

APPLICATION OF GEOGRAPHIC INFORMATION SYSTEMS IN THE USE OF AGRICULTURAL LAND IN YANGIBOZOR DISTRICT

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Abstract

The article is devoted to the application of GIS in the transfer of agricultural lands of Yangibozor district in order to effectively use them. The use of geoinformation technologies allows for effective use of land resources, timely identification of changes in land types in the district and inclusion in the database. This brings a lot of convenience to land users and to control of land users by the Cadastre Agency under the Tax Committee of the Republic of Uzbekistan.

From the maps with marked border lines, it is possible to prevent land use disputes by land owners and land users, improve land use control and ensure proper land accounting.

Key words: *land resources, mapping, geoinformatics, agriculture, cadastre.*

Introduction. Yangibozor district is located in Khorezm region and was established in 1950. Analyzing the land fund of the district, the total land area is 30,242 thousand hectares, of which the irrigated part is 23,328 thousand hectares. Cultivated land is divided into 18,814 thousand ha, all of which are irrigated. Perennial trees - 1424 thousand ha, and they are also on irrigated lands. 256,000 gray lands are irrigated. There are no hayfields or pastures in Yangibozor district, agricultural land types are divided into 20493 thousand hectares, and these are also irrigated. Homestead lands and horticulture-vegetable union lands are irrigated, 2723 thousand hectares out of 3185 thousand hectares. There are no lands under reclamation construction, 42,000 hectares of forests are irrigated, 22,000 hectares are irrigated, other types of land are 6,522,000 hectares (Land Fund of the Republic of Uzbekistan, 2021).

In the case of using geoinformation technologies in these lands, in which area each meter of land types is used, rapid determination of changes in the land type are urgent issues. In the effective use of land resources, their mapping, digital mapping using geo-informational methods is of great importance.

Information about the research object. Yangibozor district is located in Khorezm region and was established in 1950. Later it was annexed to Urganch and Gurlan districts. The district was re-established in 1989. The area is 0.34 thousand km². The population is 68,400 people (2015). Yangibozor district has 1 town (Yangibozor), 8 rural communities (Bashkyrshikh, Bog'olon, Bozkala, Ayakgdormon, Uyghur, Chubalanchi, Shirinkungiro, Qalandardormon). The center is the town of Yangibozor.

Nature. The relief consists of a low-high plain. The territory slopes to the northwest. Average annual temperature is 11°. The average temperature in July is 26-28°, January - 6°. Annual rainfall is 80-90 mm. Vegetation period is 180 - 200 days. Amudarya flows through the north and northeast of the district. Cultivated fields are irrigated from Qilichboyarna, Mang'itarna, Kunghirotyop, Nukusyop, Yangiyop, Hiziryop, Olygop, Shabika and other canals and ditches. The soils are alluvial, meadow, meadow-swamp, saline soils. Small sand dunes have been preserved in some places. Among the wild plants grow saffron, cyst, sedum, weed, ivy, reed, yakan, turangil, willow, poplar, fat, and others. Among the wild animals there are wolves, badgers, rabbits, wild boars, snakes, lizards, rats; Among the birds, there are grouse, all kinds of ducks, geese, coots, coots, and others. There are all kinds of fish in streams, canals and other bodies of water.

The population is mainly Uzbeks, as well as representatives of Kazakh, Turkmen, Russian, Tatar, Korean and other nationalities. The average population density is 195 people per 1 km². The urban population is 6.3 thousand people, the rural population is 60.1 thousand people.

The district economy is mainly specialized in agriculture. There are cotton gins, brick factories, local industries, a farmer's market, commercial, cultural and household service outlets. Large, medium and 151 small enterprises, as well as micro-firms operate, 2 joint ventures were established. The leading branch of agriculture is cotton growing and grain growing (including rice growing); cattle breeding, cocoon breeding, vegetable growing, policing, horticulture are also developed.

The total cultivated area is 19.6 thousand hectares, of which 11.3 thousand hectares are planted with cotton, 4.1 thousand hectares with grain, 81 hectares with potatoes, and 246 hectares with vegetables (2005). Groves and forests along the Amudarya River - 538 ha. 12 agricultural enterprises, 3 joint-stock companies, 9 private firms, 1226 farms operate in the agricultural sector. More than 33,500 cattle, more than 4,700 sheep and goats, and about 64,200 poultry are raised in the collective and private farms of the district (UzME, Vol. 10).

Research methods. In order to ensure the implementation of the decision of the Cabinet of Ministers of the Republic of Uzbekistan No. 299 dated April 23, 2018 "On measures to further improve the procedure for determining the boundaries of administrative-territorial units, conducting land resource surveys and conducting geobotanical research in pastures and hayfields", "The boundaries of administrative-territorial units of the district" determination, mapping of land resources and updating of existing electronic digital agricultural maps based on the results" were carried out. In order to ensure that the above works are carried out in a high-quality manner by the Khorazm Interregional Division of the Republican Aerogeodesic Center, the order of the governor of the Yangibozor district of the Khorezm region dated August 9, 2021 No. 23-12-178-F/21 was accepted and a working group was formed according to the order.

Delimitation of the borders of Yangibozor district of the President of the Republic of Uzbekistan dated May 31, 2017 "On measures to further improve the activities of the state committee for land resources geodesy, cartography and state cadastre of the Republic of Uzbekistan" No. It was carried out in accordance with the decisions No. 299 "On the measures to determine, survey land resources and conduct geobotanical research in pastures and hayfields"

and the order No. 252 of the "Davergeodezkadastr" committee of May 3, 2018.

Determining the borders of the administrative-territorial units of the Yangibozor district of Khorezm region and connecting them to the coordinate system, approved by the decision of the Cabinet of Ministers No. 299 of April 23, 2018, "REGULATIONS" in Annexes 1-2, approved by the "Davergeodezkadastr" state committee on January 24, 2007 " 1:10,000 and other scales of electronic area calculation and agricultural land plot drawing instructions on creating topographic maps and maps for agriculture" and approved by the State Committee "Davergeodezkadastr" on June 8, 2016 by Order No. 113" 1:10,000 It was carried out on the basis of "PROCEDURE" for decoding in camera and field conditions and updating electronic digital agricultural maps using large-scale photographs.

The part of the Republic of Uzbekistan that passed along the state border line was taken according to the existing border line for the delimitation and demarcation of interstate borders.

The following changes have been made in the boundaries of the administrative-territorial units of Uzun district in recent years: By the decision of the session of the Council of People's Deputies of Yangibozor district No. VI-68-61-12-178-K/22 dated March 28, 2022, the total area of the district was approved as 34597.89 hectares.

1242 documents and materials were studied for determining the boundaries of administrative-territorial units for land users belonging to Yangibozor district; together with the representatives of the border regions, proposals on the solution of the problems were prepared and agreed with the land users.

The boundaries of the defined administrative-territorial units of Yangibozor district were fixed with fixed points according to the coordinates, and a catalog of coordinates of the turning points was prepared.

The length of the border and the area of administrative-territorial units were determined according to the completed project works.

Table 1.

The length of the border and the area of administrative-territorial units

№	Name	Boundary Length (meters)	Land Area (hectares)
1	Bogolon	24157.6465	5680.33
2	Madaniyat	26515.3029	4403.97
3	Buzkala	16692.8085	3601.96
4	Jaykhun	31509.6983	6 353.94
5	Uzbekistan	36285.8251	3482.28
6	Shirinqingiro	31717.5393	3694.23
7	Khalqobod	34272.2236	3587.46
8	Khamza Buston	13119.0957	3384.74
9	Yangibozor district	7877.1747	408.98
Total:		222 147,3146	34597.89

When defining the boundaries of the district administrative-territorial units, the existing classifications of delimitation and demarcation of inter-district boundaries were based on the written text classification of boundaries, and the boundary was established according to the rule, according to the land allocation regions of canals, collectors, highways and railways, highways.

In this case, topographical elements were left unchanged on one side of the border of administrative-territorial units.

The agreed boundary line was drawn on an orthophoto plane with a scale of 1:10,000 in irrigated areas with the help of an electronic program, connecting the space

photographs to the state coordinate system, according to conventional symbols accepted for topographic maps.

Research results and discussion. The final documents of defining the boundaries of administrative-territorial units of Yangibozor district were approved by the decision of the Council of People's Deputies of Yangibozor district dated March 28, 2022 No. VI-68-61-12-178-K/22.

The classification of the approved border line of the administrative-territorial units was approved by the interested parties, the border classification was written according to the position on the maps reflected in the topographic maps, and the coordinates of the determined border line provide for use in cataloging and placement and monitoring of agricultural crops.

From the maps with marked border lines, it is possible to prevent land use disputes by land owners and land users, improve land use control and ensure proper land accounting.

"Defining the borders of the administrative-territorial units of the district, updating the existing electronic digital agricultural maps based on the results of surveying land resources" was carried out by the experts of the Khorezm Interregional Division of the Republican Aerogeodesic Center and the experts assigned to each region by the district department of the Cadastre Agency. Relevant documents related to land, as well as land allotment, were studied in the district, and the existing agricultural land areas of agricultural enterprises in the district were surveyed (inventory). Also, land allotment documents giving the right to use the relevant land and previously completed transfer documents were used.

"Delimitation of administrative-territorial units of the district, updating of existing electronic digital agricultural maps based on the results of surveying land resources" was carried out in camera and field conditions using photographs created as a result of decoding works on a scale of 1:10000. Registers of land areas of the district, calculation of land types on unrepeatable contours were drawn up and electronic digital agricultural maps were updated, and all agricultural enterprises and land users, regardless of the form of ownership, were registered without registration, and a register of contours of unrepeatable sequence was created for the district.

It includes the following processes, considered as part of the 3rd stage of land preparation works on the basis of the work of land resources registration, land preparation and land reporting works carried out in the field of land relations regulation.

Delineation works - part of the 1st stage based on the map and description of the border lines of the district with bordering districts, as well as orthophoto plans and agricultural maps prepared on the basis of aerial and space photographs, and the part of the 2nd stage, based on decoding materials, began.

Phase 3 correspondence work began with field work using the decryption documents.

When studying the documents for the regulation of land relations in the district, it was revealed that the agricultural map developed in 2003 was used. As a result, land owners and natural and legal entities using land have a lot of disagreements and conflicts about the boundaries of land areas and land types. Especially in the regions of the district, such cases are very common among farms and other land users.

In addition, due to the irregular and unavailability of land documents that grant land use rights to landowners

and land users in the district, a single list of farms and other agricultural enterprises with land areas by type has not been formed. The only list presented does not correspond to the current situation.

Due to this, the volume of work on the implementation of the route has increased. Because each specialist has not been fully provided with the legal documents giving land users the right to use the land and decryption documents, it is necessary to make a description of the borders of the land area in each area with the help of orthophoto plans, and to draw the borders of the land areas used by the land users in this area.

Another important point of the survey is that, while earlier the contour numbers of the land areas in the district were separate for each region, this survey allows the contour numbers of the land areas in all areas of the district to be continued in an uninterrupted sequence and with the help of measurement and modern optical devices (JPS and DRON) every One way is to highlight information such as the width of roads, ditches, ditches and other elements.

According to the land balance as of January 2021, the administrative territory of Yangibozor district is 34,279.0 hectares, of which: 18,170.0 hectares of arable land, 896.9 hectares of orchards, 105.0 hectares of vineyards, 54.0 hectares of orchards, 436.4 hectares of orchards, 255.0 hectares of gray land, total agricultural land 19929.3 hectares, 3320.4 hectares of farmland, 17.0 hectares of tree plantations, 455.4 hectares of forests, 6122.87 hectares of flooded land, 863.33 hectares of roads paths and livestock roads, 1234.89 hectares of social yard and streets, social buildings and 2352.85 hectares of other non-agricultural land.

The territory of the district consists of 8 villages, 1 town and 8 regions, and according to the established order, all regions were detailed and redrawn on maps.

According to the results of the census, the total land area of the district is 34597.89 hectares, of which: 17902.2 hectares are arable land; of which irrigated land is 17902.2 hectares, 1393.73 hectares of gardens, 394.91 hectares of vineyards, 30.57 hectares of greenhouses, 340.8 hectares of orchards, 429.18 hectares, fallow land, total agricultural land is 20491.37 hectares, 5012, 87 hectares of homestead land, 1.4 hectares of land under reclamation construction, 726.49 hectares of total forests, 5635.02 hectares of submerged land, 883.16 hectares of roads, cattle drives, 805.53 hectares of buildings, street and palace areas, It was determined that 1042.05 hectares consisted of other land not used for agriculture (Figure 1).

Land types compared to the report, the irrigated land area decreased to 267.8 hectares, orchards decreased to 95.6 hectares, orchards to 496.8 hectares, vineyards to 289.9 hectares, and the total agricultural land increased to 562.1 hectares.

60 cases of violation of land laws regarding the use of land have been identified as a result of the survey conducted in the territories of Yangibozor district. The total land area of land violations is 15.58 hectares. Of this, 13.22 hectares are irrigated cropland, and 2.36 hectares are other lands.

A single list of the land resources of the district was created for each land user section, and a record of the land areas in use by land types was compiled.

After considering all the formalized documents regarding the transfer of land in the district territories, they were submitted to the district commission for making the appropriate decision and approved by the decision

of the mayor of Yangibozor district No. 245-12-178-Q/22 dated April 1, 2022.

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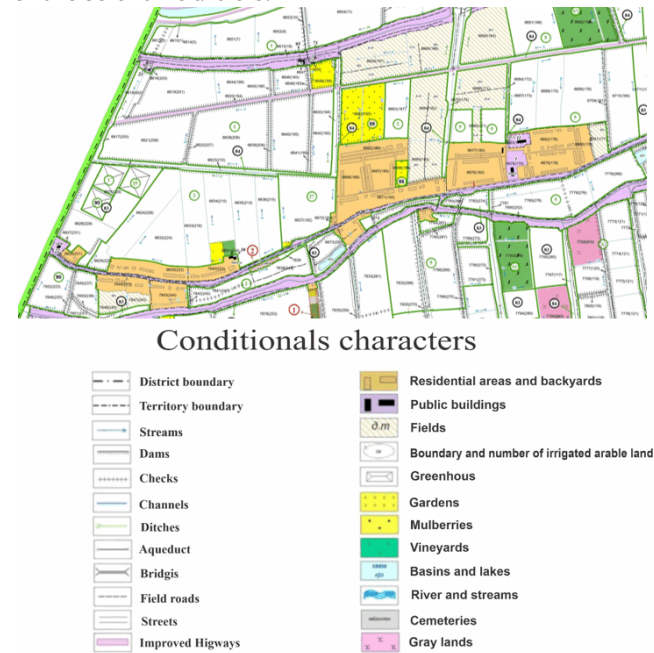


Figure 1. Information about

Conclusion

The following conclusions were drawn from the conducted scientific and practical research work:

In Yangibozor district, land surveying works, land surveying and geoportal system based on land reporting works in the area of regulation of land relations are included in the following processes.

Delineation works - part of the 1st stage based on the map and description of the border lines of the district with bordering districts, as well as orthophoto plans and agricultural maps prepared on the basis of aerial and space photographs, and the part of the 2nd stage, based on decoding materials, began.

Phase 3 correspondence work began with field work using the decryption documents. As a result of the work, the following conclusions were drawn.

1. Demarcation of the borders of administrative-territorial units of the district, updating of existing electronic digital agricultural maps based on the results of surveying of land resources was carried out in camera and field conditions using photographs created as a result of decoding works on a scale of 1:10,000.

2. Records of surveying the land area of the district, calculation of land types on unrepeatable contours were prepared.

3. Electronic digital agricultural maps were updated and all agricultural enterprises and land users, regardless of the form of ownership, were transferred without loss.

4. A record of contours in a unique sequence by district was created.

5. Land owners and land users will be able to prevent disputes over land use, improve land use control and ensure proper land accounting.

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