

**THE ELABORATION OF THE CADASTRAL ENSEMBLE
PLANS - A BASIC ELEMENT FOR GIS
IN THE TERRITORIAL ADMINISTRATIVE UNITY**

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Abstracts: There are presented the contents and the way of elaboration of the ensemble cadastral plan and the informational stratum for the collected data within the creation of the cadastral real estate goods from the point of view of professional formation of the students of the specialty „Cadastre and Land Administration”. As an informational basic support there were used satellitari images set on the site Google EARTH.

Key words: GIS, cadastral maps, data base.

The modern cadastre in Moldova begins with the adaption of the land code which recognizes the right of private property on the land and the imitation of the privatization process of the agricultural fields, gardens, afferent lots to the industrial buildings, etc.

During this period there were executed works for the privatization and registration of the mentioned land categories being the elaboration of the cadastral plans in the extravillein of the localities during the deploying of the Land National Program as well as from the intravillein and extravillein of the localities from the first Cadastre project, being advanced different requirements both technical order and social one.

The formation of the real estate goods in the extravillein was made on the basis of the land administration plans elaborated on the basis of terrestrial classical elevations and aerial. With this purpose coordinates among which the local ones MoldRef or arbitrary. The registration of the real estate goods was made on the basis of the juridical documents being accompanied with cadastral plans without doing a rigorous test on the field. But one of the actual requirements of the cadastre (The Declaration of the FIG concerning the cadastre (1995)) requires its elaboration and daily keeping according to the

technological level and reached informational one. With this goal it was created the National Geodesical network corresponding with satellitary observation using the receptors GPS, the position being given in the system of coordinates MR 99 (MoldRef 99).

At present, the cadastre of real estate goods in the Republic of Moldova covers approximatively 70 percent from the total surface. The cadastre serves not only for recording real estate goods taxation perception, its goal is to solve problems of economical and social order by transforming itself in a cadastre with multifunctional statute. Unfortunately, Moldova has some problems of technical, social and economical order. We will mention some of them: the absence of an ensemble plan on which will be presented in a unique coordinates system, many owners hold the titles confirming the ownership right, but not having registered in the register of the real estate goods. The materialization on the lot did not take into account the territory arrangement plans. The surface held by an owner does not allow the foundation of a viable enterprise because of the division and little sizes of the lot sectors, etc. The transition to the market economy and being in such a period it was appeared an imposable number of landowners as well as the increase of the different type of transitions.

It created in its turn a series of inconveniences concerning the rapid supplying of the cadastral information. All these problems require a rapid solving, the information in this case obtaining itself the role of product. The success of the cadastre functioning in great measure will be determined by the professional abilities that the specialists of this branch possess then. But for this it is necessary to have at the disposal a strong material basis. The Republic of Moldova confronts itself with different problems of technical order and in the domain of the specialist's formation in higher education institutions. The absence of the financial resources does not permit the securing of modern equipment that should essentially raise the quality of engineers' formation in the branch of Cadastre and Territory Arrangement. The future specialists are also insufficiently prepared in the capitalization of the GIS potential. The introduction of the real estate cadastre in an administrative territory for realizing the identification, evidence, recording and the representation on the cadastral plans of all real estate goods respecting the technical norms is a very difficult and long standing process that can not keep the step with actual imposed requirements and the raised rhythm of the intervened changes and especially in the developing countries. The efficiency of cadastre is determined by the information utilization for problems solving from the sphere of planning and rural spaces administration, for reasonable utilization of the resources in order to a durable development. For these reasons it is imposed the stocking in a unique system of all the information by which is described and submit to an analysis the rural or urban space. For eliminating the shortcoming in this direction a primary solution should be the Index Plan elaboration that would permit the centralization of all juridical, cadastral and cartographic documents that will considerably reduce the cadastral data collecting from the lot, the

activity that is not possible in the case of a making up of the basic cadastral plan, or a numerical cadastral plan.

The index plan must contain ample information and namely: the limits of the cadastral territorial unities, linear elements, cadastral sectors, constructible perimeters, cadastral identifiers, etc.

The importance of the cadastral plan is evidently as it follows:

- a commune examination and analysis of the cadastral documents;
- it does a relation with the basis of georeferencial data;
- it allows a rapid integration of the informations in index cadastral plan both from the existent cadastral documents and from those ones made up after realizing of the index cadastral plan, as a result of the real estate transactions, etc.
- it may be easily integrated into GIS.

The presented work describes the results of the elaboration of an index plan as part of a mayoralty using for the support stratum the set images on the sight Google EARTH, having as purpose the students' familiarization with the elaboration methodology and utilization of the cadastral documentation as well as the mode of position of the lot sectors that were raised in the system of arbitrary coordinates. In order to form the ensemble plan there are being used the took over images by order (print screen) establishing the room height of 400 m being blocked the possibility of the relief presentation.

The reunion of the images was effectuated with the help of the program CorelDraw Graphics Suite X3 (Fig. 1).

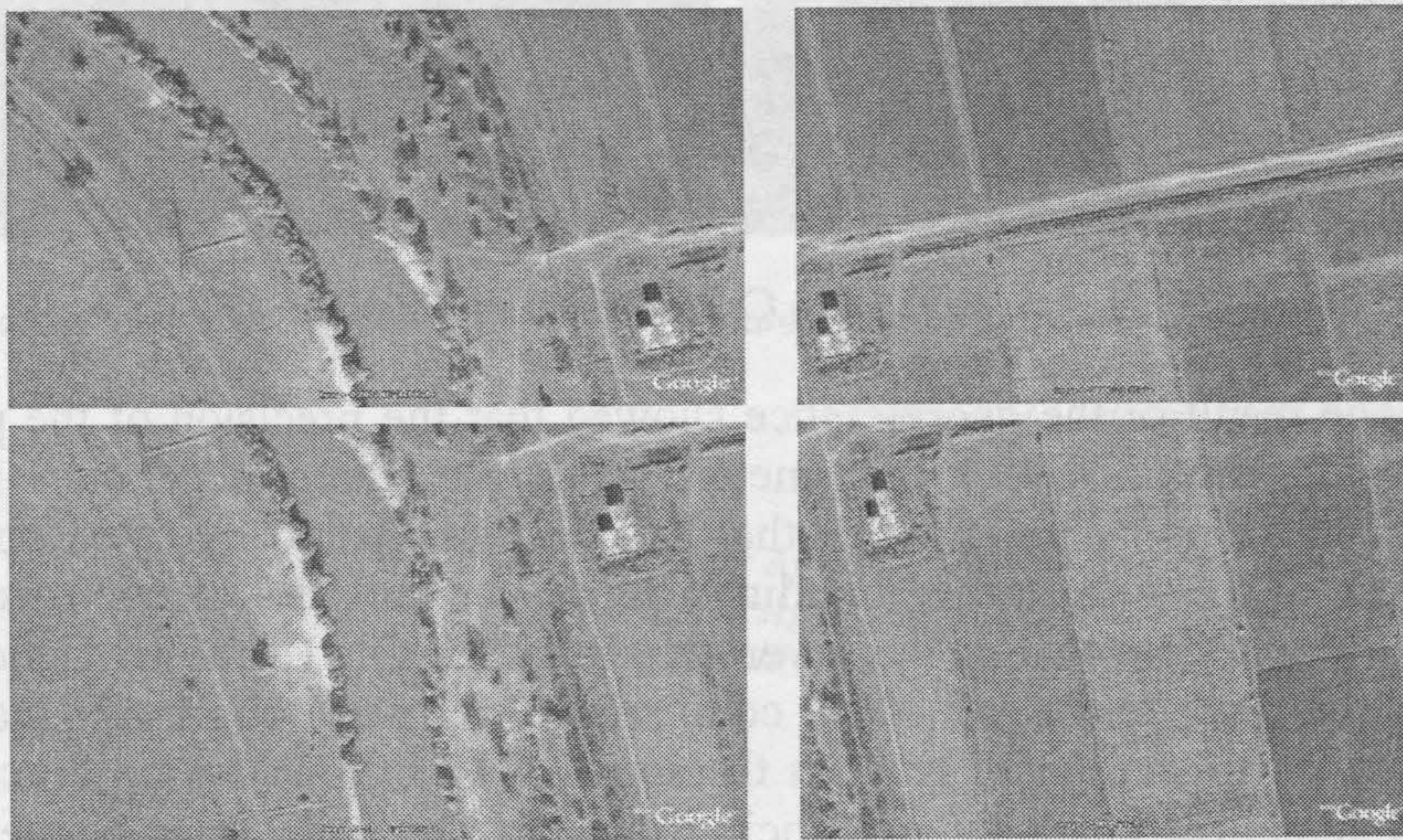


Fig. 1 – Reunion of the images in the program CorelDraw Graphics Suite X3.

The number of images depends on the examined surface, but this elevation is the biggest one in order to reduce the appeared errors because of different factors. The students have the possibility to utilize diverse formats for

raster images studying their advantages and disadvantages. After images reunion it is obtained the ensemble plan in the JPEG format that may be examined with software MapInfo Professional. This image must be submitted to the georeferenciation operation for being repeated at true position and to have the corresponding sizes. By this operation they are familiarized with works of coordinates transformation.

For the georeference more variants are recommended among them the more effective are the determination of the geodesical coordinates of the points directly on Google EARTH and their transformation in MR 99, as well as the utilization of the points of determined, known coordinates by observations GPS that may be with accuracy identified on the satellitary images. The both results gave results of the same precision.

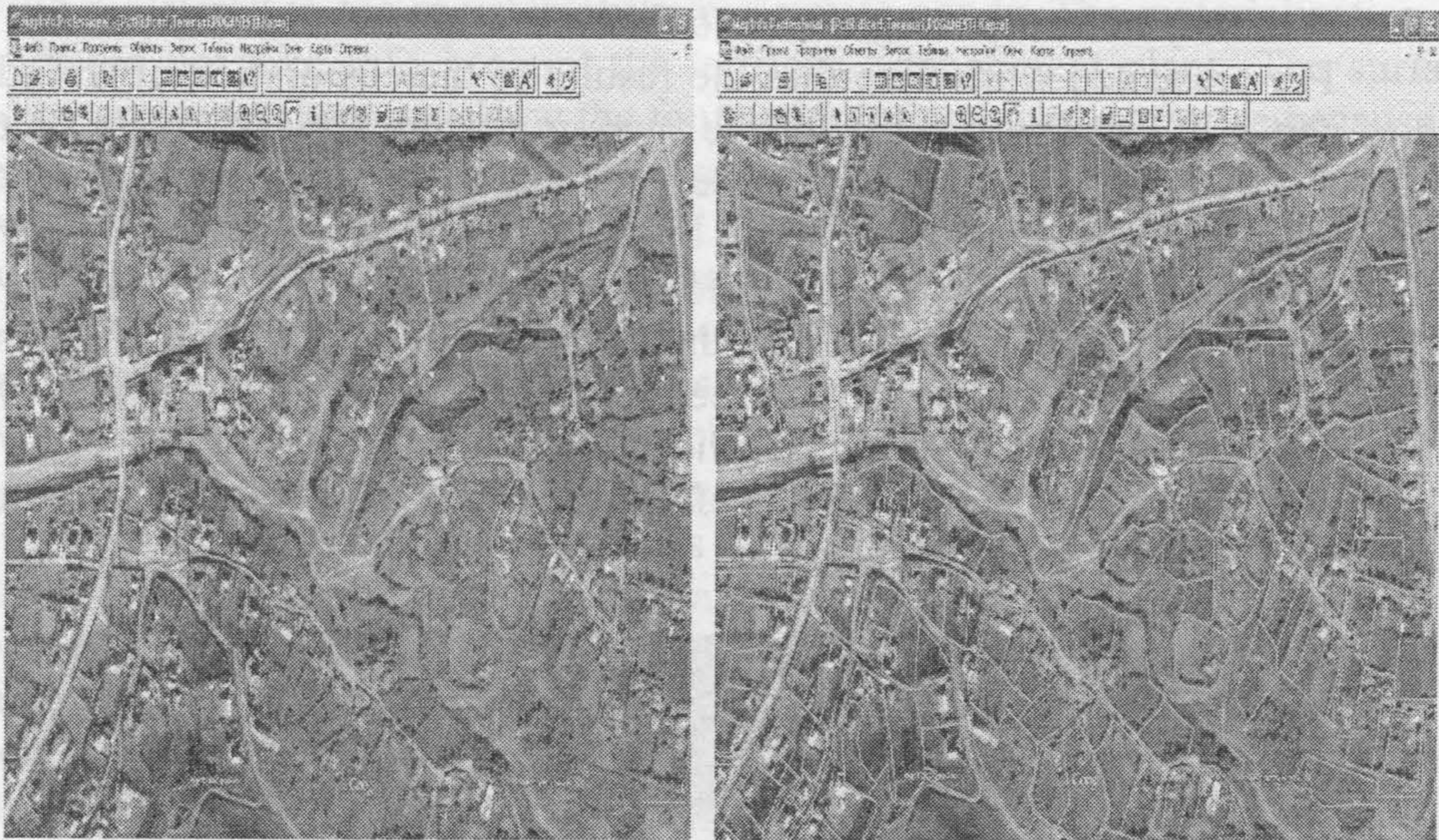


Fig. 2 – Cadastral ensemble plan.

The result of the georeference showed that the precision of the point's position is approximatively one meter. After the georeferenciation it was obtained the support plan (Fig. 2.) that had been compared by overlapping of the stratum of lots and formed buildings during the cadastre creation from the commune intravillein that in their were repeated at RGN (National Geodesical Network). In the result of this comparison it was observed that the uncoincidence in some case reaches the score of 14 m, but this uncoincidence had a systematical character evidencing itself at the boundaries between the photograms. These 14 m were excluded by separated georeferenciation of the images for different photograms.

After the plan testing there were overlapped all systematized and accumulated informations. During the cadastre elaboration in a mayoralty, our students were familiarized with the creation technology of one cadastral data basis.

Conclusions

In the result of the effectuated investigations they were made the following conclusions:

- the financial administration of locality, not depending on the size of this one, represents a complex activity in which is utilized a great volume of information and a big variety of knowledge and professional competences;
- the studies showed that practically in the absence of a cadastral plan of index the position of the sectors of lots is not precisely determined;
- the precise indetermination of the position of the lot sectors embitters the solution of the problems for ownership rights protection. The holders of land have title but they do not precisely know where the object is;
- for the identification on the field of the real estate holdings, OCT must supply to the interested person some informations about the coordinates of the boundary points expressed in the system of coordinates MR 99;
- the analysis of the index cadastral plan elaborated on the support of the cartographical materials from Internet may assure a precise positions of 1 - 3 m;
- the materials being in the data basis of OCT having as a support the plan of a graphical evidence the precision of the position is of 30 - 50 m;
- a lot of land sectors can not be included in the index cadastral plan, as their form and sizes do not correspond to the reality;
- our students with a particular interest elaborate the plans for their native locality, correcting the plans and the elaborated materials in different stages, having the possibility to evaluate the quality both of the raising, projection works and those one for drawing on the field;
- the collected materials may constitute the basis of a GIS.

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ELABORAREA PLANULUI CADASTRAL DE ANSAMBLU CA ELEMENT DE BAZA PENTRU GIS IN CADRUL UNEI UNITĂȚI ADMINISTRATIV TERITORIALĂ

(Rezumat)

Este prezentat conținutul și modul de elaborare a planului cadastral de ansamblu și a straturilor informaționale pentru datele colectate în cadrul creării cadastrului bunurilor imobile, din punct de vedere a pregătirii profesionale a studenților de la specialitatea „Cadastru și Organizarea Teritoriului”. Ca suport informațional de bază sunt folosite imagini satelitare postate pe site-ul Google EARTH.