

From Cadastral Background of Romania to the Present

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SUMMARY

Today Romania are in the stage to implement the general cadastre for the whole country as a necessity. The most important law generally applied in the field of cadastre is Cadastre and Land Registration Law no. 7/1996.

General Cadastre System in Romania is an unitary and compulsory system for recording of technical, economic and legal attributes of real estate across the country. The main purpose of the General Cadastre System is to record real estate in the land register which is called Land Book System.

To understand better the evolution of our registration system, in this paper will highlight first the historical background and the actual concerns. The cadastral activity in Romania can be described in stages, based on historical changes, for a better understandig of its evolution.

In this paper we will emphasize the main periods of cadastral changes in Romania and we will point the particular aspects in the cadastral registration in present.

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1. INTRODUCTION

Cadastral systems are normally understood as a parcel based and up-to-date land information system containing identification of the individual land parcels and a record of interests in land such as land ownership. Land governance is a broader term that relates to policies, processes and institutions by which land, property and natural resources are managed, including decisions on access to land, land rights, land use, and land development. (Enemark, 2012) Cadastre in Romania arose in the early nineteenth century, adapted to Romanian language phonetics in the current form "cadastru". The word "ledger" with the "catastih" version, certainly has Greek origin and means registry or registry with obvious archaic tinge. In the period between two World Wars (Law no. 93/1933) cadastre was adopted as the name "Land Cadastre".

In the Cadastre and Real Estate Law no 7/1996 the terms "general cadastre" and "land registration" were been defined. In 2004 - by amending the law - was been created a unique system of cadastre, acquiring the real estate registration activity. From 2013, the Law no.7/1996 was amended, and cadastre and the land registration are seen now as an unitary system of recording property in Romania. In the normative acts the term "general cadastre" was replaced with the term "cadastre" because there is a single cadastre throughout the country, with the final goal to establish the land registration. An important change was been produced by the Government Emergency Ordinance no. 64/2010 (amending and supplementing the Law no. 7/1996) and by the Order no. 700/2014, too.

2. MAIN STAGES OF ROMANIAN CADASTRAL ACTIVITY

The cadastral activity in Romania can be described in stages, for a better understanding of its evolution based on historical changes (Badea, G., 2014). In this chapter will be described each of these period, and in figure 1 are mentioned in brief.

2.1 Beginning period of the introducing cadastre in Romanian provinces

Introducing cadastre and land books registration were made differently in the Romanian provinces, according to historical circumstances, since the nineteenth century, as follows:

- 2.1.1 in Transylvania, Banat and Bucovina some specific work started by the Austrians since 1794 and had been continued after 1850 as "Concretual Cadastre" (consisting of delineation, description and representation of communities borders, sector boundaries, river networks and roads network). The Emperor Francis II was the one who introduced a modern cadastre based on surveying in the Habsburg Empire, in the early nineteenth century, using the Milan model. Administration of Austro-Hungarian Empire after 1867, under Emperor Franz Joseph I, also strengthened land book system.

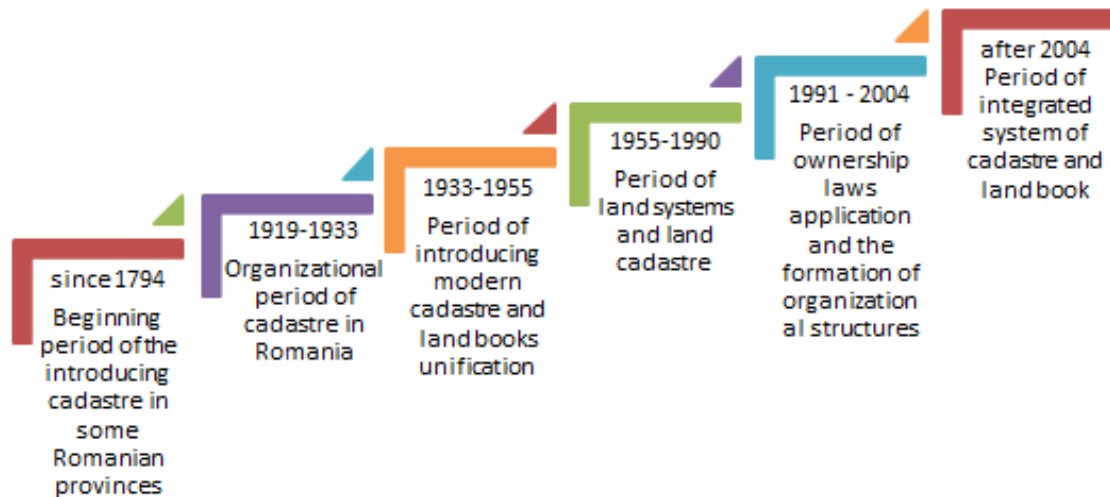


Figure 1 – Main Periods of Cadastral Changes in Romania

- 2.1.2 In the Romanian countries, had been set real estate records in the Alexander Ypsilanti Register (1780), Code of Calimah (1817) and Caragea Law (1819), which, among other things, are requiring the property surveying. In Wallachia and Moldova since 1831 and 1832 cadastral surveyings are introduced by the first surveying engineers trained by Gheorghe Asachi at Iasi (in 1813) and in Bucharest by Gheorghe Lazar (since 1818);
- 2.1.3 in the rest of our country introduction of cadastre was made after the First World War, with land reform.

2.2 Organizational period of cadastre in Romania (1919-1933)

The most important moment for our country was 1918, the 1st of December, the date when modern Romania was created. A special activity was held by Council of Transylvania, Banat and Romanian lands of Hungary (the Council was a provisional political body with legislative, executive and administrative power, limited to territories that were merged with the mother country). After the Union of 1918, the Romanian Government issued several decrees which influenced the whole land registry activity. This activity had been consisted of real estate of the Austro-Hungarian who passed to the Romanian state. In 1919 was established "Department of Cadastre and Technical Works", mainly with a limited activity to survey the real estates and parceling allotment made after the First World War. Surveyings had been made using the local reference systems, with differences on accuracy and content because there was not a homogeneous geodetic triangulation network. In the purpose to implement cadastre were prepared technical staff at the School of Surveying (1919) subordinated to the Directorate of Cadastre. An important step had been made in 1930 by adopting the stereographic projection, as a result of collaboration between the Directorate of Cadastre and Geographic Institute of the Army.

2.3 Period of introducing modern cadastre and land books unification (1933-1955)

The milestone for this domain was the Law no. 93 (13th of April, 1933) in the purpose of organizing land cadastre and introducing land books in the Old Kingdom and Bessarabia. It was the first trial to manage the manner of cadastral organizing and implementing, starting with uniform geodetic networks and first technical and economic regulations. These

regulations had been used to elaborate maps. In the purpose of judicial administration of land books were been organized Courts of Appeal along the districts: in Bucharest, Chisinau, Constanta, Craiova, Galati and Iasi. In land book content, a section was been headed by a judge, a director, an assistant director and necessary personnel. In terms of real estate registration, the activity was been thoroughly organized through the Law concerning the unification of the land books no. 115/1938. The works started in the old county of Ilfov and in subordinate villages of Bucharest that were been used as a model for the rest of the country. These works could not be completed because of the war and were been interrupted in 1941, when only 54 had been finished (65 % of total volume). Using experienced technicians from the other provinces were been drafted new instructions collected in the "Technical Standards" (1943). Since 1940 had been trained engineers in the land registry department of the Polytechnic School of Bucharest. Specific surveying measurement and works had been continued after the Second World War for temporary allotment of the peasants, cadastral institution being not funded by the communist regime. In 1949 had been decided the collectivization of agriculture, and cadastral law and specific works became obsolete for the totalitarian regime. Adverse consequences of the communist policy hadn't been resolved even today, as they produced abnormalities in the perception of property, created trauma and social imbalances, inequities starting with King and ending with peasants with few acres of land.

2.4 Period of land systems and land cadastre (1955-1990)

In 1955 had been started legislating organization and execution of the "land evidence" for recording and tracking the dynamics of agricultural land belonging to the state units. This system served the merging agricultural areas during the collectivization of agriculture, and that had contributed to restricting rights to real estate. Between years 1955-1968 had been created topographic maps at 1:10,000 scale using photogrammetric methods for about 13 million hectares of land records of the Superior Council of Agriculture. Since 1968, had been applied Law no.12 - regarding the protection, conservation and use of agricultural land providing cadastre introduction for the whole country. The old records and misinformation about agricultural areas had been used amid deliberate ignorance of the idea of cadastre by totalitarian political leadership.

Land inventory started in 1968 continued after 1974 by Law. 59, had drafted annual balance of land, but limiting the legal circulation of land to acquire their only lawful inheritance. The entire area of land measurement had been the subject of regulations by Decree no. 305/1972 on geodetic, topographic, photogrammetric and mapping activity, and about the use of data and documents resulting from this activity. Among cartographic documentation prepared since 1965 should be mentioned basic topographic map at 1:5000 and 1:2000 scales (unfortunately hadn't been updated at the appropriate times), covering about 90% of the country. It had been useful for economic sectors that owned large areas of land (agriculture, forestry, roads, systematization of localities), and for providing graphical support for cadastral works by deriving content.

2.5 Period of ownership laws application and the formation of organizational structures (1991-2004)

Changes in the cadastre towards democracy had been primarily related to general legislative framework concerning the legal status of the land to public and private property, the acquisition of ownership and legal circulation of land. Unfortunately, in those years things

had been moved very difficult because of the new political power installed. In that period had been taken decisions whose consequences can be seen today, when the restitution problem has not yet been finalized. If in 1990 had been given only lots of 5000 square meters in use, then returned the property - but not in old locations - today restituted land surfaces have tens of thousands of hectares. Many buildings in which state institutions had worked were been returned to old owners or their heirs. (In 2013 it was been politically decided to finalize the restitution process of the real estates abusively confiscated during the communist regime in Romania, in nature or equivalent.) Cadastre and Land Agricultural Land Organizing (OCAOTA) were been subordinated to Ministry of Agriculture and had been active in the 1990-1996 period. It required much larger changes to the cadastral system, serving not only to agricultural and forestry lands. General Regulations in the property matter appeared also in the Romanian Constitution adopted in 1991, in the Law on local public administration no.69/1991 (amended and supplemented), in the Romanian Civil Code and in the Code of Civil Procedure, as amended.

In the decade 1990-2000 had been enacted laws that formed the basis of the institution of ownership:

- Land Law no.18/1991, amended and republished by Law no.169/1997 (including legal rules relating to public and private property on land, to their legal status, protection and improvement of land),
- Government Decision no. 834/1991 regarding the establishment and evaluation of land owned by state-owned companies,
- Law on the legal circulation of land no. 54/1998,
- Law for restoring ownership of agricultural land and forest no. 1/2000.

The most important legislative act for Cadastre institution in Romania is the Law of cadastre and land registration no. 7/1996 (with subsequent amendments), which is providing the legal framework necessary for the development of a modern cadastre and open the doors of law institutions with European roots, based on historical traditions. From organizational perspective, a specialized body under the Ministry of Public Administration and as a public institution with legal personality had been established at the central level: National Office of Cadastre, Geodesy and Cartography (NOCGC). At county level had been organized County Offices of Cadastre, Geodesy and Cartography (COCGC).

2.6 Period of integrated system of cadastre and land book (after 2004)

Since 2004 NOCGC was been reorganized. The real estate publicity activity that belonged to the Ministry of Justice was taken by a new institution - the National Agency of Cadastre and Land Registration (NACLRL). This institution is a public institution with legal personality, the only authority in the field, being subordinated to the Ministry of Administration and Interior. In each county and in Bucharest had been established Cadastre and Land Registration Offices (CLRO) by reorganizing of COCGC and land book offices attached to courts. The work of these institutions is linked to the organization, management, direction and control of the works in the field of technical standards and methodologies. They are involved in specialized developing and organizing of the national fund of geodesy and cartography, of the data bank of the unified cadastral system and - last but not least - authorizing individuals and entities that can execute and verify different type of works.

Becoming a liberal profession, activity of the cadastral specialist gradually gaining the deserved place, as things tend to normality in a society based on democratic values. The

private sector gradually increases in importance and public sector is guaranteeing security of the real estate registration system.

There are some important cadastral benefits arising of the development of information technology and advanced techniques of retrieving, processing and storing cadastral data, contributing to the strengthening of property real estate, property management and the use of a modern system of taxing. In 2007, Romania's Integration in the European Union opened new perspectives in the field of cadastre. The fundamental problem remained poor funding for cadastre. For this reason had been sought new funding sources to support integrated policies in the field of land management. By this initiative, Zonal Urban Map (PUZ) and General Urban Map (PUG) had been made on the cadastral map of NACLRL and all information related to these maps has been integrated at the national level in a database. It had been emphasized that the inexistence of cadastral maps is obstructing a proper manage of land, having implications for economic growth, environmental protection and realization of long term development programs. In the Official Gazette of Romania, Part I , no.506 of 24 July 2012 was published the Law no.133/2012 approving Government Emergency Ordinance no. 64/2010 amending and supplementing the Law on cadastre and real estate registration no. 7/1996. Last publication of cadastre and land registration law had been made in the Official Gazette, Part I no. 83 of February 7, 2013, when articles had been renumbered. In present, Government passed NACLRL to the Ministry of Regional Development and Public Administration, due to political and financial reasons.

3. CURRENT STATUS

3.1 Introduction

The “Systematic Cadastre” approach means that had been made unitary surveying, usually in the UAT or cadastral sectors and the purpose is to create the digital cadastral map. The “Sporadically Cadastre” term is used when cadastral documentation is registered for each building, based on customer request.

In present cadastre can be defined only with the land book and this is also included in name enactment approved by the Director General of NACLRL no.1/2014: Technical Specifications for Systematic Works for Real Estate Registering in Integrated Cadastre and Land Registry System, documentation contained in award for cadastral works. The occurrence of Order no.700/2014 was been useful in the whole cadastral activity, although had been criticized. To understand our system approach, we present the workflow for systematic registration of real estate through Cesar project.

3.2 CESAR Project

CESAR project (Complementing EU Support for Agricultural Restructuring Project), funded by the Government and the International Bank for Reconstruction and Development which is currently developing in Romania represents a very important and significant improvement of the registration system requires an inventory of the real estate and free registration of 91 rural administrative units.

The objectives of this technical, economic and legal recording system are to clarify issues about the litigation. In this area of competence the main role is hold by the courts. For the

situations to resolve other legal issues related, the competence is belonging to public notaries or land book offices.

Another objectives of the recording system are to establish delineation perimeters of special interest, such as those of the reserves, national parks or protected areas, monuments, places of worship, heritage areas, but also to help develop management methods or cadastral data management.

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Cadastré implementation requires the following flow: measurement and description of real estate, creating cadastral documentation required to register, cadastral representation and storing them on computer media for the recording in the Land Book. Cadastral map contains the graphical representation of real estate limits of territorial administrative unit, registered in the Land Registry and Cadastral numbers attached to them.

The statistical data provided by NACLRL in the integrated eTerra is including 6200000 registered properties, which represents approximately 15% of the estimated national real estates. In the figures 1 and 2 we can see the main sectors and themes linked with the CESAR Project.

Table 1 – Current situation (adapted from Ionita, G., 2013)

Indicator (selection)	Value	Current situation
Hectares of rural land in the project areas registered in Land Book (cadastre services)	20295 ha	Target partially met. Data is from the UATs of Valea Mare, Iancu Jianu, and Saschiz, where the land book has been opened.
Target land area with use or ownership rights recorded as a result of project	20295 ha	Target partially met. Data is from the UATs of Valea Mare, Iancu Jianu, and Saschiz, where the land book has been opened.
Target popln with use or ownership rights recorded as a result of the project	10554	Target partially met. Data is from the UATs of Valea Mare, Iancu Jianu, and Saschiz, where the land book has been opened.
Land parcels with use or ownership rights recorded as a result of the project	27850	Target partially met. Data is from the UATs of Valea Mare, Iancu Jianu, and Saschiz, where the land book has been opened.
Land books digitized as % of number of communes in project counties	57%	Target partially met. The value represents 229 out of 399 land books in the 91 UATs initially included in the project. If the project area is reduced to 50 UATs, the measurement of this indicator would change to 71%.
Registration cost (fees) as	0.15% for	Target met. Costs defined by NACLRL's

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% of property value in project areas	natural persons; 0.5% for legal persons	administrative decision
Average time (days) needed to complete registration of transaction/transfer in project areas	16	Target partially met. The transaction is processed in 16 days, but the decision is delivered to the client in 21 days in accordance with NACLR's service standards
% of land owners in project communes where land surveys were completed participating in consultations	84%	Target met and exceeded. The indicator is measured as the percentage of households
Law on cadastre and registration amended	Yes	Target met. Second amendment to the law approved on October 24, 2012.
NACLR long-term strategic plan and first business plan developed	N/A	-
Handbook of Socio-Economic Guide based on EU best practice developed	Yes	Target met
Percentage of eligible agricultural population in project areas accessing support programs	55%	Target substantially met. Methodology of measuring this indicator was discussed in the April 2013 mission. The indicator will include rural households registered in the Farm Registry accessing APIA funds.

Cadastral documentation is the act of determination the real situation on the ground being prepared by the individuals/legal person authorized in geodesy, topography cadastre having as main obligation to present the real situation the ground.

National Agency for Cadastre and Land Registration (NACLR) use a desktop application to validate data received from suppliers, both from technically viewpoint (geometry / graphics and textual / descriptive data) and from legal viewpoint (data on ownership and other legal facts). The data validated as correct are loaded on the active layer of real estate in eTerra system. (Clinici, T. S., Badea, A. C., Badea, G., 2013)

Cadastral documentation underlying land registration in the Land Book are related to:

- Property that require documentation for first registration;
- Property that require documentation for detaching;
- Property that require documentation for union;
- Property that require documentation for submission of final construction on land registered in the Land Book;
- Property that require documentation for modification of the property;

- Property that require documentation for surface modification;
- Property that require documentation to describe dismemberments property right;
- Property that require documentation for reconstitution the land book lost, destroyed or stolen.

The main conclusions of the CESAR workflow are:

- Topological errors are due to operator. It is necessary when are representing the map features of a digital plan to take into account that the attention and responsibility is fully up to operator to make a quality work and the digital plan does not contain many errors;
- Errors in property titles and into the database obtained from the municipality and CLRO.
- After analyzing the data received from the relevant institutions (Hall, CLRO) to identify buildings inheritance, within the site area (outside city limits) arose difficulties only partially expected due to frequent errors existing in the property titles. For example, in many of the title deeds and in database we found misspelled real estate numbers, parcels or neighborhoods.
- Inconsistency of overall cadastral map and the actual situation on the ground.
- A very important operation in which Hall plays a significant role is the boundary and cadastral parcels identification by correlating overall cadastral map, scale 1:10,000, with measurements made by the provider. Due to inconsistencies of the overall cadastral map and the actual situation in the field, derived from measurements, there were difficulties in determining the precise boundaries and parcels. In general, to solve this situation is required the presence of a representative of the Village Hall throughout the operation to identify these limits.
- Certificates of Title (and parceling maps) issued by other local governments.
- In main administrative units were found land for which title deeds have been issued by other local governments (municipalities), sometimes even from other counties. In very few of these cases succeeded - despite persistent approaches - to achieve parceling maps and those property titles. In their absence, the work is considered outstanding and - consequently - is not received.
- Disinterest of the owners and their non-participation.
- Although efforts have been made (points of information, posters, flyers, meetings, discussions, etc..) we can conclude (in the deployment phase of the interviews) that a significant percentage of owners/holders not present at information points to copy and authentication of ownership titles.

3.3 ETerra Information System

NACLAR developed an application for managing the real estate in Romania called “e-Terra”. This application is ensuring standardization of spatial data at the national level regarding land and buildings, generating a uniform and coherent database. (Clinici, T. S., Badea, A. C., Badea, G., 2012)

The data are accessible online using Geographic Information System (GIS) technology, through NSDI geoportal (National Spatial Data Infrastructure), component through which Romania contributes to the INSPIRE Directive (Infrastructure for Spatial Information in Europe) of the European Commission.

The main goal NSDI is to ensure public access to spatial data from Romania. So, the

WEBCadGen application is part of a package of tools for transferring data from the general cadastre in the integrated eTerra Cadastre and Land Registry.

Implementing of general cadastre in Romania is involving the benefits from Figure 3. (Badea, G., 2013)

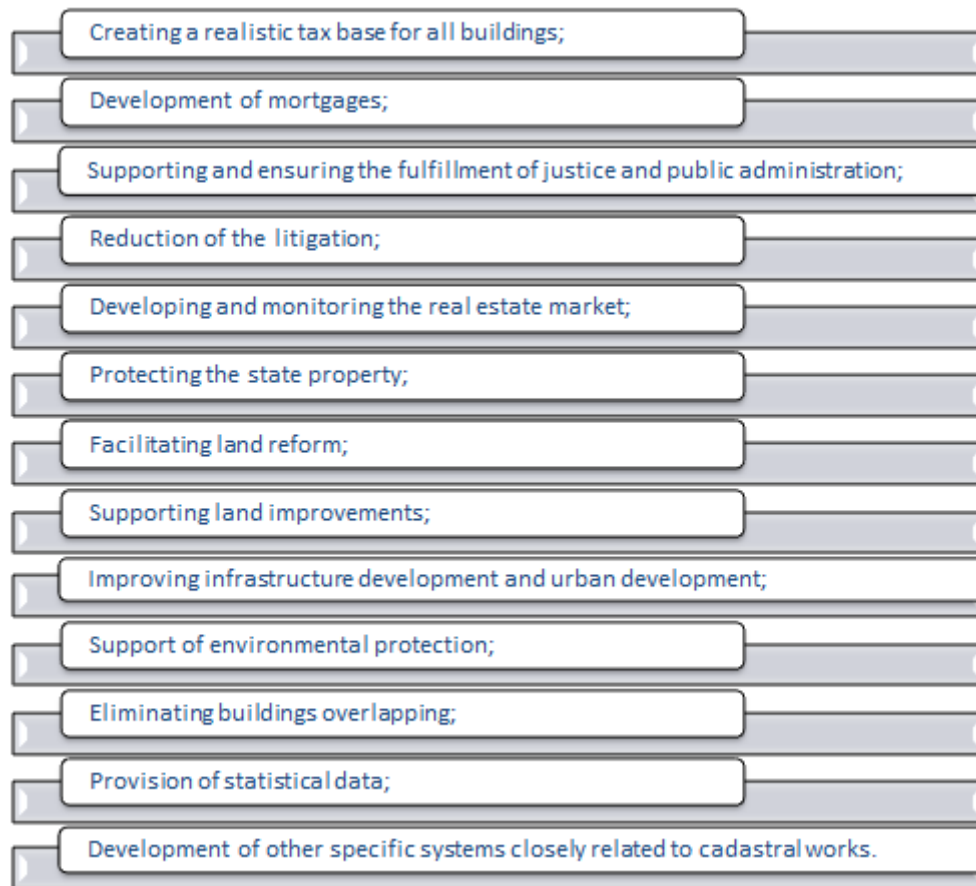


Figure 3 – Benefits of General Cadastre in Romania

The WEBCadGen application had been created for cadastral works providers to facilitate their access to existing data in the sporadically cadastre conducted in the area of interest and to enable validation/verification system files resulting from its own production, before submission to the National Agency for Cadastre and Land Registration (www.NACL.Ro) for delivery within general cadastre project. The provider can retrieve from the eTerra database all relevant information about a administrative unit about a set of selected buildings, etc.. being in order to prepare the general cadastre.

The product allows the data extraction from the eTerra in electronic cgxml file format, similar to cpxml file format used in sporadically cadastre. Files of cgxml type are similar to files of cpxml type and represent the standard electronic format used for cadastral information and legal representation - text and graphs - corresponding of a real estate (including parcels, buildings and units that are on them) that are a subject of cadastral and real estate registration NACL.R records.

ETerra Information System manages the technical and legal information related to real estate

in the CLRO sites and at central NACLRL level. The data are stored in compressed zip format. After verification, the application creates a validation report in which will be displayed the cxml data files, whether they are correct or incorrect, what is the problem and a suggested solution to the problem.

Problems that may arise in relation are linked to the graphic structure, for example if the outline of a building is not inside the building, but also linked by textual information, if doesn't exist data about the entitlement.

Other cases are those where the cxml files received from CLRO hadn't write correctly fractional shares in the registration section, where there were more owners associated with the same real estate. Such errors can be corrected only by CLRO, based on the documents that allowed registration of ownership.

4. CONCLUSIONS

According to Enemark, 2012, the international development in the area of Cadastre and Land Administration has been remarkable with FIG taking a leading role because throughout the last 10-15 years a number of initiatives have been taken with a focus to explain the importance of land administration systems as a basis for achieving economic, social and environmental sustainability. The main international organizations such as UN, FAO, HABITAT and especially the World Bank have been key partners in this process. In Figure 4 are emphasized the major achievements of the systematic national registration.

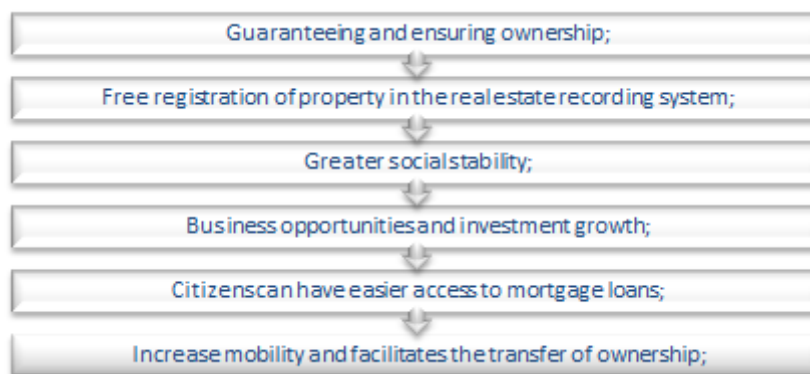


Figure 4 – Major Achievements of the Systematic Registration

, which is designed now as a fundamental institution in the EU. The conception will consist of a regional database, opened to public consultation, which includes graphical and alphanumeric spatial information, making them equal to access by public and private institutions and citizens. Cadastre defined as public property, will serve to guarantee the principle of equality, security and justice for all EU citizens and will cover the fundamental system throughout Europe.

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BIOGRAPHICAL NOTES

Gheorghe Badea is Professor at the Department of Surveying and Cadastre - Faculty of Geodesy, Technical University of Civil Engineering. He received his PhD in Geodesy - Thesis Title: "Some Results in the Study of Using Cadastral Data in Land Information Systems". From 2012 is Vice-dean of Faculty of Geodesy. He was also Advisory Expert and Counselor at National Agency of Cadastre and Land Registration, Romania, being involved in creation of "Technical rules for the implementation of ETRS89 in Romania and the proposed law on the adoption of a new cartographic projections in Romania".

He provides teaching activities at three remarkable universities from Bucharest: Technical University of Civil Engineering, Bucharest, "Ion Mincu" - University of Architecture and Urbanism and University of Bucharest, in five faculties.

Of the most relevant teaching courses can be mentioned: General Cadastre, Standard and Geoportals of Spatial Data, Information Systems Specific to Activity Fields, Surveying, Cadastral Database in Urban Areas, Specific Information Systems, Urban Cadastre, Methods of Real Estate Recording, Landscape Design and Planning, Cadastral System in Local Government.

From the research activity can be mentioned that he acts as Expert at strategic project co-financed by European Social Fund, "Development of an Operational System of Higher Education Qualifications in Romania (DOCIS)" - beneficiary National Agency for Higher Education and Partnership with Economic and Social Committee (ACPART), as Project Manager of the research project "Techniques, Technologies and Ontologies for Data Portals and Spatial Data Services", as Project Manager at strategic project co-financed by European Social Fund "Online University Collaboration Network in Order to Provide Superior Geodetic Skills".

Prof. Dr. Badea is member of the Surveyors Union of Romania, founding member of Surveyors Order of Romania, member of National Society Photogrammetry and Remote Sensing.

Ana-Cornelia Badea is surveyor, Associate Professor at the Department of Surveying and Cadastre of the Faculty of Geodesy. In 2008 she received his PhD in Geodesy – Civil Engineering with distinction "Cum Laude". She worked as Logistics Coordinator in the European Project - Geodetic Online E-learning Platform. She was also Advisory Expert and Counselor at National Agency of Cadastre and Land Registration. She is member of National Union of Romanian Surveyors, founding member of Romanian Surveyors Order, member of Romanian Society of Photogrammetry and Remote Sensing.

She holds courses of "Cadastre and GIS Applications in Urban Areas", "2D, 3D Concepts and GIS Analysis" and "Computerization of Land Registry Operations" at masteral level.

Recently she participated in initiating and developing of new academic programs of Faculty of Geodesy at MSc and BSc level.

Assoc. Prof. Dr. Badea is member of the editorial board of "Journal of Geodesy" –Romania; "Higher Education Studies" Journal, Canada; "Earth Science Research" Journal, Canada; "Engineering Management Research" Journal, Canada; "Joint e-Conference Journals in Applied Science, Technology and Development"; "Science Publishing Group", USA. She was member of the Technical Committee and chairman at many scientific conferences.

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