площадь и состав землевладения и землепользования напрямую зависят от производства, профессии хозяйства. Например, найти площадь землепользования, удовлетворяющую их требованиям в соответствии с последними. Другими словами, он должен быть рациональным (рациональным) – сельскохозяйственное учреждение (товарищество или другое агроформирование), размещенное на нем, удобно управлять (не тратя слишком много средств на расстояние), обеспечивая необходимые площади и отношения полей для успешного развития всех отраслей хозяйства.

Ключевые слова: площадь, методы, точность, результаты измерений, геометрические фигуры, формулы, планиметр, проектирование, трапеция, графика

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INVESTIGATION OF THE ACCURACY OF METHODS FOR DETERMINING AREAS USED IN GEODESY

Abstract

The article provides methods for determining the areas and accuracy of measuring the total and individual parts of the earth's surface, depending on the task, purpose, shape, location and planning and cartographic materials. Any measurement method is not free from errors that affect the final results and requires their investigation. To solve many engineering calculations on the map and plan, graphical, analytical and mechanical methods for determining areas are used. Depending on the chosen method for determining the areas of the measurement elements and their accuracy.

The amount of land use is determined by the production capacity and specialization of the farm. The designed size should be efficient. As already noted, the area and composition of land ownership and land use directly depend on production and the profession of the farm. For example, find the land use area that meets their requirements in accordance with the latter. In other words, it should be rational (rational) – an agricultural institution (partnership or other agricultural formation) located on it is convenient to manage (without spending too much money on distance), providing the necessary areas and field ratios for the successful development of all sectors of the economy.

Keywords: area, methods, accuracy, measurement results, geometric shapes, formulas, planimeter, design, trapezoid, graphics.

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THE QUALITATIVE STATE OF THE LAND RESOURCES OF THE REPUBLIC OF KAZAKHSTAN

Abstract

The article is devoted to the analysis of the qualitative state of land resources in the Republic of Kazakhstan. The document considers the current state of use of land resources in the Republic and factors affecting their qualitative state. The authors present the results of the study based on the analysis of data on the quality of land resources, and also identify problems caused by degradation and pollution of land resources. The article discusses the current strategies and programs developed by the Government of the Republic of Kazakhstan to improve the quality of land resources and provides recommendations for further improvement of Land Management based on the principles of sustainable land use. The article provides for an in-depth analysis of the qualitative state of land resources in the Republic of Kazakhstan, consideration of various aspects such as the laws of disposal, influencing factors and, as a result, emerging problems, including degradation and pollution. By carefully examining the available data, the authors highlight pressing issues related to land quality and emphasize the need for strategic intervention. In addition, the article evaluates existing government initiatives aimed at improving the quality of land resources and presents recommendations based on the principles of Permanent Land Management. This article is an important source of information for specialists in the field of Land Management, ecology, agriculture, sustainable development, as well as for decision-making in the field of Environmental Protection and resource protection.

Keywords: land resources, land categories, geographic distribution, rational use, assessment, disturbed lands, landscape, recultivation.

Introduction

The Republic of Kazakhstan boasts a diverse natural landscape characterized by ten distinct zones, each with unique ecological features and resource potentials. These zones, delineated by natural conditions, encompass the forest-steppe, steppe, dry-steppe, semidesert, desert, pre-mountain-desert-steppe, subtropical desert, subtropical-pre-mountain-desert, Central Asian mountainous, and South Siberian mountainous regions. Figure 1 illustrates the spatial distribution of these zones across the country.

The forest-steppe zone, occupying the northern expanse of the North-Kazakhstan region, spans approximately 0.8 million hectares, with 0.5 million hectares designated for agricultural purposes. Meanwhile, the steppe zone encompasses vast territories including the northern sectors of Aktobe, Akmola, Kostanay, and Pavlodar regions, as well as the primary area of the North-Kazakhstan region, totaling a staggering 26.5 million hectares, a considerable portion of which is utilized for agriculture.

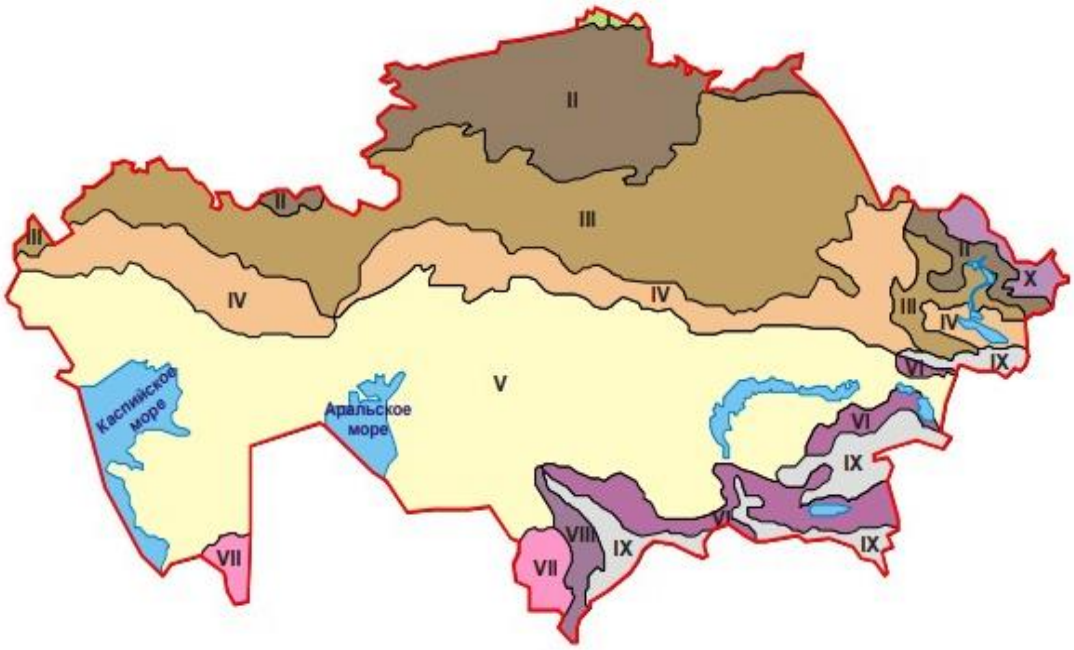
Understanding the geographic distribution and extent of these natural zones is crucial for comprehending the intricacies of land management and resource utilization within Kazakhstan. This introduction sets the stage for a comprehensive examination of the qualitative state of land resources in the Republic, shedding light on the challenges, opportunities, and strategies essential for sustainable land use and environmental preservation..

Furthermore, the unique characteristics of each natural zone underscore the need for tailored approaches to land management and conservation. The forest-steppe zone, for instance, presents opportunities for agroforestry practices, while the vast steppe region holds potential for extensive livestock grazing and agricultural cultivation. However, alongside these opportunities come challenges, such as soil degradation, water scarcity, and habitat loss, which threaten the long-term viability of land resources.

In this context, understanding the qualitative state of land resources in Kazakhstan becomes imperative. By assessing factors such as soil quality, land use patterns, and environmental degradation, stakeholders can develop informed strategies to address pressing issues and promote sustainable development. Moreover, insights gleaned from such assessments can inform policy formulation and guide the implementation of targeted interventions aimed at improving land resource management practices.

The methodology of the study of the qualitative state of the land resources of the Republic of Kazakhstan includes the selection and justification of a qualitative research method, the definition of criteria for land quality, data collection using territorial surveys and expert surveys, analysis of the data obtained using statistical methods and qualitative content analysis, interpretation of the results taking into account regional characteristics, formulation of recommendations for improving the qualitative state of land resources with the participation of interested parties.

Against this backdrop, this article aims to delve into the qualitative state of land resources in Kazakhstan, analyzing current utilization patterns, identifying factors influencing land quality, and discussing strategies for enhancement. By elucidating the complexities of land management in the Republic, this research contributes to broader discussions on environmental sustainability, resource conservation, and socio-economic development. Through empirical analysis and strategic recommendations, it seeks to inform decision-makers, researchers, and practitioners involved in land management, ecology, agriculture, and sustainable development, ultimately fostering a more resilient and ecologically sound future for the Republic of Kazakhstan.



Color and index	Natural zones	Area mln. ha	%	Including agricultural lands mln ha	%
I	forest-steppe	0,8	0,3	0,5	0,2
II	steppe	26,5	9,7	23,5	10,6
III	dry-steppe	62,4	22,9	55,5	24,9
IV	semi-desert	37,2	13,7	33,9	15,2
V	desert	112,1	41,1	83,4	37,6
VI	foothill-desert-steppe	12,3	4,5	10,2	4,6
VII	subtropical desert	4,4	1,6	3,8	1,7
VIII	subtropical-predmont-desert	3,5	1,3	3,1	1,4
IX	central asian mountainous	10,1	3,7	7,1	3,2
X	south siberian mountainous	3,2	1,2	1,4	0,6
	Total for the republic	272,5	100,0	222,4	100,0

Figure 1 - Zoning of the territory of the republic by natural conditions 3.5 million ha.[2]

More than 40 percent of the land is reserve land, i.e., land not used for farming. The percentage of such land has decreased since 2015, from 42.8% to 40.1%. Agricultural lands increased from 35.1% to 36.9% of all lands in the republic.

Methods and materials

Growth is also observed in other categories, except for the lands of the forest fund, the percentage of which decreased from 8.9% in 2016 to 8.2% in 2022. The distribution of the land fund by composition in the context of land categories is presented in Table 2. Of the unused lands, the greatest value is represented by fallow lands, the area of which is more than 1.5 million hectares only in the reserve lands.

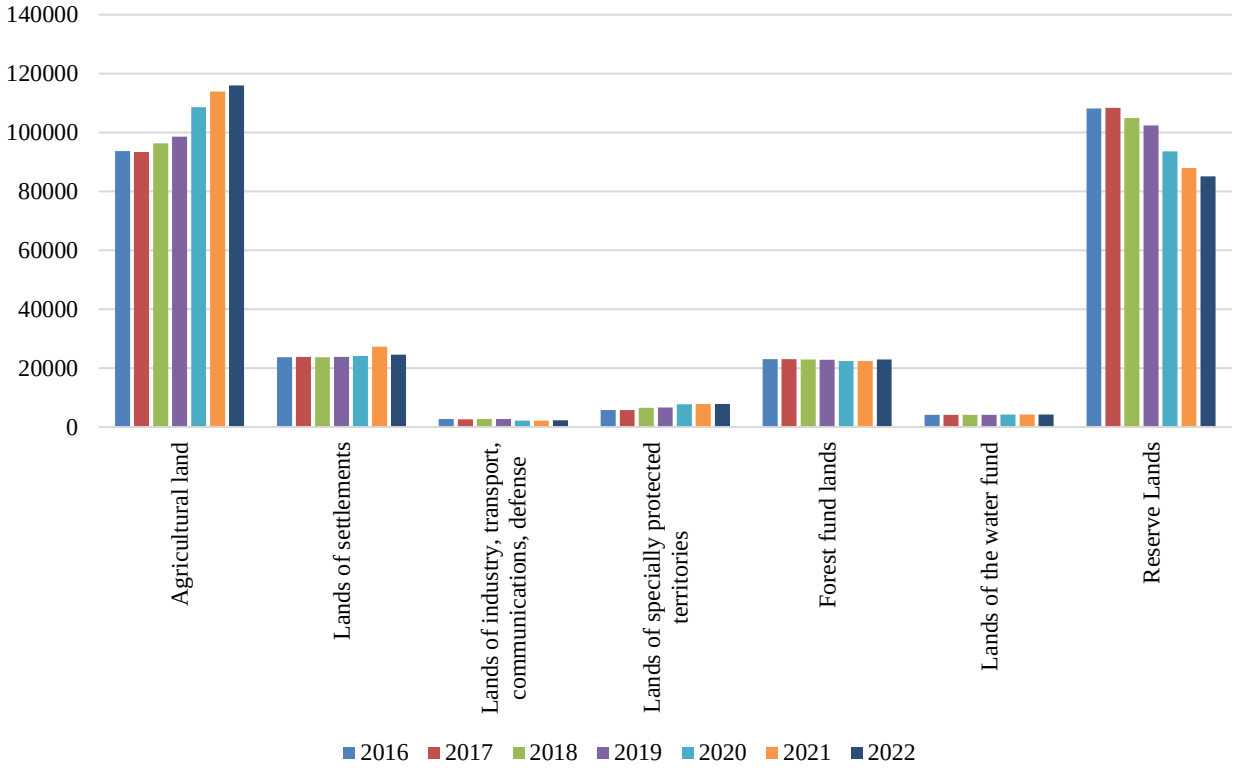


Figure 2 - Distribution of the land fund by accounting categories, a thousand ha.[3]

Table 1 - Distribution of the land fund by composition in the context of land categories[3]

As of January 1, 2019 thousand hectares	Total area	Including			
		Arable land	Perennial plantations	Deposits	Hayfields
Total lands	261173,8	25016,0	131,5	4378,8	4919,3
Agricultural lands	98580,2	24268,8	83,6	2583,7	2041,3
Land of settlements	23804,8	279,7	26,9	92,8	214,7
Lands of industry, transportation, communication	2778,7	16,9	1,2	3,7	1,4
Lands of specially protected natural territories	6634,3	3,4	23,3	12,3	111,4
Land of forest fund	22850,6	78,7	1,5	3,9	251,9
Land of water fund	4120,9	0,1	0,1	-	25,7
Land of reserves	102404,3	229,4	13,3	2028,9	2250,0

The Republic of Kazakhstan stretches from the lower reaches of the Volga River in the west to the Altai Mountains in the east and from the Zailiyskiy Alatau Mountains of the Northern Tien Shan in the south to the West Siberian Lowland in the north. It covers an area of 272.5 million hectares and includes forest-steppe, steppe, semidesert and desert zones. The republic ranks ninth in the world in terms of land area. The length of Kazakhstan's land State border is 13,383 kilometers, including 7,548 kilometers with the Russian Federation, 2,351 kilometers with the Republic of Uzbekistan, 1,242 kilometers with the Kyrgyz Republic, 1,782.8 kilometers with the People's Republic of China and 459 kilometers with the Republic of Turkmenistan. According to the Law "On the administrative-territorial structure of the Republic of Kazakhstan", the system of administrative-territorial structure of the Republic of Kazakhstan includes administrative-territorial units: village, settlement, rural district, district in a city, city, district, oblast. The distribution of land fund by oblasts and the presence of administrative-territorial units in them are presented in Table 3.

Table 2 - Land area, number of administrative districts and settlements by oblasts (regions) as of November 1, 2022[3]

Name of regions	**Land area, thousand ha.**	**Number of administrative-territorial units**			
		Districts	**Cities and settlements**	**Rural settlements**	**aul**
Abai	18 547.7	8	10	323	119
Akmolinskaya	14 613.2	17	26	579	226
Aktobe	30 062.9	12	8	315	134
Almaty	10 509.0	9	9	384	126
Atyrau	11 863.1	8	6	150	64
East Kazakhstan	9 785.9	7	20	366	120
Zhambylskaya	14 427.5	10	4	371	152
Zhetisu	11 845,9	8	2	357	120
West Kazakhstan	15 133.9	12	5	415	147
Karaganda	23 904.6	7	34	362	157
Kyzylorda	22 601.9	7	4	234	144
Kostanay	19 600.1	16	13	516	190
Mangystau	16 564.2	5	3	58	45
Pavlodar	12 464.5	10	7	352	123
North Kazakhstan	9 799.3	13	5	634	186
Turkestan	11 609.4	13	15	828	174
Ulytau	18 893.6	2	13	22	34
c. Shymkent	116.3	-	1	-	-
c. Almaty	68.3	-	-	1	-
c. Astana	79.7	-	-	1	-
Total	**272 491.0**	**164**	**187**	**6251**	**2261**

Remark: the number of rural areal (rural) districts by regions is given as of 1 July 2022 according to the data of the Committee on Statistics of the Ministry of National Economy of the Republic of Kazakhstan.

Results and discussion

According to the data of the balance of lands as of 1 November 2022, the system of administrative-territorial structure of the Republic includes 17 regions, 3 cities of republican

significance, 164 administrative districts, 187 settlements and cities of regional and district significance, 6 251 rural settlements and 2261 rural area (rural) districts.

In 2022 there were significant changes in the administrative-territorial structure of the republic. Thus, after signing by the President of RK of the Decree "On some issues of administrative-territorial structure of RK" the city of Shymkent received the status of a city of republican significance and became the 20th region of the country. The same decree renamed the South Kazakhstan region into the Turkestan region, with the city of Turkestan as the regional centre.

1. Akmola	7. West Kazakstan	13. North-Kazakstan
2. Aktobe	8. Karaganda	14. Turkestan
3. Almaty	9. Kyzylorda	15. Shymkent city
4. Atyrau	10. Kostanay	16. Almaty city
5. East Kazakhstan	11. Mangistau	17. Astana city
6. Zhambyl	12. Pavlodar	18. Ulytau
		19. Abay
		20. Zhetysu

Figure 3 - Administrative-territorial structure of the Republic of Kazakhstan[4]

The total territory of the Republic of Kazakhstan according to the land balance as of 1 November 2022 is 272.5 million hectares, of which the Russian Federation uses 9561.1 thousand hectares for the Baikonur Cosmodrome and military training grounds.

In turn, the Republic of Kazakhstan uses 0.9 thousand hectares for the Chimgan sanatorium on the territory of the Republic of Uzbekistan.

As a result, the land fund used by the Republic of Kazakhstan is 262930.8 thousand ha. In the reporting year, the area of lands used by land users of other states decreased by 12.4 thousand ha due to the return of part of the leased lands in Kyzylorda oblast by the Russian Federation. The area of prohibited use of lands did not change. The analysis of land registration data shows that different changes occur annually in the distribution of areas by land categories, as evidenced by the information on the structure of the land fund for 2021 and 2022, shown in Table 4 and Figure 2.

Table 3 - Dynamics of the land fund by categories of lands for 1991-2022, a thousand hectares.[4]

Name of land categories	**1991 г.**	**2021 г.**	**2022 г.**	**Changes (+, -)**	
				2022 to 1991	**2022 to 2021**
1. Agricultural land	218 375.8	113 961.4	115 966.2	-102409.6	+2004.8
2. Lands of settlements, including:	3 747.2	24 288.7	24 592.8	+20845.6	+304.1
cities and towns	2 053.5	4 190.9	4 106.2	+2052.7	-84.7
rural settlements	1 693.7	20097.8	20 486.6	+18 792,9	+388.8
3. Lands of industry, transport, communications, for the needs of space activities, defense, national security and other non-agricultural purposes	18 796.8	2239.1	2 273.0	-16 523.8	+33.9
4. Lands of specially protected natural territories, lands of recreational, recreational and historical and cultural purposes	775.1	7 810.7	7 811.3	+7 036.2	+0.6
5. Forest fund lands	10 179.2	22 435.3	22 963.5	+12 784.3	+528.2
6. Water fund lands	819.9	4 206.5	4 209.4	+3 389.5	+2.9
7.Stock lands	18 952.3	87 989.1	85 114.6	+66 162.3	-2874.5
Total land	**271 646.3**	**262930.8**	**262 930.8**	**-8 715.5**	-
including land used on the territory of other States	149.8	0.9	0.9	-148.9	-
Lands used by other States	993.7	9 561.1	9 561.1	+8 567.4	-
Territory of the Republic	**272 490.2**	**272 491.0**	**272 491.0**	**+0.8**	**-**

According to the data of the balance of lands as of 1 November 2022, the area of the category of reserve lands in the republic amounted to 97.0 million hectares or 35.5% of the land fund of the republic (without lands used by other states).

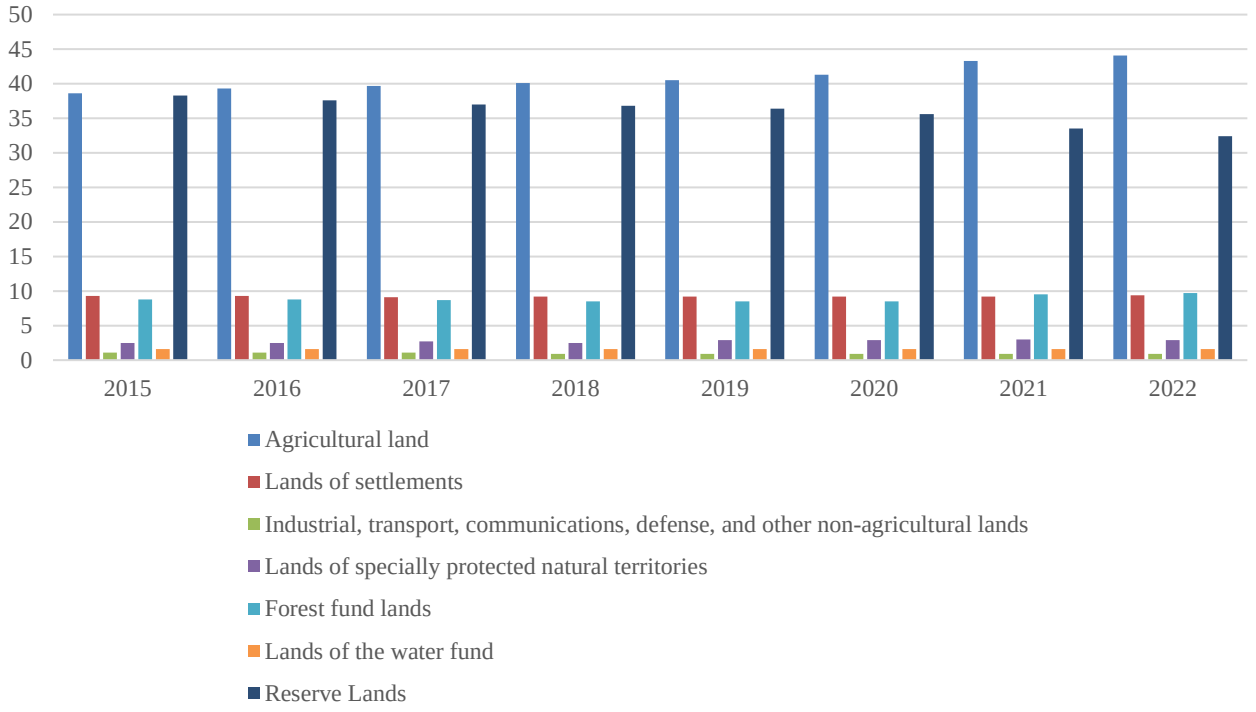


Figure 4 - Dynamics of land fund structure by land categories, %[6]

The historically established administrative-territorial structure of the republic and heterogeneous natural and climatic conditions determine to a different extent the combination and structure of the land fund by land categories in the regions of the country. The changes that have occurred in the areas of land categories are explained by the transfer of lands from one category to another in connection with the provision of land plots for various purposes and the clarification of their areas as a result of inventory and clarification of lands [2].

Distribution of the land fund by natural zones According to the Land Code of the Republic of Kazakhstan, 10 zones by natural conditions are distinguished on the territory of the country: 1) forest-steppe; 2) steppe; 3) dry-steppe; 4) semidesert; 5) desert; 6) pre-mountain-desert-steppe; 7) subtropical desert; 8) subtropical-piedmont-desert; 9) Central Asian mountainous; 10) South Siberian mountainous. Distribution of zones by natural conditions on the territory of the Republic is presented in Figure 4.

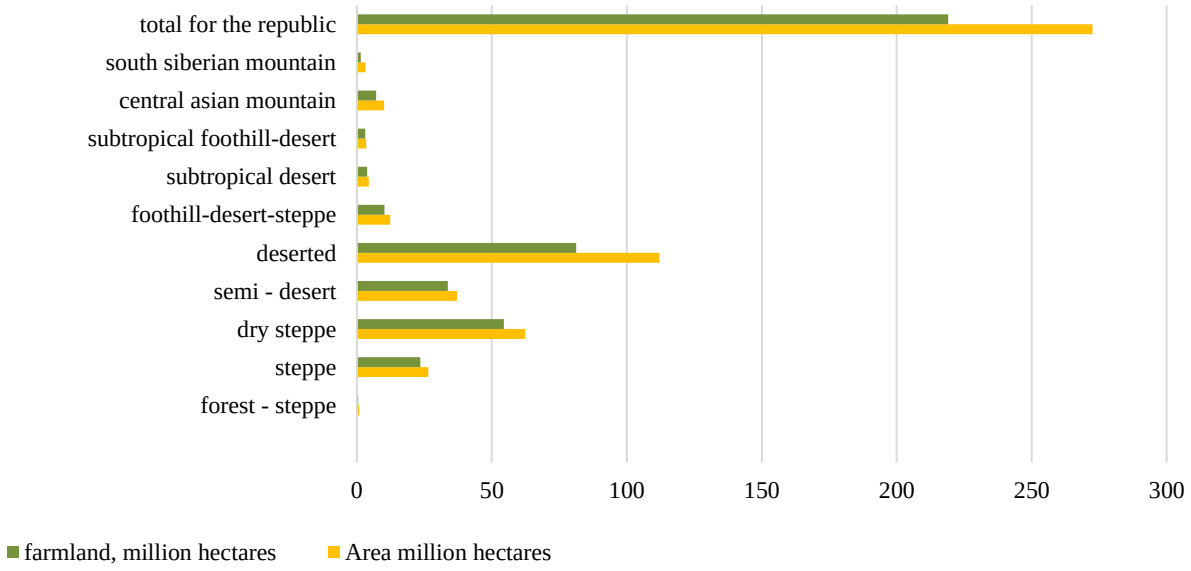


Figure 5 - Zoning of the territory of the republic by natural conditions[7].

Natural and climatic conditions have a significant impact on the formation of the fertile soil layer, and, consequently, on the quality of land and the nature of land use. They directly influence the establishment of the target designation and regime of land use. Natural zoning is the basis for solving the most important issues of rational nature management, development and location of economic sectors, specialisation of production in the agrarian sector, as well as for carrying out land evaluation works, keeping the land cadastres and monitoring of lands, development of measures for rational use and protection of land resources.

Erosion processes. Erosion is one of the most dangerous types of land degradation causing soil destruction, washing away and blowing away of the top layer of humus-accumulative horizon and loss of their fertility. In many cases, erosion processes arise and develop under the influence of anthropogenic impact.

On the territory of the republic, soil erosion along with reunification is the most widespread of all types of soil degradation.

Erosion causes enormous economic and environmental damage, as it threatens the very existence of soil as the main means of agricultural production and an independent component of the biosphere [1].

The development of soil erosion processes is conditioned both by the totality of natural conditions (climate, relief, mechanical composition of soils, etc.) and the degree of anthropogenic impact on them and the intensity of land use, primarily agricultural. Depending on the main factor of soil destruction and loss of soil fertility, water, and wind erosion are distinguished.

According to the data of qualitative characterisation of lands, in the Republic of Kazakhstan there are more than 90 million hectares of eroded and erosion-prone lands, of which 29.3 million hectares are actually eroded.

There are 24.2 million ha or 11.2 per cent of agricultural lands subjected to wind erosion (deflated) in the Republic.

According to the degree of manifestation of the deflation process, lands are subdivided into three subgroups:

- weakly deflated, they include weakly deflated soils with homogeneous contours and their complexes with medium- and strongly deflated soils — 10-30% and with sands - 30-50%; their total area is 2.2 million ha (9.1%);

- moderately deflated, they include moderately deflated soils with homogeneous contours, their complexes with moderately and strongly deflated soils - from 30 to 50% and with sands - 30-50%, as well as sandy soils of the plain territory of light chestnut, brown and grey-brown zones and subzones; their total area is 4.9 million ha (20.2%);

- strongly deflated, they include strongly deflated soils with homogeneous contours, complexes with their predominance, complexes of medium deflated soils with strongly deflated soils - from 30 to 50 per cent, as well as all sands; their total area is 17.1 million ha (70.7 per cent).

Eroded lands constitute one of the largest ameliorative groups in terms of area, negatively affecting the qualitative state of lands and their productivity.

Wind erosion is manifested in the form of deflation of sandy and autapomorphous soils, solonchaks and dust storms. Besides natural factors (pliability of soils, light mechanical composition, active wind activity and others) anthropogenic factor plays a significant role in the development of soil deflation. Unregulated grazing (excessive load), cutting of shrub vegetation, indiscriminate movement of motor transport off roads contribute to the intensification of deflationary processes, which change the structural composition, volume mass and humus content, causing soil degradation with loss of fertility [4].

The negative impact of wind erosion of soils is most strongly manifested in dry years, when the deficit of soil moisture is acutely felt.

The erosion processes are especially active in the vast massifs of sands of Kyzylkum, Muyunkum, Big and Small Badgers, Saryishikotrau, in regions located in desert, semidesert and steppe zones on soils of light mechanical composition and carbonate soils.

The main areas of agricultural land subject to wind erosion are located in Almaty region - about 2 million ha, Zhetisu region - 2.9 million ha, Atyrau and Turkestan regions - 3.1 million ha each, Kyzylorda region - 2.8 million ha, Zhambyl and Aktobe regions - more than 2.0 million ha each. The largest share of eroded agricultural lands (more than 30 per cent of their total area) is located in Almaty, Zhetisu, Atyrau and Turkestan oblasts. The smallest share of eroded lands (up to 5 %) in the composition of agricultural lands is in Akmola, Karaganda, Kostanay and North-Kazakhstan regions. (Figure 5).

The area of 4.9 million ha or 2.3 per cent of agricultural land is subject to water erosion (washed away) out of the total area of eroded lands.

Water erosion of soils is observed in all oblasts of the republic, the intensity of its development is influenced by the character of relief (steepness and length of slope, size and shape of catchment area), amount and intensity of precipitation, type and mechanical composition of soils, carbonation, salinity, sodding, depth of groundwater table and erosion base, water permeability and nature of land use. The largest areas of washed-out soils in agricultural lands are in Turkestan (0.9 million ha), Almaty and Mangistau (0.8 million ha each), and Akmola regions (0.6 million ha).

According to the degree of erosion, arable land is subdivided into slightly eroded arable land (418.1 thousand ha or 80% of the total area) and medium- and highly eroded arable land (253.7 thousand ha or 20%). They are mainly spread in Turkestan, Almaty, East Kazakhstan, Akmola regions.

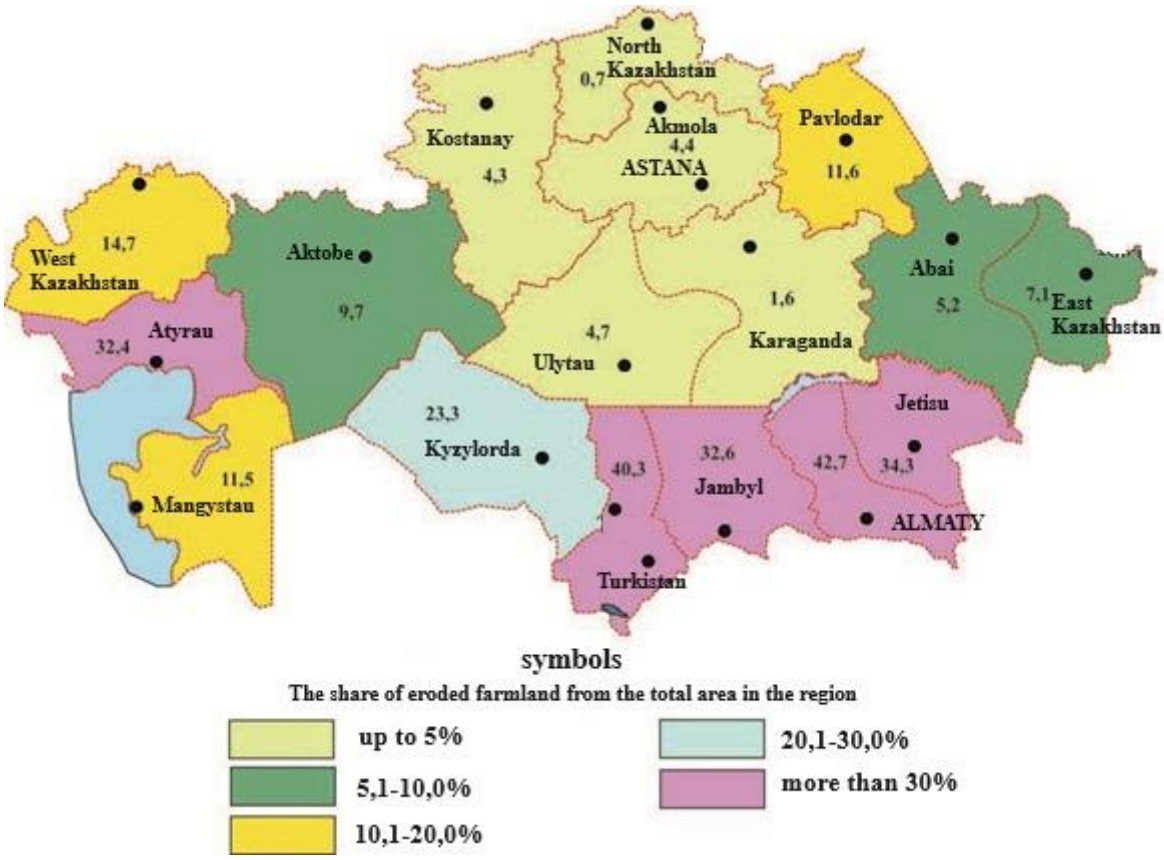


Figure 6 - Erodibility of agricultural land[8].

Of the total area of eroded agricultural land, 1,768,0 thousand ha are arable land, of which 1,220 thousand ha (69.0%) are washed away, 451,8 thousand ha (25.6%) are deflated and 96,2 thousand ha (5.4%) are subject to combined water and wind erosion.

Weakly eroded arable land is located mainly on carbonate soils of Akmola oblast (317.9 thousand ha), sandy loam soils of Pavlodar oblast (223.7 thousand ha) and washed out lands of Turkestan (214.9 thousand ha), East Kazakhstan (234.0 thousand ha), Karaganda (95.7 thousand ha) and Almaty (85.8 thousand ha) oblasts. Of the total area of medium- and highly eroded arable land, 43.6% falls on Pavlodar oblast. Joint manifestation of wind and water erosion is observed mainly in West Kazakhstan oblast (99.4%).

In order to reduce the negative impact of erosion processes on the state of land, it is necessary to apply integrated erosion control measures (organisational and economic, agrotechnical, forest reclamation, hydraulic engineering), transition to adaptive-landscape farming system.

To improve the farming and land management systems, a new round of continuous soil large-scale and complex mapping on the principles of regionality and landscape-ecological approach, including detailed erosion survey with determination of the degree of actual erosion and diagnostics of water and wind erosion processes is necessary.

As of the end of 2022, there are 246.3 thousand hectares of lands disturbed during construction of industrial facilities, linear structures and other enterprises, during development of mineral deposits, their processing and geological exploration.

Most of the disturbed land areas are in the category of industrial, transport, communication, space, defence, national security and other non-agricultural lands.

Regionally, the largest amount of disturbed lands is located in three regions, in Mangystau region - 70.5 thousand hectares, Karaganda region - 33.2 thousand hectares and Kostanay region - 40.4 thousand hectares.

In total, there are 2888 enterprises and organisations in the republic that have disturbed lands on their territory. In the reporting year, 1.1 thousand hectares were disturbed in the republic.

Conclusions

For the rational use of land resources, the following activities should be carried out: Development of agriculture taking into account sustainability: Agriculture is one of the most important sectors of the economy of Kazakhstan. It is necessary to stimulate the introduction of modern agro-technologies, increase productivity of agricultural land, and develop irrigation system for efficient use of water resources.

Improve land legislation and management: Reforms in land relations can contribute to more efficient use of land, including better regulation of property rights, leasing and land use.

Promoting technological innovation: Innovations in agriculture, such as smart farming, the use of drones to monitor crops, artificial intelligence for crop forecasting, and others, can significantly improve land use efficiency.

Development of alternative sources of income in rural areas: The development of tourism, agro-tourism, small and medium-sized enterprises related to the processing of agricultural products can contribute to the diversification of rural economies and more efficient use of land resources.

Conservation of natural ecosystems: Attention should be paid to the protection and restoration of natural ecosystems, which contributes to the conservation of biodiversity, maintenance of soil fertility and sustainability of land resources.

Training and development of rural communities: Supporting education, health, infrastructure and access to financial services in rural areas improves the quality of life and land utilisation potential.

These suggestions can be a starting point for the development of a comprehensive strategy for the rational use of land resources in Kazakhstan. It is important to take into account the specifics of the regions, the needs of the local population and environmental sustainability when implementing such activities.

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КАЧЕСТВЕННОЕ СОСТОЯНИЕ ЗЕМЕЛЬНЫХ РЕСУРСОВ РЕСПУБЛИКИ КАЗАХСТАН

Аннотация

Статья посвящена анализу качественного состояния земельных ресурсов в Республике Казахстан. В документе рассмотрены современное состояние использования земельных ресурсов в республике и факторы, влияющие на их качественное состояние. Авторы представляют результаты исследований на основе анализа данных о качестве земельных ресурсов, а также выявляют проблемы, вызванные деградацией и загрязнением земельных ресурсов. В статье обсуждены текущие стратегии и программы, разработанные Правительством Республики Казахстан по улучшению качества земельных ресурсов, даны рекомендации по дальнейшему совершенствованию землеустройства, основанного на принципах устойчивого землепользования. В статье рассматривается углубленный анализ качественного состояния земельных ресурсов в Республике Казахстан, рассмотрение различных аспектов, таких как закономерности утилизации, влияющие факторы и возникающие вследствие этого проблемы, в том числе деградация и загрязнение. Внимательно изучив имеющиеся данные, авторы выделяют актуальные проблемы качества земель и подчеркивают необходимость стратегического вмешательства. Кроме того, в статье оцениваются существующие правительственные инициативы, направленные на улучшение качества земельных ресурсов, и предлагаются предложения, основанные на принципах постоянного землеустройства. Эта статья является важным источником информации для специалистов в области землеустройства, экологии, сельского хозяйства, устойчивого развития, а также для принятия решений в области охраны окружающей среды и охраны ресурсов..

Ключевые слова: земельные ресурсы, категории земель, географическое распределение, рациональное использование, оценка, нарушенные земли, ландшафт, рекультивация.

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ҚАЗАҚСТАН РЕСПУБЛИКАСЫ ЖЕР РЕСУРСТАРЫНЫҢ САПАЛЫҚ ЖАЙ-КҮЙІ

Аңдатпа

Мақала Қазақстан Республикасындағы жер ресурстарының сапалық жағдайын талдауға арналған. Құжатта республикадағы жер ресурстарын пайдаланудың қазіргі жағдайы және олардың сапалық жағдайына әсер ететін факторлар қарастырылған. Авторлар жер ресурстарының сапасы туралы деректерді талдау негізінде зерттеу нәтижелерін ұсынады, сонымен қатар жер ресурстарының тозуы мен ластануынан туындаған проблемаларды

анықтайды. Мақалада қазақстан Республикасы Үкіметінің жер ресурстарының сапасын жақсарту бойынша әзірлеген ағымдағы стратегиялары мен бағдарламалары талқыланып, жерді тұрақты пайдалану қағидаттарына негізделген жерге орналастыруды одан әрі жетілдіру бойынша ұсыныстар берілген. Мақалада қазақстан Республикасындағы жер ресурстарының сапалық жай-күйін терең талдау, кәдеге жарату заңдылықтары, әсер етуші факторлар және соның салдарынан туындайтын проблемалар, соның ішінде деградация мен ластану сияқты әртүрлі аспектілерді қарастыру қарастырылған. Қолда бар деректерді мұқият зерттей отырып, авторлар жер сапасына қатысты өзекті мәселелерді бөліп көрсетеді және стратегиялық араласудың қажеттілігін атап көрсетеді. Сонымен қатар, мақалада жер ресурстарының сапасын жақсартуға бағытталған қолданыстағы үкіметтік бастамалар бағаланады және тұрақты жерге орналастыру қағидаттарына негізделген ұсыныстар ұсынылады. Бұл мақала жерге орналастыру, экология, ауыл шаруашылығы, тұрақты даму саласындағы мамандар үшін, сондай-ақ қоршаған ортаны қорғау және ресурстарды қорғау саласындағы шешімдер қабылдау үшін маңызды ақпарат көзі болып табылады.

Кілт сөздер: жер ресурстары, жер санаттары, географиялық таралуы, ұтымды пайдалану, бағалау, бұзылған жерлер, ландшафт, қалпына келтіру.

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ЭКОНОМИЧЕСКАЯ ЭФФЕКТИВНОСТЬ РЕКУЛЬТИВАЦИИ НАРУШЕННЫХ ЗЕМЕЛЬ В КАЗАХСТАНЕ

Аннотация

Ведения открытых горных работ в Казахстане приводит к значительным нарушениям плодородия земель. В результате на этих землях ухудшаются качество природной среды и санитарно-гигиеническое состояние региона.

На практике восстановление нарушенных земель и ввод их в хозяйственный оборот требует длительного времени и больших финансовых вложений. Поэтому, перед добывающими предприятиями стоит задача провести своевременно работу по рекультивации земель, что требует разработки и принятия комплекса мер по их реконструкции.

При открытой разработке месторождений твёрдых полезных ископаемых и интенсивное их использование для нужд страны считается с экономической точки зрения эффективным. Однако, воздействие последствий освоения недр на окружающую среду и на здоровье людей, проживающих вблизи от этой местности, требует разработки научно обоснованных мероприятий по эффективному восстановлению этих нарушенных земель.

В Сарысуском районе Жамбылской области сосредоточена мощная сырьевая база месторождений фосфоритов. Добыча фосфоритов открытым способом оказывает сильное техногенное воздействие на экологическую среду: атмосферу, водные и земельные ресурсы, недра, растительный и животный мир. В республике по законодательным актам горнодобывающие предприятия должны выполнять все установленные требования по