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DO WE NEED CADASTRE?

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Abstract

We have done this project to present the current and historical situation of a cadastral system in several countries on the European continent. The countries we have chosen to include in the work are countries from the former communist bloc and countries of Western Europe. In the paper I approached the location of the respective countries by placing them on the continent through important geographic elements and neighbours. The period of communist regime domination in the analyzed countries, but also the development of the Western countries on a cadastral plan during the same period was another objective. Another point of interest was the state of completion of the cadastre in these countries, as well as agencies that have under their control cadastre in each country. The result of this paper led to the comparison of the cadastre system in Romania, a post-communist country, with the cadastral situation and history in other European countries, both communist and Western.

Key words*: cadastre, history, Europe.*

INTRODUCTION

Measurement of the earth is much older than we would be tempted to assign to it at first glance, it has its origin and evolved in parallel with the evolution of the relationship between man and nature. The human-nature connection has embraced multiple aspects during the historical, but at either of them we can see the increasing connection of man with the earth and its resources. The first notions strictly related to the term of ownership of land appear at the end of the 4th millennium before our era in Mesopotamia, called the country between the Tigris and the Euphrates (the territory of Mesopotamia coincides with Iraq today). The land was considered to be the property of the state; it was worked by the free peasants who paid to the king, the state, victories and various taxes in nature in the form of a "royal tribute."Over time, in Mesopotamia have established and great land properties, kingdom areas, temples, and a true aristocracy of senior state officials. Both the king's and the temple's servants provided a record of the cadastre, according to which the mandatory services were also provided. The great owner was, of course, the king who issued the oldest set of social, administrative, political, and legal rules, which was called 'Hammurabi's Code'. It included, among other "laws", the right to possess or inherit the land within the patriarchal Sumerian family. Today the need for cadastre is very high. The wealth of a country lies in its population and territory. If a country does not know and does not administer its territory properly, it is not a prosperous country.

Motto: "The cadastre should be a real guarantee of property and a certainty of the independence of everyone." (Napoleon, 1807)

MATERIALS AND METHODS

NORWAY

Location

Norway is a country located in Northern Europe on the western and northern part of the Scandinavian Peninsula, bordering the North Sea to the southwest and the Skagerrak inlet to the south, the North Atlantic Ocean (Norwegian Sea) in the west and the Barents Sea to the northeast. Norway has a long land border with Sweden to the east, a shorter one with Finland in the northeast and a still shorter border with Russia in the far northeast. Norway

has a very elongated shape, one of the longest and most rugged coastlines in the world, and some 50,000 islands off the extremely indented coastline. Mainland Norway (fastlands-norge) covers 13° latitude, from 58°N to more than 71°N, (Svalbard north to 81°N), and covers the longitude from 5°E in Solund to 31°E in Vardø (Jan Mayen to 9°W, Kvitøya to 33°E).Norway is one of the world's most northerly countries, and one of Europe's most mountainous countries with large areas dominated by the Scandinavian Mountains. The contiguous area is slightly smaller than Vietnam and slightly larger than New Mexico (324,220 km^2). With Svalbard and Jan Mayen included, the area is slightly larger than Japan (385,199 km^2).

History Initially land in Norway was slowly occupied by individuals clearing the forests for farming, leaving tracts land in communal ownership. Later a large proportion of land came into ownership of the church, and later the king. From 1650 the king started to sell out land, a process that lasted for almost 200 years. At the end of the 19th century 80 % of properties were in private ownership In general most land below the tree line is in private ownership. In total there are currently 2,4 million registered properties (titles). The average farm size is about 20 ha arable land and 50 ha forest. About 80 % of the families live in one family house on a freehold or leasehold parcel. Major parts of the mountain areas are owned by the state. Leasehold is a common form of land tenure, frequently and mainly used for secondary homes (holiday homes).The national GAB-register embraces properties, addresses and buildings, and currently contains nationwide some 3 million properties, 2 million addresses and 3,6buildings. All the municipalities in Norway report directly to the GAB database. The Norwegian Authority on Cadastre and Mapping is responsible for the GAB-register Formal registration of private properties started in the medieval times, but the current legislation and system came into practise during last century, much based on the German 4 system. However, a proper cadastre based on professional surveying and mapping of boundaries only existed in the bigger cities until 1980. Until the Law on the cadastre came into force in 1980, new parcel boundaries in rural areas were set out and described by appointed laymen, with simple sketches registered in the Land Register only. The low standard in documenting boundaries has resulted in a larger number of boundary disputes than in other corresponding European countries. In bigger cities local cadastres, based on professional geodetic surveying and mapping, have been in existence since last century. The first known property register in Norway dates from about 1250, implemented for raising tax to the crown and for drafting men for military service. Only later the need to protect private rights in land became an important issue for registration. Using land as security for mortgage loans became common following the general economic development in the last 100 years (Mjøs, 2012).

The current cadastral situation The modern Cadastre has hitherto played no important role in taxation. However, following a 2006 law amendment an increasing number of municipalities are introducing local taxes on property, largely depending on data contained in the Cadastre. The Cadastre plays an increasingly important role for various branches of the public sector, particularly in the municipalities, providing basic information on land and buildings needed for calling up charges on municipal services for water, sewage, renovation, etc, and for land use planning and construction activities. Data about parcel boundaries and about who owns land, play an ever more important role in land use planning, land management, environmental protection, for fair distribution of subsidies to farmers etc. **Public restrictions** on land use and on the use of buildings are widely implemented through zoning and other forms of public planning. For banks and investors, as well as for the average persons who is seeking a property for himself, information about the public restrictions are now as important as information about private legal rights.. The new Law on the Cadastre coming into force from 2008 points out that the Cadastre, and not the

Land Register, shall contain information about public restrictions. The focus on land administration has somewhat changed over time, from taxation, to protecting private rights and facilitating the use of land as security for loans, and finally to facilitating public land management. However, it must be underlined that widespread and secured private ownership to land has never been disputed as a major factor for economic and social development in Norway. Today all properties in Norway are registered.

The cadastre institution Norwegian Mapping Authority is a Norwegian public enterprise under the Ministry of Local Government and Regional Development (2014). The head office is located at Hvervenmoen at Hønefoss in Ringerike municipality. The State Mapping Authority has been the agency's name since 1986 and is still the name used in official contexts, but from March 2012 it is the short form Mapping Authority used in communication outward.The Mapping Authority will ensure that timely, legally-established information from the public is available and is readily available to Norwegian society at all times. The Mapping Authority is the state's authority within map, geodata and public property information, and is also the country's registration authority. The area of responsibility includes Norway's land, coastal and sea areas, including the coast around Svalbard and Jan Mayen. Mapping activities are organized into four divisions: The geodesy division; The Land Division; The property division; The naval division.

SWEDEN
Location

Located in northern Europe, in the eastern part of the Scandinavian peninsula, Sweden is bordered on the west and northwest by Norway, on the northeast by Finland, on the east by the Baltic Sea and its arm, the Gulf of Bothnia, On the southwest, Sweden is separated from Denmark by the Skagerrak, Kattegat, and Ôresund straits that connect the Baltic and the North Seas. The fourth largest country in Europe, Sweden has an area of 449,964 square kilometres (173,731 square miles), slightly larger than California. The area also includes 39,030 square kilometres (15,070 square miles) of inland water pools, mostly lakes. The capital city of Stockholm is situated in the southeast, on waterways and islands between Lake Malaren and the Baltic Sea.

History
The Swedish cadastral system has a long history. During the 15th and 16th century Sweden became a centralized state with a powerful monarchy, who needed land information for tax purposes. The first registers were made in the 16th century and land has been registered since this time. Registration quickly became a part of the procedures tied to purchases and mortgaging. The National Land Survey was established at this time (1628).
Parceling reforms and the aristocracy's loss of privileges were important steps in the 18th century. The Swedish system for land registration, which has been complete since the beginning of the 20th century, is quite simple and straight forward. In essence it is very similar to the Torrens system.

In the 1930s, work to establish a comprehensive and coherent national map in one national geodetic system was started. From the beginning, these maps were based on aerial photography, photo mosaics and later orthophotos. The maps were named economic maps and were produced in scales from 1:5,000 to 1:20,000. Cadastral boundaries were transferred from the old village maps to the new system by mainly photo interpretation of the boundaries and comparison with the old

maps. There were no attempts to calculate new areas for the property units in that period. This mapping programme finished in 1978 and is now maintained and complemented with land use plans, regulation and other features of importance for land use rights. Another important development was that the original cadastral books with its division of the village into real properties that also started around the 1600s were used by the State church for recording the population, births, deaths and places of residence. Such records have been maintained over the years. In present times, they have been taken over by the Tax Authority. In this way, all the people living in Sweden are connected to real property in a continuously updated census. Such records provide important data for use in land information and social data for public as well as private planning and administration. In the 1960s, the Swedish government attempted to modernise the cadastral books in the Property Register with the proposal to computerise the Property Register. One of the main advantages was seen in the possibility of combining information in the Property Register with the Population Register through the property designation, thus making spatial analysis a support for physical and economic planning. For this purpose, each real property was assigned a central coordinate in the national system. This was actually one of the pioneer works which later led to the development of Geographic Information System (GIS). The decision to computerise the Property Register and Land Register was taken in 1968 and 1970 respectively. After the system was developed, Sweden became the first county to implement it with legal force in 1975. The system was completed for the whole of Sweden in 1995.

After pilot projects, the gradual implementation of the so called LDBS began in 1976 and it whas finished in 1995 (Ericsson, 1996).

The current cadastral situation

Today all properties in Sweden are registered. A new legislation for multi-dimensional real property formation (3D Cadastre) came into force in Sweden on January 1 2004. The act is considered to be the most important basic change that has taken place in Swedish cadastral legislation during the past 30 years. 3D properties are just like ordinary properties created in a cadastral procedure. Åre has a long history as one of the main winter resorts in northern Europe. During the last years Åre has seen a boom in housing and commercial development unparalleled in its previous history. In the spring of 2008 when this presentation is being prepared, there are seven 3D projects completed or in various stages of progress in Åre. All but one are situated in the town centre within a few hundred metres distance. This fact is mainly due to the intense development, steep terrain, high land values and importance of close access to service and infrastructure. Commercial developers have specifically requested 3D property formation in all cases. The seven 3D projects focus on new or renovated buildings. The purpose is usually to separate holiday apartments from commercial property. A common desire from developers is to have a clear division between commercial enterprise and private holiday makers. Critical issues in cadastral procedures involving 3D property include allocation of boundaries, technical infrastructure, balancing the need for property regulations against less formal agreements, data conversion and editing and also communication in the process. The opinions from involved developers and property owners so far are very positive.

The concept of 3D property expanded in 2009by the addition of condominium (apartment) ownership. 3D property is therefore still a rather new form of land management, but there has been an increased interest in 3D property and ownership apartments, although the demand has not been as high as initially expected. The use of 3D property formation in land management is still to be seen as a supplement to the traditional 2D property formation. During 2013, 202 property units and ownership apartments were formed, which is 1.1 % of the total number of new property units (including joint property units and joint facilities) registered in the real. Implementing the concepts of BIM (Building Information Modelling) into and to develop a nation’s 3D cadastre by adding information on

buildings and building surfaces is a method of improving the use and visualisation possibilities of a cadastre, e.g. by making database queries on legal boundaries associated with building details, such as that a 3D legal boundary surface follows the outer surface of a building in which the legal basic property unit is located.

3D property formation has been successfully introduced and has proved to be a useful tool to the commercial property market. (Choon and Hussin, 2015)

The cadastre institution After 1st June 2008, Lantmäteriverket has been entrusted with the cadastral registration of real properties and rights to them in Sweden. It is responsible for cadastral surveys, property formation acts, registration of properties, rights and encumbrances through its local offices and for dealing with any related information about the real property. Furthermore, Lantmäteriverket also deals with developers and manages the Property Register, the Mortgage Deeds Register, the Real Property Price Register and the Register of Joint Property Management Associations.

REPUBLIC OF MOLDOVA

Location

The Republic of Moldova is a state located in south-eastern Europe, bordering Romania to the west, Ukraine to the north, east and south. The Republic of Moldova is a state without direct access to the sea, but it has an exit to the Danube on a strip of 430 meters at its southern extremity, through which it has potential access to the Black Sea. The capital of the Republic of Moldova is Chisinau. In the process of dismemberment of the Soviet Union, the Republic of Moldova declared independence on 27 August 1991. On 29 July 1994 the first constitution of Moldova was adopted.

History

In Moldova the development of the cadastral system is related to the name of Gheorghe Asachi, who in 1814 founded in Iaşi, next to the Princely School a class of engineering and frontier in Romanian language, where geodesy and topography were studied. In the Tsarist period, the cadastral development belongs to the name of Mihail Ozmidov, who is also the author of the famous architectural plan of Chisinau in 1817.

As a cadastral engineer, Mihail Ozmidov manifested himself in the elaboration of the estates projects, the planning of the land borders in accordance with the Regulation of the administrative-territorial organization of Bessarabia adopted in 1818.

Reforms of Stolipin in 1861-1868 have set the stage for land-use inventory and valuation operations thanks to the liberation of the peasants from under slavery and the development of the land market. During the period 1818-1840, on the territory of Bessarabia there are "Land Books" which provided for the precise identification of the goods to be registered.

In the period after the Second World War in the RSSM there is no proper cadastral system. For the most part, it was due to the nationalization and exclusive ownership of the state over land. Land registration during this period was done in state land books. Land registration of land in a single national system was introduced only in 1955. Subsequently, the cadastre of agricultural land, cadastre of water and forest cadastre were created. Along with these cadastral systems, it works technical inventory offices, what they had to do record and registration of buildings.

After the proclamation of independence of the Republic of Moldova (August 27, 1990), the REFORM period began in all branches of the national economy. The first attempts in the field of cadastre were: the adoption by the Parliament of the Republic of Moldova of a series of legislative acts, which regulate the process of transferring the real estate property and the cadastre of the real estate. The adoption of the new legislative framework on property regimes (Law on Privatization, Law on Property, Land Code), confirmation by the Constitution of the Republic of Moldova of the right to private property on land has served as a basis for reforming real estate relations, mass redistribution heritage, transferring it to private property.

Following the thorough study of the experience of the European countries in the field of

cadastre, the Law on cadastre of real estate, which provides for a real estate registration system and rights, which corresponds to the current requirements? A new stage in the development of the cadastral system in the Republic of Moldova was determined by the adoption in 1998 of the Real Estate Cadastre Act, having previously been recognized and acquired the ownership of the land on other real estate, the purpose being the development of the real estate market in the conditions of a functioning market economy, based on private ownership of them.

Thus, a new cadastral system has been created in the Republic of Moldova, which brought together in a unique system the registration of land, buildings and other real estate, patrimonial rights, strikes and other legal acts and relationships, the object of which are real estate, subject to registration.

The actual implementation of the cadastre began with the signing on June 8, 1998, of the credit agreement with the International Development Association in the amount of 15.9 million US dollars. For this purpose, the State Program for the creation of the real estate cadastre was elaborated, the first stage (1998-2003) provided for the creation of the legislative framework, acceleration of the ownership process, information of the population, training of the cadres, creation of cadastral system and of course the massive primary registration of real estate. Substantial aid to the implementation of the Project was given by the donors. These are the generously offered donations from Sweden, Switzerland, France, Norway, Japan, which is estimated at 6.7 million US dollars. These funds were used predominantly to finance Swedish high-quality consultancy services "Swedesurvey", procurement of computer equipment, geodetic equipment, etc. According to the credit agreement, the government's contribution amounted to US $ 4.0 million.

At the realization of the first stage of the Program decisively contributed the First Cadastre Project, whose implementation has created a unique system of registration of real estate and rights on them. The privatization of the land was promoted, which boosted the development of the real estate market. Of the specific objectives of the Project was the guarantee of the state. Apart from the issues related to the creation of the cadastre infrastructure, the elaboration of the legislative base, the training of the cadres, the information of the population and many others, the main purpose was the identification of the real estate, their registration and their ownership rights. In this respect, the objective has not only been fulfilled, but has also been substantially overcome. Thus, it was initially planned to record 530 thousand of real estate. Subsequently, at the initiative of the Office for Implementation of the First Cadastre Project, Moldova has been able to receive help from USAID.

The current cadastral situation

Prior to 1 July 2006, 4 406 755 real estate assets were recorded in the republic, including 3 953 380 by massive method, from the state account. Of the total assets, about 67% are agricultural land, 23% - individual housing houses with related land, about 8% - apartments and 2% - other types of properties. Although the massive primary registration plan, approved by the Government Decision no.1030 of October 12, 1998 "Some measures regarding the creation of the real estate cadastre", was exceeded about 8 times, accounting for about ¾ of all the respective properties, for the completion of these works and the creation of a modern database of real estate in the republic also require human, financial, organizational resources.

There are also problems with the registration of real estate, which are more than the insufficient funds, which were previously allocated in the implementation of the First Cadastre Project, which is in the process of finalization. All the more that after the completion of the cadastral works, the creation of the cadastre in Moldova and a modern information base, the impetus for the relations with the banks and other economic agents, the cadastral system will turn from the consumer of money into a "financial producer". The Government of the Republic of Moldova has approved an additional action plan which foresees the finalization of the state program

for the creation of the real estate cadastre for the period 2007-2011.

At present, from 1 550 localities in the Republic of Moldova, 950 localities are registered and cadastrated. (22.03.2018)

The cadastre institution

The National Agency for Geodesy, Cartography and Cadastre, nowadays called the Agency of Land Relations and Cadastre of the Republic of Moldova, was created in 1994 by a presidential decree for the elaboration and implementation of the coordinated conception of cadastre creation and management in the republic.

BULGARIA

Location

Bulgaria is a southern European country situated on the Balkan Peninsula. It borders with Romania to the north, Serbia and the Republic of Macedonia to the west, Greece and Turkey to the south, and east to the Black Sea. With a territory of 110,994 km², Bulgaria is the 14th largest country in Europe.

History

It is assumed that during the Roman Empire, when Moesia and Thrace were Roman provinces, the present Bulgarian territory was subjected to the cadastre. It is believed that during the census, the land borders of the villages of Thrace were established and marked with stone signs. The hypothesis is based on two uniform inscriptions in the villages of Plovdiv in Stroevo and Kaloyanovo and an inscription in the village of Orizovo in Stara Zagora.

The necessity of the cadastre was taken into account immediately after the liberation of Bulgaria from Ottoman domination. This was possible after the Russo-Turkish war that took place between 1877-1878 resulted in the emergence of the Third Bulgarian State, became independent in 1908.

In 1880, the Regional Assembly approved the Cadastre Law of Eastern Rumelia, which is mainly a guide for the introduction of land books.

In the next 20 years, three unsuccessful attempts were made to introduce a land cadastre into the country. Circumstances that in one way or another prevented this are:

- the indefinite state of ownership in the post-release era;
- turbulent political events in the country, unification, the Serb-Bulgarian war, the abdication of Prince Alexandru I Battenberg in 1886, the 1887 uprising, etc.;
- lack of budget funds;
- lack of competent cadastral specialists at that time;
- Insufficient understanding of the issue by the authorities.

In 1907, at the order of the Minister of Finance, a draft law on the cadastre was drafted, which was adopted by the National Assembly in December of the same year and was promulgated on 11.01. 1908.

In 1909, the Ministry of Commerce and Agriculture submitted a draft law to the National Assembly extended for the real estate cadastre, which was immediately adopted.

According to the Cadastre Act of 1908, the cadastre follows the physical and legal determination of the real estate property. The Cadastre Act of 1908 provides for cadastral measurements of the country's land and cities. This law remains unapplied mainly because of the lack of money is cancelled by the law of the land register and the unification of 1941. With the end of the year 1909, the work on the register of Bulgaria have ceased as a result of the Balkan War, Inter-Aliat War and the First World War. After a period of approximately 20 years since the end of the First World War, during which there was no important action to legally solve the cadastre, in 1941 the National Assembly adopts a draft law for cadastre and land unification, paid by the Ministry of Agriculture and State Property. The law is promulgated in the Official Gazette on June 13, 1941. The cadastral measurement is based on state triangulation and levelling elaborated by the Institute of Geographical State and is carried out according to the standards of the Central Measurement Council.

According to the Cadastre and Land Unification Act, a total cadastre of about 700 villages, with a total area of about 1 500 000 hectares, including 417 villages with a total area of nearly 500 000 hectares, has been completed after accession South Dobrogea in Bulgaria.

The law on cadastre and land consolidation is abrogated by the act of repealing all laws issued before 1944 by the National Assembly on 20 November 1951.

Between 1950 and the entry into force of the Law on the Unification of the Cadastre of the Republic of Bulgaria, on January 1, 1980, the cadastral material is regulated by the Law on the Planned Building and the Law on Territorial and Urban Development.

In the subsequent period up to 1969, even if the existence of the term 'cadaster' at operational level dominates the term "Geodetic topographic plan" or just "geodesic plan" - as in the "Guidelines for Surveying Surveying and Geodetic Plans of the Settlements" issued in 1954 by the Geodesy and Cartography Office (GGLC) since then. These plans are present and the cadastral components in addition to the topographical and geodesic, but does not take into account the limits and frontier but more on commercial and industrial installations, railway lines and facilities, roads and paths, hidrografie and equipment hydrographic basins, bridges and VIADUCTS, planting and soil, the shape of the earth, and other data. They are designed to serve primarily as a basis for designing urban plans and regulating construction and public works of settlements. The Law on the Territorial and Urban Structure, promulgated in the Official Gazette, no. 29 of 1973, which repealed the Law on Settlement Planning, does not contain provisions for the elaboration of cadastral plans.

In 1972, the Council of Ministers adopted a decision of drafting a draft law on the cadastre for the Bulgarian People's Republic. As a result of this decision, was set up at the Ministry of Forests and Nature Conservation cadastral department for the land fund and the Ministry of Agriculture and Food Industry, Forestry and Water Resources Department, with the idea of adding later information about settlements, buildings, natural resources, demographics and the quality of the natural environment and creating a Unified Cadastre as a computer system.

The Ministry of Construction and Architecture organized through the Geodesy and Cartography Center the elaboration of the basic terms for the establishment of a Single Cadastre of the Bulgarian People's Republic. The basic positions were adopted by the State Council Operational Office through Protocol no. 28 of 3 November 1975 and on the basis of this document the draft law was drafted. The Law on the unitary cadastre of the Republic of Bulgaria was adopted by the Seventh National Assembly on 27 April 1979 and was promulgated on 4 May 1979 and entered into force on 1 January 1980.

The Law on Holding and Use of Agricultural Land is the first in a series of restitution laws. It was adopted by the Great National Assembly on 22 February 1991 and was promulgated in the Official Gazette on 1 March 1991. On November 25, 1997, the law on the restitution of forests and forest lands is promulgated. The new constitutional provisions on restored property of agricultural and forest lands, forests and many properties in settlements create conditions for activating the real estate market, which leads to an increase in the need for loans and an increase in the number of mortgages. The need for maximum safety guarantees for rights holders is increasing, thus creating a favourable investment environment.

The current cadastral situation

Of the approximately 11,000,000 square kilometres of the entire area of Bulgaria, the Agency for Geodesy, Cartography and Cadastre (AGKK) succeeded in its 17 years of activity - between 2001 and 31 December 2017, to cover only 36,3 % of the country's base (4,032 million hectares).

Because of this delay, the Parliament recently adopted, for the sixth time, a legislative text to

suspend the statute of limitation of state and municipal property. Simply for 17 years, the state and municipalities did not know what properties they have because they are not yet cadastral.
The authorities promise that by 2019 the cadastral area of Bulgaria will grow from 36.6% to about 97%, all this increase taking place only in two years. This was declared by the Executive Director of the Agency for Geodesy, Cartography and Cadastre, Mr. Mihail Kirov, adding that the already difficult part of Bulgaria's cadastre has already been overcome.

The cadastre institution

The Agency of Geodesy, Cartography and Cadastre is an executive agency, is a legal entity based in Sofia and with departments in the field of geodesy, cartography and cadastre managing all the other territorial administrative units.

The Agency was established in 2000, after the adoption by the Council of Ministers of decree no. 169 of 14 August 2000 and promulgation in the Official Gazette no. 69 of 22 August 2000 of the Structural Regulations of the Cadastre Agency.

ROMANIA

Location

Romania is a state located in south-eastern central Europe, on the lower course of the Danube, north of the Balkan Peninsula and on the north-western shore of the Black Sea. It covers almost the entire Danube Delta area and the southern and central part of the Carpathian Mountains. It borders Bulgaria on the south, Serbia to the southwest, Hungary to the northwest, Ukraine to the north and east, and the Republic of Moldova to the east, and the Black Sea shore is to the southeast. It has a total area of 238,397 km² and a population of 19.71 million (2016).

History

The works for the introduction of the cadastre and land books were carried out in different ways in the Romanian provinces, depending on the historical circumstances, starting with the nineteenth century, as follows:
- Transivania, Banat and part of Bucovina the specific works started with the Austro-Hungarian system, starting with 1794 and continuously after 1850 under the form of "concrete cadastre" (it consists of the delimitation, description and representation of the boundaries of the localities, the boundaries of the lands, of the hydrographic networks and of the communication ways)
- in Muntenia and Moldavia, starting with 1831 and 1832, attempts were made to introduce the cadastre by the first frontier engineers trained at lasi by Gh. Asachi (from 1813) and in Bucharest by Gh. Lazar (from 1818);
- in the rest of the country, the cadastre is made after the First World War, with the agrarian reform.

In 1919, the "Cadastre and Technical Works Division" was established, whose activity was limited to the measurement of the estates and their partition for property acquired after the First World War. The measurements were made in local reference systems, with differences in accuracy and content, as there is no homogeneous geodetic network. For the execution of the cadastre, technical cadres were prepared at the Topography School (1919) near the Cadastre Department.
An important step was taken in 1930 by the adoption of the stereographic projection system, the result of the collaboration between the Cadastre Department and the Army Geographical Institute.
The reference point for this field of activity was the "Law for the organization of cadastre and land books", no. 23/1933, which regulates for the first time the way of organizing and realization of the land cadastre, starting from the unitary geodetic networks and elaborating cadastral plans and registers after the first technical and economic norms.
It began with the execution of the cadastral works in Muntenia and Dobrogea, then in Moldova and Oltenia, simultaneously with the updating of the existing ones in Transylvania, Banat and Bucovina.
Regarding real estate publicity, it was thoroughly organized through the "Law for the unification of the provisions regarding the land books", no. 15/1938. The works started in the

former Ilfov County and in the communes subordinated to Bucharest, which were to be used as a model for the rest of the country, could not be terminated due to the war and were interrupted in 1941 when they were executed for only 54 communes (65% of total volume). The experience of technicians from other provinces has been used, new instructions were included in the "Technical Norms (1943) and since 1940 engineers have been trained in the cadastral department of the Polytechnic School in Bucharest.

After the Second World War, measurements and parcels were carried out for the temporary impoverishment of the peasants, without the cadastre institution being financed by the communist power.

In 1949 the collectivization of agriculture was decided, and the law and cadastral measurements became obsolete for the totalitarian regime.

To record and track the dynamics of agricultural land belonging to state units, is being legislated since 1955 the organization and execution of "land records", a system that served to combine agricultural surfaces during the period of collectivization of agriculture and which contributed to the immobilization of real estate rights.

Between 1955 and 1968, topographic plans were made at a scale of 1: 10,000 by photogrammetry for 13 million hectares and registers of land records by the Superior Council of Agriculture.

Since 1968, the Law no.12 on the protection, conservation and use of agricultural land stipulates among other things the introduction of land cadastre throughout the country. It is constantly used the old evidence and disinformation on agricultural surfaces, because of the premeditated ignorance of the idea of cadastre by totalitarian political leadership.

Land inventory started in 1968 continuously and after 1974 through Law no.59, annual balance of the land fund was drawn up, but the legal circulation of land was limited to their acquisition only by legal inheritance. The entire field of land surveys was subject to the regulations by Decree no. 305/1972 on geodetic, topographic and cartographic activity, as well as the use of data and documents resulting from this activity.

From the cartographic documentation drawn up since 1965, one should mention the basic topographic plan at the stairs 1: 5000 and 1: 2000 which, unfortunately, could not be updated at appropriate intervals, although it covers about 90% of the country's territory. This has proved to be useful for economic sectors that have large areas of land (agriculture, forestry, communication paths, systematization of localities), but also for providing graphical support for cadastral works by deriving its content.

Changes in recent years are primarily linked to the general legislative framework on the legal status of the land, the public and private property, the acquisition of property rights and the legal circulation of land.

General regulations in the field of property appear in the Romanian Constitution, adopted in 1991, in the Local Public Administration Law no.69 / 1991, amended and completed, in the Civil Code and in the Civil Procedure Code.

Over the past decade normative acts have been promulgated, which constitute the basis of the right of property: Law no. 169/1997, which includes legal norms related to the public and private property on the lands, to their legal regime, the protection and improvement of the lands, Government Decision no. 834/1991 on the establishment and valuation of land owned by state-owned commercial companies, the Law on the legal circulation of land no. 54/1998, the Law for the restoration of the right to property on agricultural and forestry lands no. 1/2000. Law 18/1991 led to the restoration of the Romanian peasants' property rights to a limited area of their land, that is, only 10 hectares on sites decided by law enforcement committees.

Law 1/2000, also called the Lupu Law, whereby the land returned to the peasants expanded to 50 hectares, but the issuance of property titles was a tricky process.

Law 400/2002 - Restoring the right to property on agricultural and forest land, initiated by Viorel Hrebenciuc.

Law 247/2005 on the restitution of agricultural land and forestry land through which the return rule was established on the former locations.

Starting with Law 18 from 1991 to 2007, 11 normative acts - laws and emergency ordinances - were adopted to regulate land ownership. (Manea 'Course')

The current cadastral situation

The National Cadastre and Land Book Program runs between 2015 and 2023 and is implemented by the National Agency for Cadastre and Real Estate Advertising ("ANCPI") and its territorial offices on the entire surface of Romania, at UAT level, based on cadastral documentation. This program aims to have until 2023 the cadastre of the entire surface of Romania.

On 25.03.2018 the number of buildings managed by the integrated cadastre and land registry information system is 10 921 813 buildings, a total of about 40 million estate located in Romania. This results in a percentage of approximately 27.30% of the total number of buildings.

The cadastre institution From 1990 until 1996 the agency was named the Office of Cadastre and Organization of the Agricultural Territory (OCAOTA). From 1997 to 2004, the agency operated under the name of the National Office of Cadastre and Cartography (ONGC).
Since 2004, the National Agency for Cadastre and Real Estate Advertising (ANCPI) is responsible for the cadastre in Romania, and at the county level there is the Office for Cadastre and Real Estate Advertising (OCPI). Within the National Agency for Cadastre and Real Estate Advertising (ANCPI), the Cadastre and the Land Book function in the same institution.

RESULTS AND DISCUSSIONS

The analysis of existing cadastral systems in the world with the cadastral system in Romania aims at highlighting the current state of cadastre in our country as well as the necessity of accelerating the application of the systematic cadastre. Based on this idea, we have four countries in our study, two of which are part of the former communist regime, namely Bulgaria and the Republic of Moldova and two other developed countries, namely Sweden and Norway.
We were able to see a first overview of the fact that on the cadastral plan the developed countries started to deal with this problem well ahead of the others. This is seen in the most developed of these, namely Sweden, which began about four centuries ago to be concerned about this idea.
The need to apply the cadastre is generally due to people's desire to know their property limits, but also to the need of the state to apply taxes to those properties. Both the former communist countries and Sweden have introduced the initial cadastre of the desire to tax property. Norway is an exception to this principle because it has been turning to this idea just in the last century. Not even now Norway does not charge on properties across the entire area of the country this being achieved only in certain administrative units. It expects the charge to be made nationally. Both our country and the Republic of Moldova, two former communist countries, resemble Norway and Sweden by the fact that the cadastral office is in the same institution with the land book, but Bulgaria has not opted for this system. The location of real estate is a factor that does not favour the development of cadastre in our country, on the contrary it is made difficult. This is because Romania after 1990, when the restitutions began, the land was not returned to the previously owned land and most importantly it was that only a precept was given back. Besides this, the territory was not united and was scattered in several locations. Just after about a decade the land returned to the former sites and all together, but it was a difficult process which did not have a desired finish.
We have noticed that this is not found in neighbouring Bulgaria which has a very good settlement of the retroceded lands, which is observable from the studied cadastral plans. Another similarity we have discovered in the countries presented and our country, besides the land book, is the space database of each country. These bases are under the name:
Eterra in Romania, Geospatial Data Fund in the Republic of Moldova, Cadastral administrative information system in Bulgaria, Geonorge in Norway and Land data bank system in

Sweden.I notice that it is based on the same principle, providing the same data to the public, such as cadastral number, address, surface, etc.

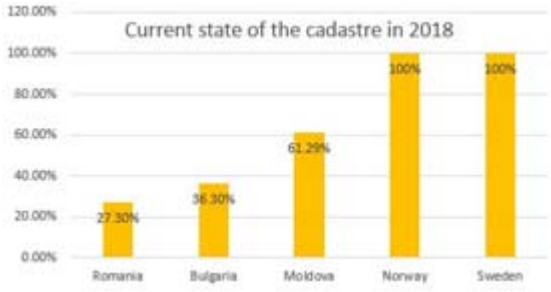

Figure 1. Current state of the cadaster in 2018

In the above graph (Figure 1) we can see a cadastral statistics in each of the five countries studied by us. The graph shows that Romania would be the country with the smallest cadastral area among all four other countries. In our opinion, this is not a good comparison because in front of the other former communist countries the Republic of Moldova and Bulgaria, Romania has the largest area of territory.

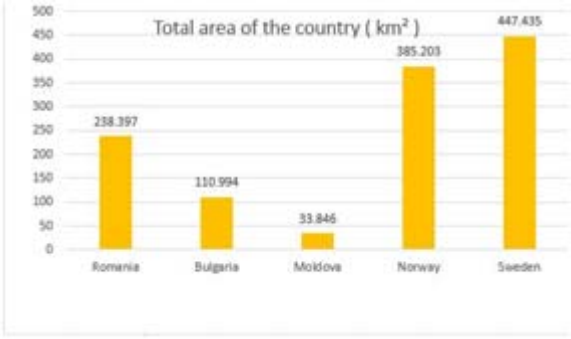

Figure 2. Total area of the country (km²)

In this graph (Figure 2) we can see exactly what I said above, namely that Romania is the state with the largest area of territory between the Republic of Moldova and Bulgaria. From these charts we have concluded that Romania currently has approximately the same percentage of cadastre as the former communist countries, taking into account the ratio between the total land area and the cadastral area. Sweden and Norway leave no room for interpretation, and it is extremely easy to see that the abbeys have a higher net area than Romania and the other two countries, but also the cadastre completed on the whole territory.

Figure 3. Population (millions)

Another thing that can be considered a very important factor is the population (Figure 3). We realized that Romania, a country of medium size among the analyzed ones, still has the largest number of inhabitants. In our opinion this is a very important aspect because a country is rich in the area it occupies and its number of inhabitants. The number of inhabitants also represents the income a country has, but this is reflected in the chart below.

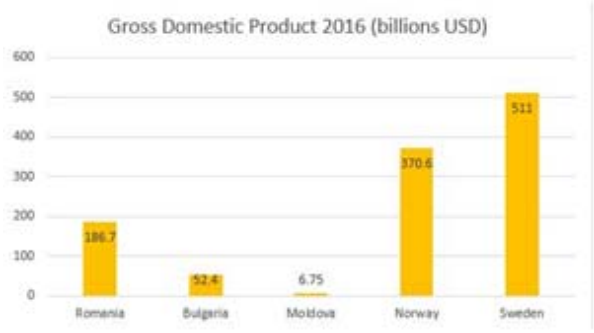

Figure 4. Gross Domestic Product 2016 (billions USD)

This is the gross domestic product of each analyzed country (Figure 4), and we can very easily notice that Romania, a medium-sized country with the largest population of all analyzed, has a rather low budget. We believe that this reflects another criterion that makes cadastration difficult enough, namely very low incomes in relation to its surface and population.

CONCLUSIONS

Following our survey of cadastre, on the five states, namely Romania, Bulgaria, the Republic of Moldova, Sweden and Norway, we can say that Romania is at an average level of cadastre from the point of view of former communist

countries, but at a very low level as the European country. This must change and Romania will enter the developed countries.A first step would be cadastration at low precision, but with rapid results, based on aerial photograms, and in the future there will be interference where much higher accuracy is required.Completion as quickly as possible would lead to an increase in the country's tax budget, which would favor the future financing of future cadastre projects.

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