

# **Analyzing of Turkish Cadastre System According to Land Administration Concept**

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**Key words:** Land administration, land management, restructuring of cadastre

## **SUMMARY**

Land administration and cadastre with their functions in land and real estate markets have been gaining importance in many countries due to international globalization policies. Therefore, the land administration systems in these countries should provide an infrastructure to facilitate urban and rural land management, organize balanced usage of land recourses, resolve inequities caused from unstable land ownership distribution. The main purposes of them should support sustainable development of nations, not only create efficient global land markets for others.

The paper aims to analyze current situation of Turkish Cadastre System with its legal, institutional and technical structures according to legal, fiscal, regulatory and information management components of land administration concept and then it aims to define how a land administration system should be formed for developing countries in Turkey case.

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## **1. INTRODUCTION**

Cadastre, having a new structure in the employ of environment, economy and social justice concepts in the scope of the sustainable development, provides land administration via keeping land ownership, value and use data as actual and easily accessible. The cadastre, which is formed in this concept, has four essential components; (1) legal, (2) regulatory, (3) fiscal and (4) information management (Demir, 2006).

Furthermore, cadastre has a legal content that is thought as a sole assurance of protection of the real estate boundaries, ownership, right and liabilities and it is formed through these concepts in Turkey. The rule of the Civil Code about land ownership; “To be recorded in the land registry is an obligation to gain ownership of the land” is accepted as a base for State Cadastre Management (Demir, 2005). Not only changes in the point of view for the cadastre in the world, but also integration process to the European Union and global pressure on our land had proved that, reconstruction for land administration is needed in Turkey.

## **2. THE LEGAL COMPONENT OF THE LAND ADMINISTRATION SYSTEM**

The legal component of the land administration system contains the rights dependent on the land and also compilation and guarantee of the constraints. It is important to the definiteness and security of all legal rights on the real estates from the point of liquidation of land and decreasing the risks of credit institutions. One of the most important expectations is constitution of an effective land market by the land administration system (Cagdas and Gur, 2003).

### **2.1. An Approach to the Legal Component of the Land Administration System in Turkey**

The rule of the civil code about land ownership states that “To record the land registry is an obligation for gaining land ownership” is the core of the cadastre administration. The registration system based on the cadastre maps has been accepted and the land registry is the main secure of land ownership, its boundaries, rights and liabilities (Demir, 2005). Transactions related to all rights and liabilities of land have been carried out by General Directorate of the Land Registry and Cadastre (TKGM) and under the responsibility of the state. Transactions performed by the Directorate of the Land Registry are;

- Transactions based on contract (sale, donation, subdivision, exchange, mortgage, transition, register of condominium)
- Transactions for registry

- Archive transactions and
- Transactions for other public body and institutions

Since 1992, TKGM has been started some works for an automation system about land transaction processes. It has been carried out the installation of an integrated information system, providing to perform transactions in the Directorate of Land Registry accordance with law and in the computer environment. But those works do not have information system characteristics. Hence, an efficient service, presenting title deed information to the public bodies and establishments with an information network does not exist. Therefore, some problems occur in the works of different service sector related to the rights and liability of the land ownerships.

### **3. THE REGULATORY COMPONENT OF THE LAND ADMINISTRATION SYSTEM**

Controlled development of the land usage in the planned direction and form is possible with a land administration system, containing data that is needed by planning centers. Therefore, land administration system should include the classified attribute data of the land.

#### **3.1. An Approach to the Regulatory Component of the Land Administration System in Turkey**

The components of the Turkish land administration system had been classified as high level and physical data and data that are needed for application of those plans and for all kinds of public investment on relevant legal bases, directly or indirectly. Those classifications are intensified on data such as, physical and chemical structure of the land and production type in rural areas and development plan and its applications, environmental planning, structure control and data, making technical substructure administration easier in urban areas. On the other hand, data has been produced both General Directorate of Land Registry and Cadastre and different institutions performing operations related to the land. Large amount of the data could not be saved in a structure consistent with the information system format and the same data can be produced in divergent standards by different institutions. Standard real estate classification structures, which must be present in the land administration system and also accepted by planning organizations and operators, have not been constituted in Turkey yet. Furthermore, studies of the Ministry of Public Works and Settlement that have been constituted according to the European Union standards started.

### **4. THE FISCAL COMPONENT OF THE LAND ADMINISTRATION SYSTEM**

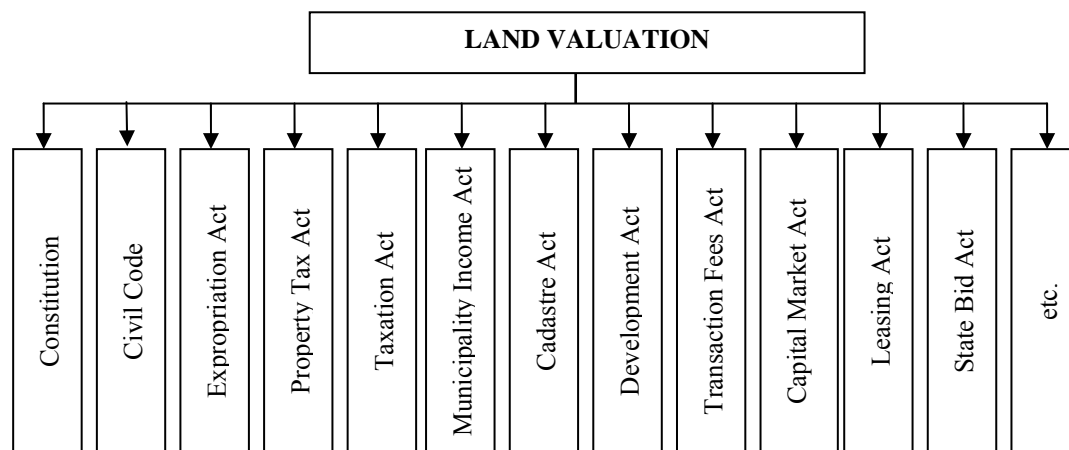
The fiscal component of the cadastre has been focused on the economical benefits of the land (Cagdas and Gur, 2003) and it contains all parts of the input, process and output that are necessary for property valuation and taxation (Whittal and Barry, 2004). A cadastre system containing the fiscal dimension of the cadastre is data substructure of the land market, which is the base for sustainable development. The fiscal component of the cadastre supports the economical and social benefit to be provided. Fiscal component of the cadastre, where the

corresponding data has been identified completely, being type changes of the land current and changes has been transferred to the tax administration directly, should fulfill at least following characteristics (Whittal and Barry, 2004; Dale and McLaughin, 1999; Demir, 2006):

1. identification and mapping of all properties which are to be subject to tax;
2. classification of each property in accordance with an agreed set of characteristics relating to such matters as its use, size, type of constructions and improvements;
3. collection and analysis of relevant market data such as sales price, rental charges or building maintenance costs;
4. specifying value concept that will be base of the tax;
5. determination of the value of each parcel and its associated buildings;
6. identification of the person who will be responsible for paying the tax;
7. preparation of the valuation roll;
8. notification of the individual property taxpayer of what has to be paid and collection of the appropriate taxes;
9. Provision of procedures so that any citizen who believes that the assessment is incorrect can appeal for it to be reviewed (Dale and McLaughin 1999).

#### 4.1. An Approach to the Fiscal Component of the Land Administration System in Turkey

The legal cadastre concept in Turkey does not include most parts of the input, process and output that are necessary for property valuation and taxation. The fiscal component of the land administration system had been removed because of thinking rapid and economical production of the cadastre as an aim. However, an integrated system in property valuation and taxation has been constituted neither in nor out of the cadastre structure. Main principles and valuation methods of the property valuation exists in many codes directly or indirectly (Table-1) (Demir, 2006).



**Table -1:** The legal infrastructure of land valuation in Turkey

Basically, data about price lists, development plans, replacement cost of building and depreciation rate are used in the valuation applications in Turkey. Performing of data presentation to the valuation units in the valuation operations, which to be carried out according to the codes listed in the table, is the major task of the cadastre. The cadastre in Turkey is not responsible for production and presentation of many data such as actual and exact sale prices, local value indexes, characteristics effective in value formation, which are needed by property valuation, because of remaining in legal cadastre concept.

Ambiguity in valuation applications and institutional reconstruction causes negative results with itself. For example, expropriation operations are used as a first choice in land acquisition while public investments have been realized. The technical, ethical and application standards of the valuation have not been determined and also ambiguities exist in the selection, training and authorizations of experts in valuation in Turkey. Thus, there is an important difference between prices determined by the valuation commissions and the courts.

Market value tables that are used as a main data for determination of tax values and should indicate the real situation of the land market are regulated by analysis of sale prices registered on the title deed by local administrations in Turkey. But those values do not reveal the actual situation of the land market because the land ownerships indicate lower sale prices and it causes tax exile.

Taxation of the properties is accepted only as a source of income but its role in the regulation of the land market is undervalued in Turkey. Not to restructuring the Turkish cadastre directed towards the taxation and remaining in the legal cadastre mentality are the major causes of the problems faced in the land taxation system.

In 1972, preparation of tax maps which are one of the main components of the fiscal dimension of the cadastre had been intended in Turkey. Hence, tax maps are produced by tax offices via collecting information from local public works, agriculture, development and settlement, forestry, land registry and cadastre, municipality, and other relevant institutions to use for land taxation. In the production of the maps related to building and land parcels, settlement areas are classified into the regions according to their building and parcel values. Land tax maps are produced as they show boundaries of province, county and villages and the type, class and usage situation of land. But the tax maps, which has been intended to produce with data getting from different institutions, where TKGM has been included. (Demir, 2006).

## **5. INFORMATION MANAGEMENT COMPONENT OF THE LAND ADMINISTRATION SYSTEM**

Information management related to land and ownership is the key component of the land administration. Having the most benefit from the management operations is basically depending on data characteristics and also being data current, exquisite, correct, comprehensive and accessible. Land oriented information systems could be classified in four components; cadastre, infrastructure, environment and socio-economic information systems

to perform the functions of the land management. One of the most important systems for land administration concept is the parcel based cadastre information system (Cagdas and Gur, 2003).

### **5.1. An Approach to the Information Management Component of the Land Administration System in Turkey**

Economical and social requirements had caused progresses and obligations for being an information society in Turkey. Goals of the e-Europe 2005 attempt had been considered. It has been aimed to constitute a secure national geographical information system for providing online services by public bodies initially. Turkish National Geographical Information System had been defined as an information system where all local, regional and national geographical information systems share data with each other on the computer networks and which all users, including citizens, can utilize and also appropriate for the Turkish National Geographical Information System infrastructure. However, preliminary works had introduced following facts which can not respond to structural changes or can cause some difficulties while providing them (Demir, 2005; 47<sup>th</sup> Action plan).

- Different public bodies, dealing with the same tasks, work with their own method and conduct tasks with other institutions with little differences.
- Some differences are exist in the production methods, accuracy criteria, archiving techniques and pricing of institutions, even if they work on the production to be served for the same purpose.
- Absence of the coordination between some of the establishment and institutions
- Geodetic points are exist in local reference systems; ED-50 and TUTGA
- Same geographical information is re-constituted by different establishments due to the determination of data exchange standards and data transformation have not been performed yet. For this reason,
  - Quality and reliability of geographical information decrease
  - Material and employee are wasted
- Most of the geographical data in the institutions are in paper sheets and some deficiencies existing in data quality and accuracy.
- Too many data repetitions
- Lack of communication between institutions
- Insufficient data sharing between institutions and their divisions
- Difficulties in data accession
- High level operation costs
- Being transfer of the current data to GIS as a major problem

Variability in the objective and responsibilities of the institutions and geographical information system installation efforts had elicit the fact that, standards of the spatial data, which is designated in legal, institutional and technical respects, have not been constituted in Turkey (Table-2).

<b>Institution name</b>	<b>GIS projects</b>
Land Registry and Cadastre General Directorate (TKGM)	<ul style="list-style-type: none"> <li>- Land Registry and Cadastre Information System (TAKBIS)</li> <li>- Marmara Earthquake Land Information System (MERLIS)</li> <li>- Agricultural Reform Application Project (ARIP)</li> </ul>
General Command of Mapping (HGK)	<ul style="list-style-type: none"> <li>- Topographical Database Project (1:25.000, 1:250.000, 1:1.000.000)</li> </ul>
General Directorate of State Hydraulic Works (DSİ)	<ul style="list-style-type: none"> <li>- Obtaining Statistical Bulletin from GIS Project (1:25.000-1:1.000.000)</li> <li>- Turkey Emergency Flood and Earthquake Rehabilitation Project (TEFER) (1:5.000-1:100.000)</li> <li>- Dams, Hydroelectricity Plant and Irrigation Installations Geographical Information System Base Establishing (1:100.000)</li> <li>- Etc.</li> </ul>
General Directorate of Roadway (TCK)	<ul style="list-style-type: none"> <li>- Digital Roadway Network Inventory Project (1:1.000)</li> </ul>
Ministry of Environment and Forestry	<ul style="list-style-type: none"> <li>- Forestry Resources Information System Project</li> <li>- Genetic Diversity Protection Project</li> <li>- Biological Diversity and Natural Resource Management Project</li> <li>- National Environment Database Project</li> <li>- Etc</li> </ul>
General Directorate of Mineral Research and Exploration (MTA)	<ul style="list-style-type: none"> <li>- Turkey Geological Database Project (1:100.000, 1:250.000, 1:500.000)</li> </ul>
Turkey Statistical General Directorate (TUIK)	<ul style="list-style-type: none"> <li>- Geographical Referenced Turkey Statistical Region Units Workings (1:1.000.000)</li> <li>- Improving of the Statistical System-Internet based Geographical Referenced Data Supply (1:1.000000)</li> <li>- Turkey Land Vegetation Determining Project (Landsat 1:100.000)</li> <li>- Etc</li> </ul>
Agricultural Researches General Directorate (TAGEM)	<ul style="list-style-type: none"> <li>- Agricultural Purposed Database Establishing and Land Usage Planning with GIS</li> <li>- Etc</li> </ul>
Southeastern Anatolian Project Administration (GAP)	<ul style="list-style-type: none"> <li>- GAP GIS Project</li> </ul>

**Table -2:** Institutional GIS Projects in Turkey (TKGM 2005; Demir 2006)

## 6. CONCLUSIONS

The results of examination on current situation in Turkey indicates that the content of cadastre and institutional structure of TKGM are adequate for meeting expectations from legal component of land administration, but not capable to supply demands of fiscal and

information management components. On the other hand, the legal situation is enough contemporary with its legal fundamental.

Enforcement of laws related to land in accordance with “community interest” principle of Turkish Constitution, redefinition of tasks and objectives of public bodies and setting up harmonization between these relevant public bodies are subjects to be solved to transform for Turkish cadastral system into main reference system for land management policies (Cagdas and Gur, 2003).

Getting maximum benefit from land administration depends on quality, accuracy, straightness, currency, variety, contents and accessibility of data. But it is impossible to keep all land relevant data, which are demanded by Land Management, on cadastral information system in Turkey. The institutions (Table-3) that are also responsible from data production for legal, fiscal and regulatory components of cadastre have to form their information systems in national data production and exchange standards holding the “unique land parcel number” as a key data. Therefore exchange and usage of these data would be provided for all institutions. The objectives are given below to realize land administration system upon cadastral system in Turkey;

- To perform data production standard and structural arrangement for data sharing and using
- To define obligations and tasks of institutions about data production
- To develop a coordination and control mechanism to avoid money, personnel and time wasting for data production about same objects and data updating
- To perform regulations about data security and data access rights for institutions and third parties.



Types of Data			Source	Land Administration Component	
	Graphic	Attribute			
Cadastral data	+		Cadastre Offices	Legal Fiscal Regulatory	L A N D  A D M I N I S T R A T I O N
Ownership data		+	Title and Deed Registration Offices	Legal Fiscal Regulatory	
Building data	+	+	Ministry of Public Works Ministry of Finance Local administrations Building market	Fiscal Regulatory	
Development plan data	+	+	Local administrations Ministry of Public Works	Fiscal Regulatory	
Agriculture and rural area data	+	+	Ministry of Agriculture Agricultural Research General Directorate Agriculture Province Offices	Fiscal Regulatory	
Topographical map data	+		Local administrations Ministry of Public Works Other public institutions	Fiscal Regulatory	
Transportation data	+	+	Ministry of Transportation Municipalities	Regulatory	
Natural disasters data	+	+	Ministry of Public Works General Directorate of Natural Disaster Works General Directorate of State Hydraulic Works (DSİ) Municipalities	Regulatory	
Cultural and natural assets data	+	+	Ministry of Environment Ministry of Cultural	Regulatory	
Technical infrastructure data	+	+	Related technical infrastructure institutions	Regulatory	
Property market data		+	Real estate brokers	Fiscal Regulatory	
Formal valuation data		+	Public institutions (Valuation Commissions) Courts Property Valuation Comp.	Fiscal Regulatory	
Economical data		+	Turkey Statistics Institutions The Central Data	Fiscal Regulatory	
Property tax data		+	Local administrations Ministry of Finance	Fiscal Regulatory	
Addressing data		+	Local administrations Infrastructure institutions	Fiscal Regulatory	
Population data		+	Public Registration Offices	Fiscal Regulatory	
Other data	+	+	Related institutions	Fiscal Regulatory	

**Table-3:** Data and institutional infrastructure of Turkish Land Administration System

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## BIOGRAPHICAL NOTES

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