

THE USAGE OF THE GEOGRAPHIC INFORMATION SYSTEM (GIS) IN THE FOREST PLANNING

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Abstract: *It is very useful to all documentation held by any administrative unit is in GIS format, because they cover the territory of municipalities, counties and regions of the country, like a puzzle. While gathering information and "fit" their place because they are geographically referenced. The main role for GIS in local government is to create a tool for integration and automated management of cadastral data (in the technical, economic and legal) to generate information support to organizations, services and persons seeking, operating or performing tasks both in the urban and spatial planning as well as the technical and economic aspects of public institutions. This tool provides inventory, organization and distribution of specific information and data archiving historical urban setting and networking potential users by establishing common references unique.*

Key words: *BIOSILV, GIS, maps, plans, urban planning*

INTRODUCTION

Making GIS in local government is required by the lack of an objective analysis tool, comprehensive, interdisciplinary and quick as decision support of any kind, in the administrative territorial units.

GIS systems are composed of: inserting and manipulating information modules for graphics, such as addresses and coordinated; a system for managing databases, capable of carrying current operations, such as addition of fields, filtering, sorting upward or downward on the user selected fields, changes in the database structure by adding new fields (columns of the table attributes), edit records and so on; module for creating maps "smart" that allow operations that are actually viewing the table of attributes associated; various tools to increase / decrease the scale of representation and control, measuring the distance between any two points or along a broken line (very useful in determining the near distance); friendly graphical interface, easy to use by any user.

Electronic maps obtained by GIS, consisting of elementary units called themes or layers. A theme consists of the same type of graphical objects (lines, points, polygons or image). Standard graphic file format accepted by any GIS application is shp (shape file) - This format provides information portability, recognized by all applications of this type, regardless of the manufacturer.

MATERIALS AND METHODS

Graphical objects (maps, plans) is created by factorizations, which essentially consists in recording the relative positions of some points in the broken line open or closed broken line.

Any graphic object, regardless of type, corresponded one record in the table attributes. Link (correspondence "one to one") between graphic objects *shp* file and its associated attribute table (*dbf*) is performed by a file with the extension *SHX* index.

Deleting this file accidentally makes the two files *shp*, *dbf* that no longer have any connection with each other, so to be broken. The relationship created by this index file can

be destroyed and if attribute table is edited with another application (Excel®, for example), and the editing is added or deleted records.

By georeferencing, a geographic information system can calculate the actual lengths of the lines, surfaces and polygons real actual distances between points.

The coordinates of each point on a map developed in GIS Integration computer system, is automatically calculated based on the absolute and relative coordinates for at least three points in a subject, taking into account the reference system adopted what is called georeferencing operation.

As transposition basic topographical plans and specific cartographic elements of the classical forest arrangements existing in digital form (which offers the possibility of working with the means of automatic calculation), has been the development and use GIS databases. These bases are made by connecting digital mapping logic elements characterization resorts and forest vegetation existing in digital form with specialized programs such as the BIOSILV or AS program.

GIS databases enable fast and efficient service information such as forest cadastre and forest by forest planning. These databases allow automatic management plan thematic maps.

Unfortunately today it can be seen that from this point of view, technical forest management rules are outdated because it does not specify anything about using GIS technique orthophotoplans and remember very little. According to the general cadastre Regulation 7/1996 issued on the date should be developed for the cadastre of every field.

Watch this Disclaimer and forestry have developed specialized cadastre. To prepare specialized forest cadastre need to use orthophotos and terrain modern equipment, high precision, enabling the fulfillment of the conditions imposed by the National Agency for Cadastre and Land Registration (ANCPI).

RESEARCH RESULTS

The preparations of cadastral plans are for the entire national forest areas appreciatively 6,500,000 ha can not only using the latest modern equipment orthophotos and high precision (total stations, GPS, Global Information Systems - GIS). Plans should be made only cadastral GIS in order to be compatible with the requirements of ANCPI.

Some advantages of using GIS in spatial planning as a whole:

- Alphanumeric and graphical data migrates from a digital documentation to another, eliminating data redundancy;
- Updating and managing data is easy.

It is very important that the public administration professionals already prepared documentation based on geographical analyzes performed on the data; documentation can get us to underpin future projects, to attract new sources of funding.

Databases are used in the development and operation of subsystems and integrated information and other fields of public administration, which in turn form the integrated information system of the institution.

GIS products have four major advantages:

1) Allow georeferencing maps from which it generates homework. By georeferencing, each point in the subject they are automatically associated absolute coordinates X and Y, from at least three points of known XY coordinates that are recorded in a text file, intended for that purpose;

2) United States is automatically calculated to accuracy unachievable by other means, even if there may be errors of differentiation;

3) Allow quick editing of maps at any scale and coloring different graphical objects included in the value attribute, the default user; more topics can be overlapped, thus obtaining the desired complex maps (called projects, according to the terminology established);

4) Enable operation attribute tables dbf format (data base file), which is a standard format accepted by any system of management databases (SGB).

Using such a system does not eliminate all errors in determining the surface, but only those of planimetres. In their place others may occur due georeferencing even when it is done in a projection system different from that used in publishing plans have been factorized.

Use of all facilities GIS requires a good experience in management systems to databases. The theme attribute table on landscape planners units can be recorded and stand conditions following data on the elements to be recorded either as a stand and columns of the same table or in another, which is tied for first through -one or more common fields (UP, detour, Forestry Department).

CONCLUSIONS

To measure areas of forest fund in the future, it would be better to use only electronic tachometric, called total stations or intelligent. They represent a new generation of devices that include top achievements of precision mechanics, electronics and optics. The design of such a tachometer brings together in a single portable unit, the size and appearance of a theodolite usually necessary components measurement using electromagnetic waves: horizontal and vertical angles, distances of any kind - measured distances between points on the ground, low on the horizon distance, differences in level coordinates X and Y relative to the axis or all of the above-mentioned distance between the two target points in a station.

Total stations have a center of its own memory and external memory, computer programs coordinated by specific topographer-geodetic measurements which allow the operator to opt for one of the specific functions required topographer -geodetic works executed. Also, data can be transferred to the memory of a computer where by means of high performance data processing program to obtain specific topographical surveying graphics, which by means of plotters attached to the PC can be drawn.

The introduction and use of electronic tahimeters practice is a global solution to solve the automation topographic lifting and tracking work constituted a revolution in the field of efficiency and cost benefits. Electronic Tahimeters that can be used to determine areas of forest are:

- Electronic tachometric Leica family: Leica range T1000, T1600,, T2002, T3000; Leica TC range 400N / NL, TC600, TC800, TC605 / L, TC805 / L, TC905 / L, TC1000 / 1600; TC1100 / L, TC1500 / L, TC1700 / L, TC1800 / L; Leica range TM1100, TM1800, TM5000; TCM range 1100 TCM1800 range TCA / 1100 / L, TCA1500 / L, TCA1700 / L, TCA1800 / L; TDM5000 and TDA500;

- Electronic tachometric family SOKKIA Japan: SET series: 6F, 2C, 3C, 4C, 5F, 1000, 2000, 3000, 4000 and DT2 digital tachometer;

- Electronic tachometric REC ELTA family manufactured by Zeiss: Rec Elta 13C Rec Elta 13 CM, Rec Elta 13 CMS.

Measuring accuracy of angles and distances of these devices is very high, less than 10 seconds angles and distances less than 5 mm.

Global position systems that can be used for positioning forest background areas are: GePoS RS 12 with a single frequency, two frequencies GePoS RD 24 and RT option

and GePoS Experience with two frequencies and RT, Leica SR 20 at a frequency and Leica SR 20 with two frequencies. These GPS coordinates are systems for determining the geodesic satellites.

In addition to field work can be successfully used Geographically system or computer graphics field field type Map 500 is an information system of "GIS database" that can collect data from any device Zeiss (digital level, total station, GPS- through PCMCIA card) or any other device equipped with a serial interface RS 232 and with which high surface map is done directly using the programs implemented in the system.

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