

## THE ROLE OF MODELS IN CADASTRE

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**Abstract:** *The practice of cadastre implementation in the Republic of Moldova made us face an objective reality that later became a scientific issue - the models in the cadastre. This reality has its arguments. It took place in the post-soviet countries.*

*For a long time in the post - soviet countries, the cadastre developed in the conditions of lack of private land ownership, under the conditions of the state monopoly on property. Particular attention was paid to the protection of land resources.*

*In other countries of the EU, the cadastre was developed having the main purpose of protecting land ownership and implementing economic policies.*

*Having different objectives, the reality has given rise to two models in the cadastre which, at the current (contemporary) stage, complete positively one another. At present, all three objectives are up to date for the society.*

*The present study aims to highlight the points of tangency in the content of cadastral models in order to enrich the world cadastral concept by eliminating those negative aspects that cannot be successful for various reasons.*

**Keywords:** *Cadastre, models, law protection, protection of limited natural resources*

### 1. Importance of Models in Cadastre Development

#### 1.1 Conceptual Aspect

The historical analysis of cadastre development in function of the social process reflects an important reality regarding the factors that influence ways of development. Unique principles of cadastre development are promoted at the current stage of EU development. Until recently each country used to formulate its own conception depending on its social, natural, ecological and economic development as a whole.

Due to the objective reality, the Republic of Moldova had been part of the USSR for a relatively long period of time. Social and economic foundations of the USSR have been already studied well and are not the subject of this study.

The present study refers to the objectivity of the cadastral process, regardless of the social and economic structure of the country. Thus, we will try to follow the process of the cadastre development under specific conditions of the Eastern European countries. Taking into account the lack of private ownership in agriculture. Conceptually, we will seek to answer the question: what was the main purpose of cadastre under those conditions?

Obviously, if we recognize the existence of cadastre under those conditions, we will also recognize its purpose and the model of its development, respectively, the evolution of the process.

Thus, in general, we have two models: one developed on the basis of private land ownership and the other developed in the absence of private agricultural land ownership.

At present both social and economic structures are conceptually the same. What will be the behavior of cadastral models in the future?

### **1.2 Subject and object of the study**

The emergence of cadastre models has become an inevitable reality due to the fact that the cadastral process has been developing for a long time under the specific influence of local factors in different countries,

It is obviously impossible to model the cadastral process based on the peculiarities of all countries. In order to formulate the subject and object of this study, we will only refer to the main purpose of cadastre - the protection of the right to land ownership.

More specifically, we will try to identify the object of cadastre when the main purpose is to protect the right to land. Under these circumstances, three main models are highlighted:

most EU countries and also the majority of other countries in the world;

Eastern European countries;

Great Britain, where private land ownership belongs to the Crown.

Three models justified by the content of land ownership.

The detailed analysis of the object of this study will lead us to the fact that regardless of the type of property (private, state and "Crown" property), cadastre achieves its main purpose, which is protection of the property right.

The issue of "protection of the land property right is becoming more and more current. Cadastre 2034 guides us towards a broad development of the right, responsibilities, restrictions, interests, priorities, etc.

The role of cadastre in the implementation of economic policies is more and more relevant along with the protection of the divine right, the sustainable use of limited natural resources is impossible without the application of the cadastral information basis.

The analysis of models in cadastre, selection of common parts in the development of the general conception can be considered as the main purpose of formulating the topic and the content of the study object.

### **1.3 Purpose of the study, materials and methods applied**

The actual cadastre including the cadastre of the future is becoming more and more a process, a methodology to solve social problems worldwide. The study of cadastre models in order to formulate a universal conception becomes more and more relevant.

At the present stage we can easily identify three social issues (global, universal) that cannot be solved without addressing the content of cadastre:

- protection of the right to land (real estate) considered from the perspective of further development of the right, responsibilities, restrictions and priorities;
- implementation of economic policies (taxes, bank credits, subsidies, investments, etc.) based on democratic criteria and the interest of broad masses;
- protection of limited natural resources in the context of their sustainable use.

Three important issues that emerge from one another.

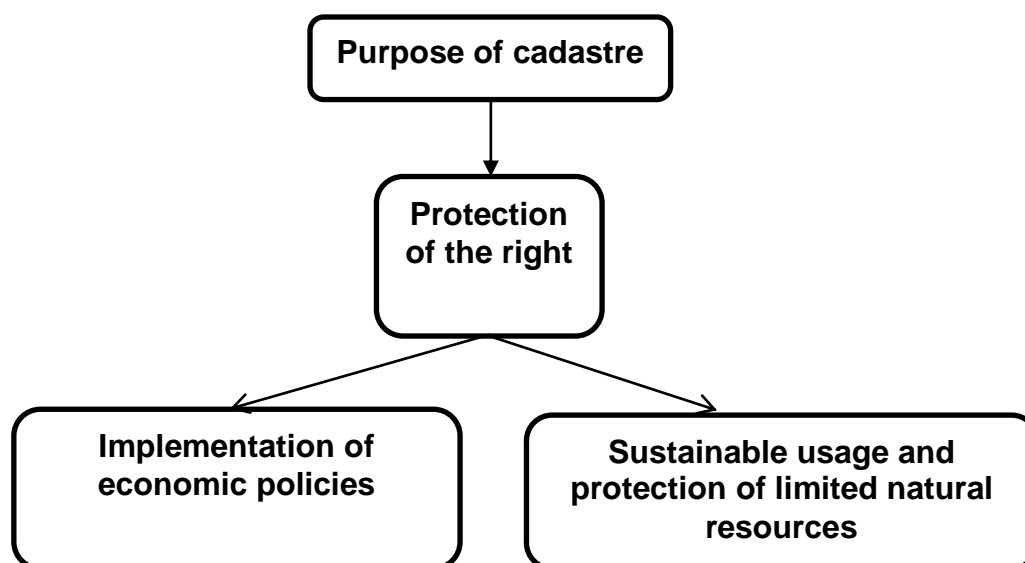


Figure 2. Purpose of cadastre  
Source. Developed by the author

Protection of the right to land (real estate) remains the first and most important social issue. The implementation of economic policies is impossible in the absence of protection of the right to land. Sustainable use and protection of limited natural resources also becomes impossible without a modern cadastre and an adequate information system.

From the perspective of the selected topic, the analysis of three models that are the subject of this study can bring us to a unique and more intimate, conception of contemporary needs.

In this context, the following informative materials have been used:

- Scientific research on cadastre conducted in Eastern European countries;
- Scientific studies on cadastre conducted in the UK;
- Scientific studies on the implementation of cadastre in the EU
- annual and periodic information from EU countries in the field of cadastre;
- other information and scientific studies on cadastre, models, concepts, subsidy policies, investments, etc. the Republic of Moldova, etc.

The authors have applied several study methods. The most important are the analysis of statistical data; graphical analysis of trends; systematic analysis of ongoing processes (phenomena); the method of analysis and synthesis.

## 2. The analysis of cadastre models.

### 2.1 Evolution of cadastre in EU countries

**The need to implement** a unique concept in the EU cadastre has become a reality in the context of the Common Agrarian Policy (CAP) implementation. The principles that have been established in all EU countries, starting with the initial phase, are oriented towards: *a single and stable market; priority of EU Member States; profitability through the application of advanced technologies; free crossing of borders by the goods from the member countries; fairness and compliance with standards; the stability of farmers' incomes, etc.*

The achievement of values at the initial stage has proven to be problematic without a tough policy of land ownership protection. Only the EU farmers’ confidence in their rights along with strong economic support has become a guarantee of success.

The facts mentioned above prove a necessity to implement unique land ownership and development principles within EU member states.

In this context, they have cemented the main purpose of cadastre and the protection of the land ownership right has become the main principle for its implementation and development.

The economic aspect of the CAP at the initial stage was geared towards the effectiveness of farmers' activity. At the same time, the small size of agricultural farms did not meet the requirements. Farmers’ small land plots did not solve economic policies based on: subsidies, investments, correct fiscal policies, etc.

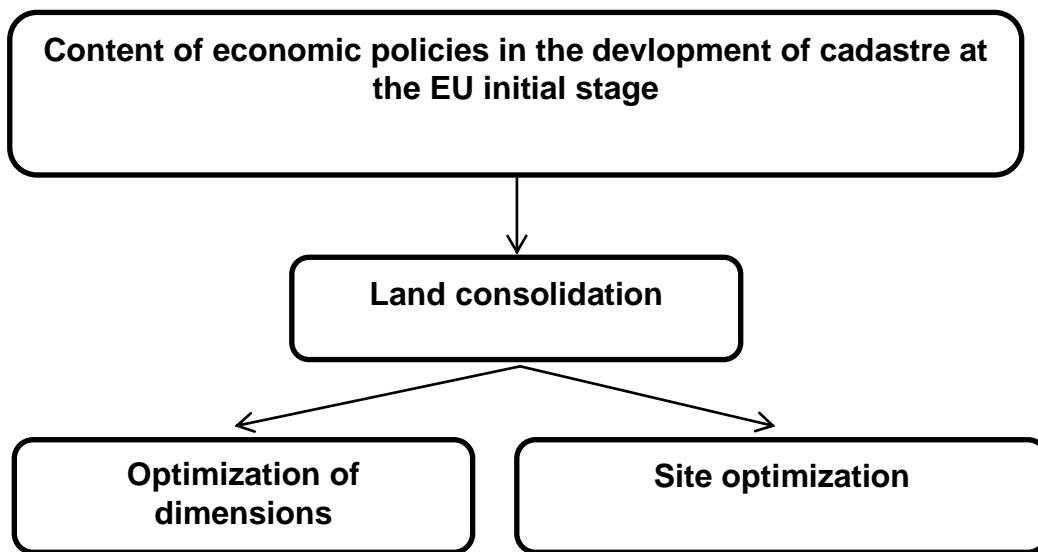


Figure 3. Economic policy in cadastre  
Source. Developed by the author

The so-called plan developed by C. Mansholit - the plan to optimize the size of farms, and namely, "small farms need to be increased" – has been applied here.

At this stage of cadastre evolution in EU countries, the principle of "protection of land rights" is complemented by a new economic aspect based on a set of economic policies. This economic aspect has been known under the "land consolidation" policy, which has become quite relevant in other countries too, including the Republic of Moldova.

The historical analysis of the cadastral process in the EU and other countries, referring to the years since 1970, raises a set of other social and economic problems - protection of limited natural resources.

The solution of the problem related to the protection of limited natural resources is linked to a multifunctional information system .The system that includes both textual and graphic information about the object has proved to be cadastre. Cadastre becomes very useful namely due to the spatial aspect of its information about the "object" as we can solve the problem of the sustainable use of limited natural resources.

At this stage protection of both the right and the object has become the purpose of cadastre. Protection of limited natural resources becomes one of the main goals of the cadastre.

An important role in the protection of real estate objects is property valuation regardless of whether it represents a land, a building or a totality of natural resources. It is impossible to protect goods and resources in cadastre without a profound assessment and application of graphic information.

The initial stage of the EU development, including its agrarian policy, may also be associated with an advanced farm subsidy policy. At the same time, it was possible to solve this problem only by solving another problem related the agricultural cadastre and agricultural land.

The development of the process aimed at monitoring the use of agricultural land was possible only with a developed general cadastre, a modern system of registration of land rights.

Freedom to transport agricultural products between the member countries has also increased the need to pursue agricultural production to exclude the cases of penetration of non-qualitative production .The need to monitor the goods was argued by consumer protection.

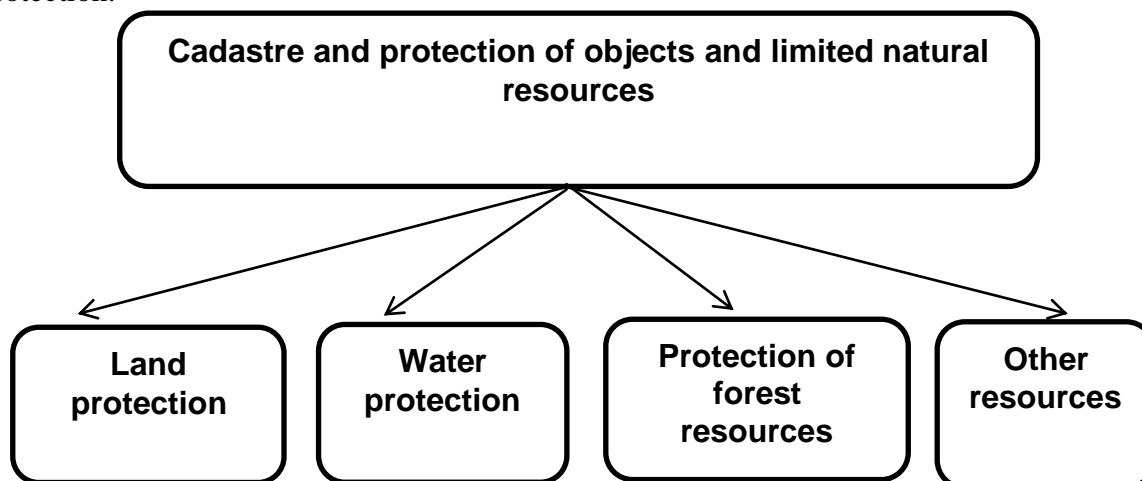


Figure 4. Cadastre and protection of limited natural resources

Source. Developed by the author

The global economic, social and environmental content of the problem of sustainable use and protection of limited natural resources is demonstrated at the level of global structures. The UN annually discusses the issue of sustainable use and protection of limited natural resources.

The USA provides a significant example of resolving the issue of protection of limited natural resources. Sustainable use of agricultural land in the US has begun in 1993 with the development of the "*National Strategy for the Sustainable Development of Natural Resources*".

*The aim of the* Strategy was to identify barriers to sustainability, develop a vision and make recommendations to help the country move towards sustainable management and protection of natural resources.

The development of the *National Strategy for the Sustainable Development of Natural Resources* in the USA was accompanied by a number of principles.

First of all, the sustainable use of natural resources (agricultural land) is integrated into additional costs or economic losses. Under these circumstances, an important issue is to bear the costs in the process of their sustainable use. The principles without which the sustainable use is impossible are:

- land use based on the long-term concept;

- local governments are obliged to react to conflicts between economic interests and the ecological balance;

*The strategy is based on the following economic policies:* investments; support; taxes and credits.

An important role of the *National Strategy for the Sustainable Development of Natural Resources* is ecosystem-based management. The essence of this management is that it tries to overcome the political boundaries (of the territorial administrative units) for a more efficient management of natural resources.

At the present stage we have to state that there is a multifunctional and integrated cadastre in the EU. This cadastre is distinguished by its multipurpose goals and integrity of all cadastral processes based on the main goals:

- to protect rights;
- to protect objects;
- to protect limited natural resources;
- to sustainably use limited natural resources;
- to implement economic policies;
- to implement specialized cadastres.

## 2.2 Development of cadastre in the UK

The UK cadastre is a model that deserves a fundamental analysis especially on the topic "the main purpose of cadastre". We mentioned the main purpose of cadastre in most EU countries above – it is the protection of land (real estate) rights.

The UK cadastre model is distinct by the fact that there is no right to land (real estate) ownership in the form and content of continental European countries. Land belongs to the Crown in Great Britain.

The question of whether there is a cadastre in the UK and what its main purpose is may be answered in the following way: "There is a modern cadastre and its purpose is to protect the right to land in the UK."

It is necessary to note that the right to use agricultural land predominates in various forms in Great Britain: lease, superficies, servitude, use and abandon, etc. The reality of historical development has not only allowed the development of a modern cadastre in the absence of land ownership, but has also developed a high level of credibility of the Land Registry controlled by the Royal Chancellery.

Protection of the land use right under the control of the Royal Chancellery has raised the credibility of the land register for a long time.

Also, a historical reality has influenced the content of the cadastral plan. Land surveys carried out in 1871 were very detailed and highly accurate. They were carried out by the Ordnance Survey, under the threat of Napoleon's invasion, allowed them to be used for cadastral purposes.

In a relatively short time (by 1873) the Ordnance Survey Agency developed a very detailed map on a large scale for the whole country.

Every element of the topographic map developed by the Ordnance Survey is numbered by a **16-digit number**. This numbering technique allows each map element to be described as unique in a certain administrative district.

Thus, the concept of element numbering on the topographic map developed with the purpose to organize the defense of the country is successfully applied to solve the problems related to the identification of land plots for different purposes, including cadastral ones.

Currently the process of recording lands plots represents a record in the electronic register which creates rights, sets restrictions, taxes, payments, states (informs about all the interests, which come out of the property right).

The implementation of economic policies also has its own peculiarities. *In Great Britain (UK) the* church lands were assessed and taxed for the first time in 1275. Much more later (in 1670) they evaluated and taxed agricultural land in order to be rented. In 1845 they implemented a tax policy with a deeper content.

Tax policy in the UK has many peculiarities based on the country's private property regime. One of them refers to the fact that not the owner (King), but the user of agricultural land is responsible for paying taxes. Another particularity is that the tax quota is, in some cases, negotiated and does not depend on the particularities of the object. This particularity is present under the conditions when "supply and demand" in the lease process are not balanced.

### **2.3 Evolution of cadastre in Eastern European countries**

As to the cadastre implementation issues, most Eastern European countries had been under the Soviet influence for a long time. The essence of this influence lies in the lack of the agricultural land ownership right.

It is obviously that due to the absence of the agricultural land ownership right, the main purpose of cadastre (protection of the land right) will also disappear. A political mechanism was applied to the cadastre as a social economic process.

Political collapse mechanisms were applied against the economic conceptions of the cadastre implementation.

In fact, there was a phenomenon that can hardly ever be met in the process of the society development: a political collapse mechanism was applied for an objective need to develop the society. The political mechanism gave way to the objective need in this competition. As a result, since the 1970s cadastre has become a recognized, studied and implemented process in Eastern European countries.

However, the lack of the private ownership land right has influenced the emergence of a new specific model in cadastre. What are the peculiarities of this model, what factors influenced its development, which is its objectivity (objective necessity), its relevance and future?

The aforementioned can be rephrased as following "the role of cadastre as a mechanism for land protection under the conditions of a single owner - the state". Cadastre will protect not the right but the "object of cadastre" under the conditions of a single owner.

The main purpose of cadastre in Eastern European countries was to protect the object, the land as a natural resource for a long time (from 1970 to the 1990s).

A new process, land organization has been developed under this concept.

In this context the role of cadastre has become to accumulate information about the object in order to develop and implement the methodology of land use and protection.

It would be a mistake to deny the objective necessity to organize and rationally use land plots, and the territory as a whole. Also, the existence of cadastre and land organization has become a reality [**Chiruihin**].

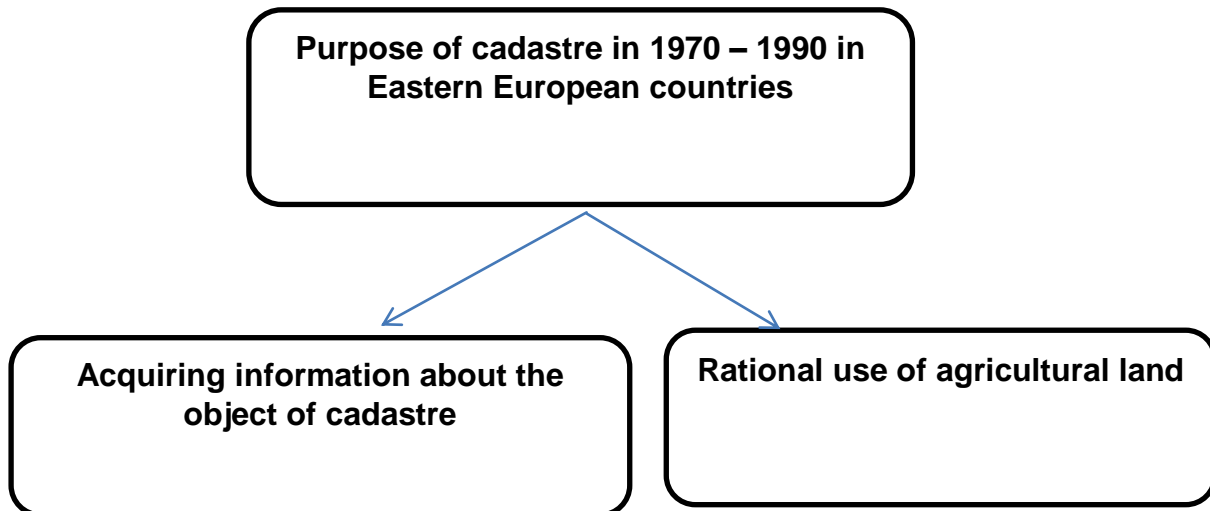


Figure 5. Purpose of cadastre in 1970-1990  
Source. Developed by the author

For this period of time (1970 - 1990), there remain a number of questions without a clear, definite answer:

What is the process of organizing the land viewed from the perspective of cadastre?

Which is the interaction of the land organization with cadastre?

Can there be land organization without cadastre?, etc.

All these questions are solved in the concept of cadastre implementation and land organization in Russia, which uses the notion of “землеустройство” (land use).

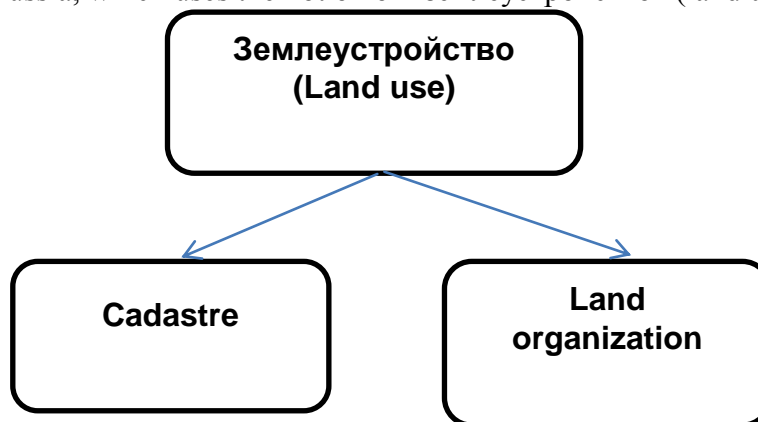


Figure 6. Model of cadastre implementation in Russia  
Source. Developed by the author

The word “землеустройство” does not have an equivalent either in English or in Romanian. However, the integration of cadastre and land organization under the single process “землеустройство” is a real solution in the process of evolution at the present stage.

The land organization process that has experienced significant development in Eastern European countries can be successfully implemented in the social world policy of sustainable use and protection of limited natural resources.

Finally, this study covered only three models in cadastre, which obviously arouse more questions than answers. For example, a model of cadastre was born in the absence of private property in the UK, while there appeared an absolutely different cadastre in Eastern Europe.



The answer to these questions deserves an additional study, the evolution of cadastre goes on.

It is important that regardless of the factors, which influence cadastre as an objective social process, the final conception will be unique.

### **3. Conclusion**

**1. The process of cadastre** is determined by its purpose in the development of society. In its turn, the purpose of cadastre is a dynamic category, derived from the objective necessity of the process, and namely:

- at the initial stage of the cadastre process the main purpose was to protect the agricultural land property right. The purpose was eventually spread over the entire land fund and then over the real estate as a whole;
- the next step in developing the purpose of cadastre concerns the implementation of economic policies based on ownership. The need to protect the right in the context of economic policies implementation and development increases at this stage. Also, the content of the right is further developed;
- the current stage can be characterized as having an economic and ecological content. Sustainable use and, at the same time, protection of limited natural resources determine the triple integrity of cadastre: social (the right), economic and ecological.

**2. The analysis of the cadastre development** in several countries proves that regardless of the ways in which cadastre is implemented, its purpose is:

- social (protection of the right);
- economic (implementation of economic policies);
- ecologic (sustainable use and protection of limited natural resources).

**3. In the future** two concepts (models) will be preserved in cadastre:

- multifunctional integrity of cadastre, which will include the cadastre for all its purposes;
- the Russian model “землеустройство” (land use) that will include cadastre and land organization as two components of the unique process;
- both models will solve the same problems and, therefore they need to be monitored and mutually complemented.

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