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Prospects for the Development of Smart and Effective Use of Land and Water Resources in the Republic of Uzbekistan

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ABSTRACT

This article pays special attention to the issues of rational and efficient use of land and water resources in the republic, the introduction of smart technologies in the agricultural sector, digitalization and centralization of agriculture, state subsidies for the industry, and comprehensive protection of agricultural lands.

INTRODUCTION

Population growth, increasing demand for land, water and energy resources, and dramatic climate change are the main factors affecting food security. In recent years, as a result of the implementation of a number of measures to strengthen food security in our country, Uzbekistan has strengthened its position in the world and gradually improved its position in world rankings. In 2018, the Republic of Uzbekistan ranked 73rd among 119 countries in the world on the Global Hunger Index, reaching a "moderate" level with an index of 12.1. However, the challenges that need to be addressed include achieving stability in the supply of food for the population in need of social protection, increasing the purchasing power of low-income families, and preventing sudden changes in prices and quantities of food. Agricultural lands are fertile lands and are national wealth, the main means of ensuring agricultural production and food security of the country. The total area of land in the Republic of Uzbekistan is 44,892.4 thousand hectares and is divided into 8 categories according to the purpose and order of land use, including agricultural land, land of settlements, industry, land intended for transport, communications, defense and others purposes, lands of environmental, health and recreational purposes, lands of historical and cultural significance, forest fund lands, water fund lands, reserve lands.

RESEARCH MATERIALS AND METHODOLOGY

In the following years, the reform of our country's agriculture, in particular, the improvement of the state management system in the field, the wide introduction of market relations, the strengthening of the legal basis of relations between the entities that grow, process and sell agricultural products, attract investments in the field, certain works are being carried out to introduce resource-saving

technologies and to provide producers of agricultural products with modern techniques. At the same time, the lack of a long-term strategy for the development of agriculture hinders the effective use of land and water resources, the widespread attraction of investments in the sector, the high income of producers and the increase of competitiveness of products. Currently, more than 20 million hectares of agricultural land, including 3.2 million hectares of irrigated arable land, are used to grow food products for the needs of the population and raw materials necessary for economic sectors. In order to increase the productivity of irrigated areas, improve land reclamation and water supply, large-scale irrigation and land reclamation activities are being carried out within the framework of state programs. As a result, during the period of 2008-2017, the water supply of more than 1.7 million hectares of irrigated areas and improvement of the land reclamation of 2.5 million hectares was achieved. However, as a result of global climate change, periodic water shortages and the disrepair of the main part of internal irrigation networks in recent years have led to the deterioration of the reclamation condition of irrigated croplands and their disuse for years. Agricultural land refers to fertile land and is a national wealth, the main means of ensuring the production of agricultural products and the country's food security. The total area of agricultural land is 20,236.3 thousand hectares, of which 3,988,5 thousand hectares are arable land, 383,1 thousand hectares of perennial trees, 76 thousand hectares of gray land, hayfields and pastures 11 028.3 thousand hectares, other lands make up 4,760.4 thousand hectares. In the following years, the improvement of land and water relations in our country, the optimization of land areas intended for agriculture and the application of a simplified procedure for their allocation, the introduction of modern market mechanisms in the use of land and water resources, innovative and resource-saving technologies, low-yield cotton and g Systematic measures are being taken to produce highly profitable, exportable products due to the reduction of acreage.

RESEARCH RESULTS

It is worth noting that due to the rapid growth of the population of the republic, the transfer of agricultural lands to another category, as well as the worsening consequences of global climate change, over the past 15 years, per capita, the size of irrigated land has decreased by 24 percent (from 0.23 ha to 0.16 ha), and the average annual water supply level decreased from 3048 cubic meters to 158.9 cubic meters. As a result of the unreasonable use of agricultural land over many years, the natural fertility of the soil and the productivity of agricultural crops have been reduced, the quality of grown products has deteriorated, and environmental pollution has increased. In particular, the amount of available phosphorus in 93% of soils of irrigated arable land, the amount of exchangeable potassium in 68.3%, and the amount of humus (humus) in 79.3% fell below the average level. In countries whose national income is almost the same as that of Uzbekistan, 4-5 percent of the state budget is allocated to agriculture, or more than 1 percent in developing countries and less than 1 percent in high-income countries. Average annual water consumption in agriculture is 45.696 million cubic meters, or 90% of water resources consumed in economic sectors, and remains high. In an environment of increasingly scarce land and water resources, agricultural production remains low due to failure to take into account the economic efficiency of crop production and market conditions in the allocation of crops, as well as the lack of adoption of intensive farming. For example, in developed countries, 1 cubic meter of water produces a product worth 4-6 US dollars, but in our republic this figure is 0.15 US dollars. The implementation of irrigation and reclamation measures requires large capital investments, limited budget funds allocated for these purposes, and attraction of direct investments, including public-private partnerships. As a result of insufficient attention to the issue of agriculture, situations arise such as the abandonment of agricultural lands, unreasonable use of the resource and production potential of the regions, which in turn has a negative impact on ensuring the country's food security and increasing the export potential of the industry that reveals the secret.

DISCUSSION

According to forecasts, the irrigated land area may decrease by 20-25% in the next 30 years.

Inadequate security of land use rights hinders the improvement of farm management efficiency and limits the attraction of investments. Currently, clear and transparent mechanisms for the distribution of land plots and the protection of the rights of land users have not been fully created. Also, the lack of provision for secondary lease of land plots prevents the transfer of agricultural land to relatively potential land users. About 80 percent of the country's water resources are formed at the expense of transboundary water bodies. This situation determines the importance of regional cooperation for sustainable management of water resources in Central Asia, especially in the Republic of Uzbekistan. In the country, 70 percent of irrigation networks do not have anti-filtration coating, as a result, part of the water is lost in the process of delivering it to the fields. Most of the existing irrigation infrastructure, pumping stations are in use for more than 30-40 years and need reconstruction or capital repair. Currently, only 1.7% of irrigated land is drip-irrigated. The situation is likely to be further complicated by the continued use of traditional irrigation methods due to agriculture's high dependence on irrigation, and the dramatic increase in droughts as a result of climate change. According to the forecast of the World Resources Institute, by 2040, Uzbekistan will become one of the 33 countries with the highest water shortage. The reduction in productivity has serious negative consequences for food security and the balance of payments, which creates the need for sustainable management of water resources and the use of resource-efficient technologies in the cultivation of agricultural crops. According to the initiatives of the President of the Republic of Uzbekistan Mirziyoyev Shavkat Miromonovich, the following activities will be carried out over the years in order to accelerate the integration of science and practice in the effective use of land and water resources. Scientific research aimed at increasing soil fertility, preventing soil erosion and degradation will be accelerated. Effective mechanisms for stimulating the participation of the private sector and the public-private partnership mechanism in conducting scientific research in the field of agriculture, developing and introducing innovative developments are widely introduced. Scientific-practical activities and cooperation on localization of high-yielding varieties of agricultural crops and productive breeds and types of livestock of foreign countries will be systematically organized. The training of highly qualified scientific staff with a scientific degree will be expanded through doctoral studies and basic doctoral studies in the field, and all conditions will be created for them to conduct scientific research on problematic and urgent topics. As a result of scientific research, the introduction of the "Smart and digital agriculture" technology, the localization of its technical means and technological equipment in production will be achieved.

CONCLUSION

Entrepreneurs who put agricultural land, pastures and other lands into use on the basis of an investment contract or public-private partnership, repair or rebuild unusable water wells, irrigation pumps, irrigation and reclamation networks are guaranteed by the state. Agriculture will continue to improve through the creation of a transparent and fast system for allocating land plots. The practice of posting information on soil fertility, contours, placement of crops on them, and determination of yield on the official websites of regional and district administrations and interested organizations will be introduced. Attract funds and grants from international financial institutions for the implementation of “smart and digital agriculture” technologies. Based on the objectives of introducing “smart and digital agriculture” technologies, training of specialists will begin in higher educational institutions in the field of agriculture. Strengthening the material and technical base of research institutes, modernizing scientific laboratories, providing and repairing modern equipment. Taking into account the irrigation zones and water availability of the region, recommendations will be developed to improve equipment and technologies for irrigation of agricultural crops. Non-traditional irrigation technologies will be developed and implemented based on the study of world experience. A system of incentives for agricultural producers will be created for the introduction of technologies to improve the reclamation condition, productivity and water availability of abandoned irrigated and reclaimed forest lands.

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