

INTEGRATED MANAGEMENT IN DEVELOPMENT OF THE CADASTER WORKS FOR A SUSTAINABLE REAL ESTATE MARKET

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Abstract: *Integrated management for surveying and cadastre implies a standard and regulations, regarding the settlement of activities and stages completed by a specialists to develop there work.*

The aim of this paper involves facilitating the development of the works in the field of terrestrial measurements, by identifying the requirements for development, feasibility and cost by establishing the real value and the quantities of the works. The value of a cadaster work provides a detailed list of resource consumption, list of equipment, technologies used and processing programs, as well as the base unit prices specific to each type of work.

Establishing, modifying and modernizing the cadastral laws should be our preoccupation, of all engineers, that solve the problems which occurs in this area. Within this work we included a systematic cadastral study, with all stages, that an engineer is compelled to respect in order to obtain land registers. After that we created a program that calculates all costs, starting after signing the contract till handing the work to Cadastre and Land Registration Office.

Keywords: *cadastre; value of quantities; costs of service;*

1. Introduction

Romania enjoys a very varied relief, 28% mountains, 42% hills and highlands and 30% plains, which leads to a variety of land use possibilities. In this way the cadastral activity is a process that was created out of the need to know the surface and destination of the Romanian land, also providing social needs of life and activity. The objectives of this sector require the supply of the actual data regarding real estate necessary in all domains of the national economy. At the same time the cadastre is for the market economy a very important activity, because provides the documents which gives security to the transactions that take place on the real estate market. Also the cadastral works are important for realization of Geographic Information System, available to all important sectors responsible with management and planning of real estates in the national economy.

The stage of identification of terrain the cycle of measurements, processing and registration of estates (apartments, houses and lands) in the cadastral papers and representation of those on plans and maps requires first of all a calculation of materials and labor force needed for execution of the objective.

The National Centre of Cartography has issued Time Norms for development of cadastral works.

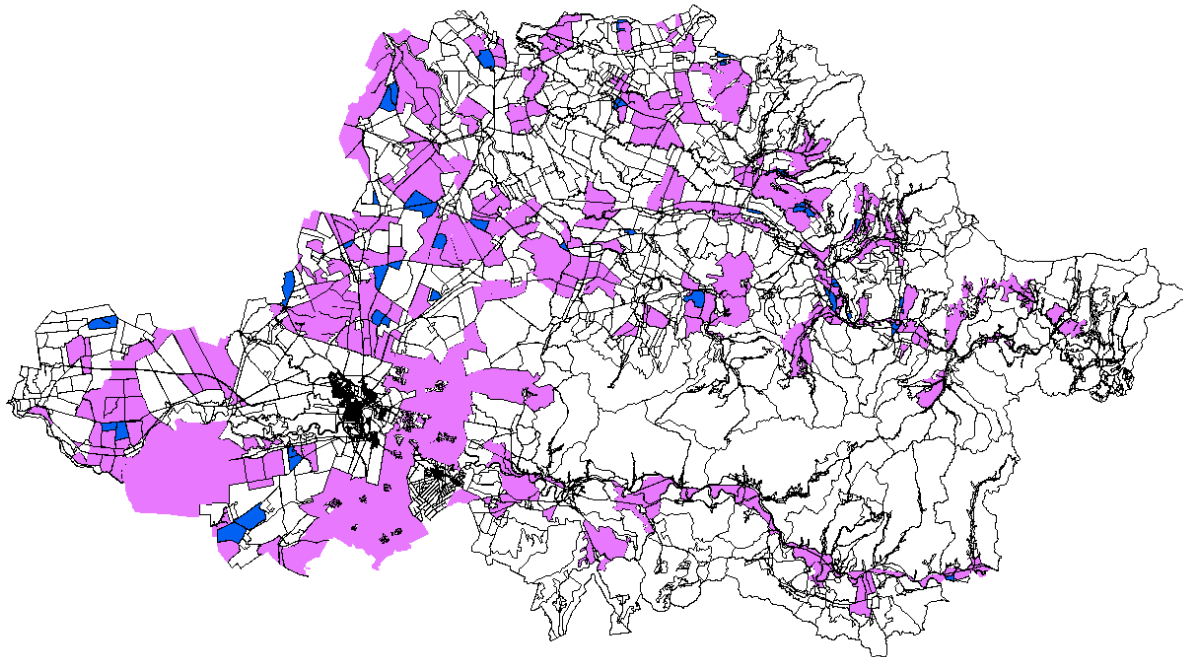


Fig.1. Sistematic works of cadastre in Arad county

Time Norms refers to execution and check of works in geodesy and cartography and the National Centre of Cartography is the unique executive institution. They are expressed in Conventional Medium Hours (CMH) of operations that contains measurements and data processing. Based on this CMH can be established orientative values of reference about activities that sustains realization of projects, study themes, execution, creating, presentation, negotiating offers and signed contracts.

Time Norms are divided into articles that contains operations and specific procedures for realising geodetic, topographic, photogrammetric, remote sensing named specialized works.

The invoice of quantities is a document of anticipated evaluation of the material cost and the labor force necessary for execution of a work. Punctual, the invoice of quantities also represents the technical-economic documentation which establish the cost of a work on the basis of the execution and settlement.

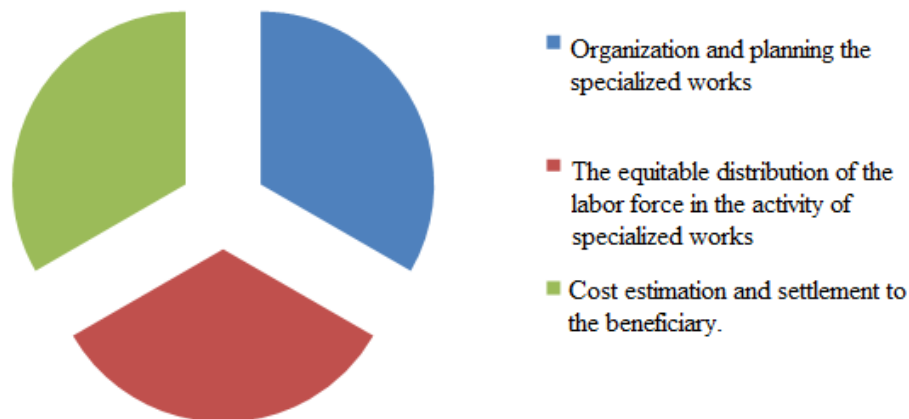


Fig.2. Value of quantities relevance

2. A Case study: Integrated Management in Development of the Cadaster Works for a Zone of Arad County

The study zone for determining the value of quantities is located in Şeitin village from Arad County. Arad County is situated in western Romania and covers Crisana and Banat territories.

In order to obtain the program which generate the value of quantities where followed the next steps. In first stage were studied all necessary rules for realising a sistematic cadastral work, based on the order 979 from 05.08.2016 named “Tehcnical specifications of realising cadastral sistematic works on cadastral sectors for obtaining cadastral register financed by Cadastre and Land Registration Office and Time Norms elaborated by National Centre of Cartography.

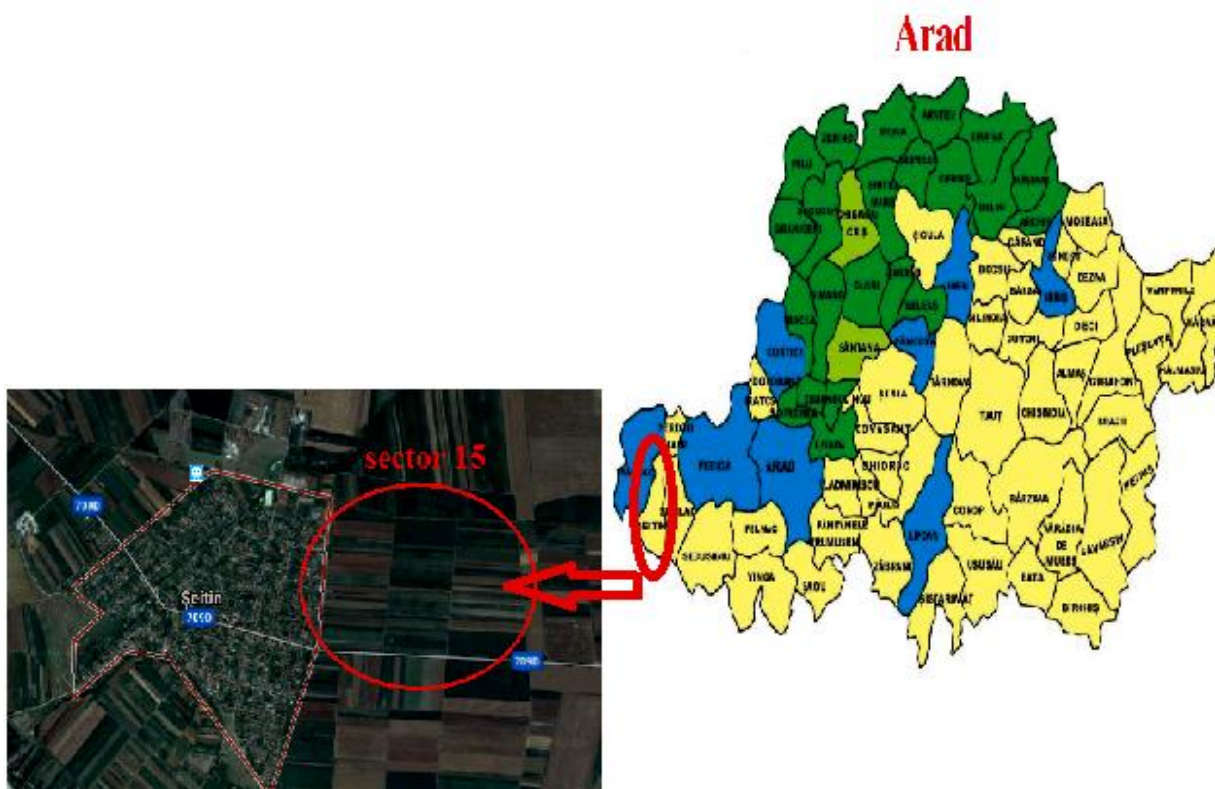


Fig.3. Location of village Şeitin, county Arad

In the second stage the calculation program is created in Visual Studio 2017 using C# programming language.

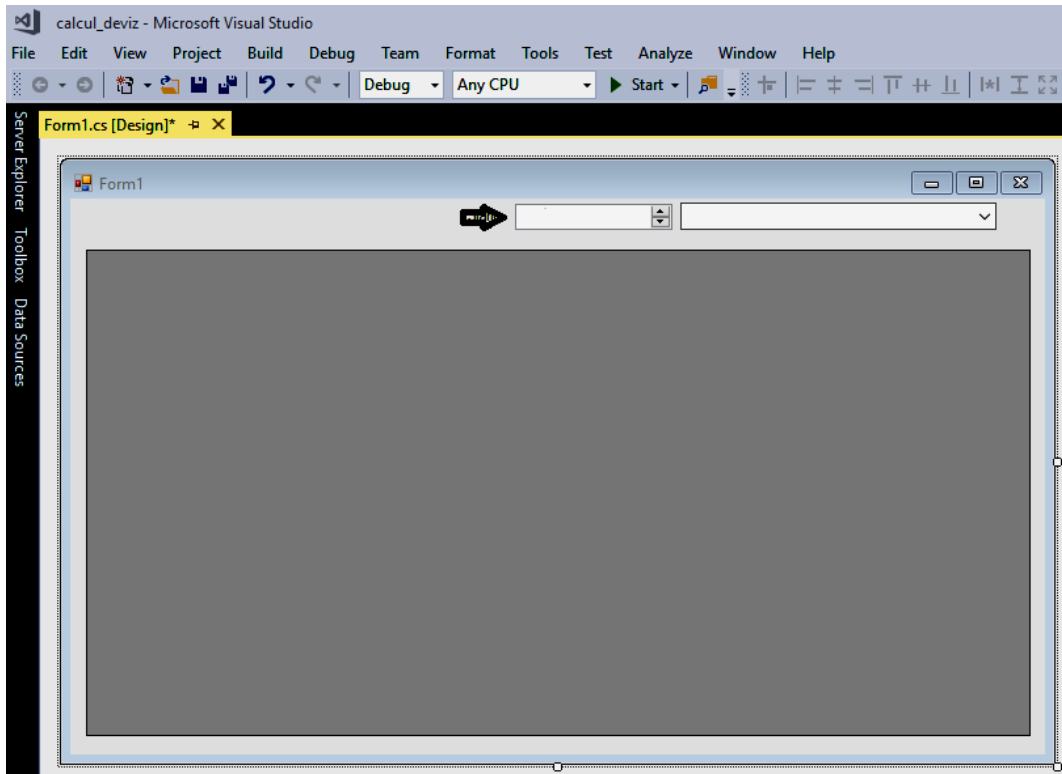


Fig.4. Program interface

The next stage is to connect the program to an Excel database from where data table and final calculation were extracted.

Database were realized, based on Time Norms emitted by National Centre of Cartography and contain all steps for realising all specialized works, unit of measurements, time norms per unit of measurements, estimated quantities and consumed time for execution of operations.

| | A | B | C |
|----|--|-----------|-----|
| 15 | Tehnologia Informației și Comunicațiilor | | |
| 16 | Cercetare | | |
| 17 | Verificarea lucrărilor | | |
| 18 | | | |
| 19 | | Ianuarie | 35% |
| 20 | | Februarie | 35% |
| 21 | | Martie | 25% |
| 22 | | Aprilie | |
| 23 | | Octombrie | |
| 24 | | Noiembrie | 15% |
| 25 | | Decembrie | 30% |
| | | | |
| | | Ianuarie | 40% |
| | | Februarie | 40% |
| | | Martie | 30% |
| | | Aprilie | 20% |
| | | Octombrie | 10% |
| | | Noiembrie | 20% |
| | | Decembrie | 35% |

Fig.5. Excel database

Another stage contains the choice of work theme and operations. In the program are introduced the preparatory operations of land, office, taxes levied by the state, the materials used, general costs, travel expenses, payment to the institutions with which they collaborate.

| Nr Crt | Articol de dezin (operatiuni executabile) | Unitate de masura | Norme timp pe unitate de masura | Cantitati estimative | Timp consumat pentru executarea operatiunilor (Ore-OM) |
|--------|--|-------------------|---------------------------------|----------------------|--|
| 1 | Recunoasterea terenului | hectarul | 0.006 | 2500 | 15 |
| 2 | Realizarea retelei de sprijin | punctul | 0.8 | 30 | 24 |
| 3 | realizarea profitelor si ridicarilor cu statia total | punctul | 0.004 | 10000 | 40 |
| 4 | Realizarea profitelor | km | 0.2 | 40 | 8 |

Fig.6. Data introduction to the program

- Chart display based on type of operation

The last stage is represented by the export of the value of quantities in pdf format with all the operations introduced in the program.

1.Lista de lucrari necesare

Tabel 1. Lucrari de teren

| Nr Crt | Articol de dezin (operatiuni executabile) | Unitate de masura | Norme timp pe unitate de masura | Cantitati estimative | Timp consumat pentru executarea operatiunilor (Ore-OM) |
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| 2 | Realizarea retelei de sprijin | punctul | 0.8 | 30 | 24 |
| 3 | realizarea profitelor si ridicarilor cu statia total | punctul | 0.004 | 10000 | 40 |
| 4 | Realizarea profitelor batimetrice | km | 0.2 | 40 | 8 |

Fig.7. The value of quantities

3. Conclusions

The realization of a program with value of quantities have a particular importance in determining the real price of the works and must be the basis to creating a law on the organization and development of the profession. Thus we can create a fair and transparent environment for the activity of this sector.

By this value of quantities it is shown that the underfunding of specialized services by ANCPI for cadastral works does not cover all the costs and by this it creates instability for the Romanian companies, to maintain the work places and also the impossibility of developing the technology and measurement methods in accordance with European standards.

4. References

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