



**MINISTRY OF EDUCATION
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THESIS

**CAPITALIZATION OF THE HISTORICAL CADASTRE
IN ACHIEVING THE GENERAL CADASTRE**

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Structure of the chapters

Introduction

Chapter I. Historical and technical aspects in the evolution of the historical cadastre in the Romanian provinces of the Habsburg Empire and Austria-Hungary until 1918.

Chapter II. Developments in cadastre from the Great Union until now

Chapter III. The development of the mining cadastre in correlation with the evolution of the historical and current cadastre

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Chapter V. Capitalization of the historical cadastre in introduction of the general and mining cadastre. Case study within the Baia Borşa mining area

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Keywords: historical cadastre, stable cadastre, *concretual* cadastre, mining cadastre, cadastre instructions, cadastral database

The motivation for choosing the theme and the research objectives

In essence, the cadastre as a technical product is an information system, based on the geometric description of the plot and some of its legal and economic attributes, with the identification of the owner and the property. It is characterized by historicity, with different degrees of institutionalization. It consists of a corpus of technical, economic and legal knowledge and practices with a high degree of standardization with certain particularities depending on the historical stage of development as well as the historical regions where it was applied. By the phrase historical cadastre I meant the cadastre introduced on scientific basis within the Romanian provinces of the Habsburg Empire after 1856, known as "stable cadastre" or parcel cadastre. It had a fiscal role, the tax base being the parcel with its qualities

established by evaluation works, even if the owner changes. Right from its introduction, correlations were established with technical cadastres, the oldest of them being the mining cadastre. At that time, this cadastre had a long tradition, with already established principles and methods. While the stable cadastre had as its object the parcel represented on the plan in a projection system, the mining cadastre had specific record systems that also included a three-dimensional component, namely the recording of underground mining works.

The research on the possibilities of capitalizing the cadastre was based on the following reasons:

- Increased interest in the cadastre from society and specialists in the context of the introduction of the general or systematic cadastre;
- The existence of an important cadastral material from the historical or stable, concrete and mining cadastre insufficiently exploited practically and scientifically;
- The historical cadastre and in some cases the actual cadastre is still in use in over 40% of Romania's territory.
- The lack of specialized works related to the technical and legal aspects of the introduction of the historical, concretual and mining cadastre as well as subsequent developments.

Through the title of the paper: "Capitalization of the historical cadastre in achieving of the general cadastre" I wanted to highlight the value of the historical cadastre through the principles and methods it put into circulation.

The specific objectives of the research were derived from the general objective, respectively: historical and technical research to highlight the general features of the historical, concretual and mining cadastre from a diachronic perspective and the current possibilities of use.

The first specific objective had in mind the creation of a theoretical platform consisting of an articulated corpus of knowledge related to the introduction and evolution of historical, concretual and mining cadastres as well as the technical specifications of the resulting cadastral material.

The second specific objective sought to propose some methodological contributions for tracking the way of introducing and applying cadastres in a particular case at the level of a locality and the correlations between them.

The third specific objective focused on the design of ways of using the material resulting from the historical cadastre and mining activity with the use of GIS and CAD technologies and their application through a case study.

Thesis structure:

In order to achieve the research objectives, the thesis was structured in five chapters. By researching with historiographical methods a specialized literature, mostly in other languages, and also archival funds, in the first three chapters, a structured content was created regarding the legal and technical aspects of the introduction of the stable cadastre after 1821 and also of the *concretual* one with subsequent developments as well as similarly for the mining cadastre. The following two chapters of an applied nature constitute a methodological contribution for the capitalization of the historical and mining cadastre in the case of some former mining localities.

Chapter I is entitled "Historical and technical aspects in the evolution of the historical cadastre in the Romanian provinces of the Habsburg Empire and Austria-Hungary until 1918". The time course of the works of introducing the stable cadastre within the historical Romanian provinces of the Habsburg Empire and the subsequent developments until 1918 is reviewed.

A division into periods can be made as follows:

-1806-1818, a period of testing and setting the methodology for introducing the stable cadastre ("stable": that is the tax base is the parcel even if the owner changes);

-1818-1850, a period of introduction of the stable cadastre in the western part of the Empire and Bucovina. The geodetic bases were derived from the Military Topographic Surveys and by thickening works by cadastral graphic triangulation as well as the lawful basis by imperial patents and application instructions were established. The principles, methods, techniques, stages and cadastral and written cartographic material were standardized by instructions issued for both geodetic and cadastral works. The instructions include an administrative and a technical part;

-1850-1867, a period of introduction of the provisional cadastre (*concretual*: i.e. determination of the surfaces of the plots as a whole within the strip-ground *-in concreto-* on culture categories) and partially of the stable cadastre within the Transleitan part of the Empire;

-1867-1918, when two distinct directions are registered in the cadastre: in Bucovina the cadastre was reambulanted, a process that formed the basis for the drafting of the Austrian Cadastre Law of March 23, 1883 and in Transylvania is regulated by cadastral instructions (1869, 1904, 1910) and laws regarding the land tax, the land register and urban reports.

Chapter II is called "Evolutions in cadastre from the Great Union until now". The technical and legal aspects from the interwar period, the postwar period and the simplified

cadastre from the communist period are analyzed, as well as the main aspects of the cadastre from the post-December period. In the period 1918-1948, the legislation and the cadastral material from the existing cadastres were taken over. Restructuring also took place in the cadastre institutions. By Law 93 of April 13, 1933, the old cadastre remains in force until a future reambulation, and subsequent legislation does not bring substantial changes. The main activities in the cadastre, apart from the current works, were the application of the agrarian reform laws, reambulations. Between 1949-1989, the cadastral works aimed to concentrate the property in the hands of the state, since 1974 the transfer of the properties by inter vivos deeds are no longer possible. After 1989, the application of the old cadastres was resumed in parallel with the effort to introduce the general or systematic cadastre. A new legal system represented by Law 7/1996 and orders of the National Agency for Cadastre and Land Registration director was created.

Chapter III is called "Development of the mining cadastre in correlation with the evolution of the historical and current cadastre". The evolution of the mining cadastre is analyzed, as a record system within the mining activities governed by the rules established by the mining law on distinct time intervals. The mining cadastre is the oldest technical cadastre with principles, methods, techniques already established at the beginning of the 19th century. The legislative basis consisted of patents, rescripts, constitutions, regulations, representing constitutive elements of mining law. The Austrian General Mining Law of 1854 unifies provincial mining rights, but maintains local mining regulations. Romanian Mining Law of 1924, with subsequent amendments partially maintains the principles established for the extractive cadastre of the Austrian mining law. The components of the mining cadastre are analyzed in relation to the historical and general cadastre. The exposition presents the mining book from the perspective of the development of its provisions, the geometry of the mining perimeters and the concept of the mining cadastral unit. The methods and techniques used in the mining cadastre, the topocadastral works within the mining project as well as the resulting documentation are examined from a diachronic perspective. In the mining cadastre, surface rights are separated from underground rights granted by concession, being managed in a bipartite system: mining and judicial authorities through the mining book. After 1989, the mining legislation (1998 and 2003) gave up to the bipartite system and introduces by regulation special provisions for the mining cadastre.

Chapter IV is entitled "Methodological contributions to the study of the historical cadastre and the mining cadastre at the level of a former mining town" It presents the application of the specific cadastre regulations for both the stable cadastre and the mining

cadastre valid for any locality with a past mining activity from Maramureş and Transylvania. In the case of Maramureş, the concretual cadastre was introduced between 1852 and 1864, in parallel with the stable cadastre, being maintained in use until today, the connection between them was made through correspondence registers. The introduction of the stable cadastre (1856-1864) observed the methodology preset by the instructions resulting in an important cadastral cartographic material and registers. In the interwar period the main cadastre activities were agrarian reform works and current works, similarly after 1989. Mining cadastre works generally began to be documented from 1850. They consisted of the granting of exploration permits and mining concessions. During the communist regime, the mining estates increased spectacularly thanks to an impressive investment program and through nationalizations, expropriations, property transfers, etc. After the mine closures in 2007, cadastral records are made through sporadic cadastral works.

Chapter V is called "Capitalization of the historical cadastre in introduction of the general and mining cadastre. Case study within the Baia Borşa mining area". The technologies that can be used in the flow of processing within a digital environment the material resulting from the historical cadastre from UAT Borşa were exposed. Some of the possibilities of using the historical cadastre in the realization of the basic cadastral plan in the project of introducing the systematic cadastre were described. The cartographic material of the town of Borşa was examined with some proposed criteria for establishing the degree of use. The possibilities of use in the reconstitution of border limits, delimitations of cadastral sectors, reconstitution of parcel limits in uncertain or litigious situations are analyzed. Some considerations are made regarding the efficiency of the work of introducing the systematic cadastre by using the historical cadastral material. The possibilities of using GIS and CAD technologies in the creation of a database with cadastral predominance for the Baia Borşa mining area are described. Possible analog and attribute data sources and possible vector data sources are specified. Between these sources of vector data are the site plans made by own measurements. These were confronted with archival documents, consisting of mining construction site plans or ground shaping plans aiming to determine the destination of the constructions. The structure and creation of the cadastral database in ArcGIS Pro, the possibilities of capitalizing the database for the Baia Borşa mining interest area are also presented. The purpose of the database is to provide data and perform analyses. The data and analyses can contribute to the optimization of the works of introducing the systematic cadastre within the focused area in order to increase its attractiveness for the possible mining investments. It offers facilities for the registration of property rights in the integrated cadastre

and land register system, as well as data and analyzes for the continuation of mining cadastre works. A modeling in GIS environment is proposed to achieve a classification of land in the city of Borșa according to the favorability and readiness for construction.

Own contributions resulting from the elaboration of the thesis:

The thesis is based on own research, both for the achievement and structuring of the theoretical scaffolding needful for the application part and for the preparation of the case study. This involved the selection and use of those parts of the historical cadastre that can contribute to the efficiency of the work of introducing the general cadastre as well as the description of the methods and computer technologies proposed for this purpose.

Contributions to the creation of a body of knowledge regarding the historical and mining cadastre:

- Description of the technical and legal features of the stable and concretion cadastre.
- Description of the evolution of the two types of cadastre as well as their interconnections within the area of application of the Decree - law no. 115/1938,
- Description of the technical and legal features of the mining cadastre for the same area from a diachronic perspective;

Contributions regarding the capitalization of the historical and mining cadastre in the introduction of the general cadastre within a former mining area, with potential for the resumption of mining activities:

- Creation of a grid for georeferencing the section sheets from the historical cadastre;
- The achievement of the digital cadastral map of the Borșa town by the digital processing of the cadastral cartographic material originated from the stable cadastre which can have several uses: the setting up of boundary limits, the design of cadastral sectors based on toponymic principles and topocadastral expertise. It can also contribute to the efficiency of the general cadastre introducing works.
- The proposal for the delimitation of localities and cadastral sectors according to the delimitations based on toponyms in the historical cadastre
- The use of georeferencing of section sheets in the case of topocadastral expertise for the reconstruction of parcel boundaries in uncertain and litigious situations.
- Creation of a database with cadastral predominance for the Baia Borșa mining area. ; The database created in ArcGisPro can facilitate the work of introducing the general cadastre and mining cadastre and provides also analysis and modeling tools.
- Accomplishment of a modeling in a GIS environment to achieve a land classification within the Borșa town, according to favorability and readiness for construction