Information system for real estate and utility network

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Abstract: - This article presents general and specific objectives, necessity and usefulness of the information system specific for real estate and utility network at local government level. Information system specific for real estate and utility network is compared and analyzed in relation to the general cadastre to highlight the advantages and disadvantages.

Key-Words: - information system, general cadastre, real estate network, utility network

1 Introduction
The main objective of the information system specific for real estate and utility network is its use as a support for decision in the exercise of management, operation, maintenance and development of urban heritage, a system made available for central and local administrations.

The purpose of information system specific for real estate and utility network through data and information they make available to the local government provides not only evidence of real estate and utility network fund, but have an important role in determining a fair system of taxes in real estate development, environment protection, urban planning, and so on, with the possibility of accessing them by the citizens, be important in the process of information, transparency and reduce bureaucracy.

Efficiency in the management of the village and, in particular, the correctness of the decision will depend to a large extent on accurate and complete knowledge of the actual situation in the territory, which implies the existence of an appropriate information system, namely of a technical and organizational assembly of specialized personnel, equipment, methods and regulations aimed at collecting, checking (validation), transmission, storage, analysis and presentation of data and information relating to a village [2].
2 Information systems for real estate and utility network

Financing, contracting, execution, approval and acceptance of technical work to identify, measure and inventory of buildings and municipal utility networks is made in accordance with detailed rules approved by H.G. nr.512/1997, modified by H.G. nr.818/2006 and methodologies for execution of real estate cadastre and utility networks in locations approved by Order nr.90/NN/911-CP and Order 91/NN/912-CP of 02.06.1997 issued by Ministry of Public Works and Territory Planning and National Office of Cadastre, Geodesy and Cartography.

Among the specific objectives of the information system specific to real estate and utility network can be listed as follows:
- Development of advanced tools and techniques for spatial planning in urban and rural areas, in accordance with the requirements of sustainable development in the EU;
- Implementing strategies of development policies and improving statistical activities and monitoring the development level of a locality;
- Providing real documentation, accurate and complete information required to choose the optimal solutions for systematization and urban planning actions;
- Knowledge of state organizations that use state real estate properties and their condition;

Table 1. The structure of the information system for real estate and utility network
- Ensuring an efficient control in the circulation of immovable property;
- Establishment of the private real estate properties, regarding the area, configuration, size and type of constructions;
- Determining underground networks routes for the location of new constructions;
- Elimination of data redundancy in various departments of the town halls;
- Inclusion of analysis and modeling functions indispensable for planning and decision process corresponding current requirements
- Sharing of data by several institutions and organizations that provide the normal life in a village;
- Computerization of public administration.

The structure of the information system for real estate and utility network is presented in the table below.

- Cadastral plan contains: the geodetic base,

Basic Documents of the information system for real estate and utility network are:
- Cadastral plan contains [3]: the geodetic base, network communications paths, streams, property limits, constructions, postal number, cadastral numbering, the structural characteristics of buildings, conventional signs, toponymy, etc. (Fig.1);
- The property sheet contains the following information [3]: building or property drawing, property address, owner or holder data, land and buildings surfaces, ground built surface and where necessary the useful area, legal real estate situation, information concerning the building utilities
equipment, constructive data about bodies of buildings and annexes (Fig.2);

- Thematic plans of utility networks that contain: street network, utility network routes (Fig.3).
- Cadastral register of real estate - drawn up for each administrative area on standard form and aims to reveal on each parcel the following data [4]: - strip ground (block) that containing the parcel, the parcel cadastral number, the number of plan sheet that contains the parcel; parcel owner, category of use. parcel surface. (Fig.4).
- Alphabetical Index of owners - issued on the basis of the cadastral register of parcels and includes all land owners, in alphabetical order, regardless of the legal situation, containing following information: serial number, owner address, name and surname of
Conclusion

The specific difficulty for tunnels is the knowledge of the real technical condition of them, due to the following factors: we can observe and trace only the elements of soffit and track elements, the archive documents, particularly for old tunnels, not contain many relevant technical data.

The modernization works of the tunnels also have their own specific because their importance can not be accurately estimated only on the basis of preliminary studies, their implementation is difficult, due to the nature and conditions of realization.

Topographic measurements with different instruments, the results obtained after processing the measurements, allow the extraction of vital information for specialized designer. Depending on these results are proposed specific rehabilitation and modernization works of tunnels.

Fig. 3 – Utility network plan

Fig. 4 – Cadastral register of real estate
3 SWOT analysis of information system for real estate and utility network

Table 2. SWOT analysis of information system for real estate and utility network

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<tr>
<th>Strengths</th>
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<tr>
<td>Existence of information system implementation methodologies specific to</td>
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<tr>
<td>real estate and utility network.</td>
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<td>It handles easily with minimal hardware and software resources.</td>
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<td>Provides information about the position, configuration, land and building</td>
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<td>surfaces.</td>
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<td>Provides data for establishing fair taxes due by the owners to the local</td>
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<td>budgets.</td>
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<td>Topographic and geodetic works are executed in local stereographic</td>
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<td>projection system, it eliminates errors in determining the surface.</td>
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<td>Active involvement in the development work of the city representatives.</td>
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<th>Weaknesses</th>
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<tr>
<td>The methodology is not completely approved by the National Agency for</td>
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<td>Cadastre and Land Registration.</td>
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<td>Poor quality at the level of municipalities with computers</td>
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<td>Not required documents proving ownership.</td>
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<td>Lack of cooperation at services of Municipalities.</td>
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<td>For transcalcul in Stereographic 1970 projection system is used specific</td>
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<td>software.</td>
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Fig. 5 – Alphabetical Index of owners
Utility network managers displayed reticence to provide data.

Redundancy data from different services.

Data on ownership are declarative.

Poor knowledge of information technology by potential beneficiaries.

Areas of the parcels are not correlated with areas of property documents.

Lack of standards for spatial data management.

Lack of trained personnel.

4 General Cadastre vs. Information systems for real estate and utility network

General framework in which is carried out the activity of cadastre in Romania is established by Law 7/1996 of the cadastre and land registration (MOF no. 61/26.03.1996). The original text of the law distinguished between "General Cadastre" and "Specialty Cadastres". Thus, under Article 1, "General cadastre is the unitary and mandatory technical and legal evidence, by which the identification, recording, mapping and cadastral plans of all land, as well as other real estate throughout the country, regardless of their destination and the owner. Basic entities of the system are parcel, construction and owner. By real estate arise under this Act, means the parcel of land with or without buildings" [1].

On the other hand, Article 4 of the text, "The ministries and other central state institutions, autonomous legal entities organized specialty cadastre in the fields of agriculture, forestry, water, industrial, mining, real estate and utilities networks, road, rail, marine, aviation transports, tourism, protected natural and built areas, the high risk of natural disasters or subject to pollution and degradation, and more.

**GENERAL CADASTRE**

| It runs under the supervision of the National Agency for Cadastre and Land Registration. |
| It runs on the entire administrative territory of a locality. |
| Managed by E-Terra software at level of Cadastre and Land Registration. |

**INFORMATION SYSTEM FOR REAL ESTATE AND UTILITY NETWORK**

| The registration of ownership of land and buildings. |
| The works are received by the National Agency for Cadastre and Land Registration through the Cadastre and Real Estate Publicity Offices. |
| The works is conducted in 50 administrative territories. |
| The works were completed in two admin. territories. |
| Topographic and geodetic works are executed in Stereographic 1970 projection system. |
| The inventory of real estate, land and buildings. |
| Costs 700-800 euros per hectare. |
| Existing data in the archive of Cadastre and Real Estate Publicity Offices is made available to the contractor. |
| The resulted specific documents are: cadastral plan, cadastral registers, parceling plans, cgxml files. |

The specialty cadastre are sub-specialty of evidence and systematic inventory of properties in technical and economic terms, in compliance with technical standards developed by the National Office of Cadastre, Geodesy and Cartography (later ANCPI) and general cadastre data base on the surface, category of use and the owner[1].

After the promulgation of the Law 7/1996 has been amended several times by emergency ordinance, in the current text was deleted the above Article 4, thus disappearing phrase "specialized cadastre" (default "real estate and network utilities cadastre"). In this context, it is proposed to replace the term "specialized cadastre" to "Specific information systems" to record the occupation and use of land in different areas (urban planning, public administration, environmental protection, agriculture, civil protection, and so on). A mention, meant to eliminate some confusion and misinterpretation, refers to the fact that these specific systems are not intended for registration of ownership of land and buildings [5] which is the exclusive task of the National Agency for Cadastre and Land Registration (formerly ONCGC ).

The table below present the main features of the two systems of record of the property.
4 Conclusions

General cadastre should be seen as complex and dynamic technical, economical and legal evidence of resources, it is the basis of all real estate management without which there can be no sustainable development and environmental protection.

Introducing cadastre in Romania, as a national issue and community obligation, involves preparation of complex documents, on administrative territory units (administrative territory unit - villages, towns) the base part is the cadastral plan, achieving this piece, across the whole country, is a is a problem of time, with a huge amount of work and spendings, which demanded a complex appropriate methodology.

Information systems specific to real estate and urban utilities come to the aid of spatial data management and used it as a support decision within municipalities.

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