

RATIONAL USE OF AGRICULTURAL LAND IN KAZAKHSTAN

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Abstract

The purpose of the article is to consider the institutional foundations of the rational use of agricultural land in a multicultural economy. The formation of land use is faced with the acute problem of organizing a sustainable competitive land use, ensuring a high level of marketability of production and a sufficient level of profitability in conditions of the developing land market. This article discusses the rational use of agricultural land in a multicultural economy, taking into account structural and resource indicators. The efficiency of land use in farms with different land ownership depends on increasing labor productivity, strengthening the economic regime, increasing the intensification of production, using internal reserves and agricultural production opportunities, and, especially, rational use of land. The greatest efficiency of production and use of land has been achieved in large agricultural formations, where high-performance equipment is used, crop rotations are observed, and there is greater availability of credit resources, subsidies, and leasing. The monitoring data of the Committee of the Republic of Kazakhstan on Statistics for 1.01.2020 indicate that 93.7% of peasant and farm farms have a land area of up to 500 hectares. To the greatest extent, small-earth peasant farms have become widespread in the southern region, where the share in the total number of up to 50 hectares is 90.1%, while in the northern region only 8.1%, central - 3.9%, and western - 11.3%. In this regard, the tasks of preserving productive agricultural lands, and optimizing arable land and acreage in terms of quantitative and qualitative characteristics of land become a priority. The solution to these tasks is connected with the improvement of technologies for maintaining and increasing the bio-productivity of agricultural lands, the development of technologies for rational land management, land use, and land protection, the creation of effective organizational and legal mechanisms for managing agricultural lands, as well as the development of state monitoring of agricultural lands. Optimization of land use in farms and agricultural enterprises of based on the proposed methodology, taking into account state support measures, will create a basis for a new stage in the development of land reform and will create incentives for the effective use of agricultural land.

Key words: efficiency, agro-formations, land protection, rationality, soil fertility.

Introduction.

The land is the basis of human existence, determining its important role in the process of the socio-economic development of society. As the basis of the ecosystem, an instrument of labor and an object of production and property rights, it is the basis of sustainable development, a condition for social progress and human well-being. The introduction of balanced land use is an extremely necessary problem (Anufriev, Lebedeva, 2017). In the current context, outdated concepts of land organization and management, which are not oriented toward sustainable land use, continue to operate. In this connection, the strategy of extensive land use (unreasonable fragmentation of land masses, reduction of valuable agricultural land and livestock, increase in the area of arable land, pastures, predominance of monoculture, sharp reduction in the application of organic fertilizers) in some regions remains a priority (Polikova 2012). Practically in all natural zones and regions of Kazakhstan, there is a tense ecological situation, therefore the problem of rational use of soil resources, reproduction of fertility, and their preservation from desertification should become an integral part of the national policy, the basis of sustainable economic development of the country (Zhildikbaeva, 2018). The current situation in the protection and use of land resources requires radical changes in land use. To ensure sustainable development of agriculture it is necessary to form such land use, which determines a rational ratio of leading industries, clear specialization by natural conditions, and the structure of agricultural land, which allows establishing of their optimal parameters (Tkacheva, Meshchaninova, 2011). Agrarian transformations in Kazakhstan associated with the privatization of state property have led to certain changes in the legal and organizational structure of farms, land redistribution, fragmentation of large enterprises, and the expansion of small-scale commodity production. In developing countries, land use is mainly determined by food needs as well as land suitability (Zhang, 2012). The land use pattern does not provide enough land for a certain type of agriculture (Burian, 2015; Bizikin, 2015). The experience of most countries demonstrates the practice of limiting the maximum allowable size of agricultural land plots (Stepen, 2015). The formation of sustainable land use is associated with the need to take into account the basic laws and principles governing the social, economic, and environmental aspects of their functioning. Agricultural land use of any organizational and legal form is an object of management and nature management, and from these positions, it performs the function of rational distribution and

effective use of land as an integral part of the agro-ecological system.

The purpose of this work is to justify the directions and mechanisms to improve the efficiency of the rational use of agricultural land in the development of the private property.

By the goal the following tasks were set:

- to investigate the theoretical and methodological bases of efficiency of land resources use and development of land relations in agricultural production;
- to reveal the basic factors and system of the indicators characterizing effective use of the ground;
- to analyze land use by regions, management forms, and forms of ownership;
- to develop proposals for regulating land relations and increasing use land use and use efficiency in agriculture.

Research methods and materials

An important methodological part of the study is in the scientific conclusions and provisions of economic scientists and directions on the problems of sustainable agricultural land use. Sustainable agricultural land use implies such land use, which preserves the area of agricultural land, does not allow a decrease in its fertility, and complies with legal requirements for the intended use of land that meets the natural, climatic, geographic, and environmental properties of specific land plots, and simultaneously achieves maximum economic benefit per unit area. The data of the State Land Cadastre for 2020, data, and statistical materials of the Committee on Land Resources Management of the Republic of Kazakhstan for 2021 were used in the study. The following research methods were used in the work: monographic (concerning land use in private and leased land use); comparative-economic analysis of land use intensity assessment; expert (about the influence of factors on effective land use); grouping method (according to land use size); calculation and constructive (in determining the effect of applying new science-based technologies and in determining the costs per 1 ha of land). The needs of land market participants for better payment mechanisms for land were studied by the survey method.

Discussion and results

Agricultural land use is a land mass with certain spatial characteristics: boundaries, configuration, area, and location, as well as natural conditions, quality characteristics, legal regime, and peculiarities of economic activity. Land use expresses not only the economic, natural, ecological, technical, social, and legal essence but also the nature of land use and protection. The ecological-economic estimation of the territory of land use allows a reasonable estimate of its initial condition and economic efficiency of development prospects (Alakoz, 2015; Dyusenbekov, 2004).

The natural resource potential of land use influences its market specialization and place in the territorial division of labour, therefore the location and character of the use of land resources of agricultural land use influence regional development as a whole.

Let us consider the territory of Almaty oblast, which by the composition of agricultural lands and land categories reflects the degree of their use in economic activity. Of the seven land categories, the most important is the category of agricultural land, which occupies 37.1% of the territory of the oblast. 18.1% are forest lands, 0.9% - are water, 33.8% - are reserve lands, and 1.01% - are recreational.

There have been formed 59120 peasant and private farms, 140 production cooperatives, 1124 LLP and JSC, 80 state enterprises, and 78 other companies. In the course of agrarian reforms, the average size of farms has constantly changed in the direction of reducing their area and led to the presence of very small peasant farms with the size of land used up to 10 ha, which formed in the use of land - small land use, which hinders the effective use of land and requires the optimization of their size, taking into account the influence of various factors.

Arable lands occupy 986.3 thousand ha (11.9%) in the structure of agricultural lands, of which 474.5 thousand ha (83%) is irrigated. The share of perennial plantations (fruit and berries) is 15,8 thousand hectares (0,19%). Hayfields occupy 230,500 ha (2,8%), pastures 6,110,500 ha (73,8%) (Summary Analytical Report, 2021).

The volume of gross output of agriculture in 2018 according to the Agency of the Republic of Kazakhstan on Statistics was 734.0 billion tenges, including livestock products - 357.2 billion tenges (48.7%), crop production - 374.4 billion tenges (50.01%). Structure of gross output of agriculture by categories of farms: household farms - 47,1 % (346,0 billion tenges), peasant (farm) farms - 38,2 % (280,1 billion tenges), agricultural enterprises - 14,7 % (107,8 billion tenges) (Agriculture, forestry, and fisheries in Kazakhstan, 2020). The distribution of lands for agricultural purposes by forms of farming as of November 1, 2020, in Almaty oblast is shown in tables 1 and 2.

Table 1

Distribution of agricultural land by the form of management as of 1 November 2020.

Agricultural land	Number	Total arable land, thousand ha	including:					
			arable land	perennial plantations	deposits	hay-fields	pastures	vegetable gardens
Total	60542	8280,9	986,3	15,8	83,3	230,5	6110,5	0,3
Peasant farms and private farms	59120	5593,7	656,3	9,7	42,4	162,9	3722,8	0,1
Non-state agricultural legal persons:	1342	2670,5	309,8	5	40,3	64,7	2286,2	0,2
economic partnerships and joint stock companies	1124	2241,7	224,4	3,9	35	29,4	1606,5	0,1
agricultural cooperatives	140	407,7	67	0,6	2,8	33,5	468	0,1
Other enterprises	78	21,1	18,4	0,5	2,5	1,8	211,7	
State agricultural legal persons	80	16,7	20,2	1,1	0,6	2,9	101,5	

Note - Data from the consolidated analytical report "On the condition and use of lands of the Republic of Kazakhstan for 2021. Land Resources Management Committee

In the structure of agricultural land use the share of peasant farms accounts for 66.5% of arable land, 61.4% of mulberry plantations, 50.9% of fallow land, 70.7% of hayfields, and 55.2% of pastures.

To develop the best option for evaluating land use it is necessary to analyze the factors contributing to profitability and efficiency (optimal production structure, land availability, rational combination of branches, zonal specialization, high marketability, etc.), which influence the sustainability of land use (Table 2).

Table 2

Land Availability and Land Use Efficiency in Almaty Oblast for 2020

Region, district	Agricultural land, thousand ha	of which arable land, thousand ha	Gross output of agriculture in all categories, million tenge	Rural population, people	Employed in agriculture, people	Gross output, thousand tenge		Land availability of agricultural land, ha	
						per 100 hectares of agricultural land	per 100 hectares of arable land	per inhabitant	per 1 person employed in agriculture
Almaty region	8292,9	1012,4	733974,3	789178	750242	8,8	72,5	10,5	11,1
Enbekshikazakh district	407	85,7	108205,7	142645	136080	26,6	12,6	2,9	3,0
Talgar district	195	31,1	50816,5	76098	72667	26,1	16,3	2,6	2,7
Zhambyl district	1385,6	120,6	49831,1	82567	78443	3,6	41,3	1,7	17,7

The highest level of land availability is in Zhambyl district, less in Talgar and Enbekshikazakh districts, where the main areas of irrigated lands are located and where there is a high concentration of employed rural population as compared to Zhambyl district.

The purpose of efficiency assessment in the system of land use in the regions of the republic is to characterize the structure of land resources for making managerial decisions aimed at ensuring rational and efficient land use. At the republican level, the potential of agricultural lands reflects their ability to provide food security for the country. On this basis, from the standpoint of economic assessment, it is advisable to distinguish two levels of determining the potential of agricultural land resources: the level of territories and the level of economic entities (Espolov, Seifullin, 2004).

Economic assessment of the potential of land resources at the first level is expressed in the value of gross crop production that can be obtained from a land mass limited in the territory (on the scale of the region, rural areas) if all productive lands within it are involved in economic turnover, the principles of their rational use are observed, and the level of really possible crop yields being achieved of based on modern agricultural technologies. Since a significant share of crop production is used as fodder, an additional assessment of the potential of some agricultural lands allocated for the formation of a fodder base is possible, expressed through the cost estimate of the gross output of livestock production. The size of agricultural land for the potential assessment should be determined taking into account its intended use. For arable land, the optimal cropping pattern is determined; for hayfields, the allocation of improved hayfields is legitimate; and for pastures, the creation of artificial grasslands. For land under perennial plantations, the structure of fruit and berry plantations is calculated (Ivanov, 2008).

The post-privatization period in the Republic of Kazakhstan has left a certain imprint on the formation of land use, where, on the one hand, the old system in the organization and management of land resources has been preserved, resulting in the development of large-scale land use with extensive farming (mainly in the desert and semi-desert natural-agricultural zones), and on the other - multi-location, interspread and long-distance land use (in the foothill-steppe, dry-steppe, and irrigated agriculture zone). If in the first case, it is connected with a shortage or total absence of arable massifs and predominance of pastures, in the other - a large number of land lots, assigned to one owner or land user is connected with imperfect management of rural territories (Staroverov, 2008).

Today in Kazakhstan, the rational use of land resources and the reproduction of the productive potential of agricultural land are not properly ensured. Since the processes of land reform are slow, the land issue has become highly politicized, and the transfer of land to efficient owners has become practically blocked. In this connection, the questions of preservation, rational use, and expanded reproduction of land resources as a basis of the sustainable development of Kazakhstan became aggravated. The urgent problem of today is the solution to these issues.

In the production sphere of land use, especially in agriculture, economic efficiency is the main objective, and social and ecological efficiency have not been taken into account until recently. Nowadays they are conditions of limitation of realization of the main purpose of land use in the production sphere and directly influence the process of expanded reproduction of land. Special attention should be focused on the realization of sustainable development of land use of through a complex solution of problems of provision of rational land use. One of the important components of their solution is the optimization of land use.

Rational use of land is accompanied by several objectives, one of which is the main and plays a dominant role, the need to implement the others limits the achievement of the maximum value of the main objective, therefore, obtaining the maximum of its effectiveness (Varlamov, 2011).

When considering the system of indicators for assessing the efficiency of land use, three groups of indicators can be distinguished:

1. Quantitative and qualitative assessment of the productive potential (capacity) of land: availability and composition of agricultural land; distribution of land by land users and landowners; the landscape of the area; soil fertility; soil erosion indicators; water, thermal, light, air regime of soils.

2. Intensity of land use: labor supply (land supply); land endowment; energy supply; fertilizers; unit weight of intensive crops; capital investments; unit weight of irrigated and drained lands

3. Land use efficiency: crop yields; cost of 1 metric center of fodder (grain) units; production of main products per 100 hectares of agricultural land; profit from the sale of crops per 1 hectare of agricultural land; profitability of crop production.

To approach the practice of determining of efficiency of the use of land resources, it is necessary to dwell in more detail on its factors on allocated functional subsystems and types of efficiency. The territory of Kazakhstan is mainly located in the steppe, semi-desert, and desert natural zones. Extensive development of agricultural production has left a mark in the form of land degradation and impoverishment of landscapes, more than 60% of the country is exposed to severe desertification, which leads to a reduction of soil fertility and, consequently, to the reduction of productivity of livestock and crop production.

Practically in all natural zones and regions of Kazakhstan, there is a tense ecological situation, therefore the problem of rational use of soil resources, reproduction of fertility, and their preservation from desertification should become an integral part of the national policy, the basis of sustainable economic development of the country. The current situation in the protection and use of land resources requires radical changes in land use. To ensure sustainable development, it is necessary to establish a land property right, which clearly defines the legal capacity of the subjects of land use and establishes the authority to own, use and dispose of land. Land tenure relationships should fully embody the environmental and economic components of land use, social relations, and processes. Ensuring this principle will contribute to the sustainable development of society (Zhildikbaeva, 2019).

The basis for the formation of sustainable land use should be the strict observance of the established ratios between disturbed and undisturbed areas. The undisturbed areas should be considered as a stabilizing factor, neutralizing anthropogenic impacts on the landscape. Particular attention should be focused on the implementation of sustainable development of land use through an integrated solution to the problems of ensuring the sustainable use of land. One of the important components of their solution is the optimization of land use.

The issue of optimal correspondence between the state of land resources and the legal regime of their use significantly affects agricultural lands. The abundance of land in the agrarian sphere, its irrational use, and low efficiency in agricultural production at enormous energy inputs are the obvious reasons hindering the process of transition of the agrarian sphere to its sustainable development and formation of effective land use.

Conclusions

The rational and efficient use of land resources is caused by changes in the content of land relations and the implementation of land reform. Since the main issues of the reform are the formation of multi-economic land use and parity development of various forms of ownership of agricultural land, the state management of land resources consists in the formation of a mechanism of rational land use, which allows influence the behaviour of subjects of land relations and ensures their effective functioning in specific natural conditions. Proposals for regulating the rational use of land have been developed which involve the effective use of economic mechanisms. Economic mechanisms include methods of economic incentives for rational land ownership and use, economic sanctions for mismanagement of land, reduction of soil fertility, as well as economic guarantees in the form of funding for land management activities and compensation payments. The mechanisms of optimization are proposed: on the transition from a smallholding to medium and large land based on the organization of simple partnerships on joint land cultivation. The introduction of proposals into agricultural production practice on the enlargement of land use sizes of small peasant farms into simple partnerships with the obligatory application of zonal soil-protective technologies shortly will allow for increasing the intensity of land use (gross production per 100 ha of arable land) in the eastern region by 12.5%, in the south by 10%, in the west by 8%.

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