Funded by the European Union

INIDI

ГРАЖДАНСКИЙ АЛЬЯНС ПАВЛОДАРСКОЙ ОБЛАСТИ

INSTITUTE FOR WAR & PEACE REPORTING
IWPR
ИНСТИТУТ РЕПОРТАЖЕЙ ВОЙНЫ И МИРА

White Paper

PASTURE MANAGEMENT AND LAND DEGRADATION ISSUES IN THE PAVLODAR REGION

AUTHORS

ZAREMA AKHMADIEVA / YELIF ULAGPAN

25

This publication was funded by the European Union. Its contents are the sole responsibility of IWPR and do not necessarily reflect the views of the European Union

«CIVIL ALLIANCE OF PAVLODAR REGION» **ASSOCIATION**

The Association is a union of more than 50 non-profit organizations in the region and serves as a leading platform for civil society in Pavlodar region.

Its main mission is to promote the protection of citizens' rights and strengthen civil society in Kazakhstan through supporting the activities of non-governmental organizations (NGOs), developing civic initiatives, and advancing the principles of social partnership between society, government, and business.

The Association pays special attention to working with rural communities, supporting their participation in decision-making processes, monitoring government programs, and promoting mechanisms for public control at the local level. Key areas of activity include developing systems for interaction between society and authorities, enhancing legal literacy among citizens, supporting public initiatives aimed at improving the quality of life in rural areas, and disseminating successful practices of citizen participation in governance.

The Association has significant experience in implementing projects related to the development of local self-governance, small grant programs, and advocacy campaigns aimed at strengthening the role of the civil sector in addressing social and legal issues in the region.

ABOUT IWPR

IWPR empowers local voices to drive change in countries in conflict, crisis and transition. Where hate speech and propaganda proliferate, and journalists and civic activists are under attack, IWPR promotes reliable information and public debate that makes a difference. With powerful new forms of disinformation driving social division, increasing digital security risks and escalating attacks on journalists, IWPR's mission to empower local voices is more important than ever. IWPR's core work is to strengthen the flow of credible, unbiased information, enabling journalists and civil society to inform, educate and mobilise communities. IWPR empowers societies to find their own solutions, by strengthening local capacity to report on and advocate for accountability, freedom of expression and human rights.

ABOUT THE EUROPEAN UNION

The European Union is an economic and political union of 27 European countries. It is founded on the values of respect for human dignity, freedom, democracy, equality, the rule of law and respect for human rights, including the rights of persons belonging to minorities. It acts globally to promote sustainable development of societies, environment and economies, so that everyone can benefit.

ABOUT THE AUTHORS

ZAREMA AKHMADIEVA

Zarema Akhmadieva is an economist in the field of agriculture, focusing on land use, rural development, and institutional economics in countries with transitional economies. She defended her doctoral dissertation at Martin Luther University in Halle-Wittenberg (Germany) in 2022. Currently, she is collaborating with Justus Liebig University in Giessen (Germany) and the Tashkent Institute of Irrigation and Agricultural Mechanization Engineers (Uzbekistan). In her work, she combines academic research with practical projects dedicated to rural transformation and agricultural policy.

YELIF ULAGPAN

Yelif Ulagpan is a doctoral student at the Graduate School of Public Policy at Nazarbayev University and a researcher at SDSN Kazakstan (Sustainable Development Solutions Network — a national network within the UN SDSN). She holds a master's degree from Shanghai University and previously worked as a researcher at the Center for the History of Global Development at Shanghai University. Her research focuses on sustainable development issues, particularly climate change, land use, and water resources.

TABLE OF CONTENTS

INTRODUCTION

Land degradation and desertification are among the most pressing environmental issues facing modern Kazakhstan, significantly impacting the agricultural sector and the livelihoods of the rural population.

The scale of this problem is critical: according to Hu et al. (2020), approximately 76% of the country's territory is moderately or highly susceptible to desertification, with approximately 3.8% of land already in a state of active degradation. The situation is particularly alarming in the area of pasture livestock farming. According to Tokbergenova et al. (2018), as of 2010, more than a quarter of Kazakhstan's pastures were degraded but continued to be used. Of the more than 20 million hectares of pastures adjacent to settlements, approximately 9 million hectares are already classified as degraded.

Land degradation is particularly acute in the Pavlodar region, where significant areas of degraded pastures are concentrated. Most of the region's landscapes — almost 80% of the territory—are classified as ecologically fragile and characterized by low resilience, due to the predominance of arable land and the lack of natural buffers capable of maintaining ecological balance (Ozgeldinova et al., 2021). The region contains over 727,000 hectares of degraded pastures, of which 502,000 hectares are moderately degraded and 225,000 hectares are severely degraded.[1]

Pasture degradation in Kazakhstan must be viewed as a consequence of systemic institutional transformations deeply rooted in the history of the Soviet and post-Soviet periods (Kolluru et al., 2024). These processes include the Virgin Lands campaign of the mid-20th century, which led to the destruction of steppe ecosystems, the shrinking of the Aral Sea, the abandonment of farmland after the collapse of the USSR, and institutional changes in the agricultural sector in the post-Soviet period, which continue to significantly impact the deterioration of land resources. Current challenges are exacerbated by climate change, droughts, and underinvestment in infrastructure.

Studies on pasture degradation in Kazakhstan (Kolluru et al., 2023, 2024; Tokbergenova et al., 2018) confirm the key role of anthropogenic factors in the decline of the vegetation index in northern regions, including Pavlodar Oblast. Intensive grazing, particularly by small livestock, and the concentration of livestock around villages create constant pressure on pastures, hindering their restoration. The paradoxical situation is

1 «More than 76,000 hectares of land are lacking for grazing livestock in the Pavlodar region», Inbusiness.kz, https://www.inbusiness.kz/ru/last/bolshe-76-tys-gektarov-ugodij-ne-hvataet-dlya-vypasa-skota-v-pavlodarskoj-oblasti

that a significant portion of remote pastures are unused due to the lack of necessary infrastructure, such as roads and water sources. Formally allocated areas are often closed to informal users, reinforcing social inequalities and hindering access to resources (Robinson & Petrick, 2024).

Institutional fragmentation adds complexity: despite the existence of regulations, pasture management plans are often not implemented or remain formal (Kvartiuk & Petrick, 2021; Robinson et al., 2021). Different government agencies act incoherently, creating administrative barriers and legal uncertainty. Research on pasture degradation in Kazakhstan emphasizes the importance of measures aimed at developing private and public pasture management, such as the introduction of rotational and planned grazing systems, improved coordination of pasture mobility, and reduction of livestock numbers, which will significantly help combat vegetation degradation (Kolluru et al., 2023, 2024; Robinson & Petrick, 2024).

This study aims to identify the institutional and socioeconomic factors contributing to pasture degradation in the Kyzylzhar district of Pavlodar region, assess their impact on rural households, and propose avenues for improving pasture management based on the opinions of farmers and experts. The significance of this study stems from the need for a comprehensive understanding of the institutional mechanisms influencing pasture resource degradation, as well as declining access to pastures for peasant and farm households and the rural population. Pasture degradation has a disproportionate impact on different categories of agricultural producers, with small farms lacking sufficient resources to organize pasture rotation and access remote lands being the most vulnerable.

The study's findings can contribute to the development of more effective pasture resource management mechanisms that take into account the interests of various groups and aim to prevent further environmental degradation. This is particularly relevant in the context of increasing social tensions in rural areas and the need to ensure the sustainable development of Kazakhstan's agricultural sector.

ANALYTICAL FRAMEWORK **OF THE STUDY**

The analytical framework of this study draws on the interdisciplinary approach used in political ecology, which examines the interactions between society and the environment. This approach emerged in the 1980s as a critical alternative to traditional approaches to analyzing environmental problems (Robbins, 2004). Unlike biophysical models, which view land degradation as the result of purely natural processes, political ecology views environmental problems as the result of complex interactions between environmental, social, economic, and political factors (Peet & Watts, 2004). This approach is particularly appropriate for analyzing pasture degradation in post-Soviet Kazakhstan, where the transformation of political-economic structures after 1991 fundamentally altered the natural resource management system.

To structure the empirical material within a political-ecological approach, this study applies the Drivers-Pressures-State-Impacts-Responses (DPSIR) model, which allows for the identification of causal relationships between systemic drivers, local land-use practices, and consequences for rural populations (EEA, 2001). The DPSIR model was originally developed by the European Environment Agency and has since been widely used in land degradation research as a tool for the systematic analysis of environmental problems.

FOR THE PURPOSES OF THIS STUDY, THE COMPONENTS OF THE DPSIR MODEL CAN BE DESCRIBED AS FOLLOWS:

01

DRIVING FORCES

include fundamental socioeconomic and political factors that create the need for environmental change. These include the transformation of the economic system after the collapse of the USSR, land privatization and changes in ownership patterns, demographic change and urbanization, and state macroeconomic policies. They shape the institutional environment in which decisions about the allocation and use of pastures are made.

02

PRESSURES

represent the direct human activities that affect pasture lands. Pressure on pastures in the Pavlodar region is caused by a combination of climate change and institutional constraints. The concentration of livestock around villages is increasing due to the inaccessibility of remote lands due to a lack of water and infrastructure. Rising feed costs and reduced government support exacerbate the pressure, especially for small farms.

This

03 **STATE**

describes the current ecological condition of pastures, including vegetation and soil degradation and declining productivity. The analysis includes the perceptions of change by different user groups.

04 **IMPACTS**

reflect the consequences of changes in pasture conditions for the well-being of rural populations, including reduced pasture productivity, economic losses for pastoralists, social tensions due to competition for resources, and violation of rural populations' environmental rights.

05 **RESPONSES**

include measures taken by society to address environmental issues, such as government pasture management policies, local land restoration initiatives, household adaptation strategies, and cooperation to combat degradation. This study analyzes the effectiveness and perceptions of government programs, with a particular focus on suggestions from farmers and experts for improving management practices.

This approach provides a deeper understanding of how institutional factors shape human-environment interactions. In the context of this study, this means analyzing pasture degradation not only as a technical resource management problem, but also as a manifestation of broader processes of social and environmental injustice that require integrated solutions that consider both the environmental and socio-political aspects of sustainable development.

METHODOLOGY

3.1 OBJECT OF THE STUDY

The study area in this paper is the Kyzylzhar rural district of Aksu city, Pavlodar region, Republic of Kazakhstan, which includes five settlements and covers an area of 102,951 hectares. As of January 1, 2024, the population of the district was 3,623. [2] Agriculture is the main source of employment and income for the local population, making the population particularly dependent on the state of natural resources and the efficiency of their use. There are 32 agricultural enterprises operating in the area, including 4 limited liability companies and 28 peasant farms (PF). The district is home to 5,187 head of cattle, 2,122 horses, and 5,991 sheep/goats. The predominance of small livestock is particularly significant in terms of the impact on pasture ecosystems, since, according to research by Kolluru et al. (2024), the density of sheep and goats is a key factor in vegetation degradation in the northern regions of Kazakhstan. A particularly significant characteristic of the study region is the high proportion of rural households that do not keep livestock — almost 43% of households (340 out of 798). This statistic highlights the varying economic opportunities of households and the heterogeneity of conditions for livestock farming, which may be related to the high costs of livestock maintenance.

It should be noted that according to the land balance of the Pavlodar region, the area of pastures as of November 1, 2023 was 8,291.5 thousand hectares, of which 5,108.3 thousand hectares are for agricultural purposes, 1,561 thousand hectares of public pastures are available for the needs of the population, and 1,535.5 thousand hectares are in reserve. [3]

3.2 DATA COLLECTION AND ANALYSIS

Qualitative research methods were used to study the institutional, environmental, and social aspects of pasture management in the Pavlodar region. The analysis was based on data collected through semi-structured interviews and focus groups with representatives of key stakeholders — local government bodies, relevant regional departments, one land use expert, farmers, and rural residents. All data collection activities were organized and conducted by the regional association «Civil Alliance of

2 Socio-economic passport of the village of Kyzylzhar, Office of the Akim of the Kyzylzhar rural district of the city of Aksu, Pavlodar region, https://www.gov.kz/memleket/entities/pavlodar-aksu-kyzylzhar/documents/details/601377
3 Consolidated analytical report «On the state and use of lands of the Republic of Kazakhstan for 2023», Ministry of Agriculture of the Republic of Kazakhstan, Committee on Land Resources Management.

Pavlodar Region» from May to July 2025. The interviews aimed to identify institutional barriers, common pasture use practices, and perceptions of degradation processes.

One of the key sources of data was a focus group with representatives of local executive bodies and regional departments involved in pasture management. The discussion included akims and deputy akims of three rural districts (Kyzylzhar, Yefremovsky, and Karaobinsky), representatives of the Land Relations Department and the Department of Economy and Budget Planning of Pavlodar Region. The discussion identified problems related to dysfunctional or formal management plans, weak interdepartmental coordination, and a lack of mechanisms to ensure access for vulnerable groups.

Additionally, on June 16, 2025, a focus group was held in Kyzylzhar village with residents of the rural district. Nine participants represented various categories of pasture users (farm households and akimat staff). Participants included both men and women aged 40 to 60. The discussion focused on gathering information about local barriers to pasture access, perceptions of pasture condition, and land allocation and use practices. Participation was voluntary, and data collection was conducted in accordance with ethical principles, including obtaining verbal consent and protecting personal information.

An additional source of information was an interview with an expert, a PhD candidate in biology and a professor at a university in Kazakhstan. He has over 20 years of experience in geobotanical surveys and pasture management planning. The interview, lasting approximately one hour, was conducted in person in June 2025. Its aim was to obtain an expert assessment of the dynamics of institutional change and sustainable pasture management practices, with an emphasis on comparing the current situation with the approaches of the Soviet period.

The collected data were analyzed using thematic coding, aimed at identifying recurring patterns, contradictions, and points of institutional tension. Comparison of various sources ensured the analytical reliability and contextual validity of the results.

DRIVING FORCES **OF PASTURE DEGRADATION**

Pasture degradation in the Pavlodar region is a complex process that transcends natural and economic factors. The primary causes lie in the institutional environment shaped by social and economic transformations. In this section, we examine how the legal framework, pasture allocation mechanisms, and governance create the structural preconditions for land degradation.

4.1 LEGISLATIVE REQUIREMENTS FOR PASTURE MANAGEMENT

Legislative requirements for pasture management in Kazakhstan can be roughly divided into three categories: pasture land management standards; regulations for livestock grazing; and mechanisms for local participation in decision-making.

PASTURE LAND MANAGEMENT

To regulate pasture lands in Kazakhstan, the state uses a planned management system. The main instrument of this system at the district level is the pasture management and use plan, which is approved by local executive bodies.

THE LEGAL BASIS FOR THESE PLANS IS PROVIDED BY SEVERAL KEY REGULATORY DOCUMENTS:

01 The Law of the Republic of Kazakhstan dated January 23, 2001, «On Local Public Administration and Self-Government in the Republic of Kazakhstan» [4] defines the powers of maslikhats and akimats in developing and approving territorial development plans. According to this law, maslikhats, as representative bodies, approve territorial development plans and programs, including local budgets, while akimats, as executive bodies, develop plans, economic, and social programs, and ensure their implementation.

4 «On local government and self-government in the Republic of Kazakhstan» https://adilet.zan.kz/rus/docs/Z010000148_#z305

02 Order of the Minister of Agriculture of the Republic of Kazakhstan dated April 14, 2015, No. 3-3/332, «On Approval of the Maximum Permissible Load on the Total Area of Pastures», [5] establishes specific load standards for pastures in the form of technical standards and obliges all users to comply with the established standards without exception.

03 The Law of the Republic of Kazakhstan dated February 20, 2017, «On Pastures» [6] regulates public relations related to the rational use of pastures and is aimed at preventing pasture degradation and improving the condition of pasture infrastructure facilities.

04 Order No. 173 of the Minister of Agriculture of the Republic of Kazakhstan dated April 24, 2017, «On Approval of the Rules for the Rational Use of Pastures», [7] specifies requirements for pasture users and defines clear procedures for the rational use and restoration of pasture lands.

05 Order No. 263 of the Minister of Agriculture of the Republic of Kazakhstan dated July 29, 2024, «On Approval of a Model Plan for Pasture Management and Use», [8] obliges local executive bodies to develop and approve pasture management plans according to a uniform template, with maslikhats approving these plans in their territories, ensuring consistency in planning throughout the country.

Collectively, these documents establish formal rules for pasture use, including load standards, planning mechanisms, and principles of rational use. The standard pasture management plan adopted in 2024 established uniform national planning standards for the first time. However, the process of fully implementing the new requirements in all regions of the country is ongoing.

5 «On approval of the maximum permissible load on the total area of pastures», https://adilet.zan.kz/rus/docs/V1500011064
6 Law «On Pastures», https://adilet.zan.kz/rus/docs/Z1700000047#z8
7 «On approval of the Rules for the rational use of pastures», https://adilet.zan.kz/rus/docs/V1700015090
8 «On approval of a standard plan for pasture management and use», https://adilet.zan.kz/rus/docs/V2400034831

THE STANDARD PASTURE MANAGEMENT AND USE PLAN IS DEVELOPED AT THE DISTRICT LEVEL, WITH THE PARTICIPATION OF RURAL DISTRICTS, BASED ON DATA FOR EACH LOCALITY AND MUST INCLUDE DIAGRAMS (MAPS) SHOWING:

- the location of pastures by land category and land use forms (including transhumance, seasonal, and cultivated);
- areas designated for the needs of private household plots (including public pastures);
- recommended pasture rotation schemes;
- existing and planned infrastructure elements (cattle routes, burial grounds, water sources, etc.);
- zones for the reservation and redistribution of pastures between settlements;
- access routes to water sources;
- areas for the placement of distant-pasture livestock;

AS WELL AS APPENDICES NECESSARY FOR THE ASSESSMENT AND JUSTIFICATION OF THE PROPOSED MEASURES:

- Appendix 1: Land balance data and information from the state cadastral system;
- Appendix 2: Results of geobotanical surveys, including a description of vegetation, its productivity, and degradation processes;
- Appendix 3: Information on infrastructure facilities (paddocks, wells, watering troughs) and established easements;
- Appendix 4: Number of livestock by species and categories, obtained from the livestock identification database;
- Appendix 5: Pasture rotation schemes reflecting the permissible load and time cycles of pasture restoration.

Pasture management plans are developed for a five-year period. These plans are updated and revised as necessary, but at least once every five years. [9]

9 Law «On Pastures», Article 13.

As for the Kyzylzhar rural district, the pastures in this area are covered by management plans developed by the Aksu city maslikhat. The previous document, «Pasture Management and Use Plan for the City of Aksu for 2023–2024» [10] was approved in December 2023 but subsequently cancelled on September 25, 2024. It covered six rural districts, including the Kyzylzhar rural district. Subsequently, on May 16, 2025, by Resolution No. 202/34 of the Aksu City Maslikhat, the «Pasture Management and Use Plan for the City of Aksu for 2025–2029» [11] , was approved, which remains the current document.

GRAZING OF FARM ANIMALS

The legal framework for grazing of farm animals in Kazakhstan is based on documents at three levels: **national, regional, and district.** Each plays a specific role in ensuring the rational use of pastures and preventing their degradation.

- Order No. 145 of the Minister of Agriculture of the Republic of Kazakhstan dated April 29, 2020, «On Approval of the Model Rules for Grazing Farm Animals» [12] establishes uniform rules for grazing livestock throughout the country, which include requirements for livestock identification and registration; sanitary and veterinary conditions; pasture load standards; Prohibitions on grazing in protected areas, along roads, unaccompanied grazing, etc.

- In the Pavlodar Region, the regional document establishing grazing regulations is Resolution No. 24/3 of the Pavlodar Regional Maslikhat dated April 22, 2021, «On Approval of the Rules for Grazing Livestock in the Pavlodar Region». [13] The document regulates the identification, recording, and grazing of livestock, defines prohibited grazing zones (water protection areas, public lands, road right-of-ways), and establishes the responsibilities of akimats for the implementation and annual reporting of the Pasture Management Plan. It also regulates the procedure for livestock transhumance, the arrangement of livestock passes and watering holes, establishes the priority of public pastures for the local population, establishes maximum load standards, and penalties for violations.

- These regulations should be adapted and incorporated into the pasture management plan at the district level in conjunction with the akims of villages and rural districts.

10 «On Approval of the Pasture Management and Use Plan for the City of Aksu for 2023–2024», https://adilet.zan.kz/rus/docs/G23PB07610M
11 «On approval of the Plan for pasture management and use in the city of Aksu for 2025–2029», https://adilet.zan.kz/rus/docs/G25PB20234M
12 «On approval of the Model Rules for grazing farm animals», https://adilet.zan.kz/rus/docs/V2000020540
13 «On approval of the Rules for grazing farm animals in the Pavlodar region», https://adilet.zan.kz/rus/docs/G21P000243M#z6

3

PARTICIPATION OF LOCAL POPULATION IN DECISION-MAKING

Kazakhstan's legal framework provides mechanisms for rural participation in pasture management:

01 According to Article 39-3 of the Law of the Republic of Kazakhstan dated January 23, 2001, «On Local Public Administration and Self-Government in the Republic of Kazakhstan», local community assemblies and meetings must be held in cities of district significance, villages, settlements, and rural districts to resolve local issues. One of the key issues subject to mandatory discussion at these assemblies is the hearing of annual reports from akims on the progress of the Pasture Management and Use Plan.

02 These provisions are detailed in the Law of the Republic of Kazakhstan «On Pastures» (February 20, 2017). Article 9 obligates local akims not only to ensure the implementation of plans but also to submit annual reports to local government bodies, that is, to the population through assemblies. Furthermore, Article 11 enshrines the right of pasture users to participate in the development of management plans and to take part in discussions at assemblies and meetings of the local community regarding the provision and use of pastures.

4.2 PROBLEMS RELATED TO THE IMPLEMENTATION OF PASTURE MANAGEMENT PLANS

While legislative implementation is aimed at sustainable pasture use and preventing their degradation, in practice, its implementation faces a number of serious challenges. These difficulties are rooted in the historical context and manifest themselves at multiple levels of governance.

4.2.1 LOSS OF SYSTEMATIC PLANNING

An interview with a geobotany expert revealed that one of the key institutional drivers of pasture resource degradation in the Pavlodar region was the loss of the systemic pasture planning model that existed during the Soviet period. At that time, pasture and agricultural management was strictly centralized and based on a planned economy. Pasture and agricultural land management during this period was based on a collective system — state and collective farms. A centralized land use planning system existed, including clear allocation of pasture zones, livestock routes, infrastructure (wells, corrals, seasonal campsites), and specialized services for biomass monitoring and geobotanical surveys.

THIS SYSTEM ENSURED A CERTAIN STABILITY IN ACCESS TO PASTURE RESOURCES AND REGULATED SEASONAL LIVESTOCK MIGRATION:

«Every collective farm, state farm... had... a plan for internal land management... where the direction of the farm was fully outlined, what types of activities were carried out... what resources were available... what kind of soils, what bonitet [14], what these soils are suitable for... And for livestock farming... these are forage lands, a forage base». (Expert)

IN ADDITION, SYSTEMATIC GEOBOTANICAL SURVEYS AND MONITORING OF THE LANDS WERE CONDUCTED:

«...every collective and state farm had a separate document — a report on the botanical and forage survey of the forage lands. This report included several parts. First, a geobotanical description with land explication. Second, a geobotanical map, quite detailed. And third, recommendations for organizing the use of the forage lands». (Expert)

The expert also emphasized that such geobotanical surveys were conducted every five years, as pasture characteristics could change significantly during this time. These surveys required the participation of various specialists, such as a geobotanist, a florist, a soil scientist, and a technician. The work began with the analysis of aerial photographs and the identification of the contours to be surveyed. In the field, each contour was studied in detail: the species composition, abundance, layering, and phenological state of the vegetation were recorded, and yields were calculated — both in wet and air-dry mass, as well as for individual agricultural plant groups.

14 A quantitative indicator reflecting the actual or potential quality of natural objects (animals, plants, soils), determining their economic value.

ALL THIS INFORMATION ABOUT THE FORAGE RESERVES AND NUTRITIONAL VALUE FORMED THE BASIS FOR PASTURE AND HAY ROTATION PLANS, WHICH ALSO TOOK INTO ACCOUNT THE ANIMAL GROUPS FOR WHICH THESE PASTURES WERE INTENDED:

«The idea behind all this work is to prevent animals from grazing repeatedly in the same area... to... allow the area to recover for 7 to 14 days... it's best to have animals graze there once every two weeks. This is enough time for the vegetation to recover». (Expert)

PARTICULAR ATTENTION WAS PAID TO PREVENTING SOIL DEGRADATION DUE TO EXCESSIVE TRAMPLING:

«The plan envisaged the configuration... of grazing sectors... the configuration was elongated... The width was calculated... two linear meters per head... [So that the cow] could eat grass without having to step on it with their hooves... And this way, the negative impact of hooves on the soil could be minimized». (Expert)

The expert also noted that during Soviet times, areas designated for specific animal species were strictly regulated, based on the quality and composition of the grass. For example, wormwood and steppe areas were designated for small cattle, succulent areas were designated for dairy cows, and feather grass areas were designated exclusively for horses. Pasture management plans also took into account seasonal forage management, including haymaking, aftergrazing, and the timing of reuse.

REGULATING HAYMAKING TIMES ENSURED THE PRESERVATION OF SPECIES DIVERSITY:

«...It was taken into account... that haymaking was carried out at different times throughout the year. Because if you mow at the same time every year, year after year, the species composition suffers greatly... some species don't have time to seed». (Expert)

Thus, the Soviet system was distinguished by a high degree of scientific justification, a comprehensive approach to planning, and strict adherence to pasture use regulations. The post-Soviet collapse of this structure led to the disintegration of territorial governance mechanisms, fragmentation of responsibilities, and the disappearance of human resources. The loss of this system became a significant institutional factor contributing to the degradation of pastures in the post-Soviet period.

4.2.2 INCONSISTENCY OF PLAN CONTENT WITH REQUIREMENTS AND THEIR LIMITED PRACTICAL APPLICABILITY

Before the standardized plan format was approved in 2024, various administrative districts used various document formats, ranging from brief, schematic plans to more detailed ones. Many districts still have not developed plans in the new format and are relying on outdated documents, many of which were adopted as early as 2017.

A significant shortcoming of current plans is their formal approach to justifying planning decisions. In many cases, the plans merely mention that they were developed taking into account geobotanical survey data, information on veterinary facilities, and livestock numbers. However, they lack specific information on the timing of the surveys, the contractors, and the sources of information. Exceptions are rare — for example, a more substantive structure is observed in the pasture management plan for the Aktogay district of the Karaganda region. [15]

The pasture management plan for the city of Aksu for both 2023-2024 and 2025-2029, which includes the Kyzylzhar rural district, consists primarily of cartographic diagrams. It presents diagrams of pasture distribution by land category, plots for private households, recommended pasture rotations, infrastructure facilities (including livestock crossings and burial grounds), as well as plans for access to water sources, pasture reservations, and the redistribution of plots between settlements.

DESPITE THE PRESENCE OF NINE BASIC SCHEMES, IT LACKS THE MANDATORY APPENDICES STIPULATED BY THE METHODOLOGICAL RECOMMENDATIONS:

- Detailed data on the regional land balance and the state land cadastre information system;
- Information on geobotanical surveys of pastures;
- Information on pasture infrastructure facilities and easements for the passage of livestock;
- Livestock population based on animal identification system data;
- Recommended pasture rotation schemes, justified by calculations of grazing load and cyclical use of the plots.

15 «Pasture Management and Use Plan for the Aktogay District for 2023-2024, https://zakon.uchet.kz/rus/docs/G23KJ00040M#z9

Thus, despite the presence of visual maps, the plan lacks the substantive analytical and factual basis necessary for effective and sustainable pasture resource management.

An additional problem is the poor quality of cartographic materials. The diagrams and maps presented in the plans are characterized by low resolution, with no possibility of obtaining high-quality versions for detailed analysis. In practice, this limits the use of these diagrams even at the local government level, not to mention ordinary land users. As **Figure 2** shows, the symbols on the maps are often not standardized, which reduces their comprehensibility and complicates their application in everyday practice.

Although pasture management plans must be updated every five years, the requirements for geobotanical surveys of pastures vary significantly. According to the «Methodology for Conducting Large-Scale (1:1,000 – 1:100,000) Geobotanical Surveys of Natural Forage Lands in the Republic of Kazakhstan» [16] (Chapter 1, Section 6), geobotanical surveys of natural forage lands should be conducted every 15 years, and on average once every 10 years in areas with intensive agriculture.

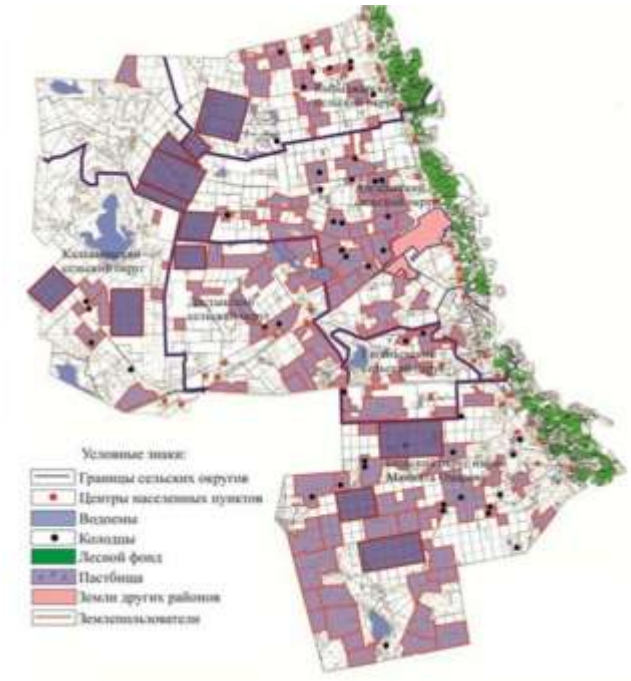
ОДНАКО ПО МНЕНИЮ ЭКСПЕРТА ЗА ЭТОТ СРОК ДАННЫЕ СТАНОВЯТСЯ УСТАРЕВШИМИ:

«After 10 years, the data is definitely outdated. Moreover, for floodplain lands, even 10 years is a long time. Floodplain lands undergo significant transformation within five years. Steppe lands are more stable and can be surveyed less frequently». (Expert)

Geobotanical surveys of pastures are conducted under an agreement concluded between the State Corporation «Government for Citizens» and the local executive body of a district (except for districts within cities) or city of regional significance, in accordance with the Law of the Republic of Kazakhstan «On Public Procurement».

16 «On approval of the Methodology for conducting large-scale (1:1,000 – 1:100,000) geobotanical surveys of natural forage lands of the Republic of Kazakhstan», https://adilet.zan.kz/rus/docs/V2200030043

Figure 2 Examples of pasture layouts in pasture management plans



Aksu city, Pavlodar region. Plan for 2023–2024.

Aksu city, Pavlodar region. Plan for 2025–2029.

Aktogay district of Karaganda region, plan for 2023-2024.

Yesil district of North Kazakhstan region, plan for 2024-2028.

Source: diagrams taken from pasture management plans, www.adilet.zan.kz.

IN OTHER WORDS, THESE SURVEYS ARE CONDUCTED AT THE DISTRICT LEVEL, MAKING THEM UNSUITABLE FOR DEVELOPING AN EFFECTIVE PASTURE MANAGEMENT PLAN:

«...the map scale does not allow for identifying these geobotanical differences. Therefore, it is possible to show some general directions at the district scale, but detailed geobotanical surveys, detailed mapping... at the scale of an entire district are fundamentally unrealistic». (Expert)

MEETINGS WITH LOCAL GOVERNMENT REPRESENTATIVES REVEALED THE FOLLOWING SYSTEMIC PROBLEMS HINDERING EFFECTIVE PASTURE MANAGEMENT PLANNING AT THE DISTRICT LEVEL:

- Delays in plan development and a severe shortage of up-to-date geobotanical data. Specialists rely on information from the 1990s, which does not reflect the current state of pastures.
- Lack of analytical justification. Plans are limited to presenting existing assets, without strategic analysis or specific conservation measures. This hinders the development of scientifically sound pasture management.
- Insufficient funding for field research from regional budgets.
- Lack of up-to-date pasture degradation maps, which complicates the assessment of anthropogenic impacts and the planning of restoration measures.
- Inaccurate livestock data. The current livestock identification database contains errors, while more accurate veterinary records are not used in practice.
- Low qualifications and lack of motivation among local specialists. The problem is exacerbated by a lack of methodological support and a system for advanced training.

The identified problems suggest that the key obstacle to high-quality pasture use planning remains the lack of up-to-date geobotanical data. According to local executive authorities, insufficient funding prevents the timely implementation of relevant work. However, the Law «On Pastures» (Article 13) states that «financing for the development of a Pasture Management and Use Plan shall be provided from budgetary funds and/or other sources not prohibited by the legislation of the Republic of Kazakhstan». Therefore, it can be assumed that the budget is not taking into account the costs of geobotanical work necessary for plan development. However, this issue requires further research.

The identified systemic deficiencies require a comprehensive approach to reforming the pasture use planning system, including improving the regulatory and methodological framework, upgrading the qualifications of specialists, ensuring an up-to-date information base, and strengthening quality control over the plans being developed.

4.2.3 LACK OF PUBLIC PARTICIPATION IN DECISION-MAKING

Despite regulatory requirements requiring rural population participation at all stages of pasture planning and management (from plan discussion and approval to monitoring their implementation), citizen engagement remains extremely low in practice. This is confirmed by interviews with local government officials and village residents conducted as part of this study. Meetings, which should serve as a feedback and public oversight mechanism, are often either not held at all or are merely formal, failing to take into account the public's opinions.

«No [the plan was not discussed]... I've stated this several times already. I attended these meetings at the regional level. I always say this». (Local farmers)

FURTHERMORE, EVEN AT THE AKIMAT LEVEL, PROPER DOCUMENT DISTRIBUTION AND PUBLIC OUTREACH ARE NOT ENSURED:

«Yes, there was some kind of letter... We gave... a summary». (Local administration representative)

However, as further clarified, the local akimat did not receive the plan itself. Furthermore, gender representation in decision-making on pasture planning is virtually nonexistent. Despite women's active participation in farm management, their opinions are not taken into account when discussing pasture allocation and grazing management.

«This is still largely a men's issue... Women are not particularly involved». (Local farmers)

Thus, a significant gap remains between legal norms and actual practice. The lack of a real participation mechanism, particularly for vulnerable groups, reduces the legitimacy of decisions, hinders effective resource management, and exacerbates social fragmentation in rural communities.

4.3 DISTRIBUTION OF PASTURE LANDS

In addition to regulations governing pasture use, one of the significant institutional factors influencing degradation is inefficient land allocation and land use conditions. Pasture lands in Kazakhstan are formally regulated by a number of regulations, the key ones being the 2003 Land Code and the Law «On Pastures». Together, they define the rules for distributing land plots among various categories of users: village residents (for personal plots), peasant farms, and agricultural enterprises. According to Article 15 of the Law «On Pastures», pastures located near populated areas and owned by the state must be used to meet the needs of the population, in particular for grazing livestock kept in private plots. These lands do not require a separate decision from the akimat when transferring for use if they are included in the approved pasture management plan. In cases where local pastures are insufficient, livestock are relocated to other sites, including distant pastures, in accordance with the same plan. However, access to these sites is difficult in practice. They are either already assigned to private landowners or located a significant distance from villages.

In turn, the allocation of pastures for peasant or farming activities is regulated by Article 43-1 of the Land Code. State-owned plots not transferred for land use may be allocated to farmers on a temporary, compensated land use (lease) basis only through a competitive tender. Tendering conditions are established by law and include a package of documents, investment obligations, and other selection criteria.

FORMALLY, THIS ENSURES EQUAL ACCESS. HOWEVER, ACCORDING TO FARMERS, TENDERS FOR TEMPORARY, COMPENSATED LAND USE RIGHTS FOR PEASANT OR FARMING ACTIVITIES OFTEN BECOME A BARRIER FOR SMALL AND MEDIUM-SIZED FARMS DUE TO HIGH INVESTMENT REQUIREMENTS AND COMPLEX PROCEDURES:

«In fact, this tender... works... for the oligarchs... you haven't taken these lands yet, but you have to invest a certain amount... a poor peasant who wants to work, where does he get that kind of money?» (Local farmers)

Additionally, fictitious land use is a common problem: after a lease is formalized, plots can be used as collateral or not used at all, yet remain legally assigned to the «winner» of the tender. Such plots are often located near villages. Repossessing such plots is extremely difficult, even in cases of systematic neglect.

THIS SYSTEM, THEREFORE, CREATES CONDITIONS FOR SPECULATIVE LAND USE, WHERE PLOTS ARE OBTAINED NOT FOR PRODUCTIVE USE, BUT AS COLLATERAL FOR LOANS:

«... a person takes money [a loan]... he doesn't use the land... That is, they take it to secure collateral... they give him [the land] for 10 years... he doesn't even use it for three years; the state can't take it away from him». (Local farmers)

SHORT-TERM LEASES ALSO HINDER LONG-TERM PLANNING AND INVESTMENT IN PASTURE IMPROVEMENT. LOCAL RESIDENTS NOTE:

«... a neighbor signed a lease for four years, but they haven't given him more». And 4 years have passed... now they won't let us extend it any further.». (Local farmers)

THIS LAND DISTRIBUTION SIGNIFICANTLY EXACERBATES THE SITUATION, MAKING FULL-FLEDGED ROTATIONAL PASTURE PLANNING IMPOSSIBLE. THIS IS ALSO CONFIRMED BY THE EXPERT'S OPINION:

«This fragmentation of the territory is truly a problem... it greatly complicates the organization of rotational pastures. [Pastures] are scattered... it's often impossible to provide these herds with equal, equivalent grazing sectors, taking into account all their needs, their geographic location, grass requirements, and so on. Currently, grazing is carried out on a «grazing where there is room» basis». (Expert)

The problem of pasture distribution is exacerbated by the lack of transparent and fair mechanisms for land access for both existing and new users. Young farmers are particularly vulnerable in this context, facing limited opportunities to participate in official land acquisition procedures.

LAND DISTRIBUTION IS OFTEN ACCOMPANIED BY INFORMAL PRACTICES, CREATING BARRIERS FOR THOSE WITHOUT CONNECTIONS:

«These days, young people keep livestock... We just need to pave the way for these young people... How will they register [the land]? Through a competition. They have no chance... They must have a good uncle who is well-connected»... (Local farmers)

Thus, despite the existence of a regulatory framework, the current practice of pasture land distribution does not ensure fair access and effective management, creating the institutional preconditions for degradation.

FACTORS EXACERBATING **PASTURE DEGRADATION**

Pastures in the Kyzylzhar rural district are experiencing persistent and increasing pressure from both natural and anthropogenic factors. In this section, we examine the key factors that are increasing pressure on pasture resources and hindering their sustainable use. The analysis covers the expansion of large agricultural holdings, unsustainable land management practices, a severe shortage of qualified personnel and technology, and problems with access to water and electricity.

5.1 EXPANSION OF LARGE FARMS AND SHORTAGE OF PASTURES

One of the key factors accelerating pasture degradation is the expansion of large agricultural enterprises, which is displacing small-scale users from traditionally used pasture areas. Lands previously used for seasonal grazing are increasingly being converted to arable land or used as production lands for agricultural holdings and large tenants.

Local residents note that many pastures previously available for public use have become inaccessible due to their privatization or transfer to large farms for long-term land use.

THIS LEADS TO THE BLOCKING OF TRADITIONAL LIVESTOCK ROUTES, FRAGMENTATION OF THE TERRITORY, AND THE IMPOSSIBILITY OF ORGANIZING SUSTAINABLE PASTURE ROTATION. ONE FOCUS GROUP PARTICIPANT EMPHASIZED:

«There are [nearby pastures that were previously used but are now inaccessible]... [agricultural enterprises] have taken up production... They have plowed the land... They grow forage crops on them for themselves». (Local farmers)

Another important problem is the lack of accessible pastures near villages, which limits the ability of the local population to increase livestock numbers.

RURAL HOUSEHOLDS, EVEN WITH THE RESOURCES AND DESIRE TO EXPAND THEIR FARMS, FACE A SHORTAGE OF AVAILABLE GRAZING LAND:

«Of course, we'd like [to keep more livestock]. But there aren't enough grazing lands». (Local farmers)

Thus, the expansion of large farms limits rural population access to grazing resources and hinders the expansion of farmers and local populations, creating conditions for the degradation of the remaining overcrowded lands and exacerbating social inequality in access to land.

5.2 IRRATIONAL USE OF PASTURES

Along with the shrinking availability of land, irrational use is putting significant pressure on pasture resources. Despite the existence of formally accessible pastures, many are either used inefficiently or are degrading due to non-compliance with pasture rotation regulations, a lack of collective coordination, and irregularities in the land conversion process. Local residents confirm the existence of pastures near settlements that are formally designated for public use.

HOWEVER, GRAZING IS OFTEN CARRIED OUT HAPHAZARDLY, WITHOUT OBSERVING SCHEDULES OR ROTATING PLOTS:

«Where are we supposed to graze? There are only 300 hectares there, but how... Please, give us another 300 hectares, and we'll go there. Then the land will recover. But if there's nowhere to go, where will you [graze]?» (Local farmers)

Households make individual decisions based on convenience rather than environmental sustainability, leading to localized overgrazing and disruption of vegetation structure. Inefficient use also manifests itself in cases of misuse of pasture lands for other purposes without due regard for their resilience

FOR EXAMPLE, IN ONE VILLAGE, THOUSANDS OF HECTARES OF PASTURES CONVERTED FOR FISH FARMING WERE DESTROYED, WHICH SUBSEQUENTLY PROVED INEFFECTIVE AND CAUSED SERIOUS DAMAGE TO THE ECOSYSTEM:

«They... ground up all the land. But these lands were once pastures... they dug pits to raise fish... Now there are weeds there... Now it needs to be restored... leveled back... all the bushes need to be pulled out to convert them back to pastures... perennial grasses need to be sown». (Local farmers)

THE PROBLEM IS EXACERBATED BY THE LACK OF ORGANIZED PASTURE MANAGEMENT. RESPONSIBILITY FOR GRAZING AND MAINTAINING THE LAND IS EFFECTIVELY SHIFTED TO HOUSEHOLDS, WHO LACK THE MEANS TO PROVIDE FOR HERDING TO DISTANT PASTURES:

«We lost our shepherd, people didn't know what to do... how could we send our cows out into the steppe to pasture?» (Local farmers)

Furthermore, there is no pasture users' association or self-government organization in the district, which further complicates the rational use of pastures. All this increases environmental pressure on limited resources and hinders the restoration of degraded pastures.

5.3 LACK OF PROFESSIONAL STAFF AND PASTUR RESTORATION TECHNOLOGIES

One of the critical factors contributing to pasture degradation is the loss of traditional pasture management technologies and the acute shortage of qualified agricultural personnel. During Soviet times, a number of farms systematically carried out pasture restoration work, including harrowing, rotating plots, and temporarily leaving the land unused.

THESE PRACTICES HAVE NOW BEEN ALMOST COMPLETELY LOST:

«...in the Soviet system, pastures were harrowed...now this is no longer the case. Not a single manager, no one even thinks about it. And without this, it's useless to restore the pastures... They [the pastures] never rest... Because the cattle are constantly [grazing]». (Local farmers)

The lack of mechanical cultivation of pastures leads to their constant use without periods of recovery.

A similar situation exists with pasture grassing — the process of creating an artificial grass cover by sowing perennial cereals and legumes. Grassing is considered an important tool for combating soil erosion and depletion. In Kazakhstan, attempts have been made to implement grassing programs at the state level over the years, but the results have been unsatisfactory.

LOCAL FARMERS POINT TO THE INEFFECTIVENESS OF PASTURE GRASSING INITIATIVES:

«There was a grassing program. It was about eliminating bare spots, erosive areas in the steppe... Funds were allocated for the grassing program. Local akims signed this act. And the money was wasted». (Local farmers)

HOWEVER, DESPITE THE LACK OF OVERSIGHT OVER IMPLEMENTATION, EXPERTS EMPHASIZE THAT EVEN WITH FUNDING, WITHOUT TECHNICAL SUPPORT AND LOCALIZED KNOWLEDGE, SUCH PROGRAMS ARE DOOMED TO FAILURE:

«... the lack of demand for these tenders... is due to entrepreneurs' lack of technological know-how. There's simply no experience with this kind of work... And here, the first priority is to provide training and familiarize entrepreneurs with the techniques of sowing in various soil conditions for various types of vegetation. We need to have a stable seed base». (Expert)

The expert emphasizes the loss of human resources and the collapse of agricultural science, including experimental fields, seed institutes, and educational programs.

MODERN AGRICULTURAL UNIVERSITIES ARE UNABLE TO TRAIN THE REQUIRED NUMBER OF SPECIALISTS, AND TARGETED SUPPORT FOR RURAL YOUTH IS VIRTUALLY NONEXISTENT:

«Rural graduates don't always have the opportunity to apply for grants. Those applying for grants are urban graduates who are generally not interested in finding employment in rural areas». (Local farmers)

As a result, there is a severe shortage of agronomists, geobotanists, plant breeders, pasture engineering engineers, and other key personnel necessary for sustainable pasture management.

5.4 LIMITED ACCESS TO WATER SUPPLY AND ELECTRICITY

Access to water and electricity is essential for the efficient use of pastures and the sustainable development of livestock farming. However, rural areas face both infrastructural and climatic limitations, exacerbating the problem. Insufficient public investment in watering systems and electrification, as well as unsuccessful or poorly implemented well drilling programs, create barriers to adequate livestock grazing, especially in remote areas. The watering situation varies significantly depending on the distance from settlements.

ALTHOUGH THE SITUATION IS RELATIVELY STABLE NEAR SETTLEMENTS, IN THE STEPPE ZONES WHERE DISTANT PASTURES ARE LOCATED, THE SHORTAGE OF WATERING POINTS BECOMES CRITICAL:

«Near the village, there are no problems with water... only in the steppe». (Local farmers)

HOWEVER, EVEN IN RELATIVELY PROSPEROUS AREAS, THERE ARE SETTLEMENTS FACING CRITICAL SITUATIONS. THE PROBLEMS ARE EXACERBATED BY CLIMATE CHANGE, PARTICULARLY THE REDUCTION IN MELTWATER AND SUMMER DROUGHTS:

«We don't have a watering point». «We all get water at home... During the spring, there's a small pit near the village... the snow melts, the meltwater collects, and the cows drink from it. When the heat hits, there's no water». (Local farmers)

THE PROBLEMS AFFECT NOT ONLY LIVESTOCK WATERING POINTS BUT ALSO THE POPULATION'S DRINKING WATER SUPPLY, INDICATING THE SYSTEMIC NATURE OF THE WATER RESOURCE CRISIS:

«The water has disappeared. Previously, we pumped [drinking water from wells] all day long, and the water never ran out». (Local farmers)

THIS INDICATES A POSSIBLE DROP IN GROUNDWATER LEVELS OR A CHANGE IN THE AREA'S HYDROLOGICAL REGIME. ATTEMPTS TO ADDRESS THE PROBLEM THROUGH GOVERNMENT WELL-DRILLING PROGRAMS HAVE PROVEN INEFFECTIVE. FARMERS REPORT VIOLATIONS IN PROGRAM IMPLEMENTATION:

«There was a program where they dug wells for us. And what's the point? We still ended up paying back and re-dug them ourselves». (Local farmers)

THE LACK OF ELECTRICITY HINDERS THE USE OF MODERN WATER PUMPING SYSTEMS:

«We need power. Electricity, water. We need infrastructure».

«We just need to get water. We don't have power». (Local farmers)

The combination of water and energy constraints creates systemic barriers to the efficient use of pasture resources, contributing to the concentration of livestock near populated areas and increasing anthropogenic pressure on limited areas.

ECOLOGICAL CONDITION OF PASTURES **AND SOCIO-ECONOMIC CONSEQUENCES**

Pressure on pastures due to unregulated and uncontrolled use, inadequate infrastructure, and a lack of coordination mechanisms is leading to a steady deterioration. These processes are documented by both local residents and experts, and institutional and technical gaps in the monitoring system prevent timely responses to the growing threats. The decline in forage productivity directly impacts the economies of rural households and farmers: livestock costs rise, livestock numbers decline, and in some cases, livestock farming is abandoned entirely. Thus, the environmental degradation of pastures is closely intertwined with socioeconomic consequences, creating a complex problem requiring systemic management and adaptation measures.

6.1. DEGRADATION OF PASTURE LANDS

The state of pastures in the region is characterized by a critical level of degradation. According to expert surveys, almost all forage lands near populated areas are moderately to severely degraded, and within a radius of up to 1.5 kilometers from villages, many areas have reached the stage of catastrophic ecosystem destruction (catastrophic ecosystem disease):

> *«We have no intact forage lands left... a small portion is slightly disturbed, but this is rare. Most forage lands are moderately to severely disturbed, and unfortunately, near populated areas, this has become a pattern... the complete destruction of the soil and vegetation cover is occurring».* (Expert)

THE PROGRESSIVE NATURE OF DEGRADATION PROCESSES AND THE INEFFECTIVENESS OF GOVERNMENT PROGRAMS TO RESTORE VEGETATION ARE PARTICULARLY ALARMING:

> *«The area of catastrophic ecosystem disease increases annually».*
>
> *«There was no grassing. And these areas are now in a purely erosive situation».* (Expert)

DEGRADATION AFFECTS NOT ONLY THE VEGETATION BUT ALSO THE SOIL LAYER:

«In addition to vegetation degradation, soil degradation occurs, leading to secondary soil salinization. Soil erosion occurs — by water near bodies of water, by wind in the steppe. And this, if action is not taken now, will lead to very serious threats to the country's food security». (Expert)

SOIL DEPLETION IS CAUSED BY DISRUPTION OF NUTRIENT CYCLING:

«Most of the waste products remain in the stables, and we eat the [livestock products] themselves... They don't return to the soil, so the soil naturally becomes depleted of nutrients and will lose yield without fertilizer». (Expert)

While institutional failures and unmanaged use are key factors putting pressure on pasture ecosystems, climate change is increasing the vulnerability of these systems. Summer droughts are particularly dangerous for the region, becoming increasingly frequent, shortening the growing season, and depleting the forage supply. Local residents attribute the decline in grass yields and livestock losses not only to overgrazing but also to unpredictable weather conditions:

«The pastures have deteriorated... First of all, there's less grass. The drought hasn't allowed them to recover». (Local farmers)

DRY PERIODS ARE EXACERBATED BY FIRES:

«We've had fires for two years in a row... when there was a drought».

«The pastures have deteriorated; there's no rain. Everything has turned yellow, like autumn». (Local farmers)

LOCUST INFESTATIONS ARE AN ADDITIONAL FACTOR IN DEGRADATION, ESPECIALLY DURING DRY PERIODS:

«Locusts... when we have a drought... now the locusts have arrived, and that's it, we won't have any pasture». (Local farmers)

Thus, the ecological condition of pastures reflects accumulated problems not only in management but also in adaptation to changing environmental conditions. Progressive destruction of grass cover, soil erosion, salinization, as well as increasingly frequent droughts and fires, lead to a loss of land productivity. These conditions increase the risks to local livestock farming and agriculture in general.

6.2 RISING COSTS AND ABANDONMENT OF LIVESTOCK FARMING

The deterioration of pasture resources inevitably has a negative impact on rural households, affecting both the economic and social aspects of their livelihoods. Declining livestock productivity, rising livestock maintenance costs, and reduced government support are leading to the abandonment of traditional livestock farming. Due to a lack of pasture and deteriorating grass cover, many households are forced to purchase feed, which significantly increases production costs.

FARMERS NOTE THAT CATTLE ARE PARTICULARLY EXPENSIVE, LEADING MANY FAMILIES TO ABANDON THEIR LIVESTOCK, AS EVEN BASIC DAIRY PRODUCTION HAS BECOME UNPROFITABLE:

«Previously, each family kept three or four cows, for example...to have sour cream and dairy products for their family. But now it's not profitable for them to keep those three cows...It's easier for them to go to the store and buy milk and sour cream». (Local farmers)

With unstable grain and feed prices, livestock maintenance is becoming an unbearable burden for small farms. As a result, some farms are gradually abandoning livestock farming, especially among young families who see no economic prospects in livestock farming.

WAYS TO RESTORE PASTURES: **PROBLEMS AND SOLUTIONS**

An analysis of the state of pasture management in the Kyzylzhar rural district revealed significant challenges in the implementation of state programs to restore degraded lands. Despite the allocated funding, the effectiveness of these measures remains low due to a formal approach to implementation, insufficient monitoring of results, and a disregard for local conditions and the needs of the rural population.

This chapter examines the key shortcomings of current state initiatives and presents comprehensive recommendations from study participants for restoring pasture resources, including institutional reforms, technical solutions for land reclamation, staffing, and mechanisms for public participation in management decision-making.

7.1 LIMITED EFFECTIVENESS OF GOVERNMENT PROGRAMS

The interviews revealed that efforts have been made in the Pavlodar region to restore pastures, improve infrastructure, and support livestock farmers. However, interviewees agree that these measures are either not fully implemented, are distorted at the local level, or do not meet the actual needs of the rural population.

One of the most frequently cited examples was the program to reclaim degraded lands for grass. Although some villages did sow forage grasses, the results were unsatisfactory, leading to a decline in confidence in the program.

FARMERS ATTRIBUTE THIS INEFFECTIVENESS TO THE MECHANICAL USE OF BUDGET FUNDS AND A LACK OF PROPER MONITORING OF RESULTS:

«Funds were allocated for the reclaiming program. Local akims signed this act. And the money was wasted». (Local farmers)

SIMILAR COMPLAINTS WERE RAISED ABOUT THE PROGRAM TO DRILL WATER WELLS, WHICH, ACCORDING TO RESPONDENTS, ACTUALLY INVOLVED DRILLING IN SOME DISTRICTS. HOWEVER, PROBLEMS AROSE HERE TOO: THE WELLS TURNED OUT TO BE SHALLOW OR POORLY PLACED, MANY OF THEM NEVER BEGAN TO FUNCTION, AND RESPONSIBILITY FOR WATER SUPPLY FELL BACK ON THE FARMERS THEMSELVES:

«There was a program where they dug wells for us. And what good was it? We still ended up paying back and re-dug them ourselves».

Farmers emphasize that the key problem is not only the lack of funds but also the lack of transparency in distribution and the absence of dialogue between government authorities and rural residents. Programs are often developed without regard for local conditions, and feedback mechanisms are practically non-existent. As a result, the population develops a distrust of government initiatives, and even potentially beneficial measures fail to achieve their goals.

7.2 PROPOSALS FOR IMPROVING PASTURE MANAGEMENT

Against the backdrop of significant degradation of pasture ecosystems and the limited effectiveness of current government measures, participants in focus groups and expert interviews suggest a range of avenues for improving pasture management. These proposals cover both institutional reforms and technical and educational solutions aimed at restoring land productivity, sustainable agricultural production, and a more equitable distribution of resources.

KEY RECOMMENDATIONS CAN BE GROUPED INTO THE FOLLOWING AREAS:

01

EXTENSION OF THE PASTURE LEASE PERIOD AND FAIRNESS OF COMPETITIVE PROCEDURES

Farmers insist that the current procedure of repeated tenders and short-term leases undermines incentives for long-term pasture maintenance. Land users recommend automatic lease renewal:

«Whoever uses the land every year — let them renew. No need for a tender».

«... The man works there... it's clear, it's obvious... He works there... He pays taxes, after all... If he works... Renew his lease for another 10 years... Of those 10 years, he won't be there for two... Then really, give him a 10-fold fine or take him into state custody». (Local farmers)

Simplifying the bureaucratic process of pasture lease renewal will create sustainable land use and stimulate investment in land restoration.

02 REGULAR GEOBOTANICAL SURVEYS

Sustainable pasture management is impossible without up-to-date data on land conditions. The expert proposes mandatory periodicity of surveys:

«It would be desirable for each farm to update its data every 10 years». (Expert)

This will allow for more accurate pasture use plans and the monitoring of pasture degradation processes.

03 PASTURE RESTORATION: GRASSING, FERTILIZATION, LAND IMPROVEMENT

The expert also emphasizes the need for comprehensive restoration work on severely damaged areas, including surface reclamation, overseeding, fertilization, and temporary withdrawal from use:

«If the areas are severely or very severely damaged, they require surface reclamation, overseeding with forage grasses in some places, fertilizing in others, letting them rest, and they will recover».

«To restore fertility, we must, first, completely withdraw the area from land use for several years. The soil must be replaced, because many negative processes are occurring there, affecting the mechanical and chemical composition of the soil, so without replacing the soil, it will be impossible to restore fertility. It will be necessary to completely overseede with forage grasses. This is labor-intensive and very expensive work». (Expert)

04 FINANCIAL SUPPORT IN THE FACE OF CLIMATE RISKS

Renewing support mechanisms — whether fuel, equipment, feed, or insurance — is critical for climate change adaptation. Farmers emphasize the need for subsidies in the event of droughts, feed crop failures, and pest infestations such as locusts:

«When there's a drought, so that they pay attention to us, when we have a drought... Now the locusts come, and that's it, we won't have any pasture». (Local farmers)

05 INCREASING THE PRODUCTIVITY OF LIVESTOCK AND PASTURES

Efficient and sustainable use of pasture resources is impossible without increasing the productivity of both animals and the forage base itself. Farmers emphasize the need to develop breeding programs, including the centralized distribution of highly productive stud bulls. This, they believe, will increase output per unit area and reduce pressure on degraded lands:

«Breeding centers... must... provide stud bulls... pastures will also not be effective if the livestock themselves are unproductive».
(Local farmers)

Along with this, ensuring access to regionalized seeds and restoring the breeding and seed production infrastructure is becoming an important focus. Experts note that the lack of farmers' own adapted seed base and the corresponding knowledge hinders pasture grassing and reclamation:

«We need to have a stable seed base, because it's one thing to know how to do this, and quite another to find a sufficient supply of regionalized seeds. Buying seeds online won't always work, because what grows in central Russia, for example, won't even grow here. Therefore, we must have our own passive base of regionalized seeds adapted to our conditions». (Expert)

The development of agricultural science and the introduction of modern technologies are key to increasing the productivity and sustainability of pasture systems.

06 DEVELOPMENT OF HUMAN RESOURCES

Farmers' insufficient technological equipment and limited access to knowledge on pasture grassing and reclamation remain a serious obstacle to rational pasture management. According to the expert, closing this gap requires not only systematic practical training programs but also the restoration of scientific and applied infrastructure:

«We need to restore the existing plant science institutes and rebuild experimental varietal fields». (Expert)

At the same time, training a new generation of specialists plays an important role. Insufficient support for rural youth limits the influx of qualified personnel into the agricultural sector. The expert emphasizes the need for targeted assistance to enable rural school graduates to enroll in agricultural universities:

«I would like rural akimats to support applicants, as rural graduates don't always have the opportunity to apply for a grant». (Expert)

Developing a sustainable system for training and retraining personnel, in collaboration with research institutes and rural administrations, is a strategically important condition for the restoration and effective management of pastures.

07

COMMUNITY INVOLVEMENT IN DECISION-MAKING

Farmers emphasize the importance of open discussions of pasture management plans with local residents. They believe such meetings should be held in the format of village meetings, where opinions can be directly expressed and solutions proposed:

«When production opens, the population discusses... pastures... today, it's one of the main topics for the population. They should discuss it with the people».

«It's easier and clearer to discuss it openly... at a meeting. Many don't know how to access this website [the Akimat website]». (Local farmers)

An inclusive approach to planning not only strengthens trust in the decisions made but also allows for the specific conditions and knowledge accumulated by rural residents to be taken into account. Вовлечение населения в принятие решений

CONCLUSIONS AND RECOMMENDATIONS

Pasture degradation in Kazakhstan is a complex environmental and socioeconomic problem requiring a multifaceted approach.

Its development is influenced by both historical institutional transformations and contemporary environmental and socioeconomic challenges. A study of pasture resource management in the Kyzylzhar rural district of Pavlodar region allows us to draw the following key conclusions:

1. Pasture degradation is systemic and is caused by a complex set of interrelated factors, including pasture overload, unsustainable grazing practices, climate change, and anthropogenic impacts.

2. The expansion of large agricultural enterprises and inefficient pasture management leads to overgrazing and reduced productivity. Local farmers face a shortage of available grazing land, limiting their ability to expand livestock farming and increasing pressure on remaining pastures. Short-term leases undermine land users' incentives for long-term investment in pasture restoration. A lack of transparency in pasture resource allocation creates conditions for corruption and social tension. Insufficient participation of local people in planning processes limits the consideration of local conditions and needs.

3. One of the most important factors affecting the sustainable use of pastures is the lack of necessary infrastructure, particularly water supply and electricity in remote areas. Water access problems and infrastructure shortages are exacerbated by climate change, leading to increased competition for resources and social tensions among farmers.

4. Despite existing government initiatives, such as grassland development programs and well drilling, their implementation remains ineffective. Funding is often inappropriately spent, and programs do not always address the actual needs of agricultural producers.

5. Pasture degradation has a significant negative impact on the socioeconomic development of rural areas. This leads to a decline in livestock productivity and rural incomes.

TO BRIDGE THE GAPS BETWEEN LEGAL REQUIREMENTS AND PLAN DEVELOPMENT PRACTICES, THE FOLLOWING MEASURES MUST BE TAKEN:

1. When forming regional budgets, it is necessary to allocate funding for the full range of work required to develop pasture management plans, including geobotanical surveys, cadastral data analysis, and digital map creation.

2. In collaboration with relevant geobotanical specialists, determine the optimal frequency of geobotanical surveys for each rural district, taking into account natural and climatic conditions and the degree of anthropogenic load.

3. Standardize the structure and content of pasture management plans, ensuring uniform application of the Model Plan requirements. To this end, it is necessary to prepare additional methodological clarifications for local executive bodies on mandatory appendices (land cadastre data, geobotanical survey information, livestock numbers, pasture rotation schemes, and easements). Regulatory documentation should also require that the plan text include the date, contractor, and scope of the geobotanical work performed.

4. Uniform standards for cartographic materials must be developed. As the examples provided demonstrate, maps in plans often have low resolution and varying symbols, making them unsuitable for analysis. Standards should include not only standard symbols but also explanatory notes that are understandable to local administrative bodies, local residents, and farmers.

5. Consult with relevant experts to determine the optimal level of detail for pasture management plans. Based on these discussions, develop proposals on the feasibility of preparing separate modules for rural districts or moving to developing plans at the rural district level.

6. Increase local population involvement in decision-making by holding open village meetings, discussing pasture allocation and reservation plans, and publishing all approved plans and maps in the public domain.

7. Ensure comprehensive development of the human resources and scientific-methodological potential of local executive bodies, including regular professional development in pasture management.

The study showed that restoration and sustainable use of pastures is impossible without ongoing dialogue between government agencies and local residents. Currently, plans are often developed top-down and fail to reflect real conditions on the ground. To change this, it is essential that farmers, rural district representatives, and specialists discuss key decisions together, from pasture allocation and identifying priority areas for restoration to monitoring plan implementation. This information exchange and shared responsibility will help make pasture management more understandable, equitable, and effective.

SOURCES

EEA. (2001). Environmental Signals.

Hu, Y., Han, Y., & Zhang, Y. (2020). Land desertification and its influencing factors in Kazakhstan. Journal of Arid Environments, 180, 104203. https://doi.org/10.1016/J.JARIDENV.2020.104203

Kolluru, V., John, R., Chen, J., Konkathi, P., Kolluru, S., Saraf, S., Henebry, G. M., Xiao, J., Jain, K., & Kussainova, M. (2024). Dominant role of grazing and snow cover variability on vegetation shifts in the drylands of Kazakhstan. Communications Earth & Environment 2024 5:1, 5(1), 1–14. https://doi.org/10.1038/S43247-024-01587-1

Kolluru, V., John, R., Saraf, S., Chen, J., Hankerson, B., Robinson, S., Kussainova, M., & Jain, K. (2023). Gridded livestock density database and spatial trends for Kazakhstan. Scientific Data, 10(1), 1–15. https://doi.org/10.1038/S41597-023-02736-5; SUBJMETA=1144,158,1745,2453,704;KWRD=ECOLOGICAL+MODELLING,GRASSLAND+ECOLOGY,POPULATION+DYNAMICS

Kvartiuk, V., & Petrick, M. (2021). Liberal land reform in Kazakhstan? The effect on land rental and credit markets. World Development, 138, 105285. https://doi.org/10.1016/j.worlddev.2020.105285

Peet, R., & Watts, M. (2004). Liberation Ecologies:
Environment, Development and Social Movements. Routledge.

Robbins, P. (2004). Political ecology: a critical introduction. Blackwell.

Robinson, S., Bozayeva, Z., Mukhamedova, N., Djanibekov, N., & Petrick, M. (2021). Ranchers or pastoralists? Farm size, specialisation and production strategy amongst cattle farmers in south-eastern Kazakhstan. Pastoralism, 11(1), 1–22.
https://doi.org/10.1186/S13570-021-00217-1/TABLES/7

Robinson, S., & Petrick, M. (2024). Land access and feeding strategies in post-Soviet livestock husbandry: Evidence from a rangeland system in Kazakhstan. Agricultural Systems, 219, 104011. https://doi.org/10.1016/J.AGSY.2024.104011

Tokbergenova, A., Nyussupova, G., Arslan, M., & Kiyassova, S. K. L. (2018). Causes and Impacts of Land Degradation and Desertification: Case Study from Kazakhstan. In D. Egamberdieva & M. Öztürk (Eds.), Vegetation of Central Asia and Environs (pp. 291–302).
Springer International Publishing. https://doi.org/10.1007/978-3-319-99728-5_11

Ozgeldinova Zh., Usalinov E., Zhanguzhina A, Mukayev Zh., Dasturbayev Sh. (2021), Assessment of the ecological stability of the landscapes of the Pavlodar region, Bulletin of L.N.Gumilyov ENU.Chemistry. Geography. Ecology Series No 2(135)