

Improving the Method of Forming the Geo-Information Base of Population Point Land

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Annotation: This scientific article focuses on the issues of forming the calculation of residential areas in the geodatabase and determining periodic changes. A scientific result dedicated to the automation of the system of determining the dynamics of their change based on the algorithm of the remote study of the residential areas of the population with the help of software belonging to the family of the geoinformation system is counted.

Keywords: scale, ArcGIS, cartography, cadastre, geodesy, electronic, digital, map, state cadastres, ArcCatalog, ArcMap, application, attributes, automation, land registration, separate state cadastres, applications, layers, databases, integration.

Introduction. Land accounting requires extensive infrastructure studies and keeping in mind the economic status of the area under study. Undoubtedly, without taking into account the socio-economic status of the land, it is impossible to use the land productively and allocate land plots. While in theory there is potential for a particular use in an area, it can be difficult to implement. So, in addition to the ecological potential of the region, it is necessary to use the socio-economic potential of a certain region. On the other hand, people's lack of necessary knowledge about the rational use of land and the acquisition of land for the construction of buildings and structures leads to the further arbitrary expansion of land resources and residential areas. Arbitrarily occupied lands are accounted for by agricultural irrigated lands, therefore it is necessary to take account of agricultural land types, to study them, to clearly define settlement lands and borders.

Studies. The boundaries of settlements are the outer boundaries of settlement lands located in cities, towns, villages, which separate these lands from other lands, and geographic information systems software is widely used to analyze land use and determine changes in settlement lands (Fig. 1).

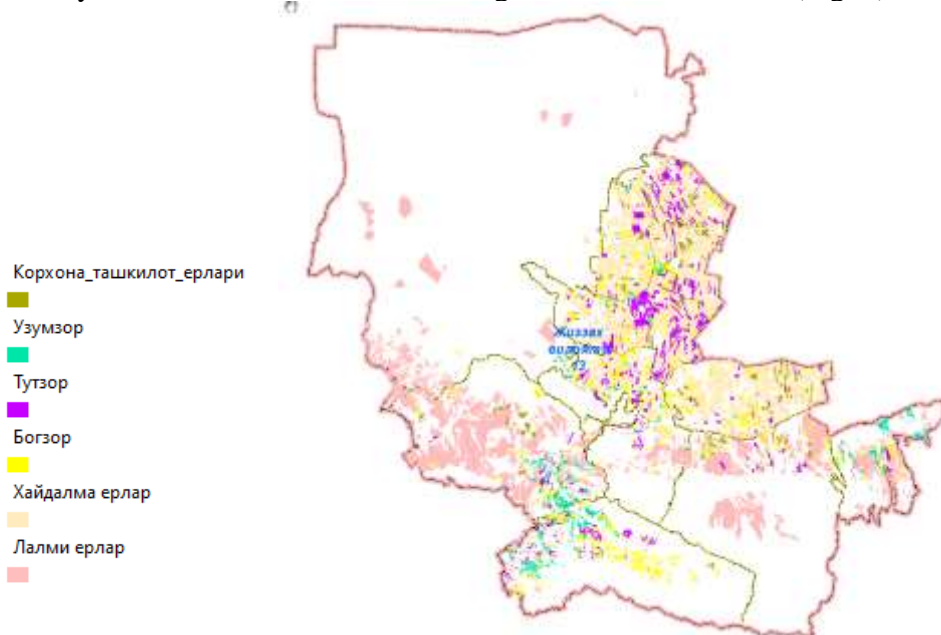


Figure 1. The scheme of visualization of land types in the geodatabase of Jizzakh region

By processing the results of the field research, the geodatabase of the lands of the settlement of Jizzakh region has been completely formed as of 2021, based on the photos taken with the help of drones. In the geodatabase, the lands originally allocated for agriculture were monitored using a drone and geovisualized on the basis of thematic vector layers using geoinformation system software (Fig. 2).

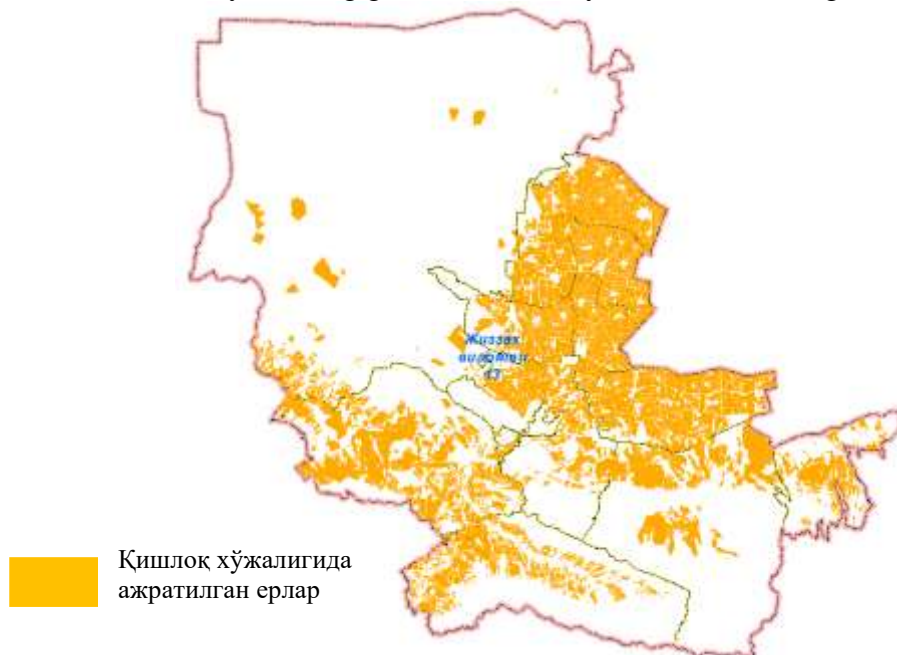


Figure 2. The scheme of visualization of land areas used in agriculture in Jizzakh region in the geodatabase

In the geodatabase, the stages of the technological scheme for obtaining the calculation of settlement land, creating vector layers of land and performing geovisualization work were developed (Fig. 3).

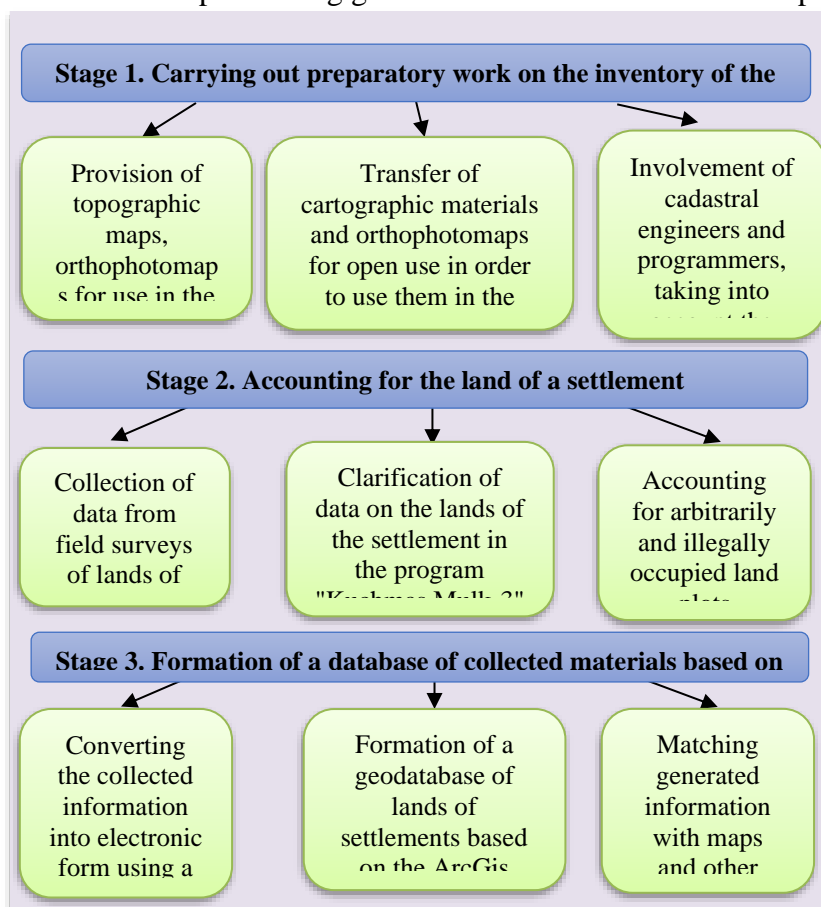


Figure 3. Stages of the technological scheme for obtaining an account of settlement lands

Analyzes. In particular, with the help of ArcGIS software, the land areas of residential areas in the Jizzakh region were determined and formed in vector thematic layers and geovisualized in the cross-section of the regions (Fig. 4).

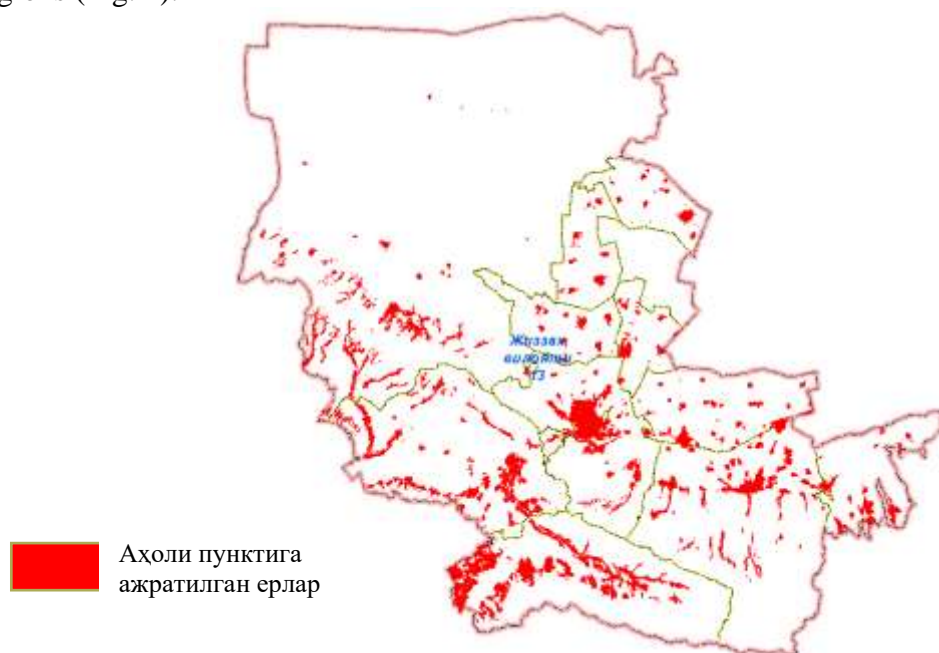


Figure 4. **Jizzakh region settlement land visualization scheme in the geodatabase**

The attributes of each land plot created in vector format were entered, compared with data from field research and existing Real Estate Database software. The information was checked with the maps and other legal documents obtained in kind, as a result, the information of the unified system of state cadastres of land users of the settlement with high accuracy was formed and geovisualized using the ArcGIS program based on the photos taken by the drone. At the same time, geovisualization of district borders of residential areas was carried out, and it was possible to analyze the population in the section of districts (Fig. 5).

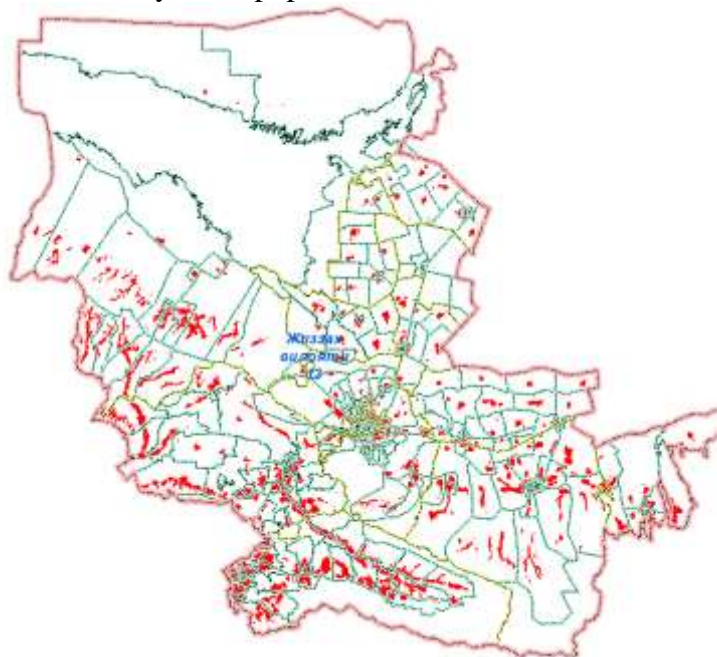


Figure 5. **Visualization scheme of MFY and settlement boundaries of Jizzakh region in the geodatabase**

Result. NCMs of Jizzakh region have old paper-based boundary cards that have become invalid, and when NCFs and administration offices were investigated, it was found that they do not have new cards showing the neighborhood boundaries. and as a result of the research, the boundaries of each neighborhood of Jizzakh region were defined and formed in the ArcGIS program in the form of an area layer, as well as the creation of electronic maps.

Buildings and structures belonging to the land plot are also formed in the geodatabase in order to take account of the land plots of the settlement, to use them effectively and to protect them. In this regard, the data of the state cadastre of buildings and structures was created in the geodatabase, in the attributive data, property rights to buildings and structures or other material rights (appearance, transfer to another person, limitation and termination), as well as other information describing the object, are recorded (Fig. 6).

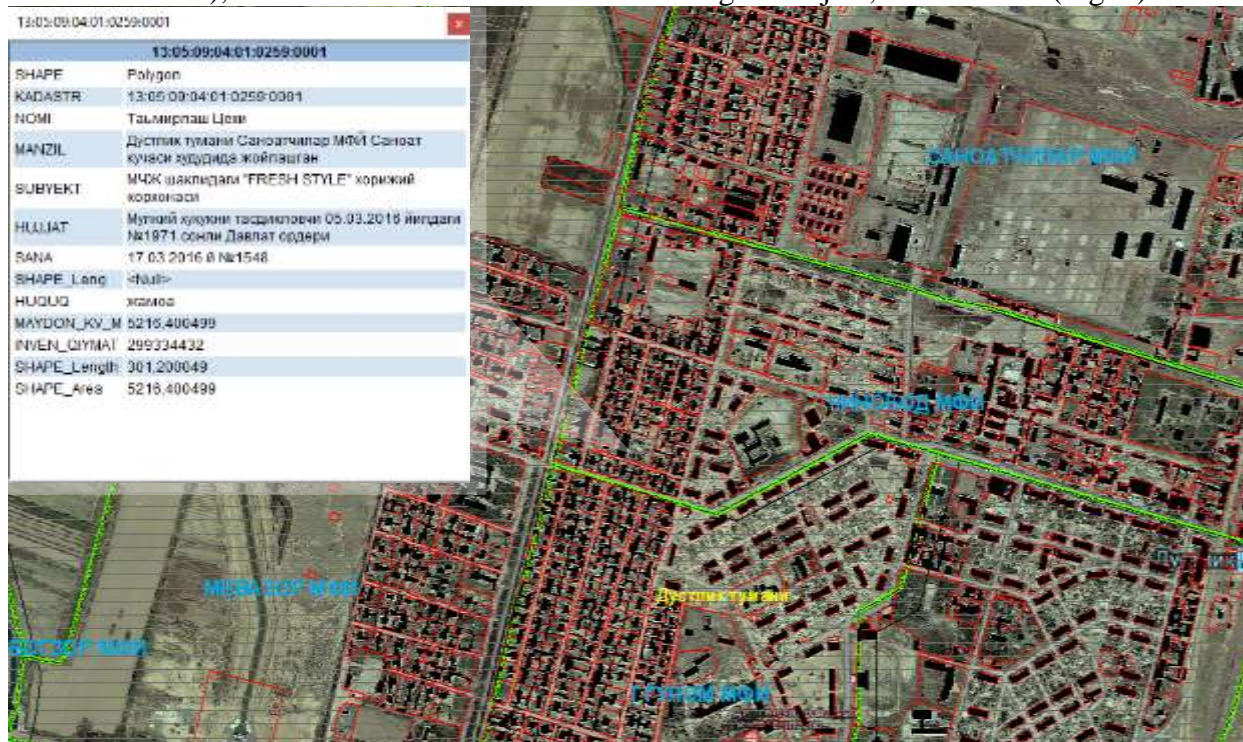


Figure 6. The ArcGIS program is a process of data visualization of settlement buildings and structures using the ArcMap application

The parameters of buildings and structures (floors, general, living, production areas), the occupied land plot, the date of construction, the availability of engineering and technical communications, seismic resistance and other technical data on the attributive data of buildings and structures were formed on the land of the settlement.

Each building and structure is considered as a whole with land plots according to its relevance, only when analyzing buildings and structures, they are divided into liters, in general, they are taken into account together with the land plot on which buildings and structures are located, that is, the number of real estates located in the settlement is taken in relation to the land plot.

Conclusion. As a result of scientific research, the processes of processing the results of field research in ArcGIS software, integrating the calculation analyzes carried out in the field into the geodatabase in the form of a vector layer, and separating real estate objects and user indicators from the settlement land using geostatistical analyzes were geovisualized. In addition, cartography, cadastral and settlement land accounting were modernized. This created a cartographic basis for the creation of 1:10,000 and 1:25,000 scale agricultural maps and 1:2000 scale electronic maps of residential areas for administrative-territorial units to determine boundaries, land accounting, and illegal land use.

Based on today's requirements, geoinformation technology programs are being improved in the world, and in our country, among the developed countries of the world, modern geoinformation technology programs

are used, and in our republic, high results have been achieved in the implementation of the tasks set in the development of territories in terms of effective land management, accounting and their protection

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