NOVATEUR PUBLICATIONS
JournalNX- A Multidisciplinary Peer Reviewed Journal
ISSN No: 2581 - 4230
VOLUME 10, ISSUE 3, March -2024

IRRIGATION NETWORK CARDING ISSUES

Khakimova Kamola Rakhimjonovna
Fergana Polytechnic Institute
E-mail: k.xakimova@ferpi.uz
(0000-0001-9683-738X)

Mamanazarova Dilobar Bakhromjon kizi
Doctoral Student of Tashkent Institute of Irrigation and
Agricultural Mechanization Engineers.

Abstract
In this article, the irrigation networks were studied and the state of reforms implemented in the sector was analyzed. The issues of mapping irrigation networks were also covered.

Keywords: irrigation, map, GIS, remote sensing data, analysis, synthesis, cartographic forecasting, geoinformation method.

INTRODUCTION

Currently, in every field and system in the world, great importance is attached to achieving economic efficiency based on the use of digital technologies. With the help of digital technologies, systematic work is being carried out, based on scientific principles, to develop science and solve problems in every field. In particular, geodesy, cartography and cadastral fields are carried out in accordance with geoinformatics and software, special importance is attached to obtaining quick and accurate information. Therefore, it is important to improve the methodology and use of GAT (geographical information systems) technologies in the management and control of land resources and the creation of digital maps of irrigation networks.

In our republic, among other things, the mapping works carried out in the fields of hydrography and water management of the Fergana region are being carried out at an excellent level. Nevertheless, the decision to carry out the work in a short period of time and on the basis of modern technologies, taking into account the levels of quality, accuracy and speed, has not been positively resolved so far. Creating maps depicting information on irrigation networks requires a lot of practical skills. When creating them, it is necessary to take into account not only the soil, but also some other components, including: lithology, relief, hydrography, climate. Therefore, economical and rational use of water resources in the management of irrigation networks used in agriculture, as well as implementation of full control over irrigation networks through special cartographic methods within the framework of world requirements, use of modern techniques and technologies and its implementation in practice through which a positive solution to one of the most urgent problems facing the industry today will be found.

LEVEL OF STUDY OF THE PROBLEM

“Atlas Uzbekiskoy SSR” (1982) "Geographical Father of the Republic of Uzbekistan" (2016) published by the General Department of Geodesy and Cartography under the Ministry of Irrigation, under the editorship of A.Rafikov and T.Mirzaliev, "National Cadastre Agency of the Republic of Uzbekistan under

Taxation" (2016) atlasi" (2020), as well as the scientific research carried out by Kh. Tokhtaeva and J. Narziev, the state of irrigation systems in the regions, the spread of factors and indicators that cause water shortage in the irrigation network, and the method of cartographic representation of the tension levels of the irrigation network are highlighted. These studies provide certain opportunities for improving the scientific basis of the geographical aspects of the cartography of irrigation systems. However, in the above researches, the scientific-theoretical foundations of individual valley regions were not studied in a certain coherence, and a map was not created.

RESEARCH METHODS

Comparative analysis, literature analysis, field observations, GAT, remote sensing data acquisition, analysis and synthesis, cartographic forecasting, geoinformation methods were used in the research work.

RESEARCH RESULTS AND DISCUSSION

The research aims to improve the coverage, quality and efficiency of irrigation systems, as well as improve integrated water resources management and build the capacity of relevant service providers in selected basins. At the national level, research improves the institutional capacity of water resources management in terms of their resilience to climate change.

It was noted that monitoring of 3 periods (spring, summer and autumn) was completed in 2022, 2023 and 2024 in 2022, 2023 and 2024, rivers and lakes were monitored according to the monitoring results. , coastal and transient water bodies, a total of 951 data areas and 105 transient water bodies were determined, and its mass limits were determined.

Advantages of GPS mapping irrigation systems include:

- exact location of irrigation parts and system on the map;
- Ability to find previously mapped parts and systems;
- Ability to map or track parts in need of maintenance or repair;
- Maps can be customized by points, features and layers; (such as valves, lines, etc.)
- Areas or parts may be shown on a map for tender purposes;
- Photos of parts can be geo-tagged (to include the location of the photo on the page);
- Headwater distribution coverage can be mapped to show efficiency;
- Creation of maps and information of irrigation systems to communicate work procedures;

Irrigation maps are of utmost importance to irrigation professionals in offering better communication between employees, managers and customers. If irrigation systems are mapped and documented, it allows organizations to make faster repairs, document repairs, plan improvements, and create a common understanding of the systems. GPS mapping and GIS management of irrigation systems can save water through the ability to plan timely repairs and improvements. As landscape and irrigation professionals learn and use this technology, it will improve customer service and help them create sustainable and long-lasting beautiful landscapes.

We can analyze the changes taking place in the area and compare them with each other based on the photo taken from space. The quality of the results of the geographic information system directly depends on the knowledge of the specialist.

At the same time, the speed and quality of the results of the analysis of aerospace data and the results of the Geographical Information System will depend on what methods are used. The process of collecting information or information in the Geographical Information System includes It continues from the collection of data until the data is brought into a certain system of tables. That is, the collected data must meet certain requirements. Then the process of integration goes, that is, work on secondary data, their analysis, and their manipulation. How this process is implemented affects the quality of tertiary data. Third-level data is the process of implementation, that is, the use of third-level databases for specific purposes.

The Arcview 9.2 program from the Geographical Information System is designed to work with aerial data when creating a map of the irrigation networks of the Fergana region, which includes tools for working with aerial images. Arcview 9.2 software can convert aerial images from raster to vector. (Figure 1).

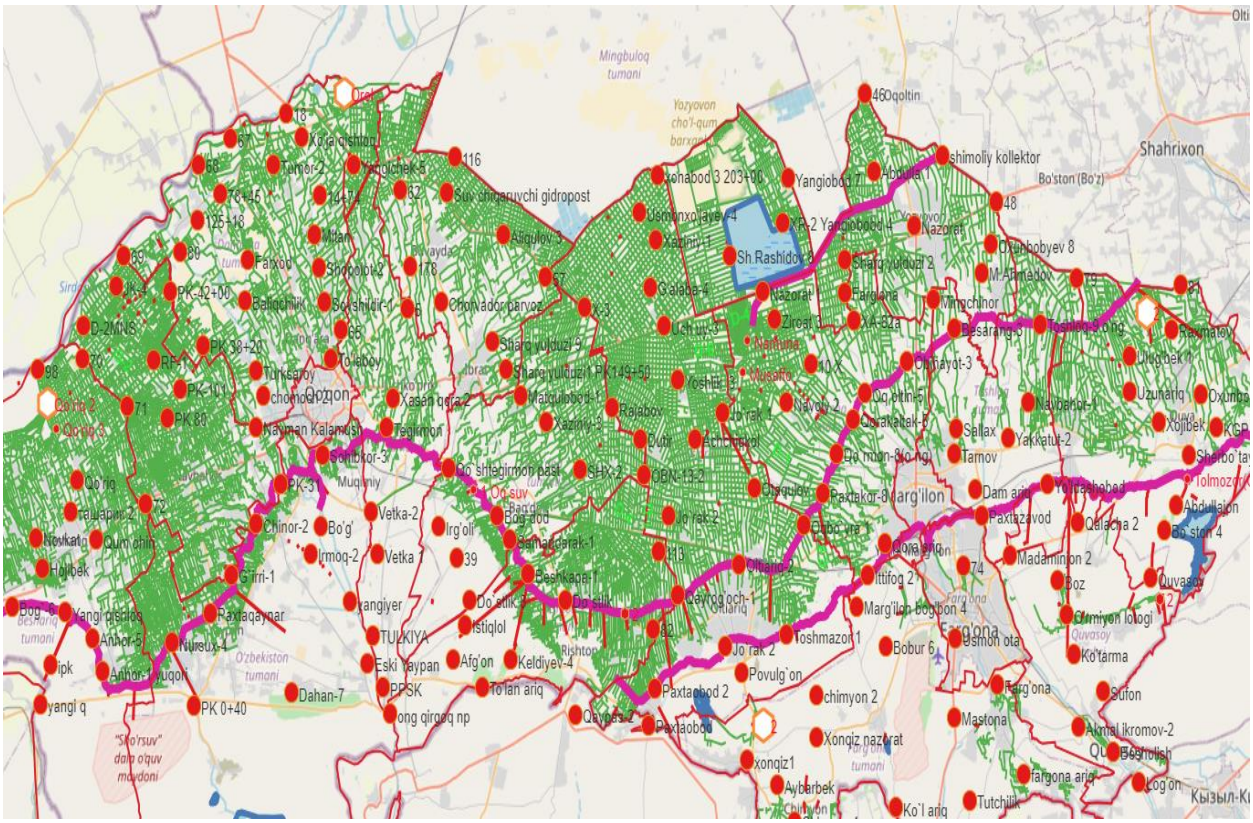

Figure 1. Irrigation card of Fergana region.

Nowadays, GIS technology is widely used in scientific research in many developed countries of the world. It is important to study and map the irrigation networks of Fergana region with the help of modern GIS technologies. The scope of work also covers these aspects.

Work on drawing cards consists of many processes that differ in content, method of execution, and equipment. Specialists of different qualifications agree together when performing different processes (Figure 2).

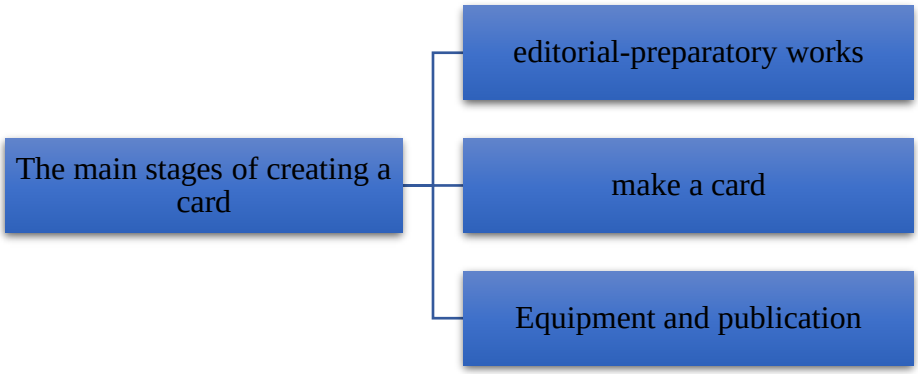

Figure 2. The main stages of creating a card

CONCLUSION

In the ArgGis 10.2 program, the map composition (equipment) was carried out in one main stage. This process consists of choosing a color for cartographically separated regions, creating a map legend, choosing a map frame, placing its name and scale.

REFERENCES

1. Decree of the President of the Republic of Uzbekistan No. PF-6024 of July 10, 2020 "Concept of the development of the water industry of the Republic of Uzbekistan for 2020-2030".
2. E. Yu. Safarov, Sh.M. Prenov "Geoinformation technology systems" Tashkent 2020
3. P.R. Reymov, Y.G. Khudoybergenov "Spatial data models"
4. P.R. Reymov, V.A. Statov "Spatial analysis"
5. Gretchen N. Peterson "GIS Cartography" Parts 1-2
6. O.B. Mukhtorov, A.N. Inamov "Geoinformation system and technologies"
7. Khramov Igor Sergeevich “GEOINFORMATION MODELS AND METHODS FOR REPRESENTATION AND ASSESSMENT OF THE SITUATION IN THE NEAR SEA ZONE USING ARTIFICIAL NEURAL NETWORKS” St. Petersburg, 2020
8. Jalalvand Ali “DEVELOPMENT OF METHODOLOGICAL FOUNDATIONS OF A GEOINFORMATION SYSTEM FOR FORECASTING THE AVERAGE ANNUAL FLOW OF RIVERS OF IRAN” St. Petersburg 2022
9. Nasiri Abuzar Mahmud “Assessment of the geo-ecological state of the Delichai River basin (Iran) using geoinformation technologies” moskva 2017
10. Olgarenko Igor Vladimirovich “Information technologies for water use planning and operational management of water distribution in irrigation systems.”
11. Oymatov R. K., Khakimova, K. R., Mamanazarova D. B., Improving irrigation network mapping methods using GIS technologies. 22-04-2023, pp 691-699
12. Berlyant A M Geoinformation carding. - - M., 1997. - 64 b.
13. Berlyant A M Cartography: textbook for universities. - - M.: Aspect Press, 2002. - 336 b.
14. Garaevskaya L.S., Malyusova N.V. Cartography bo'yicha amaliy q'llanma. M. Nedra, 1976, 302 p.

15. Abramov V.N., Topchiyan Ya.A., Pleshkov V.G. On the technology of creating maps for polygraphic reproduction using digital topographic maps // Geodesy and cartography.- 1999. - No. 3.- pp. 39-44.
16. Abramov V.N., Topchiyan Ya.A., Pleshkov V.G. On the technology of creating maps for polygraphic reproduction using digital topographic maps // Geodesy and cartography.- 1999. - No. 3.- pp. 39-44.
17. Atoyan R.V. Perspective image on tourist maps // Geodesy and cartography.- 1987. No.8.- pp. 36-40.
18. Khakimova K. R., Kholmatova D. B., Abdusalomov A. A. Basics of atlas mapping optimization in the fergana region //ACADEMIC: An International Multidisciplinary Research Journal. – 2020. – Vol. 10. – No. 5. – pp. 613-617.