

MODERN INFORMATION TECHNOLOGIES IN LAND MANAGEMENT

Liudmyla Makieieva, Ph. D., Assoc. Prof., Associate Professor of Department of Land Management, Geodesy and Cadastre of SBTU, Kharkiv, Ukraine.

Jolanta Valciukiene, Dr. Sc. (Technological), Assoc. Prof., Head of the Department of Land Use Planning and Geomatics, Vytautas Magnus University, Kaunas, Lithuania

Today, the main goal of creating, functioning and using GIS is to automate the modelling of the past, present and future conditions of the studied territories, objects and phenomena. GIS is used by many researchers in the field of studying environmental problems to determine various indicators on a geographic scale.

Information about the land condition, which is obtained from terrestrial sources, is subjective and in many cases does not correspond to the real condition. The change in climatic conditions affects the acquisition of data on the dynamics of changes in the volume of land resources and the establishment of arrangement modes and use of the territory. The data obtained with the help of satellites improve the monitoring of agricultural lands, aimed at obtaining data on the state of crops, cartography of the terrestrial part of plants, the development of geoinformation technologies in the cartographic analysis of irrigated lands [1].

At agrarian business enterprises, navigational monitoring and control technologies are successfully implemented, which are aimed at cost management in the technological processes of crop cultivation and soil treatment. Technologies of "precise" (rational) land use have been introduced at 13% of enterprises in the agrarian sector of Ukraine [2]. The efficiency of a rational farming system is achieved under the condition of increasing the efficiency of the land resources use, where one of the key factors is the introduction of satellite monitoring information management systems [3].

Land information systems are considered to be the most common GIS. The problem of GIS orientation is determined by the tasks solved in it, among them resource inventory (including cadastre), analysis, evaluation, monitoring,

management and planning, decision support can be mentioned. Integrated GIS, IGIS (integrated GIS, IGIS) combine the functional capabilities of GIS and digital image processing (remote sensing data) in a single integrated environment.

The development of information systems projects in the management of land resources is built on the basis of system-wide approaches and technical characteristics of the designed equipment and software. Ensuring the flexibility and openness of the software product should be carried out at the stage of its design, since negative consequences can already occur during the operation of the information system, in particular during the periods of formation and preparation of reports for both senior management and external organizations [4].

GIS is a powerful data presentation tool. With its help, electronic and paper maps and diagrams are created. Visual presentation of the problem in the form of a map makes it more understandable for solving. This GIS function is inherited from cartography. The availability of such information opens up unlimited possibilities for analysis, forecasting and optimization of all agricultural enterprises activities as a whole.

The current municipal economy consists of a large number of departments and services that interact with each other. Comprehensive evidence and development allow combining these different databases and presenting them on a common electronic map of the town or district. The use of electronic cartography tools together with a visual and comprehensive presentation of information about the subject area allows creating convenient and effective tools for making management decisions.

To ensure the profitability and reliability of transportation, GIS allows to manage the infrastructure, create traffic schedules, use in information systems for passengers, work of emergency services, plan transportation volumes and marketing activities.

GIS is widely used in land management to create and update planning and cartographic materials. In recent years, the amount of land management and cadastral information has increased significantly. An important feature of modern

GIS is that they provide the development and analysis of a huge number of project solution options, the creation of recommendation and management maps for regions, which provides the opportunity to find the most optimal ecological and economic justification of the measures system for the organization of the territory and land protection, the formation of sustainable land use, reproduction of natural agro-landscapes, operational control of the land resources use, forecasting of possible erosion processes, creation of an anti-erosion organization of the territory.

In our opinion, cartography, land management and the state land cadastre can be considered the largest fields of GIS use. At the same time, GIS are widely used in territory mapping; creation of land management documentation according to regulatory and legal acts.

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