

Cadastral Systems, New Trends and Experiences

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Abstract: *The past few years have seen the growing interest in cadastral systems, particularly among numerous user of cadastral information. This is hardly surprising given that most of the everyday decisions related to land and its assets involve a large cadastral component. The importance of the reliable cadastral systems has recently been demonstrated in the countries of Central and Eastern Europe (CEECs) where lack of cadastral information delayed the process of economic transition.*

The new needs for land information and new advances of technology stimulate significant changes in cadastres. The paper presents the existing development trends, obstacles and some experiences.

1. INTRODUCTION

Nowadays, the interest in cadastral systems is growing due to various reasons. Perhaps the most important is the fact that cadastre maintains primary information on land and on relationships between land and people. Land is the basic resource on which all economic activity depends. With the increasing population and deterioration of the environment, the availability of land decreases. This calls for better land management based on better cadastral information.

Cadastral information is needed both for everyday land administration operations and for large-scale reforms related to land, such as those in the post-communist countries of Central and Eastern Europe (CEECs) where the lack of reliable cadastral information delayed the progress of reforms and influenced political decisions and economic solutions. (Gazdzicki, 1994).

The growing needs for cadastral information are accompanied by the fast progress in information technology.

Both factors interact:

- the growing needs stimulate technological progress,
- and the technological progress helps to discover and fulfill new needs.

Thus, both produce the cumulative effect - pressure to improve and develop the cadastral systems (fig. 1):

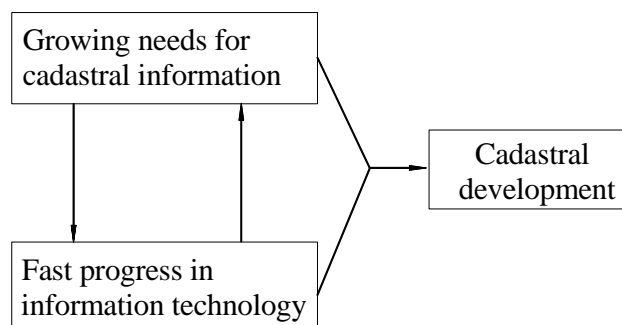


Fig. 1 Cadastral development as a result of growing information needs and technological progress

2. The Components of a Cadastral Development Strategy

In general, any cadastral development, or any development of a cadastral system in a particular country, aims at some cadastral improvements. They can be conveniently split into three groups as follows:

- **PERFECTION**
 - higher quality of data
 - easier access to data
 - better functionality
 - better technology
 - other improvements aiming the perfection of the system (making the system better)
- **EXPANSION**
 - more data
 - more functions
 - more links to other systems
 - more uses
 - other improvements aiming the expansion of the system (having more in the system)
- **(RE)CONSTRUCTION**
 - stronger conceptual base
 - stronger legal base
 - stronger structure
 - stronger position within the government
 - other improvements aiming the reconstruction or construction of the system (making the existing or new system stronger than before)

These three groups of improvements can be presented as three components of the overall cadastral development strategy (fig. 2). In each country, the cadastral development is determined by these three components. In some Western European countries the component of perfection dominates, while Central and Eastern European countries must focus on construction or reconstruction of their systems.

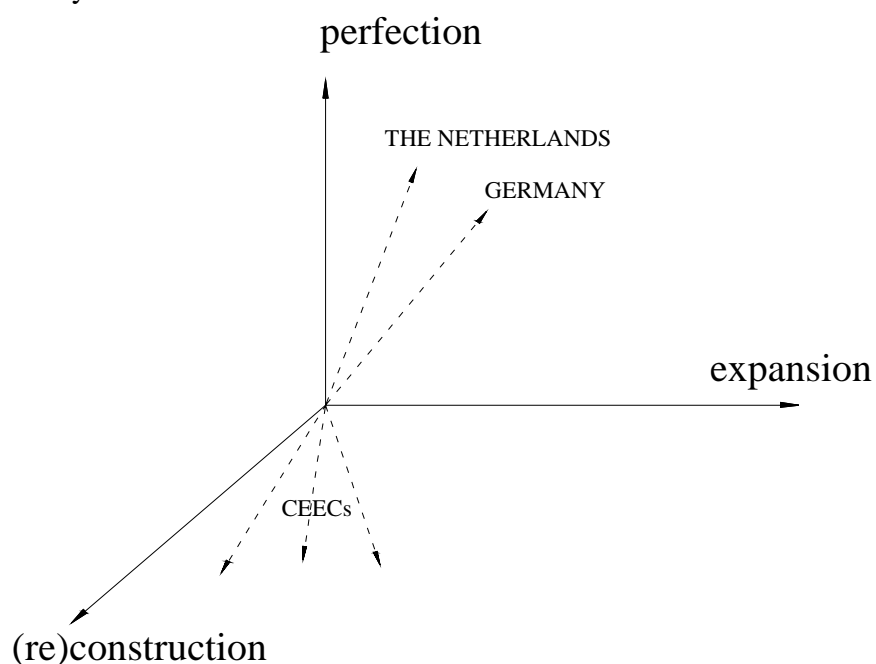


Fig. 2 The components of a cadastral development strategy

3. Cadastre and Quality

In each country, the goal is to have a cadastral system of high quality. This simple statement seems to be trivial but-in fact-the concept of quality in case of cadastral systems is not fully clear and must be explained.

One of the possible definitions of quality is the fitness for use in a particular set of circumstances. This can be used as a convenient base for the following definition:

Quality of a cadastre is its fitness for use in a particular country and time; it depends on cadastral needs existing in this country (city, region) in a selected period.

Thus, quality of a cadastre is relative. What is good in one country may be wrong at present. It means that there are no ideal universal solutions of cadastral problems.

4. Cadastral Tendencies

There is a variety of cadastres differing in their goals, legal principles, administrative procedures, techniques and quality aspects. However, in this variety of systems and complex cadastral situations some important development tendencies can be identified.

They are listed below split into five groups that refer to:

- a. general aspects
- b. cadastral structure
- c. cadastral uses
- d. cadastral system environment

a. General aspects

- to strengthen the role of a cadastre as a source of primary land information and multipurpose tool for economic transformations and sustainable development
- to improve a cadastre through appropriate legal, organizational, technical and economical measures (including privatization and self-financing).

b. Cadastral structure

- to integrate legal (land registration), fiscal, administrative and surveying
- to structure a cadastre in such a way that its basic unit (office) is small enough to satisfy needs of local user and authorities, and large enough to implement new technology
- to ensure necessary co-operation and coordination within three sectors: *central government, local authorities and private sector output and transfer*
- to use multimedia

c. Cadastral uses

- to support multiple uses of data, thus avoiding unnecessary duplication of work
- to improve the availability of cadastral data through legal, administrative and technical measures
- to protect rights to cadastral data (copyright law)

d. Cadastral system environment

- to establish the appropriate links of cadastral system with other systems including
 - national information systems
 - local (municipal) information systems
- to cope with
 - the overall progress in information technology

- the growing needs of information society.

For the European Union, the main objective for the following period is to establish the harmonization of different principles of the European policy in the cadastral field.

Some important general principles were settled in the documents of the first Congress on Cadastre in the European Union from 2002, such as:

- The Cadastre as a basic land information system will cover the entire EU territory. None of the States, or part of them, will lack of the needed information that the Cadastre provides.
- Irrespective of the legal pattern adopted by each Member State for its management, the Cadastre is defined as a public property. Its use will always be aimed to guarantee the exercise of the equality, the security and the justice principles, to all the EU citizens.
- The Cadastre basic unit is the land parcel. Therefore, it will be understood that the authorities in charge of the Cadastre, in each Member State, are those organizations in which the responsibility for the creation and updating of the land parcel graphical, alphanumeric, and its aggregated information, relies.
- Every parcel will be given an unique and unalterable code, unlike any other. Whenever it will be possible, this identifier will content all the elements to allow its precise location through a proper system of geographic co-ordinates.
- Every single land parcel, as well as any building or any fixed improvement built under or over it will be accurately described in the cadastres. Thereby, data models, including land tenure information, boundaries, areas, as well as existent buildings or improvements, land capability classifications, land use and environmental quality will have to be properly defined.
- Besides this common information, the cadastres will be managed as open databases, able to include any other land parcel information according to the needs of both, Member States and the European Union. Indeed a special attention will be paid to essential information that assists real estate taxation or land-use planning. Likewise the cadastres will include the information and computerized applications to allow a real estate mass appraisal.
- The information recorded in the Cadastre and the Land Register will be correctly co-ordinate. The linked utilization of the information included in both, Cadastre and Land Register, will guarantee a peaceful exercise of the land tenure legal rights, protecting and improving the land market and its investments in the EU.
- The cadastres will be managed through computerized tools to permit a better treatment and access to information, and will incorporate those technologies that guarantee the development of the Information Society.
- The authorities in charge of the Cadastre in the different States will enhance the increasing use of the cadastral information to apply, within their states, those policies that rely on land information. Likewise they will work together so that territorial information is used in the application of European Union policies. Whenever it will be possible, the creation of new land databases will be avoid, if ever these databases could be furnished by the information already existent in the cadastres.
- The information recorded in the Cadastre, in each Member State, will be available for all the European citizens, companies as well as public and private institutions. The only limits to access this information will be imposed by laws and regulations in order to protect the individual privacy and the information aimed to taxation. The direct pricing for information that could be determined by the Member States will not discourage its access.

- Land information will be available to the local, regional and national governments. Therefore cooperation and co-ordination procedures between the different administrations will be enabled to maintain and to keep up-to-date the Cadastre permanently.
- To elaborate and the to keep up-to-date the Member States cadastres, it is expected to collaborate with the private sector as well as to co-operate with the international organizations that are bound to develop studies and public strategies based on land administration.

Romania, which became a member of the European Union, must align to the quality standards of the other states.

A short period strategy for the Romanian Cadastre, implies the realization and improving an efficient system of registration of the properties, for the whole country, related to European standards.

A long period strategy for the same domain, implies the elaboration of a complete automatic data base, unitary from the point of view of cadastral information and land registration, very easy to access and to administrate.

5. Cadastral Contradictions

For defining a strategy for cadastral development, some inherent contradiction must be considered. Sometimes, there are difficult problems, especially in Central and Eastern Europe.

The following table presents the most important contradictions, such as:

Table 1: Cadastral contradictions

needs for centralized management to ensure uniformity	demands for decentralized maintenance and use
national goals	objectives for local authorities and interests of professional groups
cadastral principles and procedures resulting from a historical development	new solutions offered by information technology
monopolistic position of cadastre as an economic organization	free market of cadastral services
tendencies to strengthen the existing system	attempts to expand it

6. Cadastral Obstacles

In Central and Eastern European countries some typical obstacles have been identified.

They hinder the progress in establishing the new systems and improving the old ones (table 2).

Table 2: Cadastral obstacles

TYPE	EXAMPLE
conceptual	- misunderstanding the role of the cadastre - wistful thinking
legal	- obsolete legislation - inconsistent legislation
institutional	- responsibility shared between a number of ministers
economic	- inadequate financing - poor planning, no cost/benefit analysis
technical	-lack of equipment

	- lack of technical guidelines and standards - poor investments, equipment not used
staff	- "brain drain" - lack of motivation - poor education
management	- lack of feasible plans - frequent organizational changes - lack of experience

7. Conclusion

The field of cadastral systems is rapidly developing and their importance still growing.

In the post-communist countries, the need for current cadastral information is increasing dramatically and lack of this information hinders the economic progress. New experiences of these countries must be follow appropriate development strategies and avoid costly mistakes.

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