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Studies on the Analysis of Land Resources Maps in Geographic Information Systems

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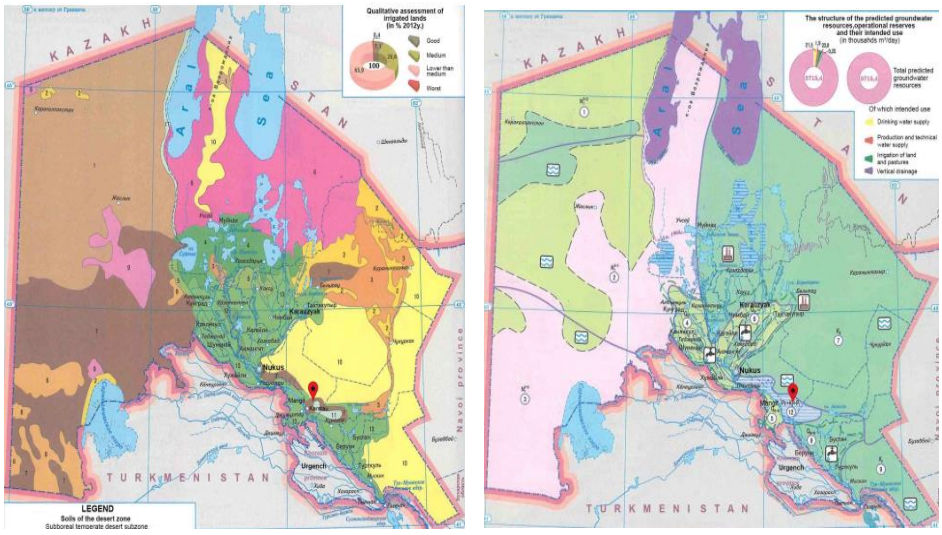
Abstract: The main principles of designing maps and categories of reclamation status of the Republic of Karakalpakstan it is considered in the areas of the Ustyurt Plain and the Aral Sea using GIS technologies. Geolocation and map analysis features, additional maps are provided explanations, as well as land reclamation in the Ustyurt plain, relief forms, the Republic of Karakalpakstan, the example of Muynak district in the Aral sea region. Information about underground water, i.e. natural geographical description of the area. This article is about the analysis of the changes in the environmental reclamation condition of the soil in the territory of the Republic of Karakalpakstan and the methods of soil mapping and the Ustyurt Plain and the southern Aral Sea the analysis data of the cartographic images based on the ecological situation in the area is presented.

Keywords: Geographic information system, Aral Sea and Ustyurt plain, geographic location, geographic maps, cartography, topographic maps, groundwater, saline soils, creating digital maps, mapping program, scale.

Introduction

To date, the Aral Sea and the Ustyurt plain in the Republic of Karakalpakstan are used to display spatial data on maps.GIS provides data-driven analysis capabilities. It is known that cartographic information about land reclamation is of particular importance in the system of land resources management and use, and is formed in the form of a system. The geographic information system is a multifaceted information system about the natural environment and human economic activity, created on the basis of electronic computers and designed for their convenient provision. Today's modern GIS system in the field of cartography is an expensive hardware management package that provides fast and easy high-quality integration of characters and fonts into map formatting processes and record placement tools. A new field of cartography - the development of geographic information maps, which deals with the automated creation and use of maps based on geographic information technologies and geographic databases requires information and knowledge. It is primarily a mapping program based on methods of analysis of geographic location objects and events, their meaningful essence. The use of thematic and general geographic maps is essential for GIS and there are also modern methods of analyzing photo maps created from remote sensing data. Processes such as providing maps for GIS creates opportunities to place various information on cards in a quick and easy format. Topographic

maps that show the contours of objects on the Earth's surface are often the basis for GIS databases, georeferencing and used to display basic and additional information on the area. Maps provide information on the spatial location, status and level of use of land resources. The ecological problem of the Aral Sea of the Republic of Karakalpakstan is geographical factors and environmental phenomena in nature causes imbalance. The processes of lowering the water level are the decrease in the level of underground water in the area and the concentration of salt soil appeared (saline soils). At present, the density of vegetation is very high adaptation conditions for saline soils are very low, the upper layer of the soil dries out and wind erosion increases. Existing sandy soil plant nutrition will not have normal soil minerals. (For example, the soils of the Ustyurt plain and plants adapted to the soil). Soil salinity and wind effects can further worsen pasture conditions. Complex mapping of reclamation categories, which is a unique method of studying the current state of land resources, makes it possible to combine various data into one system and use them in scientific research, practical and management work. To date, the involvement of topographic maps on the scale of geographic locations in the production of land resources maps created on the basis of digital technologies, along with other cartographic works, has led to the development of a new generation of information systems - geographic information systems. It includes many structural processes, in particular, the collection, analysis, storage, distribution and modeling of information on the reclamation categories of land resources, as well as the processes of creating digital maps. Sea level continues to fall and it's effects it affects the quality of land resources in Karakalpakstan. In addition, as an example, we can cite the data collected with the natural increase of anthropogenic impact on the deterioration of the quality of agricultural land. From that time, the mapping of the ecological reclamation of the soil was carried out on a large scale. It is known that the Republic of Karakalpakstan is located we can conclude that it is closer to groundwater than other regions of the country. Here, large areas of irrigated groundwater vary up to 3-6 meters. In some smaller irrigated fields, water is stored below. Decrease in water flow from Amudarya, In Karakalpakstan, land areas with insufficient water supply have been expanded. As we mentioned above, the level of underground water in the territories of the Republic of Karakalpakstan is close to the upper layer of the soil. Improvement it is important to follow the standard of land reclamation to an increase in the level of underground water. We believe that this is a positive solution to the problem required to perform the mapping. Maps of the Aral Sea and the Ustyurt plain have been compiled to see the geographical distribution of soils, to study land cover accounting for components and land resources is one of the main tasks. Soil map increases soil fertility, rational use of agricultural lands and their evaluation using agricultural and land reclamation measures for this purpose. So, maps provided with cartograms and special maps specifying the amount acidic soil, salinity properties and other chemical elements help to further improve the quality of the soil in the mineral content.



Picture 1. Map of soil and groundwater in the Republic of Karakalpakstan.

Field photography or large-scale mapping of aerospace materials is done on the basis of decryption, using small-scale maps generated by summarizing large-scale maps. Soil types in nature are usually invisible to the observer, therefore, the contours of the boundaries on the map will be shown conventionally. Geologists and cartographers create maps together. For depicting land cover on small scale maps the main requirement is the laws of soil formation in the area spread over wide areas, vertical zones and straight determine the scale based on the description of the soil-forming processes. Justified on small-scale maps, large-scale maps are made, in which the main way to create a map is through generalization. In the territory of the Republic of Karakalpakstan in drawing up a map of soil and groundwater: classification of soil and groundwater in the area, methods of soil mapping or groundwater level data in the area is used.

Conclusion

In conclusion, information on the analysis of maps of geographic information systems of land resources in the Aral Sea and Ustyurt plain in the territory of the Republic of Karakalpakstan is presented. According to him, the processes of groundwater level change in the Aral Sea region are based on the data of the analysis of the geographical map of the Ustyurt Plain. To date, information about the capabilities of modern geographic information systems (GIS) has been presented.

References

1. Patualieva Qurbangul Begalievna, & Joldasbaeva Juldiz Saparbaevna. (2023). STAGES OF USING GEODETIC METHODS IN OPEN MINING CONDITIONS. British Journal of Global Ecology and Sustainable Development, 13, 63–70. Retrieved from https://www.journalzone.org/index.php/bjgesd/article/view/235
2. Patualieva , Q. . (2023). METHODS OF DETERMINING THE COORDINATE DIMENSIONS OF AN OBJECT ON MAPS, CARTOGRAPHY AND GEOGRAPHIC LOCATIONS. Евразийский журнал академических исследований, 3(2 Part 3), 110–115. извлечено от https://www.in-academy.uz/index.php/ejar/article/view/10414
3. Jumabayeva G., Allanazarov B., Joldasbayeva A. STAGES OF OPEN PIT MINING. MINING METHODS AND THEIR PROCESSES //Science and innovation. – 2023. – Т. 2. – №. A1. – С. 236-240.
4. Allanazarov B. GEODETIC DIMENSIONING STUDIES AND POINT-DIMENSION LOCATION COORDINATE SCHEME CREATION PROCESSES //Евразийский журнал академических исследований. – 2023. – Т. 3. – №. 4 Part 2. – С. 21-25.
5. Bauatdinov S. et al. Agro-ores of Glauconite of Karakalpakstan as a Multi-purpose Mineral Raw Material //International Journal of Mechanical Engineering. – 2022.
6. Jumabayeva G. CONTROL OF UNDERGROUND WATER IN THE MINE, DETECTION AND PREVENTION OF RISKS //Академические исследования в современной науке. – 2023. – Т. 2. – №. 5. – С. 159-166.
7. Yeshmuratova A. et al. ENSURING COMPUTER DATA AND MANAGEMENT SYSTEM SECURITY //International Bulletin of Applied Science and Technology. – 2023. – Т. 3. – №. 4. – С. 282-287.
8. Yeshmuratova A. TECHNOLOGICAL METHODS OF ENSURING INFORMATION SECURITY IN TECHNICAL SYSTEMS //Евразийский журнал академических исследований. – 2023. – Т. 3. – №. 4. – С. 188-192.
9. Джаксымуратов К. М. и др. ИСПОЛЬЗОВАНИЕ ПРЕСНЫХ ПОДЗЕМНЫХ ВОД МЕСТОРОЖДЕНИЯ КЕГЕЙЛИ //Экономика и социум. - 2021. - №. 12-1 (91). - С. 975-980.

10. Bazarbaev, I. (2023). QORAQOLPOG'STON RESPUBLIKASINING HAR TURLI DARAJADA SHO'RLANGAN TUPROQLARIDA ZAMONAVIY SUG'ORISH TIZIMLARINING TUPROQ XOSSALARIGA TA'SIRI. Евразийский журнал академических исследований, 3(7), 123-126. извлечено от https://in-academy.uz/index.php/ejar/article/view/18810
11. Бегимкулов Д. и др. ПОДЗЕМНЫЕ ВОДЫ КАРАКАЛПАКСКОГО УСТЮРТА КАК РЕСУРС РАЗВИТИЕ РЕГИОНА //Oriental renaissance: Innovative, educational, natural and social sciences. – 2022. – Т. 2. – №. 6. – С. 1355-1363.
12. Djaksimuratov K. GROUNDWATER CONTROL IN MINES //Scienceweb academic papers collection. – 2023.
13. Karamatdin D., Baxitgul D. A. K. Changes in the regime and use of fresh groundwater in the Southern Aral Sea region //Solid State Technology. – 2020. – Т. 63. – №. 6. – С. 15884-15887.
14. Джуманазарова А. Т., Толепова Ш. Б., Жуматова Р. М. ПРОБЛЕМЫ КАЧЕСТВА ОРОСИТЕЛЬНЫХ ВОД //Science and innovation. – 2022. – Т. 1. – №. D3. – С. 263-267.
15. Джуманазарова А. Т., Генжемуратов А. С., Жумамуратов Д. К. ИЗМЕНЕНИЕ РЕЖИМА И ИСПОЛЬЗОВАНИЕ ПРЕСНЫХ ПОДЗЕМНЫХ ВОД ЮЖНОГО ПРИАРАЛЬЯ //СЕЛЕКЦИЯ, СЕМЕНОВОДСТВО, ТЕХНОЛОГИЯ ВОЗДЕЛЫВАНИЯ И ПЕРЕРАБОТКА СЕЛЬСКОХОЗЯЙСТВЕННЫХ КУЛЬТУР. – 2021. – С. 249-253.