DEVELOPMENT OF MAPS TO IMPROVE THE RECLAMATION OF IRRIGATED LANDS USING GIS TECHNOLOGIES

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Annotation: One of the reclamation measures to improve the reclamation of irrigated lands and the rational use of water resources is the introduction of saline leaching systems, scientific research on the advantages of creating a map of agricultural irrigated lands using modern GIS technologies. being carried out.

Keywords: ArcGIS, GIS technologies, irrigated lands, agriculture

Introduction.

During the years of independence, Uzbekistan has undergone significant changes in the water sector. In particular, the water resources management system has been improved, the technical condition of irrigation networks has been improved, extensive work has been done to improve the reclamation of irrigated lands and increase their water supply, introduce modern water-saving technologies, install automated control and monitoring systems, increase agricultural production. extensive attention was paid to diversification work. Water-intensive crops such as cotton and rice have been reduced and replaced by cereals, vegetables and melons and orchards. Also, the widespread use of GIS technologies in the creation of electronic maps of irrigated lands has been introduced [1,2,3].

In the context of growing water shortages due to global climate change, it is important to use available water resources and widely introduce GIS technologies in the mapping of irrigated lands in order to ensure a guaranteed harvest of

agricultural crops and increase the sustainability of food security. In order to solve the above data, the condition of arable lands of "Pakhtakor" massif of Marhamat district of Andijan region was studied. Massive land soil map, arable land plan, statistical data and other geodetic-cartographic sources were collected.

By washing the soil saline, pests are released for the plants to grow and develop. Taking into account the level of salinity of soils and the mechanical composition of soils, the terms of saline leaching have been developed in the country.

This work is carried out mainly in winter and early spring. In farm areas, low-salinity soils are washed away by the ridges, while in medium and high-salinity soils, they are divided into boundaries and washed away [4,5].

Methods.

In the developed countries of the world, the rapidity of land information shows its positive aspects significantly in all directions of the land system. It is no secret that modern technologies and scientific achievements are used in the creation of agricultural maps even in the developed countries, which rank high in the world in terms of the use of land resources. We will study several cases including it.Studying the work done by Uzbek and foreign scientists on the topic of updating land use maps using space data and GIS technologies and the articles published based on this work. In the world, and first of all, in the United States, developed countries of Europe and the Russian Federation, research has been carried out on the issues of improving the efficiency of land use, which, in turn, has led to the development of scientifically based methods of creating maps of land types and improving them using modern GAT technologies and remote sensing methods. Requires [6,7,8]. Such research is carried out by foreign scientists D.I. Kozlova S.V. Koplova, Pavlov A.V., Kutumov A.A., Shvedov D.O. Anikeneva I.A., Zaichko V.A. Conducted by Ben-Dor, Banin, Dwivedi, Mettyernicht, Zinck, et al. Among them: E.Yu.Safarov, T.Mirzaliyev,

I.Musayev, E.Kh Isakov, A.Rakhimov, Z.Mamatkulov, I.Abdurakhmonov, Sh.Prenov and R.Oymatov, the proposals and recommendations are bearing fruit.It is worth noting that scientific research on the identification and assessment of land types, the creation of improved attributive maps and monitoring of regions by processing remote sensing data with the help of GIS technologies has not been carried outenough [9,10]

Result and Discussion

The size of the saline wash borders depends on the mechanical composition and water permeability of the soil, the degree of leveling and slope of the field. The smaller the well-leveled slope of the field surface and the lower the water permeability of the soil, the larger the check area can be. If the saline soil is leveled with levelers and geodetic tools, 14-18 kilograms of salt will be washed away at the expense of each water consumed. Conversely, if the soil is washed without leveling, 9-10 kg of salt is washed away at the expense of each water. On farms, special attention should be paid to leveling the soil salinity well before washing it. On uneven lands, water does not flow well, the quality of irrigation and saline washing decreases, and excess water is wasted. Simultaneously with water saving on flat lands it is easier to wash the soil saline - the soil is desalinated all over the floor, the effectiveness of agro-technical measures increases [3].

Reclamation requirements will need to be taken into account when leveling the soil before washing the soil saline. The fields have a longitudinal and a transverse slope, and when the water is submerged, the water must be evenly distributed on the floor. The difference in height inside the floor should not exceed 5-7 centimeters. When leveling, the longitudinal slope should not exceed 0.002–0.003 and the transverse slope should not exceed 0.0012–0.0018. When leveling the ground, use P-2.8A and PA-3 long-base and MV-6.0 leveling rakes, as well as N-Geodetic instruments such as 3 ",“ N – 3K "and laser levels are used [2].

In particular, as in all areas, there is a need to effectively use the

achievements of geographic information technology (GIS) in the creation of agricultural maps. It is known that the GIS is a hardware-software human-machine complex that collects, analyzes, processes, models, stores and transmits spatial data on interregional relationships and differences between territorial and periodically changing multi-component socio-economic geosystems. [4].

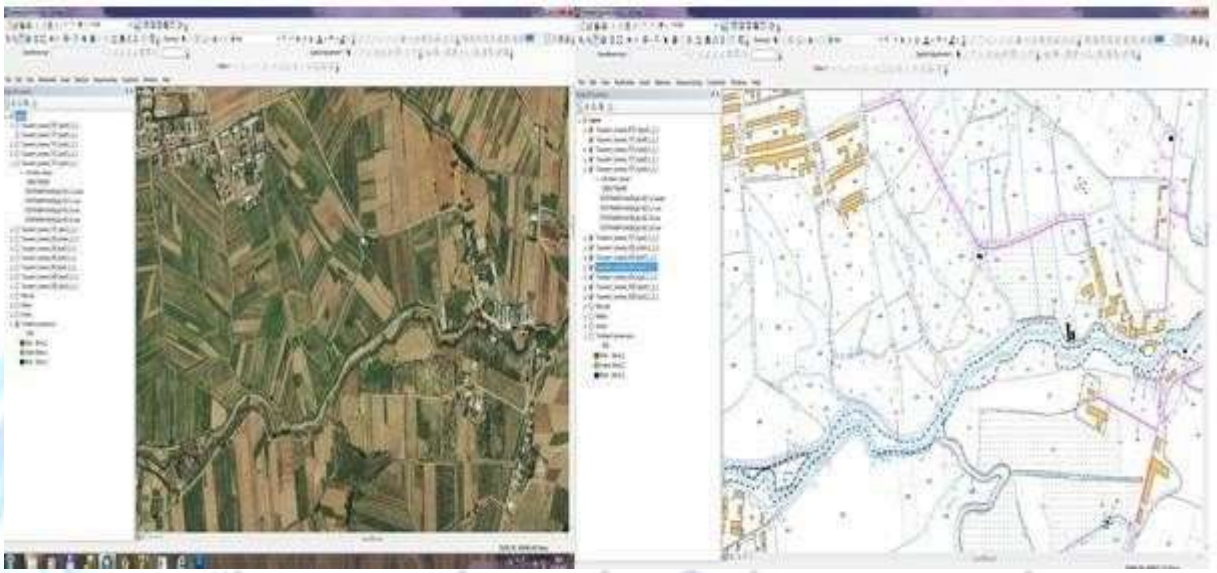

Figure 1. *The process of creating an electronic map of irrigated lands using ArcGIS 10.2.*

Management of irrigated lands in agriculture The stages of work performed in the GIS in the design and creation of the necessary maps can be described as follows: collection of primary data, data entry into computer memory and storage from external means, their processing, creation of a database of irrigated agricultural lands; go, create systemically themed maps of the field, carry out editorial work on structured maps. There are many unresolved technological and organizational problems in the application of the GIS program in the field of agriculture, which can be solved on a scientific basis in the management of irrigated agricultural land, the organization of land monitoring, protection of lands from degradation and others [11,12].

It is known that in the design and creation of maps of irrigated lands in agriculture, the data on the work performed in the GIS have a number of characteristics: geographical location, legal address, territorial integrity, completeness, continuity, visibility, accuracy, etc. The geographical features of the main stages are as follows [4]:

1. Geographical location - geodetic, geographical and other coordinates of objects;

2. Legal address - depending on the legal status of the property, including the owner of the land, ways of land management, term, etc .;

3. By property unit - farmers, water user associations

(SFU), at the district and provincial level;

4. Natural, economic and legal data of the economy;

5. Continuity - the creation of a database and it is regular

be updated;

6. In terms of accuracy - to correspond to the current situation, to ensure the real situation;

7. Demonstration - a completely simple and straightforward presentation;

8. Thematic maps are created on the basis of data on various sectors of agriculture and are constantly updated based on their cartographic laws;

9. It is necessary to collect the above set of data on agricultural irrigated lands in the model of hierarchy (categorical division);

As a result of the above work, it is possible to create analytical, synthetic maps, create a hierarchical database at the stage of determining the relationship between socio-economic indicators [13,14].

The process of linking data to each other, comparing with existing sources, forms a database of data, which is based on a systematic automated agricultural technological process. This serves as a key tool in the organization of monitoring of various socio-economic events and happenings.

Conclusion

In conclusion, it can be said that the proportional territorial organization of agriculture in areas with limited land and water resources, due to natural and socio-economic conditions, can increase the productivity of existing irrigated lands by improving the reclamation of soils and the application of advanced science. . Thematic, comprehensive and agricultural, cadastral maps play an important role in the task of territorial organization of this network. They are used to visualize the distribution of events in space and time, to compare the regional location and specific features of agricultural irrigated land, to create opportunities for scientific analysis. Thus, the authors studied the process of creating an electronic map of irrigated lands in ArcGIS 10.2 using space velocities. We believe that our map will help to improve the condition of irrigated lands in agriculture.

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