impossible to calculate correctly their pressure on pastures. It is necessary to develop monitoring mechanisms to determine the relevance of the data provided by the pasture committees.

In some cases, up to a quarter of the livestock grazing on pastures belonging to the department of forestry agency or other aïyl (rural) districts is not reflected in official statistics [5]. Combining information databases from both the national level (the database of the State Agency for Environmental Protection and Forestry and Kyrgyzgiprozem) and the local level (data obtained from pasture committees) could solve this problem.

In the Kyrgyz Republic, many urban residents are engaged in animal husbandry. Some of the pastures are managed by urban municipalities. At the same time, city dwellers usually do not have access to remote pastures. In this context, rural pasture committees could expand access to their pastures outside the local community, providing pasture tickets for urban residents, but for a higher fee [19].

There are also problems and issues of cross-border access to pastures. At the moment there are no international agreements on the use of pastures, which is why conflicts may arise in the border areas [19].

On average, one cow (animal unit) consumes about 7.5 kilograms of dry matter per day [2]. Knowing this value and the food resources of village pastures, the need for feed for winter can be calculated and the farms can ensure a sufficient amount of food for their livestock to survive during the cold period. If farmers do not have the appropriate feed stock, they should be encouraged to sell their animals in autumn because the lack of feed significantly increases the probability of disease or loss of animals. Currently many farmers seek to increase the number of livestock without regard to the consequences of a lack of food, death of animals, and so on. Therefore such a measure could have a significant positive effect.
Despite the very small quantity of winter fodder, part of it is also lost as a result of poor storage conditions. Information and assistance in constructing facilities for storing winter fodder could also have a positive impact on the situation. Often hay is stored outdoors, so the construction of even simple sheds could significantly improve the situation.

5. Adjusting the Number of Livestock

The total number of livestock should not exceed the capacity of pastures and the quantity of winter feedstuff needed to meet the local ecological balance. Therefore, in addition to reclaiming unused pastures; constructing infrastructure, roads, watering, and irrigation systems; and increasing the production or purchasing of winter fodder, there is another mechanism available—the regulation (reduction and control) of the number of animals.

Although quotas for the number of livestock could be a suitable tool, the government is not ready to take that step. Currently, all questions on the regulation of pasture use are delegated to the local authorities. Thus, at the moment, the only instrument for the control of livestock numbers is implementing quotas at the local level [5].

Despite its potential effectiveness, the quota mechanism has a number of significant drawbacks. It may meet resistance or lack of understanding among farmers. For centuries, a family's wealth has been measured by the number of animals they owned. The need to reduce the number of animals runs counter to these traditions.

Livestock is practically the only investment opportunity in rural areas. It is necessary to provide some alternative investments if the mechanism of livestock quota is introduced. The introduction of a quota mechanism can lead to an increase in the number of cases of fraud and corruption. For the animals belonging to the rich farmers, fictitious owners from among poor families can be assigned. The actual number of animals would be hidden on even greater scale than it is now.

The mechanism of quotas is contrary to the current policy of the government. Currently, the government provides benefits to the owners of herds of more than 300 head of cattle and 500 head of small cattle such as sheep and goats [29]. These and other factors suggest that implementing the quota mechanism in the Kyrgyz Republic would be at least premature, if possible at all. Perhaps the introduction of different levels of taxation—higher taxes for the use of degraded pastures and lower taxes for grazing on remote and underutilized pastures—could be a good option.

Assignment

Your task is to assess the pros and cons of the various policy options from the perspective of each of the stakeholder groups and assess the recommendations made.

Policy Recommendations

Based on the options suggested above, the following steps are recommended:

1. Continue transferring regulating rights for pasture resources to the local level. This would take into account local peculiarities and ways of distributing pastures. The immediate step in this direction could be the integration of the databases of the federal authorities concerned with pasture distribution, and the monitoring carried out at the local level.

2. Simplify the leasing system for pastures located in the forest areas. The members of pasture committees should include not only the shepherds but also other categories of users (e.g., beekeepers) and single women who are running farming businesses, so everyone who receives income from pastures is involved. This will take into account the interests of all potential users of pastures.

3. Change the general policy of the state from supporting large farmers to helping farmers with small numbers of livestock. Additional mechanisms for monitoring the decisions taken at the local level could be introduced to counter corruption. Letting the pasture committees make all of the decisions at the local level could increase corruption, so establishing a special organization for controlling purposes could solve this issue.
4. Assist farmers in a particularly difficult period—in the winter, when there is a lack of fodder. This may be in the form of a micro-credit mechanism for purchasing feedstuff or the wholesale purchase of fodder, including from neighboring countries, in order to reduce prices. All of this requires appropriate research and legislation.

5. Investigate the experiences (including negative experiences) of neighboring countries with similar geographical conditions. Implement best practices and distribute pamphlets with recommendations at the local level.

6. Commission remote pastures via the construction or reconstruction of roads, bridges, and irrigation facilities. Animals grazing on these pastures would reduce the burden on the near-village pastures and improve the epizootic situation.
Additional Readings


References


[29] Information on 25 September 2015 on the implementation of the Plan of actions / obligations of the Minister of Agriculture and Land Reclamation of the Kyrgyz Republic to achieve the goals / objectives of the Programme of the Government of the Kyrgyz Republic for 2015. (in Russian)