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A preliminary research on methodology for establishing legal infrastructure regarding public law restrictions cadastre in Türkiye

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Abstract

Cadastre is a parcel-based information system that determines and records real estate's legal status and geometric features. Throughout the world, the production, storage, and sharing of land tenure, land value, and land use information are generally managed within the scope of cadastral activities. Today, the cadastre has begun to transform into a multi-purpose structure that includes other data related to the land. The land property consists of three main components: rights, restrictions, and responsibilities. The property right is limited. Private ownership of the property is restricted by law to protect public interests. For instance, zoning, coastal, forest, and expropriation laws include several articles that can directly limit property rights. The report titled "Cadastre 2014 – A Vision for the Future Cadastral System," published by FIG in 1998, can be shown as among the essential studies guiding cadastral activities worldwide. Statement 1 of Cadastre 2014 aims to register the entire legal status of the land, including public restrictions. With the effects of Cadastre 2014, some studies named PLR Cadastre have been carried out to include public law restrictions into its cadastral system in Switzerland. With PLR – Cadastre, legal restrictions on land are visible and accessible. This study aims to determine a methodology for establishing legal infrastructure regarding PLR cadastre activities in Türkiye.

1. Introduction

Today, the land is considered a limited resource that should be managed within the sustainable development principles [İsiler et al., 2022]. As stated in Brutland Report published in 1987 by the "World Commission on Environment and Development," sustainable development can be described as meeting the needs of the present without compromising the needs of the future generation. Using land with a sustainable development approach is only possible with an effective land administration and management system (Yomralıoğlu, 2011). Land administration systems record, maintain and share land tenure, land use, and land value data required in the land management process (UNECE, 1996). Cadastre, real estate valuation, mapping, and planning activities are the main parts of the land administration system (Yomralıoğlu, 2011).

The cadastre's primary purpose is to ensure property rights' security. Cadastre is a parcel-based system that

determines and records real estate's legal status and geometric features. With the technological development in recent years, cadastral systems have increased their abilities and have become a central part of the land information system. The cadastral system can be integrated with other data sets to provide effective and efficient land policies in a holistic approach. The cadastre, which is aimed at registering property under the guarantee of the state in our country, contains the necessary data for many public and private institutions (Balcıoğlu, 2016). The importance of the cadastre has been increasing in recent years since it has become a financial tool for immovables and has become the central element of planning and real estate markets (Balcıoğlu, 2016).

Today, property rights are considered finite and limited. In this context, since the beginning of the 20th century, property rights have been seen as a social right that imposes some duties for the benefit of society, such as decisions on zoning plans and tax payment obligations

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(Ülger, 2016). Private property rights can be limited by various laws to protect public interests. Accessing land use decisions on real estate, which is one of the essential investment tools, is crucial to determine the investment method and analyzing the possible future risks (Çağlar et al., 2016). In addition, public institutions need information about existing projects and applications in related areas before implementing their projects (İl, 2019). All of these restrictions are not recorded through land registration systems.

With Cadastre 2014, the cadastral parcel has become a land object defined by related legal regulations. A land object has the same homogeneous status within its boundaries (Cadastre 2014). Private ownership parcels, administration boundaries, and land use zones can be given as examples of land objects (Cadastre 2014). Many rights, restrictions, and responsibilities defined as an object can be overlapped within the framework of the principle of legal independence by using their geographical coordinates. With the contribution of this approach, several restrictions on property rights can be visible, recordable, and accessible.

Statement 1 of Cadastre 2014 aims to show the entire legal status of the land, including public restrictions. With the parallel of Statement 1 stated in Cadastre 2014, Switzerland has begun to carry out some PLR Cadastre studies to integrate public law restrictions into its cadastral system. Legal legislation in Switzerland introduced at the beginning of 2008 has a straightforward structure. Laws related to land administration have been combined with a new regulation called the “Geoinformation Act” (İl, 2019). This law's primary purpose is to ensure geodata's availability for general use to the public authorities and private sectors within a standard legal frame. One of the most critical sections stated in this law is the “Cadastre of Public Law Restrictions on Landownership.” (Geoinformation Act, 2009).

A PLR cadastre contains a plan that shows the area where PLR applies and legal regulations that define the related PLRs (Nicodet, 2014). In the preliminary studies, 150 possible restrictions were determined, and the project was limited to 17 PLRs from 8 sectors. (PLR Cadastre Brochure, 2015). Users can access their property information, maps of restrictions, and public rules regarding restrictions through a portal.

2. The Concept of Cadastre 2034

After Cadastre 2014, Australia and New Zealand published their cadastral 2034 strategy reports for the next 20 years. The report titled as “Cadastre 2034- A 10-20 Year Strategy for Developing The Cadastral System – Knowing the “Where” of Land-related Rights,” published by Land Information New Zealand, emphasizes that the existing cadastral systems should be expanded in a way that shows the entire legal status of the land, including public rights and restrictions with its spatial characteristics. The report can be summarized as follows,

- Expanding cadastral systems to show all rights, restrictions, and responsibilities on real estate

- Providing a spatial representation of the rights, restrictions and responsibilities on the landownership.
- The spatial accuracy of the RRRs should be able to meet the needs.
- The ability of cadastral systems to obtain data from reliable sources effectively.
- Providing citizens with access to cadastral data integrated with different data sets.

According to the report, a cadastral system should be able to answer some questions within a location-based framework. The main questions are summarized in Table 1.

Table 1. a location-based framework for RRRs

No	Query Elements	Explanation
1	RRRs	What are the rights, restrictions, and responsibilities on real estate specified in the laws?
2	Responsible Institutions	Which institution holds these RRRs?
3	When and in which case	In which case and when do the RRRs affect related real estate?
4	Boundaries of RRRs	Where do these RRRs affect/apply the real estate?

After determining RRRs in the public laws related to land management, the following questions should be answered. The crucial questions about spatial characteristics that are emphasized in the related report are summarized in Table 2.

Table 2. spatial characteristics for RRRs

N	Query Elements	Explanation
0		
1	The ability of spatial representation for defined RRRs	Is the spatial representation of RRRs possible?
2	Suitable Methods for representing RRR boundaries	Static - dynamic - fuzzy logic
3	Update requirement	How can RRRs be updated, and in what conditions and when can the relevant RRRs change spatially?
4	Spatial Accuracy of RRRs	What is the required geometrical accuracy in representing RRRs?
5	Data Acquisition Method	Which data collection method will be used? GNSS-remote sensing-LIDAR etc.
6	Dimension of RRRs	2D / 3D

Cadastre 2034-Powering Land and Real Property – Cadastral Reform and Innovation for Australia – A National Strategy is the other published Cadastre 2034 Document. This report presents five main goals for its strategic framework.

- Goal-1: a cadastral system that is the central part of land ownership.
- Goal-2: an easily accessible and readily understandable cadastral system
- Goal-3: a cadastral system integrated with broader legal and social interests on land
- Goal-4: a 3- dimensional and dynamic digital cadastre
- Goal-5: a federated cadastral system under common standards.

3. A methodology for establishing legal framework of PLR Cadastre in Türkiye

In Türkiye, establishing the land registry system defined by the Turkish Civil Code is conducted under the General Directorate of Land Registry and Cadastre (TKGM in Turkish). Cadastral activities are carried out in accordance with Cadastre Law No. 3402. Firstly, it is necessary to determine land ownership's legal and geometrical status through the cadastral works before registration (İl, 2019). Turkish cadastral system is based on the registration of 2-dimensional parcels.

Due to increased land use with different functions and many restrictive regulations introduced regarding using property rights for public benefit, the three-dimensional cadastre has become a crucial topic in recent years. (İşiler et.al, 2022). Vertically defined rights in existing cadastral systems cannot be registered sufficiently. Furthermore, it is known that rules limiting ownership rights are not directly accessible for private and public organizations/institutions or individuals. It is evident that some innovations in access to essential restrictions on private property should be performed in the Turkish cadastral system. The first step towards achieving PLR cadastre goals is to create a solid legal infrastructure. In this context, this study aims to define a methodology to establish PLR Cadastre System in Türkiye.

According to researchers, legal infrastructure related to land management issues have fragmented and repetitive structures. Therefore, legal regulations related to land should be reorganized in a holistic approach (İşiler, 2012).

- Legal regulations regarding ownership, land use, and land valuation in our country have an extremely complex structure.
- A separate law should be prepared for land valuation activities.
- A legal regulation called “Land Law” should be implemented to create a solid frame. This law should be in a structure that constitutes the primary principles of land management issues (İşiler, 2012).
- This proposed “Land Law” should include land tenure, cadastre, mapping and surveying, real estate valuation, national spatial data infrastructure, urban and rural development, and environmental protection sub-titles.
- After the preparation of land law, criteria should be set for which restrictions will be included in the current cadastral system.

- Restrictions that can be applied politically and technically should be determined. For our country, restrictions originating from zoning plans and environmental protection policies should be prioritized.
- There will be a transformation from a parcel-based registration approach to an object-based registration approach. Therefore, this transformation should be considered while preparing the PLR cadastre’s legal frame.
- Proposed PLR Cadastre should be able to answer some questions within a location-based framework as stated in Cadastre 2034 Vision documents.

4. Conclusion

It is understood that the PLR cadastre is needed to increase the land markets’ efficiency, ensure the legal security of investments, and provide an opportunity to follow projects implemented by different public institutions. The primary requirement for establishing a reliable and efficient PLR cadastral system is preparing and implementing a solid legal framework. At the preparation stage, the land object approach, legal independence principle, and common coordinate infrastructure concepts defined in Cadastre 2014 should be used. Also, the crucial questions about spatial characteristics that are emphasized in the related Cadastre 2034 reports should be answered for selected RRRs. In addition, it is easily seen that the roles and effects of our profession in the real market will be increased with the PLR cadastre integration.

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