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# Application of Digital Maps in Land Use

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**Abstract**. *This article describes the results of the inventory of land owned by land users and tenants in the Karavulbazar district of the Bukhara region, identifying the problems and shortcomings identified during the inventory. The innovative technologies used in the census, the importance of statistical data in the system of rational and efficient use of land resources, the preparation of digital maps based on the data obtained during the census, and the use of these digital maps in the field of national economy. It has been suggested that it be used.*

**Key words**: *land accounting, registration, land type, contour, geobotany, contour, degradation, forestry, farmland, digital map, orthophoto plan, act.*

## Introduction

Today, our country is rapidly showing itself in all areas. The state has undergone major reforms in recent years. The government is developing each sector one by one. A number of lagging industries have reached their peak in the recent past. Thanks to the fair policies pursued by the state, every sector is flourishing today. The transparent mechanisms of the policy pursued by the President are solving the problems and shortcomings of the country to such an extent that the people and the nation seem to be reenergized and taking a new step. Comprehensive land improvement, increasing its productivity and economic efficiency, is the basis of the scientific system of economic management, including agriculture, and the most productive use of land. Proper use of land, the introduction of a scientifically based sequence of different plant species in time and space, the application of ecologically “clean” methods of soil cultivation and fertilization, implementation in favorable agrotechnical terms, and certain elements, such as protection of plants from disease and pests, combating soil erosion, require clear legal regulation [1].

The globality of the world economy and its transition to new technological development make it increasingly competitive in the world's commodity and financial markets, in the field of introduction of the digital technologies, and in ways of solving the socioeconomic problems of the population. The main solutions to these issues should consist of taking place among the leading countries in the fields of science and innovation, achieving international competitiveness during the Fourth Industrial Revolution, searching for new solutions to the accumulated institutional problems, and solving controversial issues arising due to globalisation [2].

As such, resolutions of the chambers of the Oliy Majlis of the Republic of Uzbekistan, decrees, resolutions of the President of the Republic of Uzbekistan, decrees, resolutions of the Cabinet of Ministers, ministries, state committees and departments, resolutions of local state authorities' regulation, land cadastre, land management, and land monitoring remain important coordinating documents of economic policy regulating social relations, based on experience in the field of legislation aimed at improving efficiency.

As of January 1, 2020, the total land area within the administrative boundaries of the Republic of Uzbekistan is 44,892.4 thousand hectares, of which irrigated land is 4,329,000 hectares, or 9.6% of the total land area. As of January 1, 2020, the number of agricultural enterprises and organizations in the country, including farms, was 103,605, and the total area of land allocated to them was 20,761.6 thousand hectares, including agricultural. The total area of land types is 16025.6 thousand hectares, of which 3694.8 thousand hectares are irrigated. 46.25% of the territory of the Republic of Uzbekistan is occupied by agricultural lands, which are the main means of agricultural production. The distribution of agricultural land in the country is determined by natural climatic factors [3].

Inspection of land resources is part of the state's land monitoring. Land reclamation is a comprehensive, multipurpose government measure. Land inventory is carried out by land survey engineers based on clear plans and calculations. Land inventory, which is a key part of land monitoring, is also an important measure for the economy, and the process is regularly monitored by the state.

Land monitoring is a system of monitoring the status of the land fund to detect changes in land composition in a timely manner, assess the land, prevent negative processes and eliminate their consequences. Information on maintaining the state land cadastre, land use, land management, state control over the purposeful and rational use of land resources, and land protection is provided. The Cabinet of Ministers of the Republic of Uzbekistan shall establish the procedure for land monitoring [4].

Today, a new era has begun in the system of land management, regular monitoring of land plots, and land registration, along with many other sectors of agriculture. A number of normative legal acts are being adopted in the country to radically improve the system of land registration. These normative and legal acts are aimed at radically improving the system of real estate registration and further protecting of land users' rights. In order to strengthen state control over the protection and rational use of land, to establish a system of accurate accounting of land resources, and to increase the efficiency of use of agricultural land, including irrigated, dry, and pasture land, the Ministers of the Republic of Uzbekistan On April 23, 2018, the court adopted Resolution No. 299 “On measures to further improve the procedure for demarcation of administrative-territorial units, inventory of land resources and geobotanical research in pastures and hayfields”. This decision solves various problems in determining the internal boundaries of the Republic of Karakalpakstan, regions, the city of Tashkent, and districts (cities) due to the lack of systematic organization of work on demarcation, inventory, and accounting of land resources. It is no exaggeration to say that it was a very important normative legal document. The decision was significant in that it addressed many of the problems that had accumulated in agriculture. This timely decision has taken the system of rational and efficient use of land resources to a new level.

**Object and method of research.**

In recent years, the Republic has taken a number of measures to organize the rational and efficient use of land, to regulate land relations, and to strengthen state control over land use. At the same time, the effective organization of state control over land use, the introduction of modern technologies in the field, and the accounting of land resources remain insufficiently organized. In particular, the fact that the borders of the Republic of Karakalpakstan, regions, the city of Tashkent, and districts (cities), towns, and villages (auls) are not connected to the coordinate system causes problems in land management, land allocation, and regulation of land relations in the regions. Today, if we look at the shortcomings in the field of land accounting and state cadastre, in 2020 alone, in about 50,000 cases, 11,200 hectares of land were arbitrarily occupied, of which 3,200 hectares were illegally built. 99% of them are irrigated, fertile agricultural lands. In total, 113 districts are losing a lot of reserves due to the lack of accurate calculations of land fund categories and types.

There are also 21 million available. The efficient use of hectares of pastures and hayfields, the increase of species and number of plants, the increase in productivity, the introduction of orderly rotation of livestock, and the conduct of geobotanical research in order to prevent degradation of pastures and hayfields are completely out of control. As a result, in the last 25–30 years, 35–40% of

pastures and hayfields have been degraded, plant species and numbers have decreased by 20%, and yields have fallen by 1.5–2 times. In addition, due to the lack of systematic organization of the administrative boundaries of the Republic of Karakalpakstan, regions, the city of Tashkent, districts (cities), inventory, and accounting of land resources, there are various problems in determining the internal boundaries. occurs [5].

Land monitoring on agricultural lands is carried out by the Ministry of Agriculture and other categories of lands in a single method developed and approved by the Cadastre Agency under the State Tax Committee with the participation of interested ministries, state committees, and agencies. This method is mandatory for all enterprises and organizations that conduct land surveys, rapid and regular monitoring, research, inspections, or mapping. The condition of land is assessed by analyzing a number of consistent observations (periodic, seasonal, and diurnal) on the direction and intensity of changes and comparing the obtained indicators with the norms of land quality. Land use indicators are expressed in both absolute and relative terms (units of measurement) for a given period or date [6].

To monitor changes in the land fund for timely detection, assessment of land, prevention and mitigation of negative processes, state land cadastre, land use, land management, purposeful and rational use of land resources, and land protection. It is important to exercise state control over it. If changes in land areas are not identified in a timely manner, this process will have a significant negative impact on both economic, social, and environmental processes. Land monitoring is a system of timely monitoring of changes in the land fund, assessment of land, prevention of negative processes, and mitigation of their consequences.

O`zdavyerloyiha State Research and Design Institute targets the use of agricultural land; digitization of efficient use and control of crop conditions, the introduction of modern information and communication technologies in the monitoring of agricultural land on the basis of public-private partnership has the authority to implement projects.

**Results**

The Resolution of the Cabinet of Ministers of the Republic of Uzbekistan dated April 23, 2018 “On measures to further improve the procedure for demarcation of administrative-territorial units, inventory of land resources and geobotanical research in pastures and hayfields” In order to ensure the implementation of the decision of the khokim of Karavulbozor district of the Bukhara region dated October 17, 2019 No 117-F and the Uzbek State Research and Design Institute of Land Management “Ozdaverloyiha” “Terms of Reference” and “Work Program” Basically, all tenants, landowners, and land users in the Karavulbozor district of the Bukhara region were registered with land resources and updated with digital maps using orthophoto plans. During the preparatory work, the land report of the Karavulbozor district of Bukhara region, information on the allocation of land plots to existing farms and landowners, land users, documents confirming the right to land, cartographic and space materials, Using the materials of the inter-district land management project and previously performed archival materials for the census, together with the specialists of the district department of land resources and the state cadastre, information was prepared on the tables and the existing farms and other agricultural land. The boundaries of the land plots of the enterprises were plotted on the updated digital agricultural maps using a 1:10,000 scale orthophoto plan on irrigated lands. During the fieldwork, all land resources in the massif were recorded and the boundaries of each tenant,landowner, and land user were drawn on a 1:10,000 scale map based on the agreed symbols.

In the course of the chamber work, digital maps of massifs of land resources were updated using orthophoto plans, contour accounts were created, and contour accounts were compiled for each tenant, landowner, and land user. The total area of the 30th line of the district land report is 211063.20 hectares, of which 13984.20 hectares are irrigated lands, including 2052.0 hectares of poor lands, 294.20 hectares of orchards, 100.60 hectares of vineyards, gray 970.0 hectares of land, 116805.90 hectares of pastures, 519.0 hectares of arable lands, 118.0 hectares of reclamation lands, and total underwater lands of 21083.0 hectares, 689.0 hectares, public courtyards, streets, buildings, and areas of 979.0 hectares. Other lands not used in agriculture total 32157.30 hectares.

As a result of the inventory, the total area of land in the 30th line of the district is 212207.36 hectares, which is 1144.16 hectares more than the land report, of which 14406.92 hectares are irrigated lands, 422.72 hectares more than the land report, including the state bad lands. 2066.72 hectares, 14.70 hectares more than the land report, orchards, 302.37 hectares, 8.17 hectares more than the land report, vineyards, 109.86 hectares, 9.26 hectares more than the land report. The number of greenhouses is not included in the land report. 3536.51 hectares more than the land report, 787.45 hectares more than the land report, 268.45 hectares more than the land report, 22422.64 hectares more than the forest report, 940.36 hectares less than the land report, total submarine lands of 9960.30 hectares, 11122.63 hectares less than the land report, road areas of 1124.37 hectares, 435.37 hectares more than1057.42 hectares, 77.98 hectares more than the land report. Other lands not used in agriculture total 40543.77 hectares, an increase of 8386.84 hectares compared to the land report [8].

According to the results of the census, the total area of the district center is 1655.85 hectares. According to the results of the census, violations were detected in 33 cases of land use in 7.34 hectares, including 3.23 hectares of illegal construction (field sheds, cattle ranch), 0.25 hectares of illegal gardens were built, and 3.68 hectares were used for other purposes (pools, buildings) (Table 1). This work was approved by the decision of the khokim of the Karavulbozor district of the Bukhara region dated December 17, 2019 No 247/67-V.

Table 1. Information on identified violations in land use

| № | The name of the village | Contour number | Land area. ha | Land types | | | The types of land law violations identified | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | irrigated agricultural land | pastures | others | construction of buildings | planting trees | arbitrary occupation | other cases |
| 1 | Navbahor | 12 | 2.68 | 0.34 | | | 2.34 | 2.68 | | |
| 2 | Bo‘zachi | 14 | 3.81 | 1.72 | 0.30 | 1.79 | 0.34 | 0.25 | | 3.22 |
| 3 | Jarqoq | 7 | 0.85 | 0.10 | 0.49 | 0.26 | 0.21 | | 0.18 | 0.46 |
| | Region's total area | 33 | 7.34 | 2.16 | 0.79 | 4.39 | 3.23 | 0.25 | 0.18 | 3.68 |

**Conclusion.**

It should be noted that the purpose of the above work is to establish the administrative boundaries of districts (cities), the inventory of land resources, and the organization of accounting, which caused various problems in determining the internal boundaries; to strengthen state control over the protection and rational use of land, taking into account the above; to establish a system of accurate accounting of land resources, including agricultural land; and to increase the efficiency of irrigated and pasture use. The purpose of the inventory of land users, landowners, and tenants is to determine the ownership of land plots, buildings, structures, and perennial trees, their users, tenants, and the area of land plots occupied by them, the size of buildings and structures, and the types and number of trees. The main task of the census is to collect data, take into account the standardization of the processing mechanism, and create a cadastral information system, providing public authorities with reliable, complete information about real estate. Registration is a set of cadastral measures taken to obtain information about real estate objects, their quantity, quality, and legal status. Accurate registration of real estate in the electronic database provides a complete list of taxable items for the calculation of property and land taxes. Today, at a time when landowners are taking the inventory system of land owned by land users and tenants to a new level, we need to address every detail of the inventory with perfection and legitimacy. At the same time, further improvement of the system of public services in this area requires increasing their efficiency and accessibility, achieving transparency in the activities of government agencies and improving the provision of information services to users of services. The introduction of information and communication technologies and the integration of relevant systems into the electronic databases of government agencies are the main priorities for simplifying the process of state registration of real property rights. Further improvement of the land registration system, the use of transparent methods, the use of new innovative

technologies, and the creation of favorable conditions for legal entities and individuals in the state registration of real property rights, the elimination of red tape, and confusion. Hardening is one of the most pressing issues today. Land registration is an important pillar of the country's economy. The state can exercise permanent control over the land plot that was registered in time and visited in time. Where controlled, taxes are paid on time. Taxes paid on time go to the state or local budgets. The money from the state budget was used to build new schools, hospitals, roads, parks, sports complexes, and social infrastructure. If we implement the land survey system in every district, city, and province in a timely and correct manner, we will have laid an important foundation for future generations. The earth is as sacred as Mother Earth, so we must always cherish this blessing as the apple of our eye.

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