LECTURE NOTES

PROF. DR. TAHSİN YOMRALIOĞLU

LAND MANAGEMENT

V.2021-10

İTÜ GEOMATICS ENGINEERING

İSTANBUL TEKNİK ÜNİVERSİTESİ 1773

www.tahsinhoca.net

<This page is empty>

CONTENTS

ABOUT "GEO302- LAND MANAGEMENT" COURSE 6

1 INTRODUCTION 7

1.1 Human-Land Relationships 7
1.2 Overview of property land ownership 9
Historical Development of Property Right 10
Private Ownership View 10
1.3 Public Benefit and Property Ownership 12
1.4 Property components and "3R" rule… 15

2 IMPORTANCE OF LAND AND ITS ROLE IN DEVELOPMENT 16

2.1 What is land? 16
2.2 The Place of Land in The Process of Civilization 17
2.3 Strategic Role of Land 18
2.4 Sustainable Development 21
2.5 Land policies 22

3 INTRODUCTION TO LAND MANAGEMENT 23

3.1 What is land management? 23
3.2 Scope of land management 24
3.3 "Cadastre 2014" vision of FIG 24
3.4 What is land object? 25
3.5 Land management requirement for land objects 27
3.6 The role of surveyors in land management 28
3.7 Processing steps in land management 29
3.8 Comparison of "Land Management" and "Land Administration" terms 30
3.9 Functions of Land Administration 32
3.10 The Benefits of Land Administration System 34

4 OVERVIEW OF LAND MANAGEMENT IN THE WORLD 37

4.1 FIG Cadastre Declaration (1995) 37
4.2 The Bogor Declaration (1996) 39
4.3 UNECE-Land Administration Principles (1996) 40
4.4 The Bathurst Declaration (1999) 42
4.5 Principles of Land Policy of the European Union (2004) 44
4.6 A general evaluation from international view 46
4.7 Okuma parçası: Peru örneğinde arazi idaresi 47

5 LAND MANAGEMENT IN TURKEY 59

5.1 Problems concerning land management in Turkey 59
Problems in the use of environmental and natural resources 59
Problems in the use of rural and agricultural lands 62
Problems in the use of urban land 64
5.2 Legislation infrastructure on land management 68
The Constitution and Civil Law 70
The Cadastre Law No. 3402 73
Other Laws Related to land management 73

5.3 The institutional structure of land management **76**
Administrative structure of local government in Turkey 78
5.4 Legal and institutional issues **79**
5.5 Land Management Applications in Turkey **80**

6 PROPERTY MANAGEMENT: CADASTRE **84**
6.1 Purpose and scope of Cadastre **86**
6.2 Components of Cadastre **87**
6.3 Functions of Cadastre **89**
6.4 Types of Cadastre **90**
Fiscal Cadastre 90
Legal Cadastre 91
Multipurpose Cadastre 91
6.5 What is property analysis? **93**

7 LAND MANAGEMENT IN URBAN AREAS **95**
7.1 Urbanization and planning process **95**
What is urban? 95
Zoning statutes 96
Five-year development plans 98
Concept of "Mücavir" area 100
Spatial strategy plans 101
Environmental Plans 101
Master Plans 102
Zoning application plans 102
7.2 Applications of zoning plans **106**
7.3 Volunteer applications with the request of the landowners **111**
Border correction 111
Subdivision-Consolidation processing 112
Withdraw procedures 114
Refund procedures 115
7.4 Compulsory applications by municipalities and public authorities. **116**
Land expropriation 116
Land readjustment applications 121
Urban regeneration applications 138

8 RURAL LAND MANAGEMENT **156**
8.1 Rural planning **156**
Rural planning in implementation and development plans 156
Spatial strategy plans 157
Village settlement plans 158
8.2 Land consolidation **159**
The problem of fragmentation of rural land 159
What is land consolidation? 160
Legislation infrastructure in land consolidation 161
Process steps in land consolidation 162
Benefits of land consolidation 163
8.3 Management of forest areas **164**
8.4 Management of natural and cultural heritage sites **165**

Legislation on protection of cultural and natural assets 166
Ownership of cultural and natural assets 167
Cultural and natural assets that must be protected 167
Expropriation procedures 168

9 MANAGEMENT OF COASTAL LAND 170

9.1 Problems in coastal use and planning needs 170
9.2 The development of coastal legislation in Turkey 172
9.3 Definitions of coastal legislation 173
9.4 Determination of coastal line 176
Formation of coastal line detection commissions 176
Records of coastal line detection commission 177
Production of topographical maps 177
9.5 Marine cadastre 179

10 REAL-ESTATE VALUATION 180

10.1 Background and legal base 180
10.2 Valuation institutions and organizations 182
10.3 Methods used in real estate valuation 183
Comparison Method 184
Income Method 184
Cost Method 185
Stochastic Methods 185
10.4 Applications related to real estate valuation 186
10.5 International real estate valuation standards 189

11 INFORMATION SYSTEMS FOR LAND MANAGEMENT 190

11.1 Spatial Information Systems 190
Environmental information systems 191
Urban information systems 191
Cadastral information system 192
Socio-economic information system 192
11.2 GIS (Geographic information systems) 193
What is GIS? 194
How geographic information systems work? 195
Basic process steps in geographic information systems 197
Geographic information system applications 202
11.3 Land information systems 207
Land information networks 209
Requirements for the land information system 210
11.4 Urban information systems 212
Scope of the urban information system 213
Main benefits of urban information system 214
Modeling of urban information system 215
11.5 Spatial data infrastructures 217
SDA components 218

12 REFERENCES 220

ABOUT "GEO302- LAND MANAGEMENT" COURSE

Short description of the course (content): Within the course; introduction to land management, sustainable land management, urban development-zoning and land management relations, legal aspects of zoning structure, implementation of land-use plans, land readjustment, urban-rural relations, rural land development, introduction to land consolidations and property arrangements will be discussed.

The aim of the course is to provide; by addressing the basic principles of land management, land readjustment and land consolidation arrangements, and their related legal aspects with the interpretation views, required technical and conceptual skills be gained.

Weekly course plan

1) Land-human-property relations. The evolution of land. Use.
2) Definition of land management, components, and functions. The concept of sustainable land management.
3) Information requirement in land management, land policy development and decision-making processes.
4) Overview of urban land management and relevant legislation infrastructure.
5) The objectives and basic principles of public land arrangements.
6) Land development planning phases. Environment-land use-zoning plan development and implementation processes.
7) Introduction to land readjustment, and legislation bases.
8) Land readjustment applications in Turkey and the Worldwide.
9) Zoning regulations: Land-zoning applications with land readjustment.
10) Overview of rural land management and relevant legislation infrastructure.
11) The definition of land consolidation, objectives and tools.
12) Planning and implementation of land consolidation, planning of public buildings.
13) Coastline property management and land use. Coastline-plan relations.

1 INTRODUCTION

1.1 Human-Land Relationships

Land is the mother. Although the human-land relationship has become more visible with the residence-to-residence life, in fact it begins with the moment when the relationship with the land begins to exist. Human is dependent on the land to survive. Almost all of the activities are based on land. Land is the place where we can firmly stand our feet. It gives life to plants and animals. The plants grow on the ground. Animals are fed with these plants that grow in the land. Since human beings first existed, they are fed with plants and animals. Again, life for man comes from the land. It makes things from the land. It makes garments from plants that are obtained from the land. It makes art from the land. The pictures that people made using land Even in 7000 years the walls of the houses were decorated. Çatalhöyük, one of the first settlements, has these unique examples. Again, the pot and clay pots found in the excavation areas show the variety of man's relation to the land.

Even holy books emphasize the importance of the relationship between man and land. The first man is derived from the Hebrew name Adam, the word for the man who means land. The name of the wife of Adam is Eve, the translation of the word of the air that comes to life in Hebrew. That is, this union of life and landforms the foundation of the creation story described in the Holy Books. In the book "Soil" given to Turkish by the TEMA Foundation, this is described by Montgomery as follows: 'God created the earth (Adam) and his life (Eve) from his ribs flushed from this land. The “homo” word, which means Latin man, is also taken from the word humus which means "living in Latin".

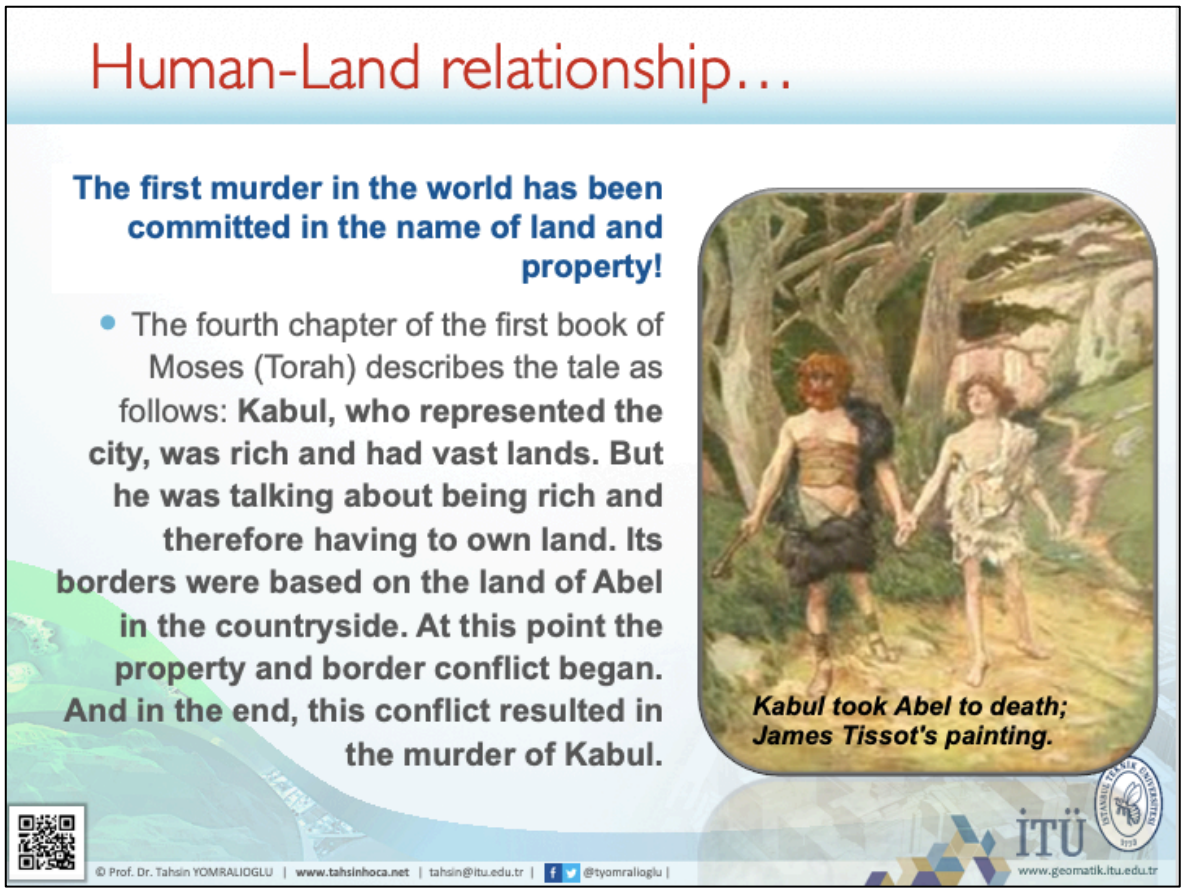
The first murder in the world was done in the name of land and property ...!

The fourth chapter of the first book of Moses (Torah) tells this tale: There was a wealthy and vast land of Babylon representing the city. But he was talking about being richer, and therefore landowner. Their boundaries rested on the rural land of Habil. At this point, property and border conflicts have begun. And ultimately, this conflict resulted in the killing of Kabul.

The relation of man to the land is handled with more agriculture. People have been living their lives for a long time as a hunter-collector, moving here and there. At the end of the last glacial period 11,000 years ago, important parts of the earth had long dry seasons with the change of climate. These conditions provided a suitable environment for seedy and tuberous annual plants. These plants have helped to provide much more energy available by producing seeds. These nutrients that can be stored

in some areas firstly changed the structure of the hunter-gatherer society and the first settlements emerged as villagers. Thus, agricultural societies began to form. In other words, it is in fact a behavioral adjustment process that the inhabitants begin to deal with agriculture. Nevertheless, the soil began to deteriorate due to the increasing need for the land along with the increasing population and misapplication to overcome this need. (*Source: Toprak, 2010, David R. Montgomery, Publications of the ISE Business Bank)*.

As it can be seen, human-land relationships have always been important throughout the civilizations. Especially land is the basic place of human activities. For this reason, human has always been in contact with land since he was there. The human-land relationship, which has a dynamic structure with the influence of life-long developments, has always been maintained in different forms in different periods of history.



1.2 Overview of property land ownership

Property right: (law) A right that gives the widest possible savings on an item, as limited by law or other regulatory rules. A person with a property owns the authority to use something that is in his possession, to transfer it to others, to take advantage of the product of this thing. In the broadest sense, property right; refers to the right granted to persons on movable or immovable properties.

Real or legal persons with private property will also be able to benefit from these opportunities, as they have the right to own, use and enjoy the right to property. This theoretically correct point has lost its "absolute" meaning in practice over time. As a matter of fact, in the constitution of many countries, the right of property ownership is seen to be limited in favor of the public good.

The right to property was also recognized by the United Nations Declaration of Human Rights. According to Article 17 of the Universal Declaration of Human Rights, "***Everyone has the right to own property alone as well as in association with others. No one shall be arbitrarily deprived of his property***".

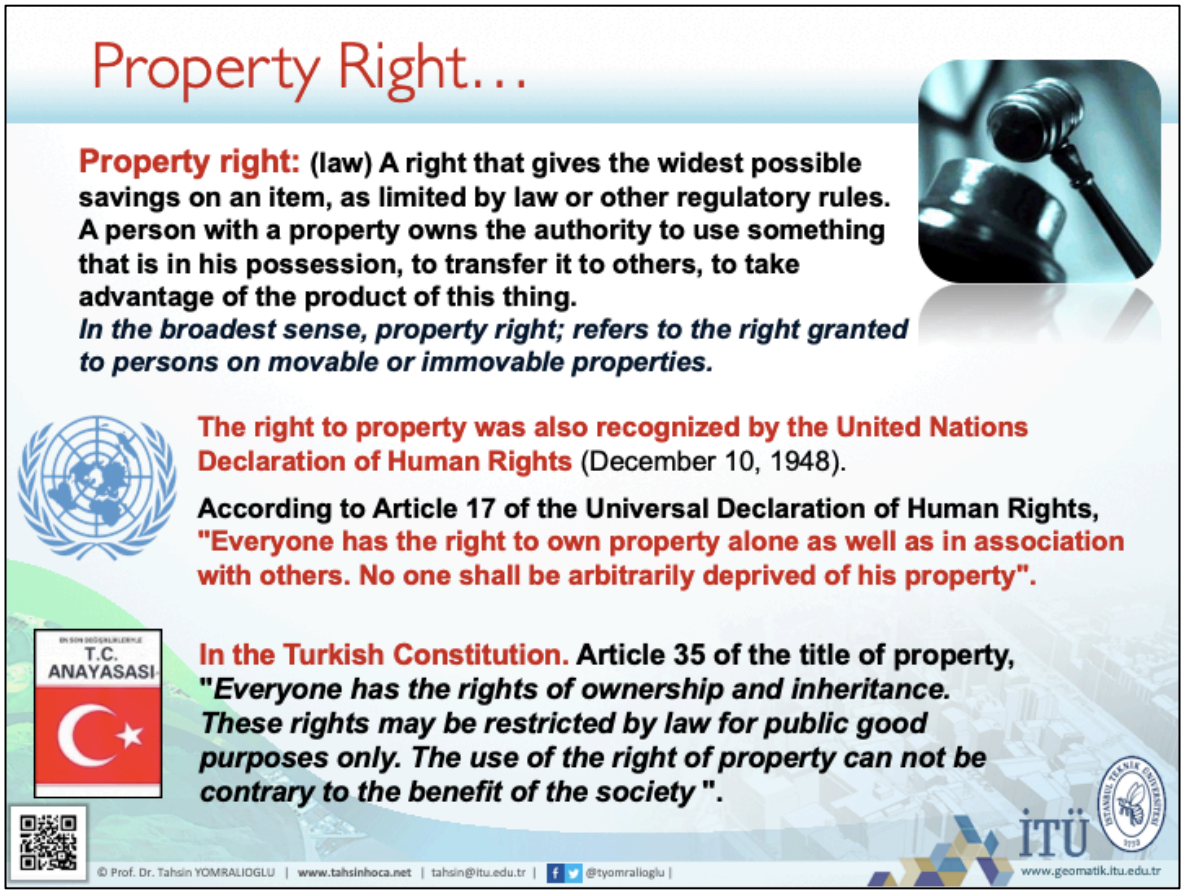


Fig x. Property right overviews

Historical Development of Property Right

In *feudal* times private property is not *absolute*, with acceptability. The goods on land are created for the benefit of all of mankind. But there is a useful aspect of private ownership in terms of encouraging people to work harder. However, ownership has not only the right, but also the responsibility.

Since the personal interest is not in contradiction with the public interest as compared with the liberal views of the 18th and 19th centuries, the right to free ownership will also be a harmonious and orderly source for society. In contrast, socialist thinkers who lived in the same ages greeted private property with suspicion.

Marxism, described as scientific socialism, rejects private property for many reasons. Drawing attention to the fact that the means of production remain private property in the case of collective production due to technological developments, *Marx* claims that this is a cause of the capitalist system and argues that all means of production must be excluded from private ownership.

Different opinions on private property are now copyrighted by many constitutions and, as stated above, the right to property is granted to the fellow, provided that it is not contrary to public interest. On the other hand, it should be noted that the term private property is used in two relatively different meanings. The first refers to the property right recognized by real and legal persons other than the state and other public entities. In the second, it means more individual property. However, private ownership is used more in the first sense and it is accepted that associations, trade unions and commercial companies with legal personality can also have private property.

Private Ownership View

With the most general definition; *private ownership means* that the resources of production belong to the person. In another expression, the possession of a person by himself or herself, with his own interest and, means that the commodity has no relation with anyone else. Nowadays, private property is a limited right by law and does not contain absolutism in comparison with the old periods.

Property is a Space of Freedom for Individuals …

The unrestricted use of private property creates an area in which individuals can experience their identity and self-worth by increasing their emotions, making their own choices and determining their own destiny. Without this space, the individuals will be subject to the arbitrary will of the other persons and therefore will not be able to make certain plans for the future. The private property agency provides people on a planet with scarce resources living together without infringing on the rights of others.

This unique institution makes it possible for society to exist simply by giving control over certain things to a specific person or group. In other cases, it solves only those arguments that can be solved by obeying violence and the mighty.

The main legal basis of the ownership of our country, the Constitution of the Republic of Turkey Situated in Article 35. "**Everyone has the rights to property and inheritance**" is the phrase. This right is the most important independence of the modern societies, taking them locally and distinguishing them from slave societies. Because the existence of the state of law and as a sign of independence, the right to property is spread to the people and the freedom of property is provided to the individuals.

There is no justice where property does not exist...

The property principle expresses the opposite of the community where the strong one is right. A state that wants to provide social unity among people should make a justice judge; it is not possible for justice to exist without private property. Because it ensures that our rights on our property, our bodies, our labor and our possessions are accepted; The attacking of these rights or their violation means injustice. These rights cannot be protected unless the rights of the individual to acquire, use and dispose of the property are respected.

The Role of the State to Protect Private Property ...

In a society where private property is respected, it is not possible to transfer property from the state to the mafia. Because people who live by force cannot keep the property acquired in an unjustified way in a free society. The role of the state is not only to protect well-known objects, but also to protect private property in new areas of intellectual property in cyberspace. Private ownership is a human right that is necessary for democracy and vital to individual identity, constitutes the source of political stability, and is active in the production of wealth. The interests of property also mean the interests of civilization.

Private Property Needed for Economic Development ...

Private ownership is the main actor in economic development because of the work and investment initiative it has created. For this reason, having confidence in property is a necessary condition for economic development. Scottish philosopher David Hume defines property laws as the engine of economic development. Hume's rules are "fulfillment of the promises" meant to mean "stability in property," "transfer based on property," and respecting contracts made. Therefore, strengthening of property rights is a key element in economic reforms that will increase economic performance. If Hume is recognized in three rules, property will be in the hands of the best rulers, not just the people whom the state transfers to its own property. By making

the social work union a necessity for economic development, private ownership brings people closer to each other and shapes the work that people do, as well as the benefits of their neighbours.

Private Property Provides Benefits to Those Who Do Not Have too...

Private ownership is often misunderstood as benefiting those who have it individually. In fact, the benefit of the society in private ownership of the property is far greater than that of the individual. In order for a landlord to earn income as a farmer, he must feed the people who live in cities without land and possibly in remote cities. At the same time, if you want to keep your income in the future, you need to manage the rural area and the natural environment well. A poor farmer will not be able to earn income and will have to sell his land to someone who will manage him better. Private ownership benefits those who own it; but the profit that this institution collects is greater than the millions of people who do not have the means of shopping they are doing, making it possible to live and work. Private ownership allows individuals to build up their capital reserves and future jobs through the transfer of wealth through the community.

1.3 Public Benefit and Property Ownership

After the French Revolution of 1789, the concept of common good took its place. It is a concept exist in the UK as "**public interest**". The Turkish Constitutional Court defined the public interest as "providing peace and prosperity for the person and the society". The use of the public benefit concept as a public interest in the constitutional judgment and the academic environment is widespread. "The concept of public benefit is one that brings with it the authority of state bodies to appreciate. As a rule, in accordance with the general scheme followed by the decisions of the European Court, whether the public interest is applied in tandem with the Convention must first be determined whether the public interest is present in the concrete case and then whether a fair equilibrium has been achieved between the general benefit and the individual. In the absence of an objective definition of public interest, the notional concept is "time and place-specific".

Public benefit is a concept that can be expressed in public service. Public service; "*Continuous and uniform activities which are carried out by the State or other public entities or their supervisors and supervisors under the control of them, to meet and satisfy public and collective needs, and to provide for the benefit of the public*". Public benefit is the top beneficiary of the individual and community interest contest.

Essentially, public interest is a judicial choice in court decisions for the benefit of the individual or community in favour of the community, the society and the state, or in the case of community, community and state interests, which is also of great benefit.

Public Benefit in Constitutional Guideline

Public benefit is a restriction in the limitation of fundamental rights and freedoms. First of all, there is an antagonism in the limitation of the right of ownership. Public restraints are the main limiting factor in limiting the right to property. Regarding the right of property ownership, it is possible to completely cut off the relation of the right of the property with the property through the expropriation and nationalization because of the public benefit. However, Article 35 of the Constitution orders that the right to property shall be restricted and that the right of property shall not be used contrary to public interest.

In the narrow sense, the public benefit is defined as "the legal measure that determines the use of the authorities and resources at the hands of public institutions for the well-being of the public, and the legal measure used to guarantee that the limit of ownership is used and the substance of this right is not touched." Broadly speaking, public benefit refers to "all political and intellectual values that determine the purpose of public transactions and actions." From here, the first definition is a technical term, while the second one is political and ideological.

The concept of public benefit is included in the Social and Economic Rights and Assignments section of the Turkish Constitution. In Articles 43 to 48 of the Constitution, the principles related to the utilization of the public interest in our country are laid down in the materials related to the utilization of the land, the ownership of land, agriculture, animal farming and the protection of the workers in these branches of production, expropriation, nationalization and work and freedom of association. In Article 35 of the title of property, "*Everyone has the rights of ownership and inheritance. These rights may be restricted by law for public good purposes only. The use of the right of property cannot be contrary to the benefit of the society* ".

Public benefit in the Turkish Civil Code; Article 731 of the Law states that "*the restrictions arising from the law of immovable property shall be effective without being registered in the title deed registry. Removal or modification of these restrictions will depend on the formal arrangement of the contract concerned and the annotation of the title deed. The restrictions placed on the public interest cannot be removed and cannot be changed* ".

Under the Article 754 "*Public Harmonization Restrictions" states that "Restrictions on property rights for immovable property, in particular for building, fire, natural*

disasters and health-related law enforcement services; forests and roads, maritime and lake shores on the main and secondary roads, border markings and landmarks; improving or subdivision of the land, consolidating agricultural lands or building-specific lands; ancient properties, natural beauties, scenic spots, viewing spots and rare nature monuments, as well as restrictions on property rights for the preservation of lakes, mines and spring waters, are subject to the provisions of the special law ".

Under the The 756th "*Property and Altitude" states that "The sources are the integral part of the estate, and their property can only be earned along with the ownership of the land on which they are born. The right on the resources of someone else's land is established by registration in the title deed as an easement right. Underground waters are water for public interest. Being a landowner does not result in having underground water beneath it. The provisions of the special law concerning the form and extent of utilization of landowners by underground waters are reserved*".

As it can be seen, the constitution and the related articles of the Civil Code are the sources of the legislation on the protection of social life, cultural and natural assets, forests, the whole environment and residential areas, as well as disaster protection. The result of careful reading of these items can be said to be the restriction of the public interest to the interests of the public and the environment, for the rights of all persons on movable and immovable property. It would be possible to say that the laws are the public benefit principle of one of the sources of the protection of the general welfare of the people and the relations of the people with each other and their environment to the highest level and the limitation of the property rights on the immovables due to this principle.

The public benefit is mainly a matter of maintaining the existence of the community that people have formed by living together, not the person.

The direct and indirect protection of the interests of the people who form the basis of society's order constitutes a public order. The inclusion of general public interests of the public interest requires the limitation of the rights of persons and their powers over their property. In democratic political processes a linear relationship is established between the interests of the public. To maximize the benefit of the majority, limiting the interests of the individual in order to ensure social justice is the basic principle of public interest.

1.4 Property components and “3R” rule…

In addition to the above-mentioned concerns on property, rights in land property mainly consists of three main components. These; ***a) Rights, b) Responsibilities, and c) Restrictions.*** These basic principles can only be referred to as “Land Tenure” for an immovable when used together. The coexistence of these basic principles is known as “**3R-Rule**” in property. According to this;

The principle of "**rights**" emphasizes that everyone can have the right to ownership on a stand-alone or joint (common) immovable property, and to save and use the immovable property as he wishes. T. C. Article 35 of the Constitution points directly to the existence of the right to property. The immovable property may have the right to share property with others in a consensual manner, to inherit property, and to exercise commercial rights according to all kinds of supply and demand procedures in immovable property.

However, even if the immovable owners have the right to own property, some "**responsibilities**" arising from these rights must also be fulfilled. For example, the most important responsibility for immovables is the fulfillment of the "estate tax" or other tax duties arising from the immovable property. In addition, elements such as the liabilities arising from land use plans, the use of the property in accordance with the purposes of the owned properties, the respect for the general life rights of the neighboring immovable owners and the community, and the lack of such rights shall be included in the scope of the "responsibility" evaluated.

Another fundamental principle of property is "**restrictions**" and should be known that the right of property is infinite and not limitless. It is also possible to limit or otherwise restrict the right of land ownership. These restrictions may sometimes be through direct legislation or through schemes. As a matter of fact, Article 35 of the Constitution points out that the right of property can be restricted when public benefit is concerned. Especially in terms of immovables, while the rights on the land are determined by parcel borders, underground and aboveground rights can also be restricted by zoning plans and laws. For example, while the permitted number of floors for a parcel with the zoning plan limits the right to use for that parcel, the number of basements allowed also sets the floor depth limit. Sometimes it limits these rights directly to the law. For example, laws such as "mine law", "zoning law", "coastal law", "forest law", "expropriation" etc. can directly limit the right to property.

2 IMPORTANCE OF LAND AND ITS ROLE IN DEVELOPMENT

2.1 What is land?

The term "**land**" is a term with many meanings. For physical geographers it is a piece of earth that is a product of geological and geomorphological processes. For economists, it is a resource that is operated or protected to provide economic production and development. For lawyers, it is a volumetric field that has conceptual rights ranging from the center of the world to the infinity of the sky and the different rights that determine what can be done with it. For many, it is simply a field for human activities, where many different forms of land use are reflected.

In the present case, the land covers everything that is directly integrated with things on the earth's surface, including water-covered areas. The land includes many physical and abstract attributes, from the right to take light or the right to build on land, to the right to use and operate ground water and minerals. The land contains all the biological, chemical, and chemical factors that surround the human being and form a complex ecological system and are called the biosphere. Therefore land; "The air we breathe; the water we drink and the environment we enjoy; the land we use, the mines we use and the buildings we build on; an increasing number of crowded cities; and today is the natural environment we seek to have fun and protect for future generations."

2.2 The Place of Land in The Process of Civilization

In the beginning, the land used for housing and nutrition purposes was first used to meet the food needs of the inhabitants. Particularly in the "**agriculture society**" process, land has been used as a platform for farming and nutrition purposes so that people can live their lives. Then, along with the growing population, more land was needed, and on the other hand the "**industrial society**" with the new discoveries of mankind went on. Thus, the human power used at the beginning has left its place in the machine power. In this process, mechanization in agriculture has begun, while at the same time, land has become a sign of strength and wealth for humanity.

More individuals and countries with more land were seen as stronger and richer. With the emergence of information technologies, the process of civilization development has shifted from the industrial society to the "**information society**" process.

Again, in this process the land has become more important with preserving its importance as the first time and even more efficient use. In this process, land has now become an important investment source for individuals and societies as an economic investment instrument.

Given all of the above explanations, the following summary can be made for ***land in the human-land relationship context***. These;

1. Land is a physical reality: land is a piece of land that we live on, where it interacts with society, providing food, shelter and resources for all living things ...

2. Land is an economic asset: land is the base of economic production, the main asset of development and wealth. In addition to the products obtained locally, the land is a commercial value through market ...

3. Land is a legal infrastructure: Land is constructed in accordance with the legal structure that establishes the basis for the rule of securing the right of ownership and determines how the land is used.

4. Land is a cultural asset: Land is a non-recyclable asset that cannot be transported and destroyed. It creates space for many mobile values of society and individuals ...

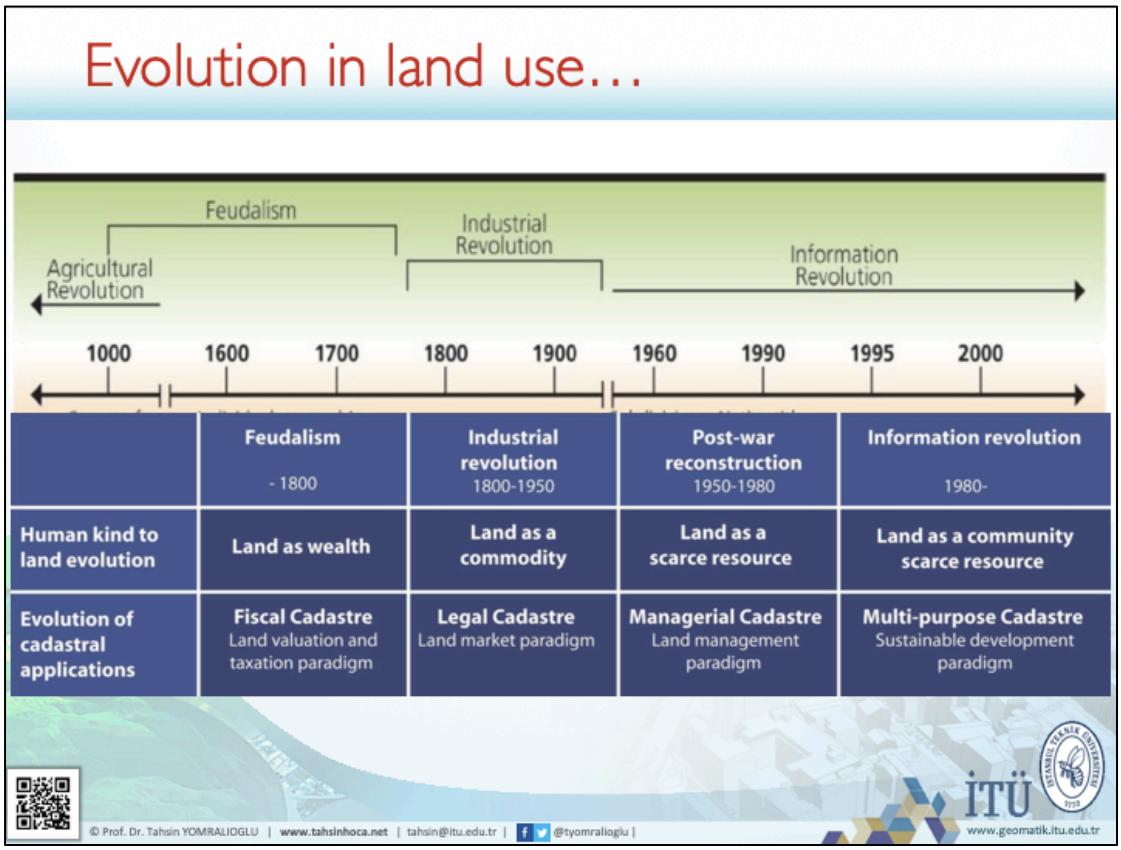
2.3 Strategic Role of Land

From the earliest times of human settlements until the end of the 1700's, he represented land, wealth and power. With the living industrial revolution, the rise of the capital has transformed the land into a commodity that has been removed from being the main source of wealth, moreover, can be bought and sold.

The reconstruction studies after World War II and the population explosion in this period revealed the necessity of effective spatial planning especially in urban areas and started to be regarded as a scarce resource. When it came to the 1970s, inadequate food production and resource shortage became evident, so that there was a need to effectively manage rural land use, not just urban.

As a result, the need to see land as a "***social scarce resource***" and to effectively manage this resource has begun to be widespread on the international scene. In this context, gatherings and events were organized by many global organizations, especially the United Nations (UN) and the European Union (EU).

Sustainable development, defined in the "Brundtland Report" published by the World Commission on Environment and Development in 1987 and described as "***meeting today's needs without ignoring the needs of future generations***" approach is widely accepted throughout the world.


Evolution in land use…
Feudalism
Industrial Revolution
Agricultural Revolution
Information Revolution
1000
1600
1700
1800
1900
1960
1990
1995
2000
Feudalism - 1800
Industrial revolution 1800-1950
Post-war reconstruction 1950-1980
Information revolution 1980-
Human kind to land evolution
Land as wealth
Land as a commodity
Land as a scarce resource
Land as a community scarce resource
Evolution of cadastral applications
Fiscal Cadastre Land valuation and taxation paradigm
Legal Cadastre Land market paradigm
Managerial Cadastre Land management paradigm
Multi-purpose Cadastre Sustainable development paradigm
© Prof. Dr. Tahsin YOMRALIOGLU | www.tahsinhoca.net | tahsin@itu.edu.tr | @tyomralioglu |
İTÜ
www.geomatik.itu.edu.tr

G C C P
The Brundtland Report
3
In 1987: The Brundtland Commission (Our Common Future) which coined what has become the most often-quoted definition of sustainable development as development that
"meets the needs of the present without compromising the ability of future generations to meet their own needs."
OUR COMMON FUTURE
THE WORLD COMMISSION ON ENVIRONMENT AND DEVELOPMENT

The use of land with a sustainable development approach is only possible with the presence of an effective land management and management system. Healthy land policy is needed for effective land administration and management. One of the pre-conditions for the development of land policies in a suitable structure is to have knowledge of the quality of land.

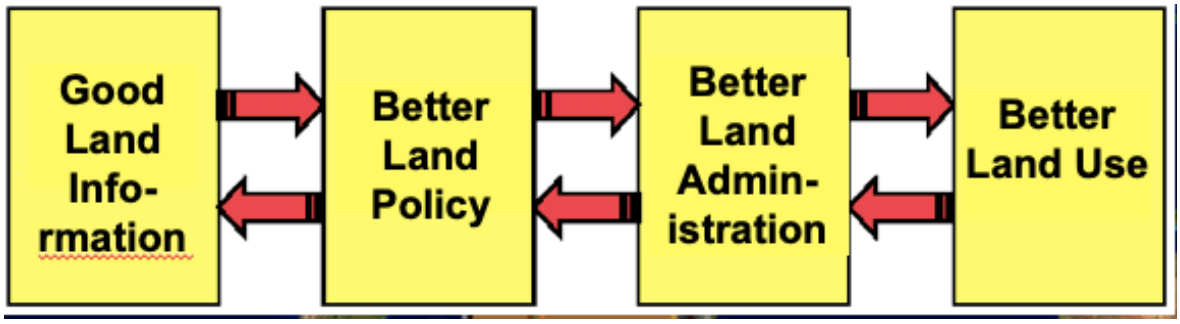
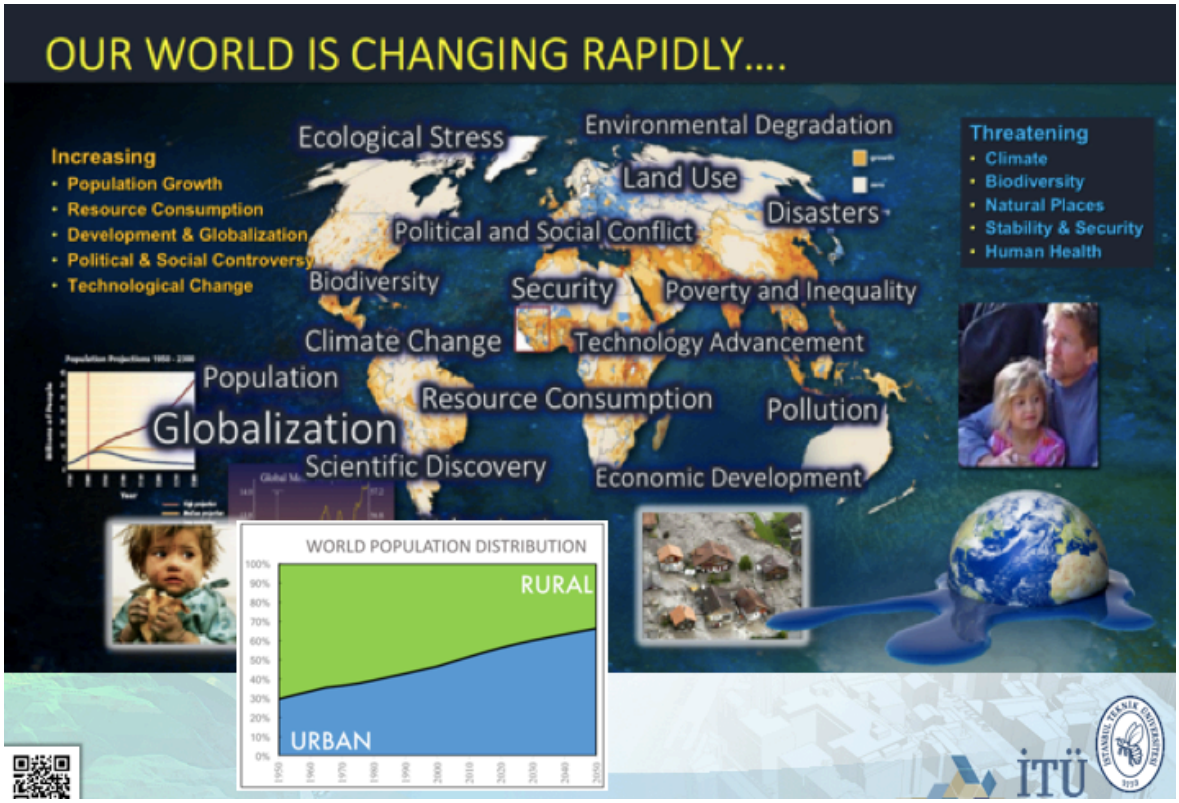


Fig. Effective land management strategy

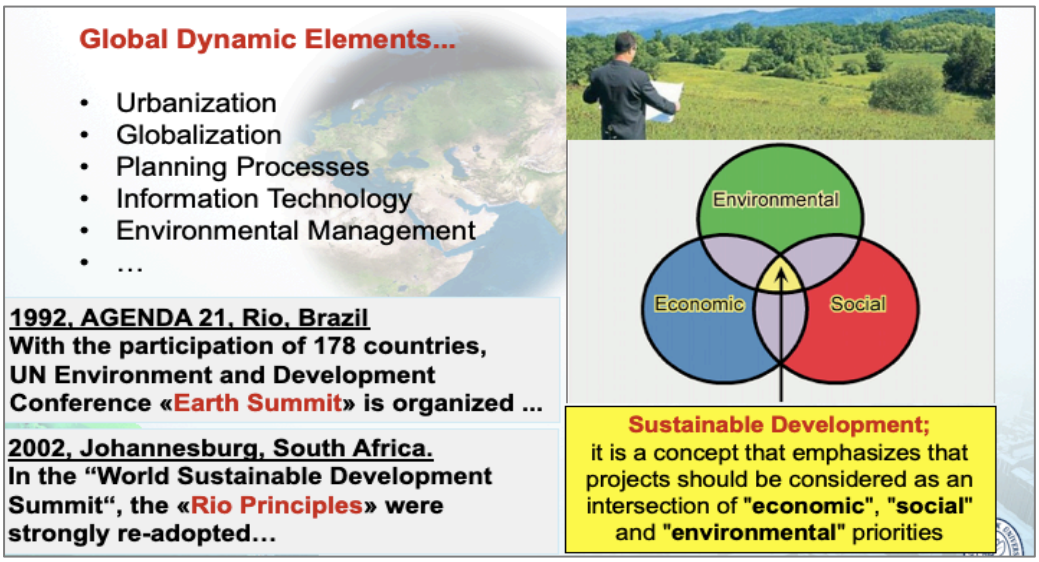
This relationship between land information, policy, management, administration and use has a dynamic structure as in human-land relations. In order to keep up with this dynamism, countries need to review their land information, land policies, land management and administration systems and land uses at certain intervals.



2.4 Sustainable Development

In 1853, according to Duwarmish Indian President Seattle, *"... these lands we have lived on are not inherited to us by our ancestors, but relics left to be passed on to future generations ..."*. Essentially, this is an important forward-looking statement that emphasizes how land use and resources should be looked at. Today, "***land is not recycled and cannot be re-produced as a scarce resource***" has been adopted. Because the pressures arising from rapid urbanization, globalization trends, planning processes, environmental management, and rapid developments in information technology, which have begun to be seen together with rapid population growth in the world, have become a threat to world life. Because of that reason, the management of the environment, and therefore the land, has become a necessity for the continuation of mankind today. As a matter of fact, as the land resources are decreasing day by day and threatening the vital activities in the world, the countries of the world came together and started to search for solutions.

For this purpose, a "Summit of the Earth" was organized in 1992 under the "United Nations Conference on Environment and Development-Agenda 21" with the participation of 178 countries in the Rio city of Brazil. The most important result of this summit is that all the nations for the protection of the environment have met with the concept of "Sustainable Development" and this concept has become official. Thus, binding decisions and responsibilities have been introduced on behalf of all countries in order to use and manage world resources according to the principles of sustainability. Again in 2002, the "Rio Principles" were reaffirmed strongly in the "World Sustainable Development Summit" in Johannesburg, South Africa. **Sustainable Development;** it is a concept that emphasizes that projects should be considered as an intersection of "***economic***", "***social***" and "***environmental***" priorities.



2.5 Land policies

Land Policy; "It is the complex socio-economic and legal regulations that determine how to allocate the benefits gets from land and land itself." In other words, land policy; "It is a policy that covers all of the land-related activities of public authorities, and is the conscious action carried out in relation to the optimal use of land in the context of spatial planning principles and objectives, as well as the socially fair distribution of land ownership and income from land, in the context of the distribution of private land ownership."

Land policy is a part of national policy in the development of targets such as economic development, social justice, equality and political determination. These policies include; the measures of land, security, land markets, real estate taxation, land use, natural resources and the sustainable management and control of the environment, the provision of land to the poor family, ethnic minorities and women and prevention of land speculation and management of land disputes.

Two of the important features that should be included in the land policies; integrated view and sustainability. The idea that social policies and long-term sustainable development will be put at risk in the event of neglecting land policies involving comprehensive perspectives is increasingly accepted. However, on the other hand, one of the most important problems of the land policies in many parts of the world is that they are not yet created as a result of extensive research and analysis to implement.

In order to achieve sustainable development at a necessary level, a balance between the operation, use and protection of land as a scarce resource is required. Questions related to the effectiveness of land policies to be developed in this context are listed in UNECE (1996) as follows:

- ✓ Which ministries are responsible for establishing land policies?
- ✓ Which ministries and units are involved in the implementation of land policies?
- ✓ What are the current policies and are they being implemented?
- ✓ Which mechanisms exist for the implementation of land policies and monitoring of its results?
- ✓ Do urban and rural policies have an integrated structure?
- ✓ Which ministries are responsible for registering land ownership and registering and controlling land use rights?

3 INTRODUCTION TO LAND MANAGEMENT

3.1 What is land management?

Land Management, land management is the process by which land resources are made useful. In other words; land management, decision on land and implementation of decisions. Decisions can be taken by individually or jointly by a group. This concerns the management of land both for present and for future generations.

According to Dale and McLaughlin (1988); "land management is the decision-making process in which land resources are allocated in accordance with the needs and desires of human beings within the framework of political and social institutions and legal and administrative regulations."

According to FIG (1995); "land management is the process in which the use and development of land resources are managed". According to the statements of UN and FIG (1999) and UNECE (2004); "land management is a resource for the management of land from both the environmental and economic perspective in the context of sustainable development."

As can be seen from the definitions and the equivalence of the administration and management words in the dictionary of Turkish Language Institution (TDK); It is the management process in which land policies are implemented in order to ensure that land management and resources are used within the framework of the principles of Sustainable Development by human beings by means of physical city and rural planning and land laws and institutions. Besides, land administration is the process of providing the property, value and land use data required in this process.

3.2 Scope of land management

On the one hand, land management may need to make key policy decisions about the nature and extent of investments on the land. On the other hand, it includes routinely made decisions made daily by land managers, such as surveyors, valuation specialists and land registrars. Land management includes:

a) Land appraisal and valuation;

b) The development and management of public infrastructure and services;

c) Establishment and implementation of land-use policies;

d) Transfers of land property, including decisions on mortgages and investments;

e) Management of land resources such as forest, soil or agriculture;

f) Environmental impact assessments;

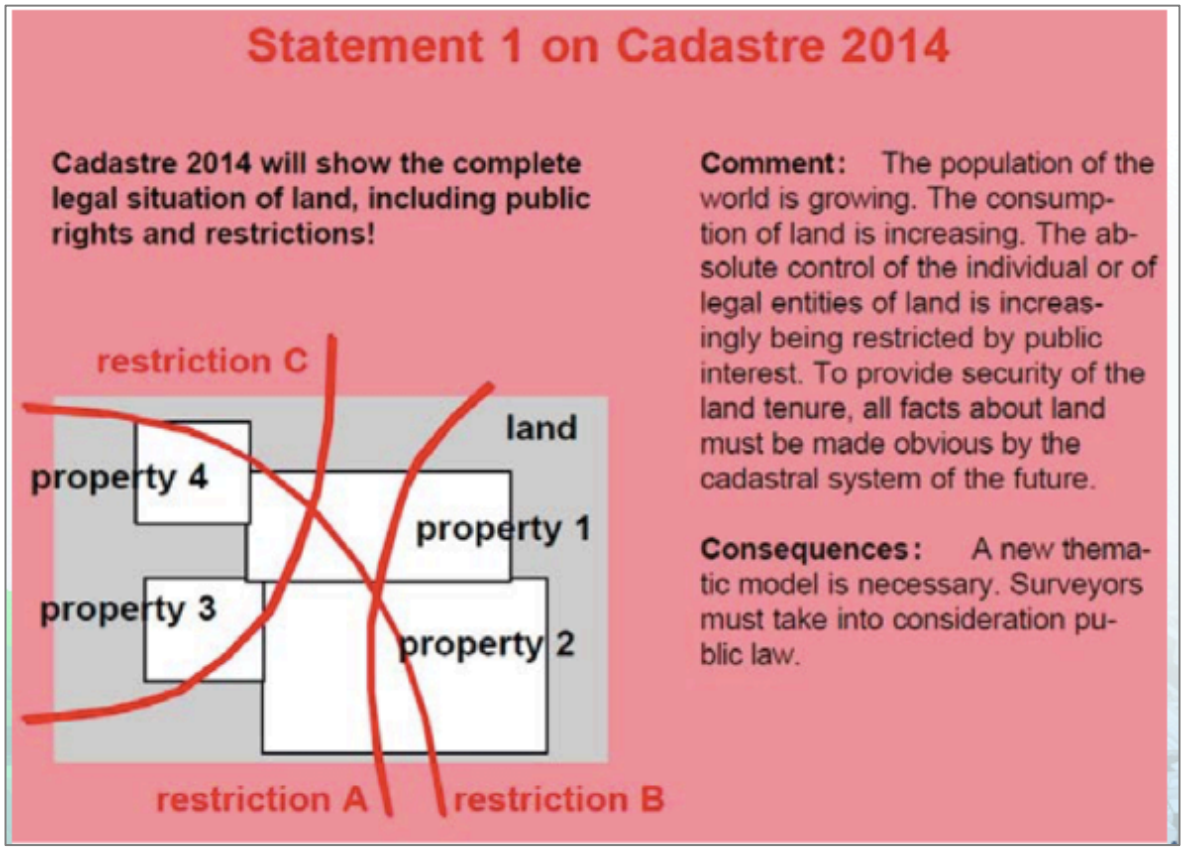
g) All land-based activities are monitored at the time they affect land use.

3.3 "Cadastre 2014" vision of FIG

In fact, prepared by FIG's Cadastral Commission; In the "**Cadastre-2014 Vision**" report, which sets out the level of cadastre by utilizing surveys conducted with the countries of the world, "***all the immovable properties subject to ownership over the ground are defined as land objects; and all kinds of land objects need to be recorded within modern cadastral systems***. Emphasized with the Cadastre-2104 report; in a country or region, it regulates the systematic public inventories of data on all legal land objects, which are based on a surveying measurement system.

Legal land objects are systematically determined by some different representations. This land object is defined by public or private laws. The outlines of the immovable property, the verbal-written data, together with the identifier, may indicate the nature, area, value and legal rights of each individual land object, or the restrictions associated with the land objects.

In addition to this verbal information defining land objects, the future Cadastre should include official records of rights on legal land objects. So, **the future Cadastre can answer questions like; where? how much? who? and how? to related land registration system**.



3.4 What is land object?

A land object is a piece of land in which homogeneous conditions exist within its outlines.

These conditions are normally defined by law. Every society creates the rules for the co-existence of its members. These rules, normally in the form of laws, define how a society will understand the phenomena within the area in which it lives. In the same manner the rights and the duties of the members of a society are defined. These duties are, in most cases, defined by restrictions of the freedom of individuals.

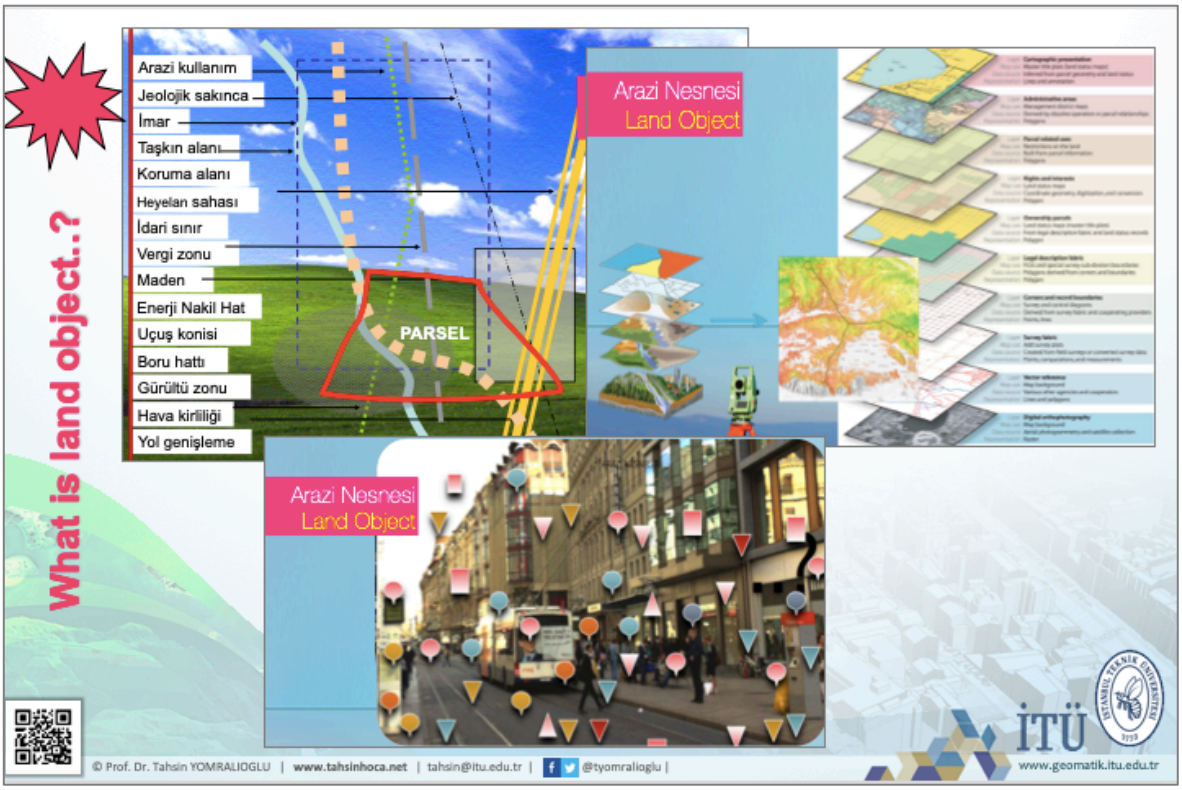
Even natural objects, like rivers, lakes, forests, and mountains are defined in some way by a law. If a law defines phenomena, rights, or restrictions which are related to a fixed area or point of the surface of the earth, it defines a land object.

A piece of land, where either a private or a public law imposes identical juridical parameters could be called a legal land object. The laws define the outlines of a right or a restriction. The legal land objects normally are described by boundaries which demarcate where a right or a restriction ends and where the next begins and the contents of that right.

Examples of legal land objects are:

- private property parcels;
- areas where traditional rights exist;
- administrative units such as countries, states, districts, and municipalities;
- zones for the protection of water, nature, noise, pollution;
- land use zones;
- areas where the exploitation of natural resources is allowed.

When a piece of land is under unique natural or artificial conditions and there is no definition in the legal framework, it can be called a physical land object. A physical land object may be a piece of land covered by rock, water, timber, a house, a street, or any other non-legal characteristic.



3.5 Land management requirement for land objects

The increase in world population and the development of technologies have resulted in intensive use of natural resources, including land. In order to preserve natural resources against exhaustion, harm or destruction, definitions for restricting absolute rights that provide natural resource use have been made under the name of social need.

Already private law has shown that it is possible to expropriate the land if public interests are more important than personal interests. However, the expropriation process has been a very difficult measure to contain restrictions and has proved to be a very difficult task as the state remains in agreement with each landlord. Thus, government have begun to state in which regions the restrictions apply. These regions are called legal land objects.

Especially After World War II, new public laws have been enacted. Land use planning, environmental protection, noise protection, zoning laws, protection against dangers caused by natural events and others are regulated by public laws.

All these new laws are also based on the country's constitutions and define the areas of definite or prohibited elements. The boundaries of these areas will basically be independent of the limits of private property, but they also have an effect in the case of the possible use of land.

These definitions under public law may have an impact on the property rights of users, but these definitions are not the subject of publicity because they are not part of official records. However, in most cases there are well-defined procedures for identifying restrictions and the personal limits of rights. The results are unknown to the public. Relevant maps are provided to discuss legal procedures before being announced. These documents are then stored under the responsibility of the State. Relevant citizens and organizations can find ownership information on the land area in the land register. However, more efforts should be made to obtain further information on other rights and restrictions that will have an impact on the legal situation arising from the measures taken by other institutions of the state. If citizens fail to obtain all aspects of the legal situation of a piece of land, they will face the risk of wasting time and money for land use planning or appropriate land use.

The restriction of rights and restrictions on rights are determined under the public law in accordance with the principle of consent of immovable owners. Because it is by democratic legal rules. But at the same time, the rights and restrictions mentioned in the official deed registry are not registered and there is no validation of both the deed

and the boundaries. Due to all these, the principles of registration, contract and publicity are not complied with.

Land management is obliged to improve the situation of land use, which has been increasing. In other words, it must securely document all legal aspects of land and land administration. Land management will guide the situations shown in this context.

For existing and new legal land objects defined by the traditional, private and public laws as a need in the future, the definition of the boundary and the accuracy of this definition should be carefully verified, and the results of these definitions should be published by the public registration office. Thanks to this approach, the assurance of land use, land use and resource management can be sustained by all community and landowners.

3.6 The role of surveyors in land management

- Surveyors have a long tradition of dealing with property rights and restrictions. In most countries they can carry out the technical work without restriction. For the legal aspect of the traditional cadastre, however, they must hold a license. This license proves that the land surveyor is capable of fulfilling the task, as specified by society, with respect to technical and juridical directions.
- The technical developments of the last few years has made it easier to survey the land objects. Thus, the license has been devalued in a technical sense. Discussions about the role of the licensed surveyor are taking place in every country where licensed surveyors exist.
- The juridical side of the license has also lost its significance because lawyers and notaries have taken over this part of the division of labour. The development of property forms, settling boundary disputes, and drawing up contracts has been left to these professionals. Land surveyors have been reduced to concentrating on the location of parcels.
- Within Cadastre 2014 the land surveyor will play the role of locating all legal land objects. Surveyors will not have to deal only with private property parcels.
- Land surveyors must understand the processes involved in the determination and definition of legal land objects. They must know the adjudication processes and must understand the principles of land valuation. They must be able to manage the land administration system documenting land with all its physical and legal

aspects and to provide land information for citizens, enterprises, authorities, and political decision-makers.

- For this task within "Cadastre 2014" the skills demanded of a surveyor are much broader. The license must be re-defined. The role of the land surveyor within society becomes much more important.

3.7 Processing steps in land management

As in all types of management, land management requires the identification and sequencing of goals, the identification of alternative methods of success, and the search for the results of each alternative. In theory, steps in land management should include:

a) a monitoring step where information about the environment concerned is collected (eg using remote sensing techniques to identify idle landmarks) to determine where decisions need to be taken and action should be taken;

b) a planning step in which models are set up that allow for orientation to alternative activities.

c) a policy-setting step in which a particular activity is selected and monitored.

d) the step of an operation in which the selected activity is carried out (eg in the construction of a new motorway or in the implementation of some land reform programs);

e) an extra step of monitoring the results of the transactions. However, this last step is often neglected.

3.8 Comparison of "Land Management" and "Land Administration" terms

*Administration and management of the words used to express different meanings in English, found that in some countries, including Turkey, that are used as synonyms two terms or similar. Indeed, "**administration**" defined in the Turkish Language Institute dictionary; (1) "Managing, manage, pulling, (2) the execution of the country affairs, the whole of the public service, (3) the place or authority from which an institution or body is administered, (4) a body that conducts the work of an institution". In similar, the provision of the "**management**" word is given as "the business of managing, turning, managing". As it can be seen, there is management role in administration definition and administration meaning in the management definition. This complexity problem also seen in the concepts of "Land Administration" and "Land Management". In this context, it is important to know the internationally accepted definitions of land management-administration so that the distinction can be made between these two concepts.*

Land Management (LM); is the decision-making process in which land resources are allocated to political and social institutions and legal and administrative arrangements, in a structure appropriate to the needs and desires of the human being. "Land management in accordance with FIG (1995); "The process by which the use and development of land resources is governed". According to the UN and FIG (1999) and UNECE (2004) expressions, "As a resource, it is related to the management of land in an environmentally and economically prospectively sustainable development context." The views that support the institutional point of view of LM do the following definition: "LM means the way in which the land and its resources are distributed, making and implementing relevant decisions."

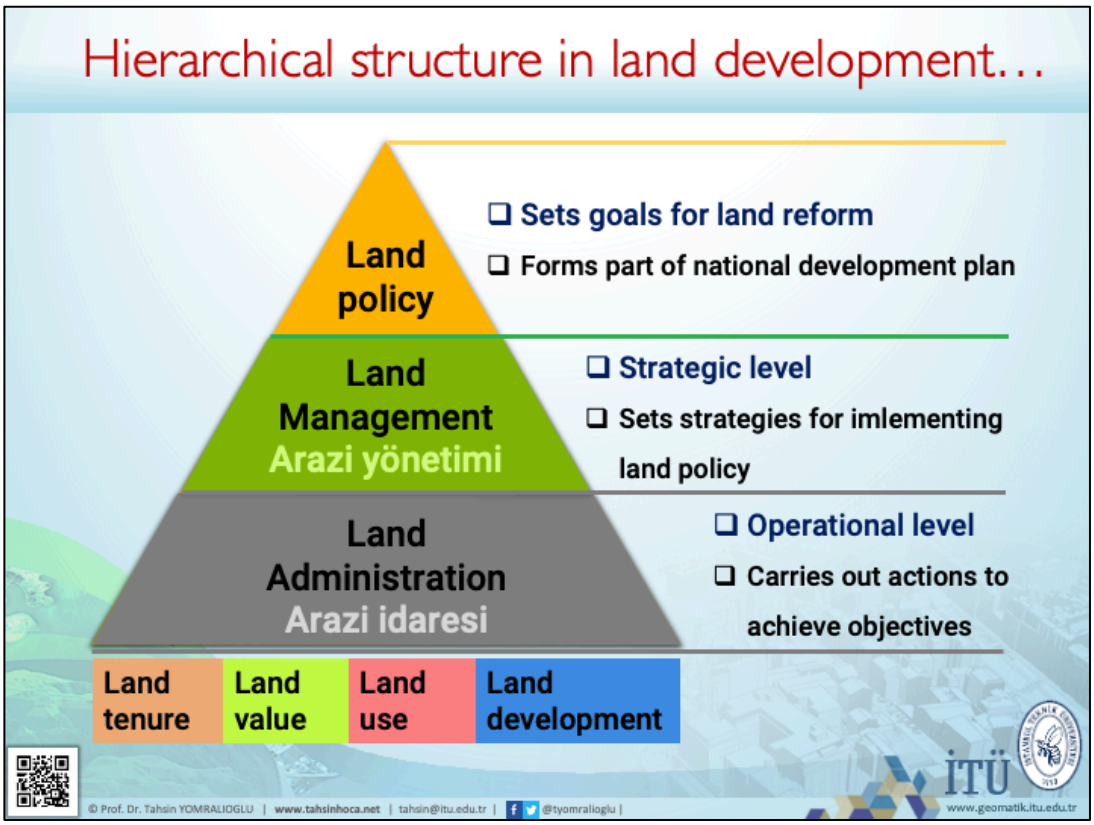
As the definitions of administration and management can be understood from the provisions of Land Management (LM); is the administrative process in which land policies are transferred to practice, enabling land and resources to be used both by physical cities and rural landscapes, and by means of land laws and institutions, within the framework of sustainable development principles by mankind.

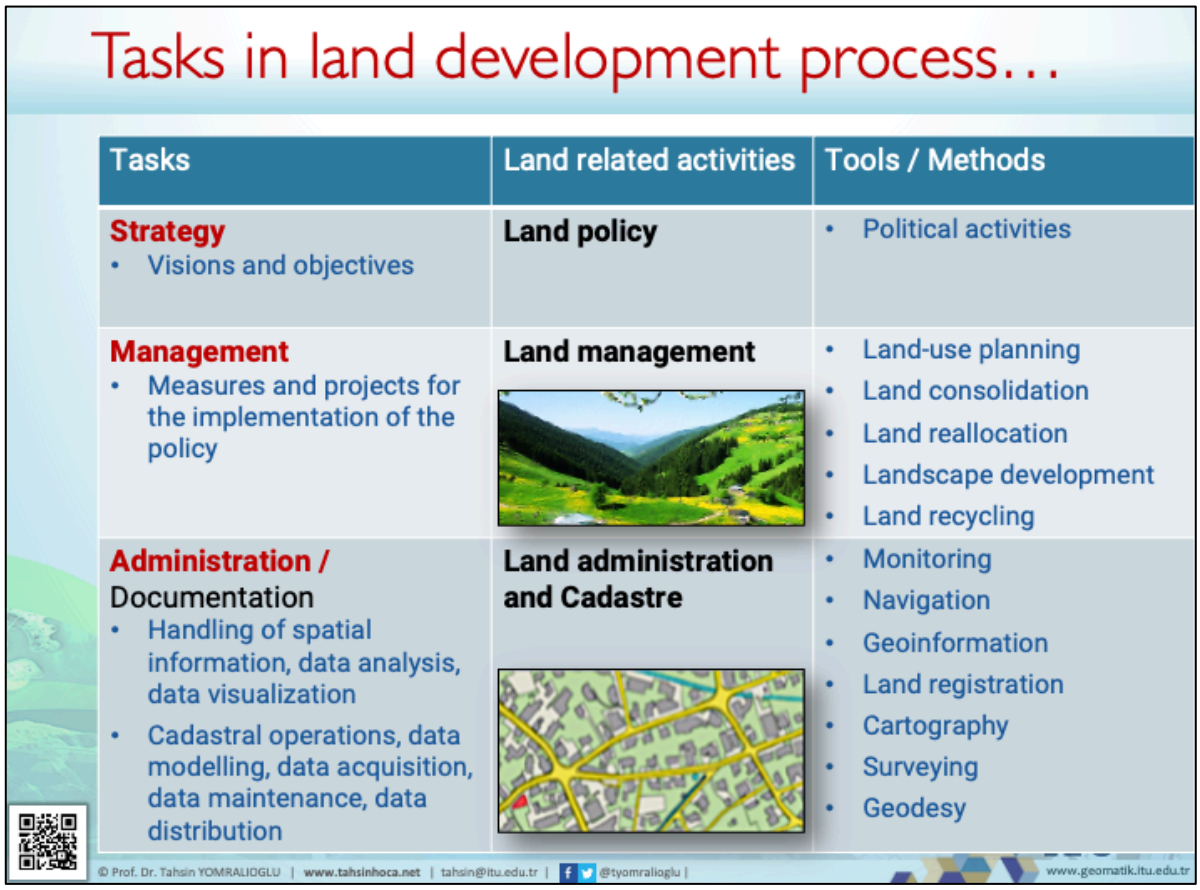
Land Administration (LA); the provision of necessary property, value and land use data in this process. According to UNECE (2004); "LA is the process of creating, recording and submitting ownership, value and usage information related to the land during the implementation of land management policies. "Dale and McLaughlin (1999) reported that; "(1) monitoring developments in land and immovables, (2) regulating the use and protection of land, (3) generating revenue locally through sales, leasing and taxation, and (4) resolving disputes over ownership and use of land."

The main task of the Land Administration is; maintaining and exploiting the necessary information for the creation of possession security and the support of the land market. The main activities of LA are; land tenure, land use and restrictions, documentation of addresses, change of property ownership rights, determination of rights on land, settlement of land disputes, cadastral map construction, data base activities, land valuation, protection of personal data, property rights, mortgages, and other related activities.

After all, Land management (LM) is broader than land administration (LA). It covers all activities related to the management of land and natural resources required for sustainable development. Land management is a process in which the resources of a country have a good influence. Land management requires interdisciplinary skills based on technical, natural and social sciences. Land policies are land rights, property, economy, land use control, regulation, monitoring, implementation and development.

Land management activities reflect the development agents of globalization and technology. They encourage the establishment of multifunctional information systems, including various land rights, land use regulations and other useful data. But the third power for change is sustainable development. A wide range of information is requested together with other related land related to environmental, social, economic and governance conditions.





3.9 Functions of Land Administration

While the legal function is fulfilled by the cadastral system which forms the basis of the LA, the financial function is carried out by land valuation whereas the regulatory function is realized by the determination of the current land use which is the basis of the planning.

When land administration policies are fulfilled, information about the land ownership, value and use of the land is examined, recorded and disseminated. This is thought to contribute to land registry, cadastral survey, mapping, financial, legal, multi-purpose cadastre and land information systems. According to McLaughlin (1999) land administration; "The process of land regulations, the development of ownership, use of land, communication and sale of land, the leasing, the combination of the income from the tax, and the resolution of the inconsistencies in land use and property".

LA is concerned with rural and urban planning or good agricultural practices only if such activities affect the compilation and maintenance of good land records. In other words, is not interested in direct physical planning, urban reconstruction, agricultural reform, or agricultural productivity improvements, but the information infrastructure that supports them.

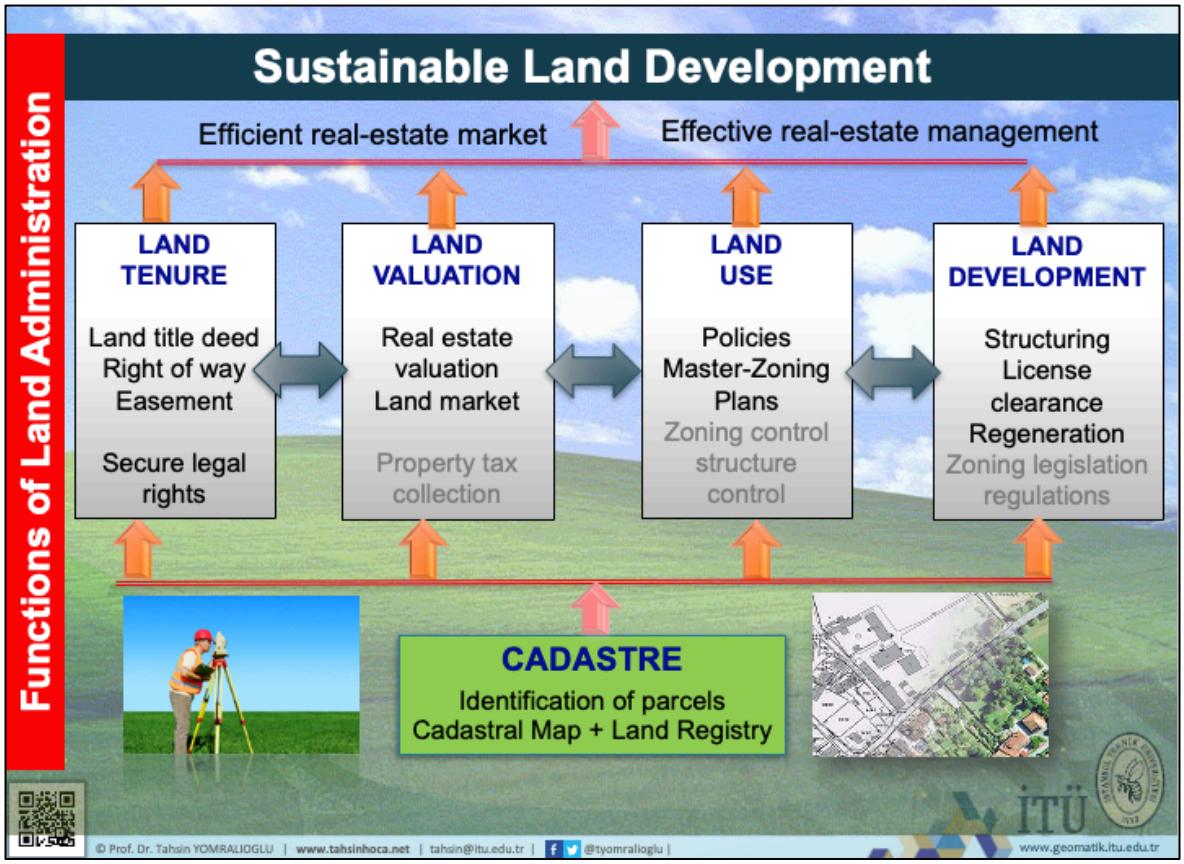
Although land administration is traditionally centered on Cadastral activities in relation to land rent and land information management, the modern LAS provides a basic infrastructure designed and encourages the integration of four functions.

Land ownership: Procedures and principles related to the acquisition of immovable property, their acquisition, registration and security; cadastral mapping and legal investigations to determine parcel boundaries; the creation of new properties or the alteration of existing properties; the transfer of property from one side to another through sale, rent or credit security, and the management and prosecution of doubts and disputes concerning land rights and parcel borders.

Land value: Processes and institutions related to evaluation of value of land and immovables; the calculation and collection of income by taxation, the management and prosecution of land valuation and tax disputes.

Land use: Processes and institutions involved in land use control, adoption of planning policies and land use regulations at the national, regional level and at local level; implementation of land use regulations and management and land use conflicts.

Land development: processes and institutions related to new physical infrastructure and expropriation; implementation of zoning plan, expropriation; changing land use through zoning permits; Reconstruction and land use permission, distribution of zoning costs.



3.10 The Benefits of Land Administration System

The modern cadastre is not primarily concerned with generalized data but rather with detailed information at the individual land parcel level. As such it should service the needs both of the individual and of the community at large. Benefits arise through its application to: asset management; conveyancing; credit security; demographic analysis; development control; emergency planning and management; environmental impact assessment; housing transactions and land market analysis; land and property ownership; land and property taxation; land reform; monitoring statistical data; physical planning; property portfolio management; public communication; site location; site management and protection. Although land records are expensive to compile and to keep up to date, a good land administration system should produce benefits, many of which cannot in practice be quantified in cash terms. These are outlined below.

1. Guarantee of ownership and security of tenure

The compilation of land records and the judicial processes that must be gone through in order to bring land information onto the registers should provide formal identification and, in some systems, legal proof of ownership. The public registers should contain all essential juridical information allowing anyone viewing the system to identify third- party rights as well as the name of the landowner.

2. Support for land and property taxation

Good land records will improve efficiency and effectiveness in collecting land and property taxes by identifying landowners and providing better information on the performance of the land market, for example by identifying the current prices being paid for property and the volume of sales. Since the cadastre should provide full cover of the land, all properties can be included and none should be omitted.

3. Provide security for credit

Certainty of ownership and knowledge of all the rights that exist in the land should provide confidence for banks and financial organizations to provide funds so that landowners can invest in their land. Mortgaging land is one way to acquire capital for investing in improvements. Landowners can then construct or improve buildings and infrastructure or improve their methods and management of the land, for example by introducing new farming techniques and technologies.

4. Develop and monitor land markets

The introduction of a cheap and secure way of transferring land rights means that those who wish to deal in land can do so with speed and certainty. Those who do not

wish to sell their land can be protected-no person's need be dispossessed of land unless they so wish since their rights should be guaranteed. The registers should be public so that at any time a landowner can confirm his or her rights. Those who wish to buy land can do so with confidence, knowing that the person who is trying to sell the land is the legally guaranteed owner.

5. Protect State lands

In many countries the land that is held by the State for the benefit of the community is poorly documented. This is not a problem in countries where the State owns all land, but where there is private land ownership, that which remains in the possession of the State must be properly managed. In all societies the State is a major landowner and its property must be protected for example from encroachment by farmers onto land beside roads or from attempts by squatters to settle on vacant land that is being held for future use.

6. Reduce land disputes

In many countries disputes over land and its boundaries give rise to expensive litigation and all too often lead to a breakdown in law and order. Much time is taken up by the courts in resolving these matters, leading to delays in other parts of the judicial system. Land often cannot be put onto the market or put to better use without resolution of the disputes, since no potential investor is likely to wish to be committed to developing land where a lawsuit may be pending. The process of registering rights should prevent such disputes arising in the future, since at the time of first registration formal procedures should be followed that will resolve uncertainties.

7. Facilitate rural land reform

The distribution of land to the landless, and the consolidation and redistribution of land for more efficient use all require detailed records of the present ownership and use of the land. Compensation may need to be paid to those who lose out in such a process, or money may be taken from those who make special gains. The design of new patterns of land ownership to provide greater productivity from the land can be effective only if the existing pattern is well documented.

8. Improve urban planning and infrastructure development

As with rural land reform so urban centers need redevelopment and effective land-use planning and control. In many countries the control of development and the issuing of building permits are the responsibility of the local municipal authority. A good land administration system should permit the integration of records of land ownership, land value and land use with sociological, economic and environmental data in

support of physical planning. The availability of up-to-date large-scale cadastral plans of urban areas provides the basic framework within which development schemes can be planned and assessed and acceptable designs implemented.

9. Support environmental management

Multi-purpose cadastral records can be used to record conservation areas and give details of archaeological sites and other areas of scientific or cultural interest that may need to be protected. The cadastre can be used in the preparation of environmental impact assessments and in monitoring the consequences of development and construction projects.

10. Produce statistical data

By monitoring the ownership, value and use of the land, data can be assembled for those concerned on the one hand with resource allocation and on the other with measuring the performance of development programmers. Both long-term strategic planning and short-term operational management require data in support of decision-making.

4 OVERVIEW OF LAND MANAGEMENT IN THE WORLD

The works carried out in the context of land administration in the international field are generally carried out under the leadership of four organizations. These; International Federation of Surveyors (FIG), United Nations (UN), European Union (EU) and World Bank (WB). The following are the main declarations, reports and declarations issued internationally, which are published by these organizations to guide the field of land administration.

4.1 FIG Cadastre Declaration (1995)

FIG The Cadastre Declaration was published in 1995 by the 7th Commission of FIG as a result of the conference held in Delft, Netherlands. The paper is considered as one of the most effective studies in the field of cadastre ever since its statements have a long-term and easy-to-understand structure.

In the first part of the paper, the importance and mission of land management is emphasized and it is stated that effective access to healthy land knowledge is a prerequisite for the fulfilment of this mission.

In the second chapter, it is stated that cadastre is the main source of information about the immovable rights of the cadastre and that these data are increasingly used in the applications of many institutions and organizations. Another point noted in this section is that the cadastre has a parcel-based system, and each parcel has a unique identifier of code or parcel. Thanks to this code or identifier, the geometry of the parcel's attribute information can be correlated.

In the third chapter, it is stated that there are differences between the cadastral systems in the world because they are formed with different aims and contents in time and the coordination between the organizations responsible for cadastral data becomes more effective with the introduction of Land Information System.

In the fourth chapter, the role of surveyors in cadastral studies is described. Depending on the purpose and organizational structure of the cadastre, tasks may vary, but the basic tasks of surveyors related to cadastre; cadastral measurement and control, valuation of land and buildings, consultancy and mediation in land use planning for the purpose of protecting the interests of the society, management and operation of cadastral databases and the solution of the disputes related to the real estate.

In the fifth chapter, the rights, restrictions and responsibilities that can be recorded in the cadastre are discussed and it is stated in this context that a right, responsibility or

restriction can be recorded in the cadastre if it is related to a certain piece of land. The majority of rights, restrictions and responsibilities recorded in most cadastral systems are; property, rental, easement right, mortgage, community or group rights are expressed in the form of various rights in different regions.

In the sixth chapter, the legal, organizational and technical issues that need to be solved in the process of forming and sustaining the cadastre are mentioned; In the conclusion section, it is emphasized that cadastre is gaining more appreciation from the global point of view due to its role in economic development and environmental management and it is stated that this consciousness should spread all over the world.

4.2 The Bogor Declaration (1996)

The Bogor Declaration was published as a summary of the results of the Intergovernmental Meeting of Cadastral Specialists held in Bogor, Indonesia on 18-22 March 1996. During the meeting organized by the UN, experts from 14 different countries were present.

In the declaration, cadastral systems; It has been emphasized that it has a very important role in the creation and maintenance of effective land markets, protection of land rights and long-term sustainable development and support of land management.

In addition, the problems encountered in the context of access to land, security of land use and management of land resources are also expressed.

In the declaration, the role of cadastre in supporting land policy was emphasized and the legal, institutional and technical options that could be evaluated during the establishment and maintenance of a cadastral system were expressed.

Another point mentioned in Bogor is that the participation of the private sector in the cadastre has increased the efficiency and cost effectiveness, and thus, it has been benefited from the private sector in the course of cadastral work. In addition, it has been emphasized that there is a tendency for the private sector to be audited through adequate quality control mechanisms and this audit, which was attempted to be made through licensing, is now carried out with quality assurance.

In the last part of the declaration; Recommendations are made on the cadastre of the UN, national governments and social initiatives. According to this, recommendations are made for national governments to suggest initiatives to increase awareness about the importance of cadastre in the international arena and to produce solutions to current problems (UN, 1996).

4.3 UNECE-Land Administration Principles (1996)

In 1993, the United Nations Economic Commission for Europe (UNECE) launched an initiative to strengthen the Land Administration System in eastern and central Europe. In this initiative, it is aimed to define the current needs and problems of the countries related to the Land Administration and to enable the experts to share their opinions and experiences. Based on the findings of a seminar and six workshops organized in this context, a report titled "Principles of Land Administration" was published in 1996.

The Principles of Land Administration define the factors and mechanisms necessary for the establishment and maintenance of a healthy Land Administration system, but do not suggest a model of land administration system because countries have different traditions and infrastructures. In the report; (1) land and land administration, (2) legal framework, (3) financial matters, (4) land use planning, (5) institutional arrangements, (6) technical issues and (7) sub-headings of a land administration system. Suggestions and recommendations are presented.

The report on the principles of land administration offers some suggestions from the ***financial*** point of view. According to this state;

- Establish mechanisms to encourage investments and ensure effective operation of land markets,

- Provide adequate training opportunities for the training of qualified appraisers who will determine the immovable market values needed for taxation, expropriation, etc.
- Establish a central valuation institution, if necessary, to provide all the land and immovable values needed,
- Establish and maintain qualified land and immovable records needed for appraisals performed with precedent method,
- Consider the cost-effectiveness of developing a new land administration system or improve the existing ones and develop strategies to improve the cost recovery.

In the ***institutional*** context of land administration principles, the following recommendations are summarized:

- Countries seeking solutions to institutional issues should explore, compare and analyse different approaches to land administration and identify the most appropriate components for their situation,
- Inter-ministerial co-ordination should be ensured, and in this context, the establishment of a land administration coordination board composed of representatives of relevant ministries should be considered,
- Identify a leading institution responsible for the holistic control of policy formation, cadastral and land management system,
- Use of private sector resources in both the creation and updating and maintenance of the land administration system,
- Mechanisms should be put in place to ensure both compliance and quality assurance where the private sector is included in the system.

In the ***technical*** context of land administration principles, the following recommendations are summarized:

- A geodetic control network should be established or existing ones should be improved so that all the data of the land can be combined in a common reference system,
- When creating computerized systems; the records, relationships, records to be provided in the system how to access and how to perform the update should be determined,
- It should be kept in mind that it is costly to create land management system in computer environment, it requires time and it can take years to fully implement.

- The data content of the records should be determined to meet the intense user needs at the beginning and the step-by-step implementation approach should be preferred.

In the last part of the principles of land administration, *recommendations were made on the procedures for establishing the land administration system*. According to this:

- State and public needs should be determined,
- New administrative structures should be set for the system to meet the needs,
- A new legislation including land management, information should be prepared,
- Ensure that the records reflect the current status,
- Easy and cost-effective access to data in the system.

4.4 The Bathurst Declaration (1999)

The Bathurst Declaration of "Land Administration for Sustainable Development", internationally known as "the Bathurst Declaration", was published in Bathurst city, Australia, from 17-23 October 1999. With this event, an important part of the final report of the "Workshop on Land Ownership and Cadastral Infrastructures" announced. In the Declaration, the findings and recommendations put outputs. The Workshop organized by UN and the FIG, in which 40 land management experts from 23 countries participated.

In this context, the expressions in the findings section can be summarized as follows:

- In order to solve a number of economic, social, technological and environmental issues, reliable information on land and resources is needed. Therefore, land registration systems, land information systems and cadastral systems required for Sustainable Development are of great importance.
- In the absence of safe property rights and ineffective access to land and property markets, the development of market economies will not be possible and Sustainable Development targets.
- A strong Land Administration is the basis of Sustainable Development.
- In order for the Land Administration to be effective, policy issues should be addressed first. Policy; It should have a balanced and integrated approach that meets the needs of both urban and rural society and does not neglect other resources (water, forest, soil etc.) while dealing with the land. Full and active participation of local communities should be ensured during the determination and implementation of the policy.
- Special attention should be paid to the establishment of land administration institutions that effectively meet the ever-changing and evolving needs of society.
- As long as effective land management infrastructures are not designed and implemented, the objective of effective land administration will not be realized. In this context, information technology will play an increasingly important role.

The most important suggestions that Bathurst Declaration should implement on a global basis are as follows:

- Consideration should be given to the establishment of the required land management infrastructures and the provision of the required land information.
- There is a need for functional cooperation and coordination between surveying, mapping, cadastral, valuation, physical planning, land reform, land consolidation and land registration agencies.
- National land information infrastructure should be left to a single national service in order to enable data sharing on a national or international basis.
- A good land management system; It should be able to provide the basic data needed for Sustainable Development and should be significantly simple, inexpensive and user-oriented.
- The activities of the land administration and land use systems should be monitored and performance indicators should be determined.

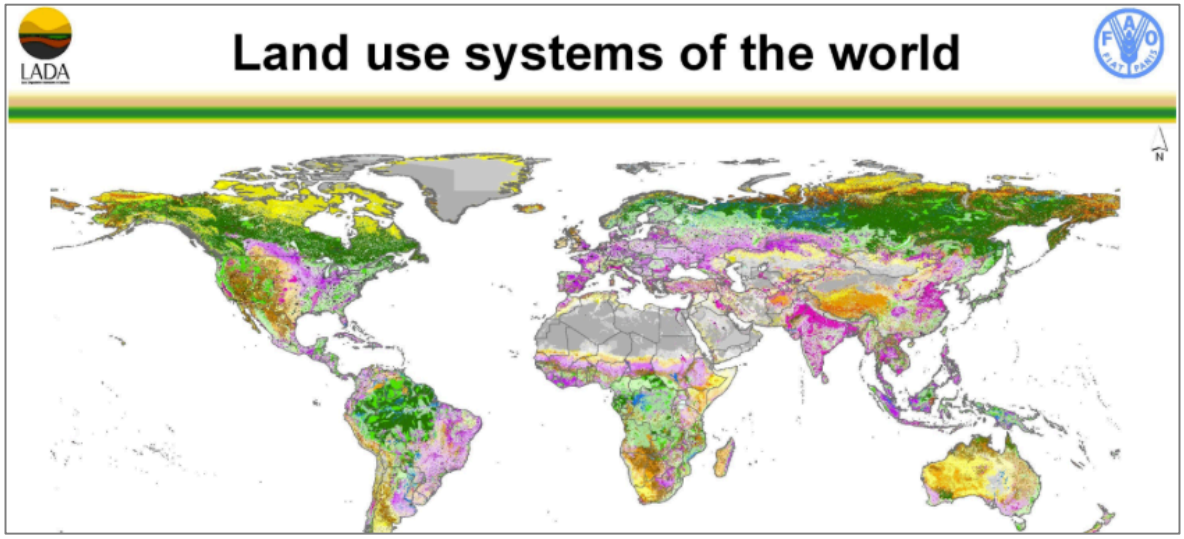
4.5 Principles of Land Policy of the European Union (2004)

The EU Land Policy Principles Report was published by the EU Land Ownership Working Group in 2004. The report aims to create a common reference framework for support from EU donors in the work carried out in the field of land policy, reform and management in developing countries. In this context, in the first part of the report, the importance of land policies and its relation with other key policy areas, the components of the land policy reform program, the main reasons for designing land policy and reforms and the main stakeholders involved in the implementation of land policies (central and local government, private sector, local communities and donors) mentioned. The second part of the report describes the principles to be used during the evaluation of national policies and the design of the EU strategy (EU, 2004).

Some of the key principles of a successful policy design expressed in the EU Land Policy Principles are:

- The design should be long-term.
- Develop inter-ministerial work.
- Policy should be developed with a participatory approach.

- The difference between legislation and implementation should be taken into account.
- Basic principles should be defined and on the other hand, these principles should not prevent different solutions.
- Rules, methods and processes should be carefully discussed, designed and tested.



4.6 A general evaluation from international view

The above-mentioned basic reports and declarations in the field of land administration by international organizations such as FIG, UN, EU and WB have been summarized. As can be seen, the main purpose of these publications is; to contribute to the effective structure of land management system which has important roles in supporting sustainable development. In this context, the following statements in the related papers, reports and declarations are summarized:

- While cadastral systems were originally designed to serve financial or legal purposes, they are now being extended to land management systems that support sustainable development. In order to achieve this, reform efforts are being carried out in most countries.
- The establishment of the land property, land valuation and land use data, which constitute the main components of the land management systems, should be more legally integrated in the institutional sense, and the regulations in these areas should also be legalized.
- Countries should have a leading organization responsible for the management and management of land and land-data.
- The existing distinction between land registration and cadastral institutions should be eliminated and these two components should be brought together under one roof.
- States should establish systems in which their market values are determined and thus ensure the transparency of the immovable markets.
- The cadastral systems of the future will be based on land title registration, not on general boundaries, but on fixed boundaries, not on the deed record.
- The fact that public rights and restrictions are included in the cadastre is an increasing need.
- Private sector in land management systems should play a greater role in their activities.
- The land information system in which data produced within the scope of land management systems is presented is of great importance both for the development of land policies and for the realization of land management.
- The land object approach expressed in the Cadastre 2014 has a structure that facilitates the establishment and maintenance of land information system both institutionally and technically.

4.7 Okuma parçası: Peru örneğinde arazi idaresi

Bütünleştirilmiş Arazi İdaresi: Kurumsal ve Teknik Açıdan Mülkiyette Yasallığın Tartışılması

David Palmer and John McLaughlin
Centre for Property Studies, University of New Brunswick,
Fredericton, NB Canada E3B 5P5

Ref: David Palmer and John McLaughlin (1996), Integrated Land Administration: Institutional and Technical Challenges, ITC Journal Special Habitat-II

Giriş

Gelişmekte olan ülkelerde, bilgisayar teknolojilerinin gelişmesinin de etkisiyle hava fotoğraflarından elde edilen verilerde ortaya çıkan farklılıkların giderilmesi için her yıl milyonlarca dolar harcanmaktadır. Hava fotoğraflarının etkin değerlendirilmesi sonucu ortaya çıkan belirsizliklerin giderilmesindeki güçlükler, kayıtlı olmayan malların kayıt altına alınması gibi resmi mülkiyetle ilgili temel problemlerin çözümünü de başarısız kılmıştır. Hatta resmi tapular, sorunları giderilip kayıtlanarak yasal hale getirilmesine rağmen, çok kısa bir süre sonra belgelenmeden ve kayıtlanmadan yapılan satış, miras ve bağışlar gibi işlemler sonunda tekrar eski durumlarına dönüyorlardı. Aynı şekilde, gelişmekte olan ülkelerde, kırsal alanların %90'ı, kentsel alanların ise %50'sindeki mülkiyet hakları resmi tapularla bile korunamamıştır. Bu resmi olmayan mülkiyet, çoğu zaman, devlet tarafından da diğer kurumlar tarafından da ve hatta toplumda kendini ayrıcalıklı gören resmi kredi kuruluşları tarafından da tanınmamıştır.

Devlet kurumları ve özel şirketler, resmi mülkiyetin yasallaştırılması problemini parça parça ele alarak çözmeye çalışıyorlardı. Bunlar, üst düzey politikacıların, özel sektörün ve özel sektörle iş yapan tüketici kredi şirketleri ve benzeri gibi toplumun diğer kesimlerinin gerçeklerini ve ihtiyaçlarını göz ardı ediyorlardı. Bunun doğal sonucu olarak, gelişmiş uluslararası toplumlar da o güne kadar yapılan bu uygulamaları ve çabaları büyük bir hayal kırıklığı ile takip ediyorlardı ve bu çabaların yenilenme ve yasallaşma yolunda başarılı olacağı konusunda pek de ümitli değillerdi.

Bu yasallaştırma çabaları, II. Dünya Savaşından sonra gelişen paradigmaların ortaya çıkardığı artan güven eksikliğinin de etkisiyle daha zor bir sürece girmiştir. Çabalar, 1950 ve 1960'ların teknik gerçeklerinden uzak olmasına ve 1980'lerde sivil toplum örgütlerinin de dahil edilmesine kadar sürmesine rağmen, bu paradigma, makro-ekonomik nedenlerden dolayı, hala bazı özel insanlara yönelik olarak sürdürülmeye devam ediyordu. Buna ek olarak, paradigmadaki belirsizlik, "ithal edip kullanma" politikalarından, "üretim yapıp kullanma" politikalarına geçiş gibi önemli değişikliklerle, iyice su yüzüne çıkmıştır. Gelişim stratejilerinin yeniden yapılandırılmasındaki belirsizlik, gelişmekte olan ülkelerin kurumlarını yeniden yapılandırması konusundaki çabalarını da baltalamıştır.

21.yy. da gelişmeyi destekleyen yeni paradigmalar ortaya çıkarken, mikro düzeydeki gelişmeyi destekleyecek resmî kurumlar oluşturmak için yeni yaklaşımlar geliştiriliyordu. Bu makalede; Peru da düşük maliyetle ve süratle ve toplumun bütününü temel alarak yapılan mülkiyetlerin resmileştirilmesi (ki bu durumda yeni arazi kayıtlanmasında oluşan düşük iş maliyetleri, önceleri gayri resmi olan iskanlarda, resmi arazilerin ve kredi pazarlarının gelişmesini olumlu yönde etkilemiştir) uygulamaları incelenmiştir. Arazi kayıtlama sisteminin Peru'daki gelişim süreci incelemeye başlamadan önce, mülkiyetin resmileştirilmesinin gelişmeye etkisi genel olarak gözden geçirilmiş, tapulama ve arazi kayıtlamasının rolü tanımlanmış ve tapulama ve arazi kayıtlamalarındaki güncel uygulamalar ve temel sorunlar gözden geçirilmiştir.

Mülkiyet ve Gelişim

1970'lerin başlarında Güney Avrupa' da başlayan demokratikleşme süreci, Latin Amerika, Asya, Doğu Avrupa ve Güney Afrika'yı etkiledi (Huntington 1991). Bu sürecin devamı olarak da ekonomi, politika ve toplumsal kurumlarda yeniden yapılanma dönemi başladı. Toplum yapısı değiştikçe, ekonomik, sosyal ve politik alanlardaki gelişmeleri etkileyen mülkiyet ile ilgili kurumlarda yeniden gözden geçirilip değerlendirilmeye başlandı.

I. Dünya, John Locke ve Jean-Jacques Rousseau gibi felsefecilerin ortaya attıkları kavramlarla, mülkiyet ve temel haklar arasındaki ilişkiler anlamında tanımlanmıştı. Anglo-Amerikan kavramının oluşmasına büyük etkisi olan Locke, bir devletin oluşumunda mülkiyet hakkının, ilahi haklardan daha çok benimsenmesinin gereğini vurguluyordu. Locke, devletler oluşturulmadan önce yasal bir hak olarak sunulan mülkiyet sayesinde, monarşinin yasallığının kalkacağını ve büyük arazi sahipleri ve gelişen tüccar sınıfının sosyal statülerinin kuvvetleneceğini savunuyordu. Rousseau felsefesini benimseyen Avrupa, özel mülkiyeti daha az vurgulayarak, mülkiyeti tanıdı. Özel mülkiyet hakkı, insanların yaşamlarını sürdürmeleri için ihtiyaç duydukları diğer temel haklardan daha önemsiz olarak görülüyordu. Amerika'yı keşfedenlere göre; mülkiyet sahibi zengin azınlık ile daha az oranda mülkiyete sahip çoğunluk arasında ikiye bölünmüş dünyada var olan gerilimlerle önemi iyice artan insan hakları ve mülkiyet haklarını korumaya yönelik bir devlet yapısına ihtiyaç vardı. James Madison'a göre; orta sınıfa mensup çoğunluk için temel hak, oy verme hakkıydı, ki bu hak zaten doğal olarak verilmişti, bunun üzerine bir de mülkiyet hakkı tanınırsa bu zengin azınlığın haklarını ihlal etmek olurdu (Nedelsky 1990). Bu durum Thomas Jefferson'ın çoğulcu demokrasi görüşünü daha ileri bir düzeye çıkardı. Jefferson, halkın üstünlüğünü ve politik katılımını sağlamanın en iyi yolunun mülkiyet sahiplerinin ekonomik bağımsızlığını sağlamak olduğuna inanırdı. Birleşik Devletlerdeki hızlı nüfus artışı dikkate alındığında, mülkiyet sahipliği arazilerin yeniden dağıtımı ve sınırlarının genişletilmesiyle yaygınlaştırılabilirdi. Bu verimli ekonomik gelişmeyi kolaylaştıran kanunlar, daha düşük maliyetlerle arazilerin el değiştirmesine izin verilmesi ve devletin etkin bir sistem ortaya koyması sayesinde başarılı olmuştur (North 1990).

II. Dünya, özel mülkiyeti sömürünün kapitalist enstrümanı olarak gören Marx'ın görüşleriyle aynı çizgideki devletlerin yerine, mülkiyeti, mülkiyet sahibi sınıf ile bun-

ların akıl hocalarının tekelinden çıkarıp, mülkiyet temelli gerilimleri ortadan kaldırmayı hedeflemiştir. Burada en önemli sorun, sınırlı mülkiyetin kapsamının yeterli olmamasıydı. Var olan bazı pazar demokrasilerinde, diğerlerine oranla daha çok sayıda mülkiyet sahibi insan vardı. Aksine devletin bir tutumu vardı, özel teşebbüs ve özel mülkiyetin yasallığı ile ilgili önemli bir anlayışı vardı (Fukuyama 1992). Zengin azınlığın elinde bulundurduğu mülkiyetten kaynaklanan kargaşa ortamı içindeki bir III. Dünya vardı (Prosterman ve Riedinger 1987). Mülkiyeti kendilerine doğal bir hak olarak gören ve bu anlamda Locke'ın görüşlerini destekleyen mülkiyet sahibi sınıf, mülkiyetin yeniden dağıtımı ile ilgili çabalara güçlü bir şekilde karşı koyuyordu.

Doğu-Batı ve Kuzey-Güney arasındaki politik görüş ayrılıklarını azaltmak için demokratikleşmenin ve pazar ekonomilerinin gelişmesine doğru bir hareketlilik sürerken, hala bu hareketlerin temel dinamiklerinin anlaşılması ile ilgili sınırlamalar vardı. Diğer taraftan pazar ekonomisinin demokratik toplumların gelişmesini desteklediğini savunan görüşler vardı; kişiler, gruplar ve kurumlardan oluşan devletin kontrolü dışındaki sivil toplumun ihtiyacı için yaratılmış bir boşluk ortamı vardı (Berger 1990). Tersine, bu politik farklılık, devlete ekonomik olarak bağımlı olan vatandaşlar için ise oldukça pahalıya mal oluyordu. Nitekim, Barrington Moore (1992) ticari çiftliklerin benimsenmesinin, İngiltere'nin demokratik gelişiminde en önemli faktör olan arazi sahibi aristokrasinin kraliyete olan güveninin sarsılması yanında, şehirlerde ortaya çıkmaya başlayan tüccar sınıfının bağımsızlığını da arttıracağına işaret etmiştir. Üstelik pazar ekonomisi durağan ekonomik modelden daha etkili olduğundan büyük bir refah düzeyi de yaratacaktır. Tartışmalar böylece sürüp giderken, hayat standartları yükselmeye başlamış ve bu da demokrasinin desteklediği tutum ve davranışların daha da gelişmesine yol açmıştır (Huntington 1991). Diğer taraftan, demokrasi ile ilgili tartışmalar pazar ekonomisini etkilemiştir. Bu açıda bakıldığında, 1689'daki İngiltere *Glorious Devrimi*, İngiliz Ekonomisinin gelişimini ve Endüstri Devrimini etkileyen en önemli faktör olarak görülür. Politik değişimler, İngiliz toplumunun sahip olduğu kurumsal monarşiye rağmen, bağımsız bir adalet sisteminin oluşumuna, haklarla ilgili bir yasa tasarısının çıkarılmasına neden olmuştur. Bütün bunlara ek olarak tarafsız bir şekilde uygulanan sözleşmelerle, haklar ve hatta özel mülkiyet hakları, devlet açısından kritik sonuçlar doğurabilecek olmasına rağmen, güven altına alınmıştır (Olsen 1993). Bu son gelişen olayların analizi olarak; İtalya'da Putnam (1992) önderliğinde gelişmeye başlayan yerel hükümet toplumsal gelenekleri sona erdirmiştir. Bu gelenekler diğer çevresel faktörlerden daha fazla kurumsal performansları ve ekonomik gelişimi etkileyen etkenlerdir. Şüphesiz ki, pazar ekonomisinin gelişimi iyi niyetli diktatörler tarafından sağlanabilir. Ancak ekonomistlere göre (1994), bu tarzdaki diktatörler çok nadir olarak görülmüşlerdir. Diktatörler genellikle kendi politik gelecekleri için özgürlükler yaratırlar ve verdikleri sözlere de pek fazla güvenilmez.

Nedenler ve sonuçlar tartışılmalıyken, demokrasiler ve pazar ekonomileri arasında çok sıkı bir ilişki olduğuna dair giderek artan bir inanç vardı. Ülkeler pazar merkezli demokrasilerin gelişimini destekledikleri için, mülkiyet kurumlarının yapıları yeniden gözden geçiriliyordu. Şüphesiz mülkiyet daima sosyal bir temele sahip olmuştur. Toplum mülkiyetle ilgili yeniden yapılandırılan normların bazılarını kabullenmiştir. Bu normlar değişmez değildiler ama değişmeleri çok uzun zaman aldı. Fayda-maliyet

ilişkisindeki dengesizlik olumsuz yönde artınca yeni mülkiyet hakları ortaya çıktı (Demsetz 1967). Normlar uygulanabilir olduklarında yasallığı toplum tarafından kabul edildi. Demokratikleşmenin ve pazar ekonomilerinin birlikte oluşturduğu baskılar, geniş bir toplumsal desteğe sahip, geçerliliği tanınmış mülkiyet düzenlemelerinin yapılması gerekliliğini vurguluyordu. Böylece, demokrasilerde ve pazar ekonomilerinde devletin yapması gerekenin, mülkiyet sahiplerini baskı altına almak değil, bunlarla ilgili kayıtların yönetimine yardım etmek olduğu anlaşılmıştır.

Mülkiyetin Resmileştirilmesi

Ülkeler, pazar merkezli demokrasilere doğru kayarken, ilkesel olarak, mülkiyetin tanınması için kişilerin bu mülkiyeti ellerinde bulunduruyor olması gerekiyordu. Uygulamada ise ülkeler, halihazırda vatandaşların ellerinde bulunan mülkiyeti tanıma konusunda başarılı bir uygulama yapamamıştır. Örneğin Peru'da kırsal parsellerin yaklaşık %90'ı, kentsel alanların ise %60'ının gayri resmi olarak sahipli alanlardı. Mülkiyet de gayri resmi olmalıydı çünkü bu yasal değildi. Bu var olan durum kanuna dayanılarak yok sayıldı. Devlet bu gayri resmi durumu tanımadığından bu alanların, gayri resmi sahiplerinin işgali altında olduğunu öne sürüp boşaltılmasını istedi. Çünkü var olan durum kanunlara aykırı olduğu için, mülkiyet yasadışı olmalıydı. Örneğin, Peru'da, çiftliklerin boyutlarının minimum 3 hektar olması gerektiği kanunlarla belirlenmişti. Bu durumda 3 hektardan daha az arazisi olanlar, buraların mülkiyet sahipleri olarak kabul edilmiyordu. Kente göç dramatik bir şekilde artarken, Lima kentindeki boş olan devlet arazileri talan ediliyordu ve buralara insanlar gece kondular yapıp yerleşiyorlardı. Bu duruma peş peşe gelen Peru hükümetleri seyirci kalıyorlardı. Şehrin bu yeni sakinlerinin kanunsuz mülkiyet edinmeleri karşısında hükümetler aciz kalıyordu.

Devletin bu yeni durumu tanımamasına rağmen, insanların kendi aralarında, hakların nerede ve nasıl uygulanacağına dair gayri resmi bir anlaşma vardı. Gayri resmi mülkiyet sahipliğinin sosyal dayanakları da açıkça tanımlanmıştı. Resmi kurumların büyük oranda başarısız uygulamaları sonucu resmi işlerdeki maliyetler arttığından, kişilerin kendi aralarında yaptıkları sözleşmelerin uygulanması ve arazilerin satışlarının kolaylaştırılması için, kişilerin gayri resmi sektörler oluşturup işlerini bu şekilde yürütmeleri teşvik edilmiş oluyordu (de Soto 1989). Ancak haklar resmi olarak tanınmadığından, gayri resmi sektörlerde faaliyet gösteren bu insanlar ikinci sınıf vatandaş muamelesi görüyordu.

Mülkiyetin resmileştirilmesine yönelik olarak birçok görüş ortaya atılmıştır. Bunların büyük bir çoğunluğu da birbiriyle bağlantılıdır. Mülkiyetin yararları ile ilgili genel kanı; yasal bir garantiyle mülkiyetin tanınması ve doğrulanması kolaylaştırılmalıdır. Böylece insanlar haklarını yasal olmayan eylemlere karşı koruyabilecekler ve bunu yaparken de zorlanmayacaklardır. Bu ortaya atılan görüşler şunları içerir:

- **Garanti**: Kişinin mülkiyet hakkı açık bir şekilde tanımlanmalıdır. Böylece insanlar haklarını diğer insanlara karşı kolaylıkla savunabileceklerdir.

- **Toplumsal istikrar**: Doğru bir şekilde düzenlenmiş resmi kayıtlarla mülkiyet sahipleri ve sınırlar kolaylıkla belirlenebileceğinden, ortaya çıkabilecek tartışmaları önler ve problemlerin çözümünü kolaylaştırır (Simpson 1976).
- **İnanılırlık**: Doğru resmi kayıtlar bilgilerdeki tutarsızlıkları ortadan kaldırır. Örneğin kişiler kredi alacak olurlarsa, mülkiyetlerini teminat olarak gösterebilirler. Böylece kredilerle ilgili problemlerin çözümü de kolaylaşır.
- **Arazi düzenlemeleri**: Güvenliği arttırılan mülkiyet haklarının kalıcılığı da sağlanmış olacaktır. Bu da kişilerin konut, altyapı, diğer donatılar ve arazi sınırlandırma çalışmaları gibi hizmetlere yatırım yapıldığında bu yatırımlardan yararlanmasını sağlayacaktır.
- **Verimlilik**: Arazilerin etkin ve verimli kullanımı sağlamak için çalışmalar yapılacaktır. Böylece yenilikçi ve eğitilmiş çiftçiler desteklenecek ve gelişimleri sağlanacaktır. Yeniliklere ayak uyduramayanlar ise elimine edilmiş olacaklardır.
- **Likidite**: Mülkiyet hakları resmileştirildiğinde, bu hakların kullanımı ile ortaya çıkacak mevduat, çok büyük ölçekte ve hızlı bir şekilde hareketlendirilebilecektir. Gelişmekte olan ülkelerde, mülkiyet haklarının çoğu gayri resmi olarak var olduğundan, bu hakların kullanımı ile ortaya çıkan mevduat da gayri resmi bir mevduat olmaktadır (de Soto 1993).
- **İşçi dolaşımı**: Arazi piyasalarındaki işlemlerim kolaylaştırılması, iş gücünün coğrafi hareketliliğine de imkân sağlar. İnsanlar, başka yerlerde kendilerine sunulabilecek daha iyi sosyal ve ekonomik fırsatları değerlendirmek için buralara yerleşebilirler (OECD 1986). Bu durumda kişiler, kısa vadeli fırsatları değerlendirmek için yerlerinden ayrıldıklarında var olan haklarını yasal olarak savunabilmelidirler.
- **Taşınmaz değerleri**: Gelişmeler arazilere ve üretime pozitif yönde etki eder. Arttırılan işçi hareketleri ve likidite, taşınmaz değerlerinin keyfi olarak değil, piyasa şartlarına göre belirlenmesini sağlar. Hakların açıkça tanımlanması, araziye ait bir parselin ve bu parsele ait hakların kullanılma serbestisiyle ilgili olarak ortaya çıkabilecek maliyetlerin azaltılmasını sağlar. Mülkiyet bilgileri ile ilgili tutarsızlıkların giderilmesindeki maliyetlerin düşürülmesi, potansiyel alıcılar ve kiracıların, mülkiyet hakları için daha yüksek teklifler vermesinin yolunu açar.
- **Taşınmazların vergilendirilmesi**: Arazilerin arttırılan değerleri ve mülkiyet sahiplerinin açıkça tanımlanması, vergi gelirlerinin artmasını ve daha etkin vergi toplanmasının sağlar (Dorner 1991).
- **Devlet hizmetleri**: Arazilere ait bilgilerin elde edilmesi sonucu vergi gelirlerindeki artış, devletlerin kamu hizmetlerini daha etkin yapabilmesi imkanını verir. Örneğin sokakların ışıklandırılması, yolların asfaltlanması, su ve kanalizasyon hizmetleri gibi altyapı çalışmalarının yapılması gibi kamu hizmetlerinin artması da arazi değerlerini arttırır.
- **Kaynak yönetimi:** Araziler ve mülkiyet hakları ile ilgili bilgilerin arttırılması, devlet kurumlarına ve özel şirketlere, kaynakların daha etkin planlanması ve çevresel ve diğer denetimlerin daha etkin yapılabilmesi için imkân sağlar (McLaughlin ve Nichols 1989).

Batıda, mülkiyetin resmileştirilmesinin sağladığı faydalar kanıtlanmışken, gelişmekte olan ülkelerde, tapulama ve kayıtlamaya, çok uluslu finans kurumları, batılı yardım kuruluşları ve bu ülkelerin kendileri tarafından milyonlarca dolar harcanmasına rağmen, bu çabalar karşılığında büyük oranda bir kazanç elde edilememiştir. Mülkiyetin resmileştirilmesine yönelik başarısız denemelerin yerini çoğunlukla yerel mülkiyet kuralları almıştır. Bu durum kuralların, uygulanmaya çalışılan ülkelerin kendine özgü yapılarına uygun olmamasından kaynaklanmıştır. Batılı uzmanların ve yardım organizasyonlarının, kendi benzer sistemlerini gelişmekte olan ülkeler dayatmaları eğiliminde olmaları bu çabaların başarısız olması sonucunu doğurmuştur.

North (1990), benzer kuralların farklı toplumlarda farklı sonuçlar ortaya çıkardığını belirtmiştir. Öyle ki, kurallar, uygulama mekanizmaları, uygulama yöntemleri ve hareket tarzları aynı olmasına ve hatta uygulayıcıların objektif olmasına rağmen sonuçlar toplumlara göre farklı ortaya çıkmıştır. Simpson (1976), mülkiyetin resmileştirilmesinde alışılmış mülkiyet sisteminin değiştirilmesinde güçlükler olduğunu söylemiştir. Mevcut haklar tanınmış fakat yenileri ihdas edilmemiştir ve kayıt sadece, arazi sahiplerine satış imkânı sağlama ve bunu yaparken de daha az maliyetle ve hızlı hareket edebilmeleri için, bir araç olmuştur. Simpson, mevcut yerel mülkiyet haklarının Batılılaştırılmasının desteklenmesine yardımcı olmasına rağmen, aile veya grup haklarının ve mutat arazilerin kayıtlanmasında bazı koşulların getirilmesini teklif etmiştir.

Uygulamada, resmi olmayan bir mülkiyet sistemi nadiren yasal olan bir sistem lehine kanunlaştırılıyordu. Oluşturulan yeni yasal yapı, ortadan kalkması mümkün olmayan yapının üzerine yeni usuller getirip karmaşıklığa yol açıyordu (Shipton ve Goheen 1992). Resmi ve gayri resmi haklar arasındaki tartışmalar sonucu, arazilerle ilgili anlaşmazlıklar artmış ve arazilerle ilgili genel güven azalmıştı (Haugerud 1989).

Gayri resmi mülkiyet sistemi, yalnızca arazisinin bulunduğu yerden ayrılanlar için arazi kullanım hakkının güvenliği (Migot-Adholla et al. 1991) ve toplumun bireyleri arasındaki arazi alım-satımlarında kolaylıklar sağlıyordu (Bingswanger ve Deininger 1994). Bundan dolayı krediler, resmi mülkiyete hak kazanmış kişilere beklenildiği gibi kolaylıkla verilememiştir. Bu bankalar sistemindeki zayıflıktan kaynaklanmıştır. Devlet bankalarından politik nedenlerle kredi alamayanlara, ticari bankalarda kredi verirken kuşkulu yaklaşmışlardır. Gelişmekte olan ülkelerdeki bu sorunlu devlet yapısı, başka önemli sektörlerde ve servislerde daha iyi uygulamalar yapabiliyorken, mülkiyetle ilgili konularda bazı insan kaynaklarına, teknik ve finansal kaynaklara gereksinim duyuyordu (Atwood 1990).

Bununla birlikte Peru gibi ülkelerde, iş maliyetlerinin düşmesi ve kanunların günlük hayata uygulandığındaki yararlarının görülmesi ile uygulamaların doğruluğu anlaşılmış oldu. Yedi yıldan daha fazla bir sürede, Peru'da, gayri resmi kurumsal anlaşmaları tanımlayan, Instituto Democracia (ILD) adında özel bir kuruluş, Lima'da hızlı bir şekilde gelişen gayri resmi sektör tarafından benimsenmişti. ILD, gayri resmi hakların resmi olarak tanınmasını zorlaştıran yasal ve bürokratik engellerin analiz ettikten sonra, kişilerin sahip oldukları hakların güvenliğini sağlayıp, mülkiyet sahiplerinin hakları ile ilgili gayri resmi kanıtlarını resmi ve yasal bir çerçevede birleştirmeye yönelik bir dizi kurumsal reform taslağını, kişilerin uygulama sonrası ile ilgili endişelerine mahal vermeden, hazırladı. Üstelik henüz resmileştirilmiş mülkiyetleri ve bunlarla ilgili müteakip işlemleri kayıt altına almak için etkin bir kayıtlama sistemi oluşturdu.

ILD'nin yaptığı bu reformlar kanunlaştırıldıktan sonra, ILD bu reformları, PROFORM adlı sistemi kullanarak, 1990-93 yılları arasında 150 binden fazla parseli resmileştirerek test etti. Gayri resmi mülkiyet hakları ile ilgili bilgileri toplamak için, toplumun bütününü harekete geçirdi. ILD'nin yasal ve teknik uzmanları tarafından doğrulanan hak iddiaları, Registro Predial tarafından kayıt altına alındı. Mülkiyeti resmileştirme işlemi düşük iş maliyetleri ile yapılınca toplumda ILD' ye karşı güven oluştu. Kredi şirketleri de Registro Predial ile anlaşmalı olan yapı kooperatiflerine, daha fazla resmi mülkiyet oluşturulmasını desteklemek amacıyla finansal destek sağlamaya başladı. 1995 Temmuzuna gelindiğinde 230 binden fazla parsel yeni sistemde kayıt altına alınmıştı.

Arazi Yönetimi

Buraya kadar olan bölümde "mülkiyet" sözcüğü, kişisel ve gerçek hakları kapsayacak şekilde geniş anlamda kullanıldı. Makalenin bundan sonraki kısmında bu kavram, yalnızca arazi üzerindeki haklar olarak dar anlamıyla kullanılacaktır. Gelişmekte olan ülkelerdeki büyük ailelerin kendi arazileri üzerindeki mülkiyet hakları ile ilgili incelemeler yapılmıştır. Bu mülkiyet hakları, bu ailelerin bütün malvarlıklarının yaklaşık %70 ini oluşturan haklardı (de Soto 1993). Bu mülkiyet hakları görevler ve yetkilerle birlikte düşünüldüğünde, aşağıda açıklandığı şekilde belirli durumlarda yoğun olarak kesişen faydalardan ortaya çıkmıştır:

- Bir taraf fayda sağlarken diğerinin sağladığı faydaların sona ermesi; örneğin devletin kamulaştırma yetkisi gibi,
- Çift taraflı faydalanma; örneğin parsellerin kullanımı, birtakım haklarından vazgeçmiş mülkiyet sahibinin yerine kiracılar tarafından kullanımı,
- Bütünleyici faydalar; aynı mülkiyet üzerindeki çeşitli haklar; örneğin ortak kullanılan alanlar gibi,
- Çatışan faydalar; farklı gruplar, aynı parsel üzerindeki aynı faydalara itiraz ettiğinde ortaya çıkan durum.

Toplumda mülkiyetin getirdiği faydalar, toplumun arazi kullanım hakkı ile ilgili sisteminde tanımlanmış uygulanabilirliği olan iddiaları içermelidir. Arazi kullanımı ile ilgili anlaşmaların en kesin formu, temel arazi kaynaklarını kontrol eden kişi ve gurupların uygulamaları ve kurallarla oluşturulmalıdır (Dorner 1972).

Arazi yönetimi arazi kullanım hakkı ve arazi politikalarının arazilerin yönetimine dönüştürülmesine imkân sağlar. Örneğin topluma ait coğrafi çevrenin yönetimi gibi. İster resmi olsun ister gayri resmi, bir arazi yönetimi çok büyük boyutlu sistemlerden ve uygulamalardan oluşur. Bunlarda bazıları arazi kullanım hakkıyla ve arazilerin yönetimi ile ilgili olan diğer uygulamalarla yakından ilgilidir. Arazi yönetimi, arazilerin kullanımı gelişiminin düzenlenmesiyle ilgili fonksiyonları içerir; arazilerin kullanımı ve mülkiyeti ile ilgili anlaşmazlıkların çözümü, arazilerin satışı, kiralanması ve vergilerle elde edilen gelirlerin arttırılması sağlar (Dale ve McLaughlin 1988). Bu fonksiyonlar dört kısma ayrılabilir: i) yasa ile ilgili olanlar, ii) yönetmelikle ilgili olanlar, iii) mali fonksiyonlar ve iv) bilgi yönetimi.

i) Yasal fonksiyon, sahip olunan hakları korur. Arazilerin tahsisi ile ilgili işlemleri içerir. Örneğin, ifraz-tevhit, satış-takas, kullanım ve kamulaştırma işlemleri ve arazi üzerinde belirlenmiş sınırların grafik, sayısal ve/veya yazılı olarak teminat altına alınması. Ayrıca bu işlemler sonucu oluşabilecek uyuşmazlıkların çözümlenmesi de bu yasallık fonksiyonuyla mümkün olmaktadır.

ii) Yönetmelikle ilgili olan fonksiyon, arazilerin ve arazi kaynaklarının kullanımı ile ilgilidir. Bu da kayıt sisteminde belirgin olarak görülmeyen faydaların belirtilmesine yöneliktir. Arazi kullanımını sınırlandıran etmenleri belirler (sit alanları, koruma altındaki ekosistem alanları vs.).

iii) Mali fonksiyon ise arazilere ekonomik yönüyle ilgilidir. Bu fonksiyonla ilgili uygulamalar toplanan ve elde edilen gelirlerin arttırılmasına yöneliktir. Yapılan uygulamalar, arazinin özel amaçlar için kullanımını veya arazi düzenlemeleri uygulamalarını teşvik eder.

iv) Bilgi yönetimi, aşağıda tanımlandığı gibi, üç fonksiyonu bütünleyen bir fonksiyondur: yasalarla belirlenen kadastral durum arazi kayıtları ile ilgili belgelere eklenir: mali kadastro, taşınmaz değerlemesini ve vergilendirmeyi destekler ve bölgesel ve diğer bilgi sistemler, planlama ve düzenlemeler yapma imkânı verir. Bu fonksiyonlar ortak bilgi paylaşımının gerekliliğini arttırmış ve Amerika Birleşik Devletleri'nde, Ulusal Araştırma Kurulu'nun kurulmasını sağlamıştır. Bu kurum, farklı kuruluşlarca yapılan arazi ile ilgili bilgilerin toplanması ve yönetimi işlemleri için parsel tabanlı, toplum merkezli olan çok amaçlı bir kadastronun oluşturulmasını teşvik etmiştir. Bilgi altyapısının kullanıcılara sağladığı imkanlarla doğru orantılı olarak bilginin önemi artıyordu. Bilgilerin güncelleştirilmesi de önem kazanıyordu. Bilgi altyapısının önemi, arazi bilgi sistemini, kendi iç dinamiklerinin yanı sıra, yasal ve mali fonksiyonların dinamiklerinin etkisine de gereksinimi olduğunu gösteriyordu.

Arazilerin Kayıt Altına Alınması

Arazilerin kayıt altına alınması; mülkiyetin getirileri ile ilgili bilgilerin kayıtlanmasıyla mülkiyet sahiplerine özel avantajlar sağlar. Kayıt altına alınan haklar farklı kazanımlar ortaya çıkarmasına rağmen, bunlar çoğunlukla ipotekler gibi mülkiyet sahiplerini doğrudan ilgilendiren hakları kapsamaktaydı. Arazi kayıtları önceleri karmaşık ve Dickensian'ın çağdışı uygulamalarının bir benzeri olarak görülmekteydi. Bu kayıtlar, kişilerin haklarını korumak için değil de arazi üzerinde mevcut imtiyazlı durumları korumak için varmış gibi algılanıyordu. Aynı zamanda bu kayıtlar, küçük politik çıkarları korumak ve ciddi anlamda vergi toplamak için ortaya çıkarılmış bir durum olarak görülüyordu. Bu durum, kayıtlama işlemlerinin yeni mühendislik uygulamalarıyla yapılmaya başlanması ile kayıt fonksiyonlarının mülkiyetle ilgili diğer fonksiyonlarla bütünleştirilmesi sonucunda ve buna ek olarak kayıtlama işlemlerinin daha uygulanabilir bir şekilde yapılmaya başlanmasıyla değişmeye başlıyordu.

Kayıtlanma Fonksiyonları İçin Yeni Mühendislik Uygulamaları

Mühendislik uygulamaları, organizasyon işlemlerinin yeniden dizayn edilmesidir. Organizasyon işlemlerinde yeni gereksinimlerin belirlenmesi amacıyla yeni yöntemlerin geliştirilmesidir (Hammer ve Champy 1993). Arazi kayıtlanmasındaki mühendislik uygulamaları temelde dörde ayrılarak incelenebilir;

Yasal reformlar, modernizasyon, standardizasyon, mülkiyet ve kayıtla ilgili basitleştirilmiş yasal mevzuatları içerir: Kayıtlama ile ilgili kanunlardaki reformlar genel olarak; kayıt formlarının standardize edilmesini, ortaya çıkabilecek anlaşmazlıkların sayılarının azaltılmasını ve isme dayalı olarak yapılan kayıtların, parsel tabanlı kayıtlara dönüştürülmesi işlemlerini düzenlemektedir. Ayrıca bu reformlar, sınırlandırma ile ilgili kanunları, madencilikle ilgili kanunları ve mülkiyete ait kanıtlarla ilgili kuralları içerir.

Adli reformlar, hukuk sistemi için en uygun durumun oluşturulmasına yönelik olarak yapılmıştır. Bunlar; standardizasyon, kayıt prosedürlerinin resmileştirilmesi ve haklarla ilgili sorumluluklar için yöntemlerin belirlenmesidir.

Yönetimle ilgili reformlar, kayıt dokümanlarının oluşturulması ve incelenmesi, risk yönetimi, çift kayıtlamaların en aza indirilmesi ve profesyonel elemanların ve yardımcı elemanların daha etkin kullanılması uygulamalarını içerir.

Teknik reformlar, bilgisayar teknolojilerinin kullanımı ile ilgili uygulamaları içerir. Bilgisayarlar; hesap işlerinde, dokümanların incelenmesinde, indekslerin hazırlanmasında, veri tabanlarının oluşturulmasında, on-line veri aktarımında, kayıtlarla ilgili dokümanların yedeklenmesinde etkin olarak kullanılmaktadır.

Bütünleştirme

Kayıt sistemlerindeki mühendislik uygulamalarının, diğer mülkiyetle ilişkili fonksiyonlarla ilişkilendirilmesi gerekmektedir. Mülkiyetle ilgili değişik kurumlar arasında bir eşgüdümün sağlanmasına ihtiyaç vardır. Bütünleştirmeden beklenen faydalar;

- Farklı mülkiyet kurumları arasında elde edilen fiziksel faydaların paylaşımı,
- Personel paylaşımı,
- Veri paylaşımı,
- Ortak kullanılan fonksiyonların (kullanılan ortak formlar gibi) paylaşımı,
- Ortak kullanılan veri tabanlarının paylaşımı

Bütünleştirme ile ilgili en başarılı örnek Kanada' da oluşturulan New Brunswick Geographic Information Corporation adlı kurumdur.

Arazi Kayıtlamasında Peru Örneği

Bu bölümde, Peru' da arazi kayıtlamasında yapılan uygulamalar incelenecektir. Peru' da artan imarsız yerleşimler ve fakir Peru halkının bütün gereksinimlerini karşılamak amacıyla oluşturulan yeni kayıt sisteminin yapısı incelenmiştir.

1950'lerin başlarında, Peru kırsal alanlarda kentlere göçün başlamasıyla, dramatik bir şekilde kentsel büyüme ile karşı karşıya gelmiştir. Özellikle başkent Lima' ya insanlar akın ettiği için burada plansız yerleşimler oluşmaya başlamıştır. Bu tip gece kondu yerleşimler 1940'larda Lima' da hemen hemen yok denecek kadar azdı. 1972 de ise Lima'daki nüfusun dörtte birini göçle gelen insanlar oluşturmaktaydı (Collier 1976), 1985 yılına gelindiğinde meskenlerin %69 luk bir kısmını gece kondular oluşturmaktaydı (de Soto 1989).

Bu gecekondu yerleşmelerin çoğu Lima şehri çevresindeki çorak araziler üzerine yapılmıştır. Bu yerleşim yasa dışı olmasına rağmen oldukça iyi planlanmış düzenli bir yerleşimdi. Bu yerleşim yerleri arazinin topoğrafik yapısı dikkate alınarak seçilmiş yerlerdi. Yerleşim yerleri genelde milli ve dini bayram tatillerinde istila ediliyor ve geceleri insanlar gelip arazi sınırlarını çevirerek kamıştan evlerini konduruyorlardı. Yıllar geçtikçe bu kamıştan evler yıkılıyor ve yerlerine tuğladan sağlam olanları yapılıyordu. Böylece insanlar kendi parsellerini ediniyorlar parseller üzerinde fiili hakimiyet kuruyorlar ve sonra da buraları sağlam konutlar yaparak istila ediyorlardı.

Bu yerleşim yerleri, buradaki insanların kendi aralarında demokratik olarak seçtikleri kişiler tarafından yönetiliyordu. Böylelikle resmi Lima yönetimine alternatif gayri resmi bir yönetim oluşturulmuştu. Bu gayri resmi olarak seçilmiş yöneticiler sadece gece kondu bölgesinin iç meseleleri ile ilgileniyorlardı. Gece kondu bölgesindeki arazilerin yönetimini ve bu bölgedeki toplumsal gelişmelerin sürdürülebilmesi ile ilgili projeleri yürütüyorlardı.

1961 yılının başlangıcında, Peru hükümeti, var olan yasa dışı yerleşimleri yasal hale getirmek için bir dizi kanunu yürürlüğe koydu. İmara açılmış yerleşim alanlarında, insanlar önce tapularını alıyorlar sonra binalarını inşa ediyorlar daha sonra altyapı hizmetleri de sağlanınca insanlar evlerine taşınıyorlardı. Gece kondu bölgelerinde ise, öncelikle arazi işgal ediliyor, sonra binalar yapılıyor, altyapı hizmetleri yavaş yavaş bölgeye getiriliyor ve son olarak da insanlar tapularını alıyorlardı (Turner 1967, Lloyd 1980, de Soto1989). Bununla beraber arazi üzerindeki haklar ve inşa edilmiş binalar arasında karmaşık bir ilişki vardı. Buralarda yaşayan ailelerin güvenlikle ilgili büyük endişeleri vardı (Andrews and Phillips 1970, Collier 1976). Peru kanunları diğer gelişmekte olan ülkelerin kanunlarıyla mukayese edildiğinde daha ilerici kanunlar olmasına rağmen, kanunların uygulanması masraflı, karmaşık ve zaman alıcı oluyordu. Arazi tapularının alınması için 20 yıl beklemek gerekebiliyordu (de Soto 1989). Çoğu zaman tapular, hatalı olduğu veya eksik olduğu için ya da yasal prosedürlerde eksiklik olduğundan tapu da kayıtsız olarak görülüyordu (Turner 1981).

1980'lerin ortalarında ILD adlı kuruluş, özel kesim tarafında tanınmış olan resmi olmayan hakları tanımladı. ILD, mülkiyetin resmileştirilmesi işlemlerini içeren 175 adet kanun ve 2000 düzenlemeyi içeren kapsamlı bir kanun taslağı hazırladı. Üstelik bu kuruluş, yeni oluşan mülkiyet durumunun resmileştirilmesi ve bağlı alt işlemler için etkin bir kayıt sistemi (Registro Predial) oluşturdu. Bu çıkarılan kanunlar ve düzenlemeler 1988-90 yılları arasında etkin olarak yerleştirildi. ILD bu kanunları ve düzenlemeleri 1990-93 yılları arasında 150,000 parselin resmiyet altına alınması uygulamasıyla test etti.

Bu reformlar ilk olarak işlemlerdeki maliyetleri düşürdü. Mülkiyet sahiplerinin haklarını iddia etmeleri ile ilgili kanıtları değerlendirilerek, resmi durumların oluşmasının kapıları açıldı. Reformlar, bilgisayar destekli kayıt sisteminin mülkiyet sahipleri ve sınırlarla ilgili bilgileri kayıt altına almasını sağladığından, yönetim fonksiyonunun düşük maliyetle ve etkin bir şekilde işlemesini sağladı.

Peru örneği, sadece tapuların kayıt altına alınmasının yeterli olmadığını aynı zamanda bu işlemin etkin bir şekle yapılmasının gerekli olduğunu vurgulamaktadır. Gelişmekte olan ülkelerde kişiler gelirleriyle ilgili güvence veremediklerinden, krediler, küçük miktarlarda (1000$ ın altında) ve kısa vadelerle (1 yıl) veriliyordu. Etkin olmayan bir kayıt sisteminde, ipotek olarak gösterilen bir mülkiyetin kayıt altına alınması maliyeti, ipotek karşılığı alınacak kredi faizlerinden bile çok olabilecektir. Üstelik kayıt sistemindeki gecikmeler, ipotek malı kayıt altına alınmadan kredinin geri ödenmesinin yapılmış olması sonucunu doğurabilecektir. Peru'da yapılan reformlar, etkin bir kayıt sisteminin oluşumunu sağladığından büyüme ve gelişmeye ön ayak olmuştur. Önceleri kayıt sisteminin yetersizliğinin sonucu olarak kredilerin etkin ve yetersiz olmasından yapılan binalar da ucuz ve dayanıksız malzemeler kullanılıyor ve bunun sonucu olarak da güvensiz ve kısa ömürlü yapılaşmalar oluyordu. Kayıt sisteminin etkinleştirilmesi ve dolayısıyla artan kredi ve teşviklerle sağlam yerleşmelerin de önü açılmış oldu. Kooperatifçilik gelişti. Kooperatifler ve kredi şirketleri arasındaki anlaşmalarla düzenli yerleşim alanlarının oluşması sağlandı.

Kaynaklar

Andrews, Frank and George Phillips (1970). The squatters of Lima: Who they are and what they want. Journal of Developing Areas, 221-221

Attwood, David (1990). Land registration in Africa: the impact on agricultural production. World Development, 18 (5): 659-671.

Berger, Peter (1990). The uncertain triumph of democratic capitalism. Journal of Democracy, 3 (3): 7-16.

Binswanger, Hans and Klaus Deininger (1994). World Bank land policy: evolution and current changes. Paper presented at the World Bank Agricultural Sector Symposium, Washington, DC.

Collier, David (1976). Squatters and Oligarchs. Baltimore: Johns Hopkins University Press.

Cymet, David (1992). From Ejido to Metropolis, Another Path. New York: Peter Lang.

Dale, Peter and John McLaughlin (1988). Land Information Management. Oxford: Clarendon Press.

Demsetz, Harold (1967). Towards a theory of property rights. American Economic Review, 57 (2): 347-359.

de Soto, Hernando (1989). The Other Path. New York: Harper and Row.

de Soto, Hernando (1993). The missing ingredient. The Economist, 11 September, 8, 11-12.

Dorner, Peter (1972). Land Reform and Economic Development. London: Penguin.

Dorner, Peter (1991). Latin American Land Reforms in Theory and Practice. Madison, WI: University of Wisconsin Press.

Economist (1994). Democracy and growth. 27 August, 15-17.

Feder, Gershon and David Feeny (1991). Land tenure and property rights: theory and implication for development. The World Bank Economic Review, 5 (1): 135-153.

Feder, Gershon, Tonroj Onchan, Yongyuth Chalamwong, and Chira Hongladarom (1988). Land Policies and Farm Productivity in Thailand. Baltimore: John Hopkins University Press.

Fukuyama, Francis (1992). The End of History and the Last Man. New York: Avon Books.

Glendon, Mary Ann (1991). Rights Talk. New York: Free Press.

Haugerud, Angelique (1989). Land tenure and agrarian change in Kenya. Africa, 59 (1): 61-90.

Hammer, Michael and James Champy (1993). Reengineering the Corporation. New York: Harper-Business.

Huntington, Samuel (1991). The Third Wave. Norman, OK: University of Oklahoma Press.

Johnson, Omotunde (1972). Economic analysis, the legal framework and land tenure systems. Journal of Law and Economics, 15 (1): 259-276.

Lloyd, Peter (1980). The "young towns" of Lima. Cambridge: Cambridge University Press.

Mangin, William (1963). Urbanisation case history in Peru. Architectural Digest, 33 (8): 366-370.

McLaughlin, John and Susan Nichols (1989). Resource management: the land administration and cadastral systems component. Surveying and Mapping, 49 (2): 77-85.

McLaughlin, John and Hernando de Soto (1994). Property Formalization: The PROFORM solution. Geomatica, 48 (4): 307-314.

Migot-Adholla, Shem, Peter Hazell, Benoît Blarel, and Frank Place (1991). Indigenous land rights systems in sub-Saharan Africa: A constraint on productivity. The World Bank Economic Review, 5 (1): 155-175.

Moore, Barrington (1992). Social Origins of Dictatorship and Democracy. Boston: Beacon Press.

National Research Council (1980). Need for a Multipurpose Cadastre. Washington, DC: National Academy Press.

National Research Council (1983). Procedures and Standards for a Multipurpose Cadastre. Washington, DC: National Academy Press.

Nedelsky, Jenneifer (1990). Private Property and the Limits of American Constitutionalism. Chicago: University of Chicago Press.

North, Douglass (1990). Institutions, Institutional Change, and Economic Performance. New York: Cambridge University Press.

OECD (1986). Labour Market Flexibility. Report by a high-level group of experts to the Secretary-General. Paris: Organisation for Economic Cooperation and Development.

Olsen, Mancur (1993). Dictatorship, democracy, and development. American Political Science Review, 87 (3): 567-576.

Prosterman, Roy and Jeffrey Riedinger (1987) Land Reform and Democratic Development. Baltimore: John Hopkins University Press.

Putnam, Robert (1992). Making Democracy Work. Princeton: Princeton University Press.

Shipton, Parker and Mitzi Goheen (1992). Understanding African landholding: power, wealth and meaning. Africa, 62 (3): 307-325.

Simpson, S.R. (1976). Land Law and Registration. Cambridge: Cambridge University Press.

Stigler, G. (1971). The theory of economic regulation. Bell Journal of Economics and Management Science, 2 (1): 3-21.

Swynnerton, R.J.M. (1955). A Plan to Intensify the Development of Agriculture in Kenya. Nairobi: Government Printer.

Turner, John (1963). Lima barriadas today. Architectural Digest, 33 (8): 375-380.

Turner, John (1967). Barriers and channels for housing development in modernizing countries. Journal of the American Institute of Planners, 33: 167-181.

Turner, John (1981). A discussion paper on the question of government intervention in urban settlement types. In the Residential Circumstances of the Urban Poor in Developing Countries, United Nations Centre for Human Settlements, New York: Praeger Publishers, 220-238.

5 LAND MANAGEMENT IN TURKEY

5.1 Problems concerning land management in Turkey

Rapid population growth, unconscious industrialization, irregular urbanization, unconscious use of natural resources, floods, forest destruction and avalanches are negative effects on the natural equilibrium and are caused by human pollution, which leads to environmental pollution, i.e. degradation of ecosystems. Forests are destroyed due to forest fires, negligence, carelessness, illegal construction and unconscious cutting of trees to open land. As a result, the natural balance of ecosystems deteriorates, the species living in the forest and the habitats of these species disappear, and the richness of soil is lost.

Waste of industrial enterprises, population, urbanization, maritime transport and accidents, acid rain, septic tanks, landfills, drugs used in agriculture, natural and artificial fertilizers cause water pollution. Marine pollution is also important since our country is surrounded by seas. In this context, the main problems encountered because of misuse or misuse of lands in our country can be grouped under three main headings. These are:

- ***i) Problems in the use of environmental and natural resources.***
- ***ii) Problems in the use of rural and agricultural land.***
- ***iii) Problems in the use of urban land.***

Problems in the use of environmental and natural resources

Natural resources are the basic assets taken from nature where the raw materials required for life are obtained, such as mine, oil, water, forest, agriculture and livestock land, which have played the most important role in the development of societies throughout history.

Air, Water and Soil are the three main natural resource groups, which contain the gas, liquid and solid chemicals required for living things to survive. Water and land have always been of strategic importance in terms of gaining power and superiority to others, in conflicts of interest arising from the transition from individuality to society. This issue is still valid today.

The rapid growth of the world population and the increase in the diversity and quantity of the needs of the societies also increased the demand for natural resources in water and soil. Natural resource use is a very important point of human life today. Natural resources, which are very important in the absence of environmentally sensitive projects, are lost without considering the spatial effects of technological facilities.

The unequivocal use of natural resources by people, the unconscious consumption of resources, the loss of the balance between nature and life that has been continuing since the past has caused a rapid deterioration. Factors such as rapid population growth, irregular urbanization, tourism and industrialization cause natural resources to not be used in a healthy way and this leads to the loss of environmental awareness. As a result, various environmental problems arise.

Natural resources, which are very important in the absence of environmentally sensitive projects, are lost without considering the spatial effects of technological facilities. The unequivocal use of natural resources by people, the unconscious consumption of resources, the loss of the balance between nature and life that has been continuing since the past has caused a rapid deterioration. Factors such as rapid population growth, irregular urbanization, tourism and industrialization lead to the inability of natural resources to be used in a healthy way, which leads to the loss of environmental awareness. As a result, various environmental problems arise.

The environmental management approach, which aims to ensure that all living things can survive with natural resources in a healthy and balanced environment, emphasizes that the resources on the earth are limited and irreversibly damaged, and that economic development can be maintained by preserving the ecological balance.

Economic development and conservation of natural resources should be considered together. As an example of changes in people's natural environment, dams built on rivers can be given. If the dams are designed and developed according to the geographical conditions and developed by using strategies; to obtain energy from the renewable waterpower, to prevent from floods, to make social, cultural and sportive activities, increase agricultural production, irrigation and so on. advantages are obtained. However, if the dams are projected without considering geographical conditions; flooding of many settlements, displacement of people, damage of plant and animal species in the geographical environment, salinization and salinity of agricultural land, spread of various diseases etc. disadvantages can be seen.

One of the most important natural resources is forests. In addition to producing carbon dioxide and producing oxygen, forests are important in terms of accommodating many animals and plants and meeting the needs of people. However, the distribution of forests to the earth is not stable, but it differs more by climatic conditions. Forest areas are constantly decreasing for different reasons. While the forests were being destroyed and used in the past, it is tried to be utilized by taking into consideration the sustainable methods. In order to sustain forests, forest areas that have been destroyed must be protected and afforested.

The ability to operate a natural resource depends primarily on its potential. The potential of a natural resource determines the efficiency and reserve. While natural resources with high potential are used, natural resources with low potential are not opened for operation. Therefore, first of all, a healthy natural resource inventory is needed.

Environmental Impacts of Land Use

The realization of the mutual relations between nature and human beings by planning will reduce the problems. In order for the planning to be successful, every stage of a long process should be examined.

The fertile land is decreasing in the face of the continuous increase in the population. Therefore, it is necessary to make various plans in order to get the most benefit from the scarce natural resources.

The main features that should be considered in order to achieve the right results in land planning are:

- ✓ The purpose of the land should be determined.
- ✓ Topography, vegetation, settlement, soil, water condition maps should be prepared.
- ✓ Studies on land skill classification should be carried out.
- ✓ Risks related to natural and human structures should be taken into consideration and these risks should be reduced.
- ✓ Local and regional needs should be considered.
- ✓ Projects to obtain the highest level of land should be developed.
- ✓ The positive or negative effects of the project to be implemented on the people of the region should be determined and alternative solutions should be produced for them.
- ✓ Solutions should be produced to minimize the negative impacts of the projects on the environment.
- ✓ Implementation phase should be started.

All of the above issues are made possible by a good land management policy and implementation. For this reason, first of all, the existing status of the land, remote sensing techniques and geographic information systems, such as information technologies, taking advantage of high-scale (eg 1 / 25.000) master maps should be produced and linked databases should be created.

Problems in the use of rural and agricultural lands

Today, the world population has increased to 7 billion. In spite of this rapid increase in population, soils on the earth's surface remain the same;

Considering the fact that there is still a hunger problem on the world, it can be said that the population, which is growing rapidly, is one of the most important and serious problems of the world in terms of meeting the food needs.

At this stage, the situation is not different from the world in Turkey. Moreover, considering that the population growth rate in our country is higher than the world average, it is a necessity to use our existing agricultural lands effectively in order to meet the food needs of our rapidly growing country population.

When we look at the agricultural areas in our country, there are two main problems in general. These;

- ✓ *Use of agricultural land in non-agricultural areas,*
- ✓ *It is a fragmented and scattered structure in a way to prevent yield.*

Problems: in rural areas & agriculture ..?

Rates of Farm Size in Turkey and some EU countries

İşletme büyüklüğü (hk) / Ülke	0,1 – 4,9	5,0 – 9,9	10,0 – 19,9	20,0 – 49,9	50,0 >
Almanya	% 5,0	% 8,3	% 20,3	% 43,8	% 22,7
Belçika	% 4,5	% 8,6	% 23,1	% 41,1	% 22,6
Danimarka	% 0,2	% 4,5	% 13,7	% 41,7	% 39,8
Fransa	% 1,9	% 3,7	% 11,2	% 37,2	% 46,1
Hollanda	% 3,9	% 8,9	% 24,7	% 46,3	% 16,3
İngiltere	% 0,5	% 1,3	% 3,3	% 12,7	% 82,2
İrlanda	% 1,9	% 5,1	% 18,8	% 41,0	% 33,1
İtalya	% 19,6	% 14,5	% 14,8	% 16,8	% 34,3
Lüksembourg	% 1,7	% 2,3	% 7,1	% 41,0	% 47,9
Yunanistan	% 39,1	% 29,3	% 17,8	% 9,9	% 3,9
AB	% 6,6	% 7,0	% 12,8	% 29,4	% 44,1
Türkiye	% 22,1	% 20,0	% 21,0	% 19,8	% 17,1

Problems: in rural areas & agriculture ..?

Land Consolidation…

To prevent the degradation and fragmentation of lands by natural and artificial effects, and to create new parcels of economic, ecological and socially functional new parcels by combining more than one piece of land by considering natural properties, usage integrity and property rights in the fragmented lands and to determine the usage patterns by evaluating the land properties and area of these parcels, village and land development services. (5403 no. SOIL PROTECTION AND LAND LAW, 2005)

Planning of Village Resettlement Areas? *In the 45th article of the Unplanned Areas Reconstruction Regulation, the size of the parcels to be formed in and around the settled areas of villages and hamlets was determined*

Problems in the use of urban land

Urbanization is described as the development of urban lifestyles. In other words, large population accumulation in a narrow area is defined as the new physical and social formation, a complex network of relationships, the differentiation of branches of business and the emergence of a unique cultural system. Urbanization constitutes the process of change of the population who migrated to the city or the population residing in the city and it is handled with its social, cultural and economic characteristics. While urbanization is carried out with the adoption of the attitude and behaviour specific to the city in social terms, the people living in rural areas have a different economic and socio-cultural lifestyle.

In the 19th century, the industrialization movement in the west started the process of urbanization. Nowadays, the number of people living in urban areas is increasing in the majority of countries in the world. The real development of the cities was after the industrial revolution. The industrial revolution is an important stage affecting the development of the urbanization process. The industrial revolution has an important place in the development and growth of cities, becoming the major industrial centres.

The emergence of new inventions in the industrial field in the UK The advances in agriculture and new developments in ownership have led the peasants to migrate to industrial zones. The industrialization movements that started in the UK soon spread to other European countries such as Germany, France, Switzerland and Belgium. The change created by the industrial revolution in the city also influenced the physical planning of the city and formed new settlement areas outside or outside the city.

After the Second World War, Turkey has entered into a major process of change. After the 1940s, the city and urbanization problems was continuously occupied an important place in Turkey's agenda. The urbanization movement, which takes its origin from the rural population through internal migration, is not only a demographic event but also a process of change.

The population of the city increased very slowly until the 1950s. Since the growth in agriculture is not at the same rate as the population growth rate, migration from rural to urban areas has become very important for economic reasons. That is why a population boom occurred in those years. The migration of this population from the countryside to the city began with the economic and social change seen in rural areas of the country in the 1950s. In general, the mechanization of accelerating agriculture in social formations in Turkey with the world system and its modernization, changes in traditional land ownership regime in agriculture, low productivity, insufficient agricultural income, loosing land or soil collected in certain hands, living in rural areas by factors such as improvements in transport conditions towards the population in urban areas It is rapidly moving.

Between 1960 and 1980, the increase of rural-urban income differences, the economic and social rise of cities, the development of transportation and communication, and the increasing internal migration movements have increased the urban population. 1980 in Turkey, especially in large cities, including economic, social and physical problems brought about. Turkey's economic and social structure of this urbanization process cannot remove this migration "excessive urbanization," "unhealthy urbanization", "urban sprawl" is expressed through concepts such. People who came with immigration also built squatter neighborhoods around urban centers and started to live with problems such as economic, housing, health, education and social welfare.

In the post-1980 period, it was understood that the general population had gradually increased and the ratio of the population in the cities was higher than the rate in the past. The reasons for the transformation of internal migration from this period into a city centered structure are; The fact that education organization is predominantly included in urban areas has led to the emergence of intermediate barriers between the city and the beginning of phased migration due to the policies encouraging economic policies and investment of the public sector.

The urbanization rate in Turkey, although low compared to industrialized countries, the urbanization rate is extremely high. In 1950, 30% of the world's population lived in urban areas, while in 2010 this rate exceeded 50%. In the same year in Turkey, 15% of the population lived in the city and 85% of the population lived in rural areas. According to the Address Based Population Registration System of 2009, 75.5% of the population lives in urban areas and 24.5% of them live in rural areas. The city is the place where physiological, economic, social and cultural needs are met at a certain level in terms of human relations. In other words, cities have better education, health, etc. The service has been the settlement center for people who want to increase their jobs, who want more income, more beautiful and good housing. Due to these opportunities, it has become a center of attraction.

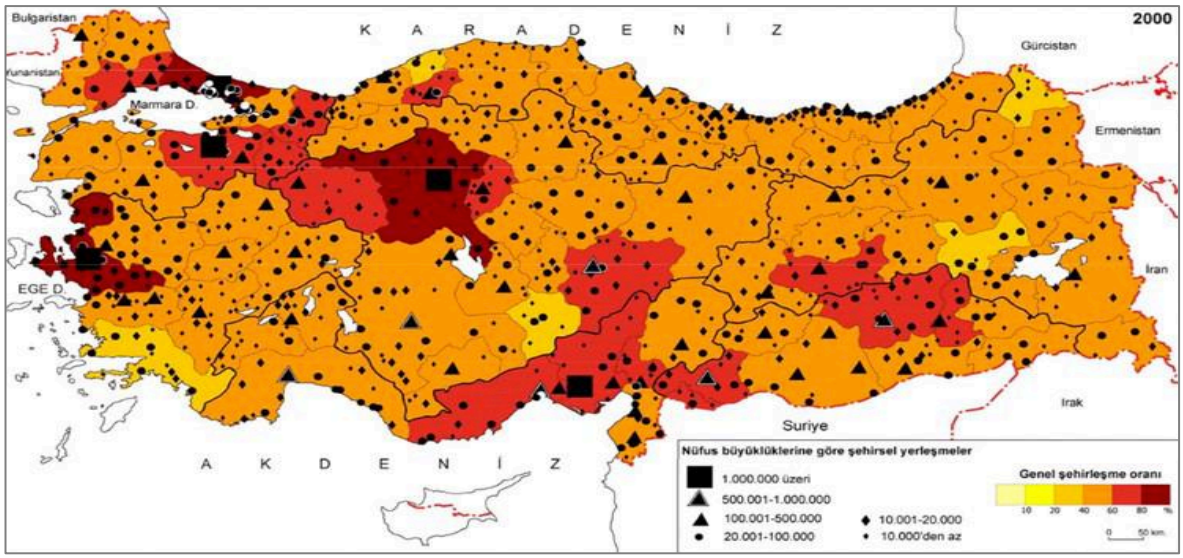


Fig. The distribution of the urbanization level in Turkey (2000)

Urbanization in our country has gained momentum especially since the beginning of 1950s with the migration from the village to the city and this movement is still up to date. In particular, in the immigration process leading to industrial cities, local governments failed to provide adequate land supply and infrastructure investments. This has led to unplanned urbanization and rapid urbanization in particular in large cities.

While the shanty case was originally intended as a shelter, over time, this phenomenon has become a means of rent. Almost all of them are on public lands. Especially with the laws issued as amnesty, new expectations have emerged and the problem of slum has become inextricable.

Today's cities are growing mostly unplanned and unhealthy. Cities lack many technical and social basic infrastructure and cause environmental problems. Especially with unhealthy urbanization; urban life is at risk, forest areas, water basins, agricultural areas, sites, green and historical textures are destroyed.

After all; there is a need for an effective LAND MANAGEMENT in order to prevent similar cases from re-occurring and to transform cities into contemporary and livable spaces.

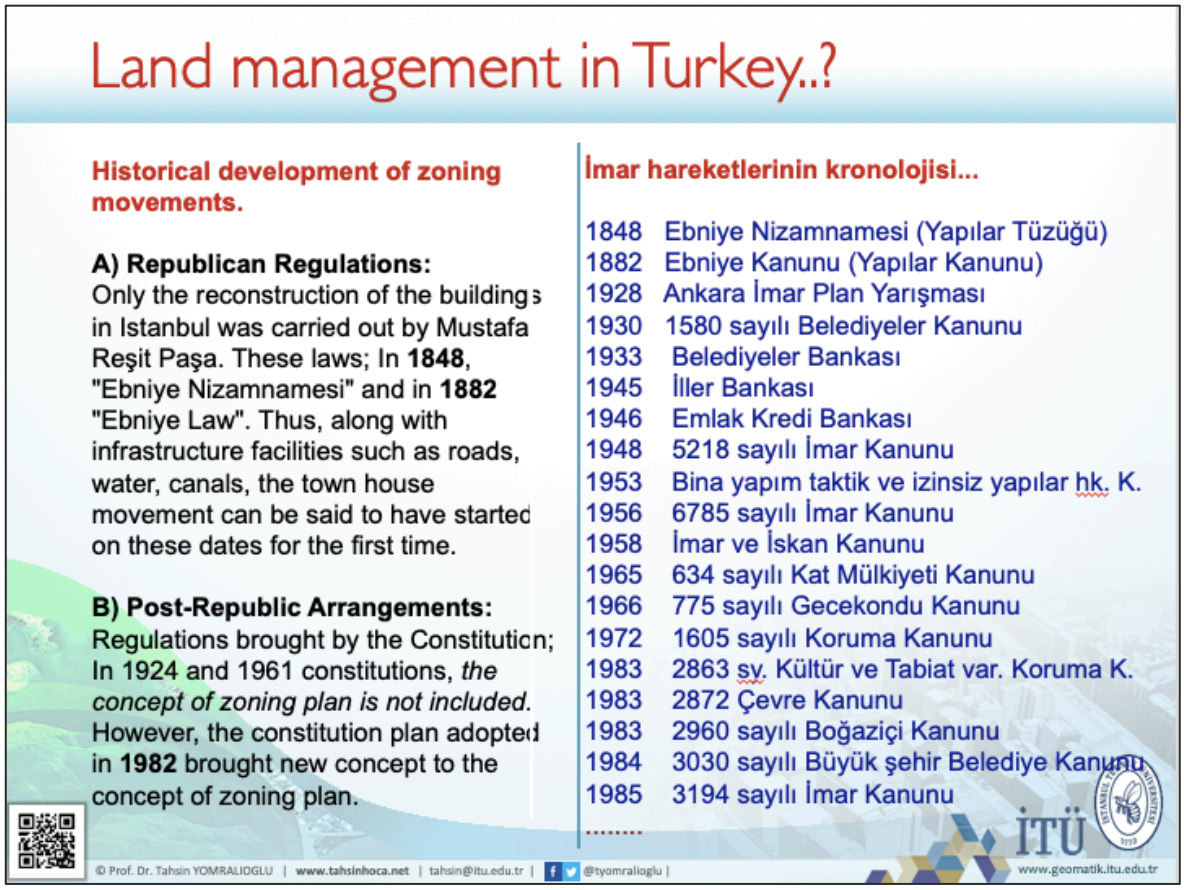
Problems: urbanization ..?
Kuzey Ankara kentsel dönüşüm projesi..
Bursa'da kentsel dönüşüm..!
İTÜ
© Prof. Dr. Tahsin YOMRALIOGLU | www.tahsinhoca.net | tahsin@itu.edu.tr | @tyomralioglu |
www.geomatik.itu.edu.tr

Problems: urbanization ..?
Suçlu sel değil
ÇARPIK KENTLEŞME
Suçlu olan doğa değil
ÇARPIK KENTLEŞME
Kartal'da çöken bina için yıkım kararı yoktu, imar barışı başvurusu vardı
6 Şubat 2019
ÇEVREYİ HOR GÖREN GELECEĞİ ZOR GÖRÜR!
YAĞIŞLARI FELAKETE ÇEVİREN PLANSIZ VE ÇARPIK KENTLEŞME
KİM HESAP VERECEK?
Felaket değil rezalet
"Kentsel dönüşüm" yasalaştı
Sağlam olmayan
YIKILACAK !
İTÜ
© Prof. Dr. Tahsin YOMRALIOGLU | www.tahsinhoca.net | tahsin@itu.edu.tr | @tyomralioglu |
www.geomatik.itu.edu.tr

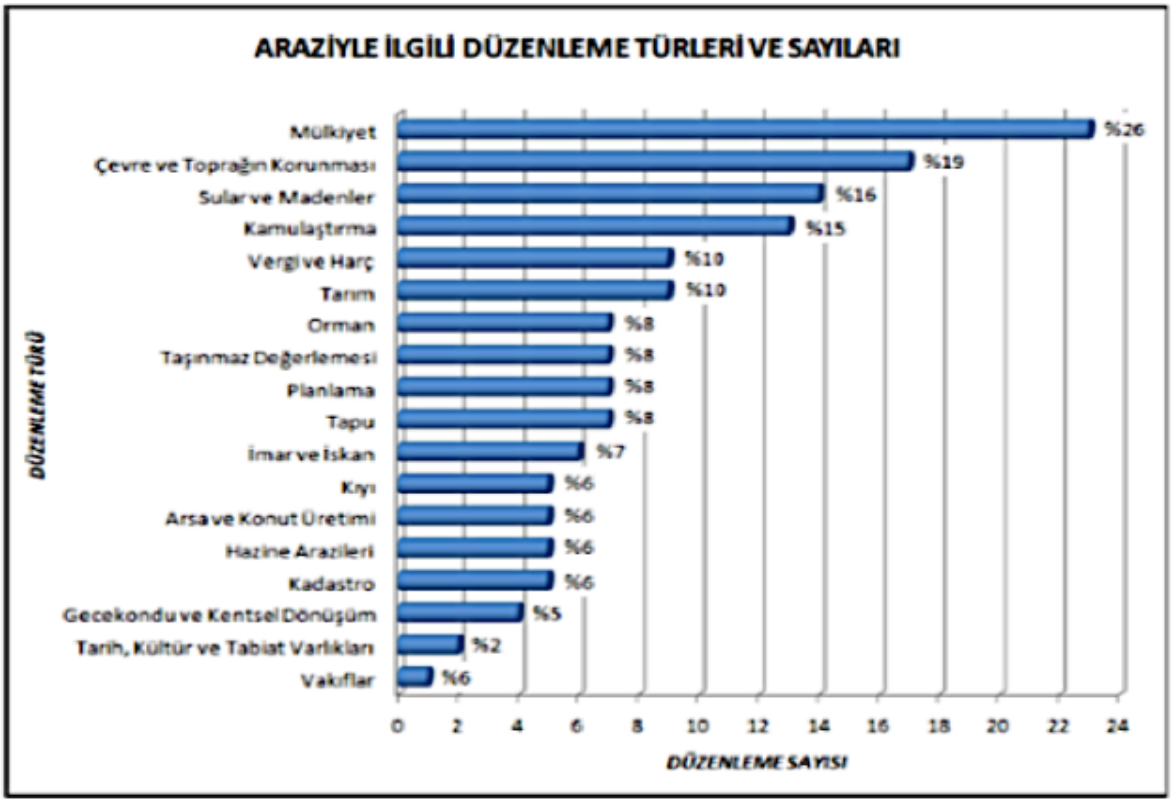
5.2 Legislation infrastructure on land management

The land management legislation is the set of rules which include the regulations necessary for the implementation of the land policies. For this reason, the effectiveness of the land policy of the country or region it belongs to and thus the important clues about the suitability of the land management systems. In this context, the current structure of Turkish land management legislation should be examined.

In our country, especially in the Constitution and the Civil Code, different laws, decree laws (statutory decree), bylaws, regulations, directives and circulars, there are regulations related to the land. The Grand National Assembly of Turkey (TBMM) prepared the Constitution, the Civil Code and other laws Council of Ministers (CoM). The rules and regulations prepared and set by the Turkish Grand National Assembly about the land covered by the legislation; regulations, directives and circulars prepared by ministries, public legal entities and senior executives of public institutions include guiding regulations for the implementation of the legislation.



Land management in Turkey..?
Legislation hierarchy
CONSTITUTION
LAWS
DECREE on
REGULATIONS
REGULATIONS
COMMUNIQUÉS
CIRCULARS
Legal – Technical - Admin
Natural resources
Urbanization..
Agriculture..
© Prof. Dr. Tahsin YOMRALIOGLU | www.tahsinhoca.net | tahsin@itu.edu.tr | @tyomralioglu |
İTÜ
www.geomatik.itu.edu.tr

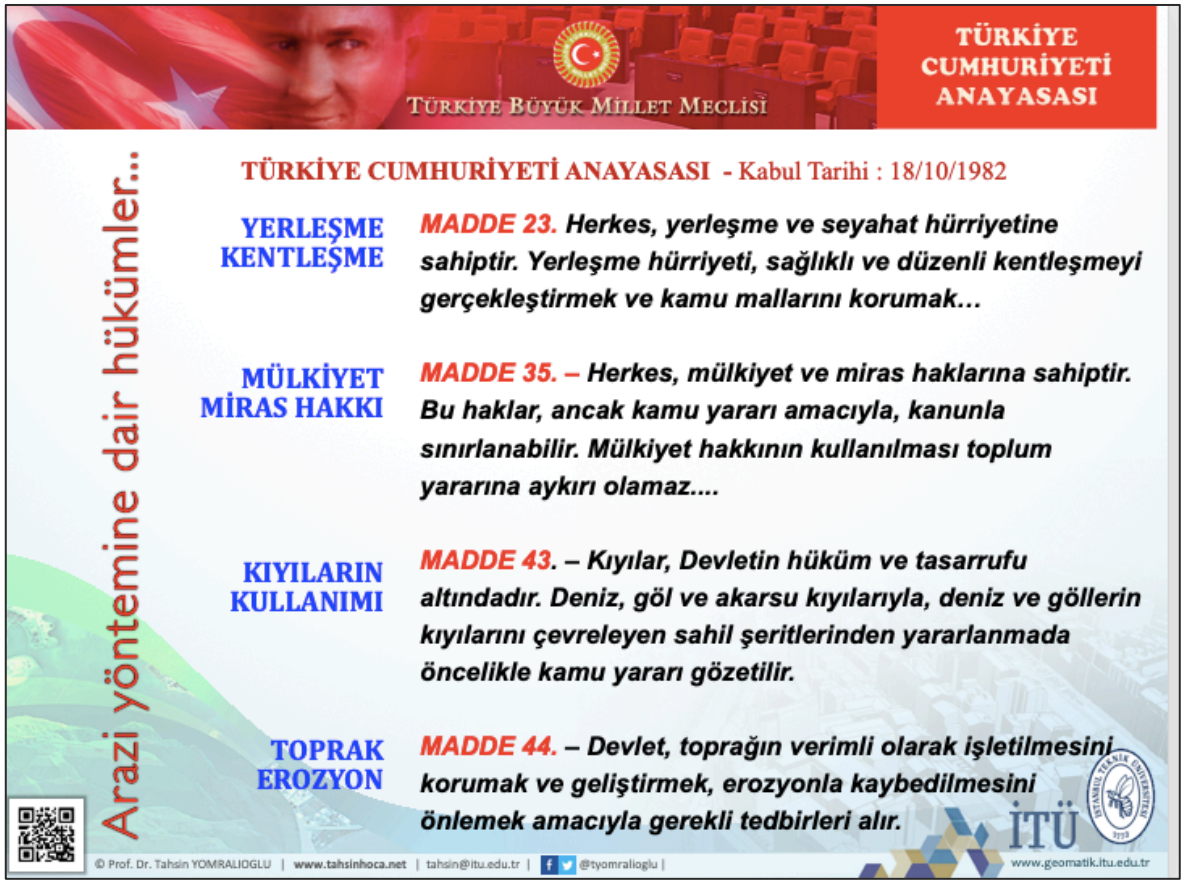

ARAZİYLE İLGİLİ DÜZENLEME TÜRLERİ VE SAYILARI
Mülkiyet %26
Çevre ve Toprağın Korunması %19
Sular ve Madenler %16
Kamulaştırma %15
Vergi ve Harç %10
Tarım %10
Orman %8
Taşınmaz Değerlemesi %8
Planlama %8
Tapu %8
İmar ve İskan %7
Kıyı %6
Arsa ve Konut Üretimi %6
Hazine Arazileri %6
Kadastro %6
Gecekondu ve Kentsel Dönüşüm %5
Tarih, Kültür ve Tabiat Varlıkları %2
Vakıflar %6
DÜZENLEME TÜRÜ
0 2 4 6 8 10 12 14 16 18 20 22 24
DÜZENLEME SAYISI

The Constitution and Civil Law

Legal basis for property acquisition in Turkey is phrased in the Constitution of the Republic of Turkey, Article 35 "**Everyone has the right to ownership and inheritance rights**."

The legal basis of the Modern Land Registry is the Civil Code of 4 October 1926 (Amended: Law No. 4721 dated 22/11/2001). Article 705 of the Civil Code indicates that "**The acquisition of land ownership can only be with registration**." Article 997 also explains the main purpose of this process with the phrase "**Land registry is kept to show the rights on the real estates**."

According to Article 719 of the same law, "**the boundaries of the immovable property shall be determined by the land markings and deed plans.**" With this statement, "**cadastre**" is indicated for the determination of boundaries. The establishment of land registry records and the determination of the boundaries of the land and the registration of the cadastral operations to be carried out based on 22/12/1934 dated 2644 numbered Land Registry Law and 21/06/1987 dated 3402 numbered Cadastre Law.



TÜRKİYE BÜYÜK MİLLET MECLİSİ

TÜRKİYE CUMHURİYETİ ANAYASASI

Arazi yöntemine dair hükümler...

TARIM-MERA ARAZİLERİ

MADDE 45. – Devlet, tarım arazileri ile çayır ve meraların amaç dışı kullanılmasını ve tahribini önler..

SAĞLIK ÇEVRE ve KONUT

MADDE 56. - Herkes, sağlıklı ve dengeli bir çevrede yaşama hakkına sahiptir…Çevreyi geliştirmek, çevre sağlığını korumak ve çevre kirlenmesini önlemek Devletin ve vatandaşların ödevidir...

KONUT HAKKI

MADDE 57. – Devlet, şehirlerin özelliklerini ve çevre şartlarını gözeten bir planlama çerçevesinde, konut ihtiyacını karşılayacak tedbirleri alır, ayrıca toplu konu teşebbüslerini destekler ...

KAMU YARARI KAMULAŞTIRMA

MADDE 46. – Devlet ve kamu tüzelkişileri; kamu yararının gerektirdiği hallerde, gerçek karşılıklarını peşin ödemek şartıyla, özel mülkiyette bulunan taşınmaz malların tamamını veya bir kısmını, kamulaştırmaya ve bunlar üzerinde idarî irtifaklar kurmaya yetkilidir...

TÜRKİYE BÜYÜK MİLLET MECLİSİ

TÜRKİYE CUMHURİYETİ ANAYASASI

Arazi yöntemine dair hükümler...

DEVLETLEŞTİRME KAMU MALI

MADDE 47. – Kamu hizmeti niteliği taşıyan özel teşebbüsler, kamu yararının zorunlu kıldığı hallerde devletleştirilebilir.

TARİHİ-DOĞAL VARLIKLAR

MADDE 63. – Devlet, tarih, kültür ve tabiat varlıklarının ve değerlerinin korunmasını sağlar. Bu varlıklar ve değerlerden özel mülkiyet konusu olanlara getirilecek sınırlamalar kanunla düzenlenir.

PLANLANMA SOSYO-EKONOMİ

MADDE 166. – Ekonomik, sosyal ve kültürel kalkınmayı, ülke kaynaklarının döküm ve değerlendirilmesini yaparak verimli şekilde kullanılmasını planlar..

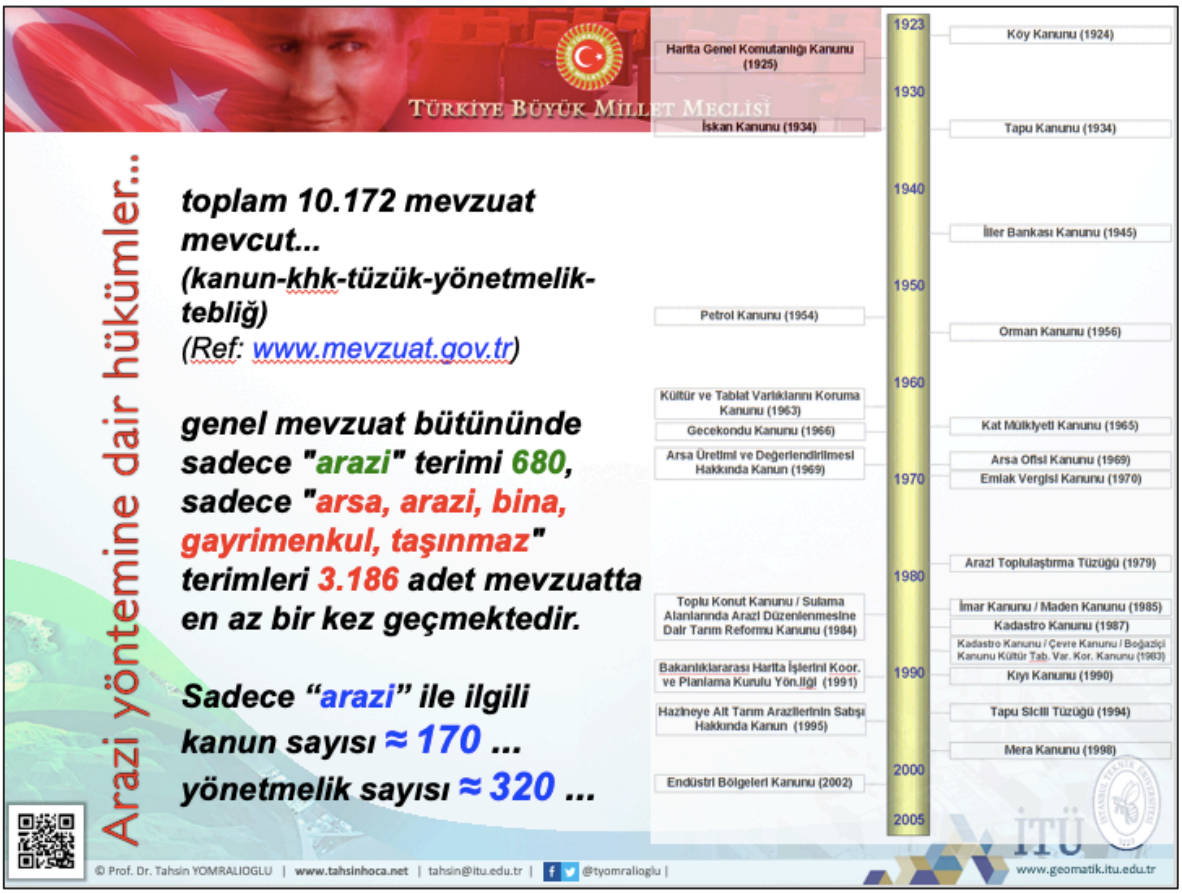
MADENLER TABİİ SERVETLER

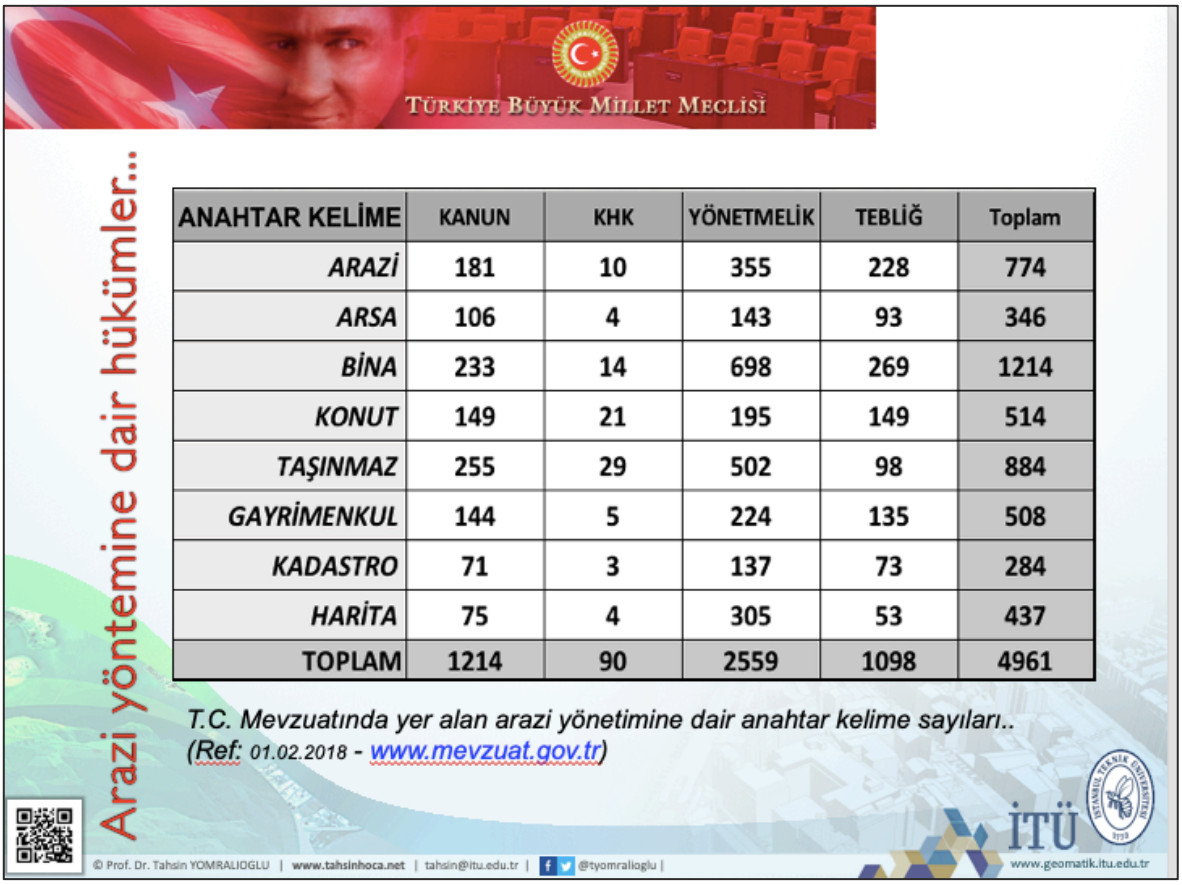
MADDE 168. – Tabiî servetler ve kaynaklar Devletin hüküm ve tasarrufu altındadır.

ORMAN KULLANIMI

MADDE 169. –Bütün ormanların gözetimi Devlete aittir. Devlet ormanlarının mülkiyeti devrolunamaz. Bu ormanlar zamanaşımı ile mülk edinilemez ve kamu yararı dışında irtifak hakkına konu olamaz.

© Prof. Dr. Tahsin YOMRALIOGLU | www.tahsinhoca.net | tahsin@itu.edu.tr | @tyomralioglu | www.geomatik.itu.edu.tr





ANAHTAR KELİME	KANUN	KHK	YÖNETMELİK	TEBLİĞ	Toplam
ARAZİ	181	10	355	228	774
ARSA	106	4	143	93	346
BİNA	233	14	698	269	1214
KONUT	149	21	195	149	514
TAŞINMAZ	255	29	502	98	884
GAYRİMENKUL	144	5	224	135	508
KADASTRO	71	3	137	73	284
HARİTA	75	4	305	53	437
TOPLAM	1214	90	2559	1098	4961

The Cadastre Law No. 3402

The aim of the Cadastre Law no. 3402 (modified by Law no.5304) is to accomplish; "based on the cadastral or topographical cadastral map that referenced to the national coordinate system, determining the boundaries of the immovable property on the map and land, and to create their legal rights with land titling and registration system as indicated in the Civil Code Numbered 4721, and construct the infrastructure of land information system."

Within the scope of the Law, the places that fall within the administrative boundaries of the central district and other districts of each province represent the cadastral zones. The cadastral zones shall be determined by the suggesting of the General Directorate of Land Registry and Cadastre and the approval of the Minister. In this context, the regions where cadastre will be started are announced at least one month in advance in the Official Gazette, Radio or TV, in the regional center and in the province where it is connected, and in the local newspaper, if any, and also by conventional means.

Other Laws Related to land management

In addition to the basic legal provisions mentioned above and directly related to the cadastral, there are of course some other procedures for land and property management. Because the property is a phenomenon in which many activities take place on the land, it is directly related to many other legal structures.

Especially in Turkey, zoning, soil-land use, preservation of natural heritage, underground and aboveground resources management and so on need to be based on basic laws which constitute the legal basis of the country, and they demand cadastre and land registry information directly or indirectly. According to this;

- **Forest Law No. 6831 (31.08.1956):** Forest cadastral works were excluded from traditional cadastral works and left in the task of General Directorate of Forestry. However, the relationship between the two institutions arises during the Cadastral studies in the villages adjacent to the forests. In many villages there are problems with forest cadastral works. Solving these problems will be possible by transferring forest cadastral works to TKGM.
- **Zoning Law No. 3194 (03.05.1985):** These are the land-use plans that reflect the rules established for the settlements to be habitable. These plans determine the provisions of drawn rules and written law rules regarding the use and utilization of land. For these transactions, it is only possible to register properties under the modern cadastre in the land registry system under the guaranty of the government.
- **Expropriation Law No. 2942 (04.11.1983):** is a method used for the acquisition of the immovables that the state requires for the tasks that the state is obligatory. It is based on well-functioning Cadastral assets, which are recorded in an effective and fair expropriation process.
- **Real Estate Tax Law No. 1319 (29.07.1970):** One of the main objectives of the universal cadastral activities, which is identical to its name, is to collect taxes on immovables. The territory of the country, which can be evaluated in two parts as rural and urban, should be recorded as technologically based. With the support of good cadastral information, it will be possible to collect taxes much more than the immovable taxes collected in a way to provide public justice.
- **Soil Conservation and Land Use Law No. 5403 (03.07.2005):** Article 8 of the Law provides for the classification of agricultural lands and determination of the size of the land parcels, determination of the minimum parcel sizes, and restrictions on inheritance and disposals in order to ensure economic and productivity in agricultural activities. So, there is a need for good cadastral procedures.
- **Pasture Law No. 4342 (25.02.1998):** is a law for livestock. Pastures have been used out of purpose and most of them have been occupied until the law is passed. With this law, agriculture directorates and cadastral directorates, although two different institutions, required simultaneous co-operation. The law is aimed at determining the ownership of the pastures and there is a cadastre in the transactions.
- **Coastal Law No. 3621 (04.04.1990):** The coastal areas are considered as non-registered areas in cadastral terms. On the other hand, the determination of the

coastal line is the main process for revealing our coasts. However, Turkey is determined largely turned on three sides of that line our coasts. On the contrary, because of the incomplete cadastral work in our coastal areas, there are very big problems with social focus on the property. That is to say, after the cadastral studies, it was understood that the coastal line had many properties in contact with the coast. Thousands of disputes were filed in the judiciary. The problem is that the cadastre and coastal legislation cannot be integrated. In addition, the cadastral work on the coastal cadastral organization, on the other hand for the determination of the coastal line works of the directorate of public works. Problems arise due to different institutional views. As a result, coastal law is directly property oriented.

- **Mining Law No. 3213 (04.06.1985):** Cadastral studies of the region where the mine is the subject are of great importance for the determination of our mineral assets and to measure the bounded area with the parcels and owners on the land surface. Thus, it can be a result of multipurpose Cadastral studies to find out where the depth of the mine area, to what depth is allocated and which parcels are related, and to be able to register the property rights of the mine sites under state security and control.

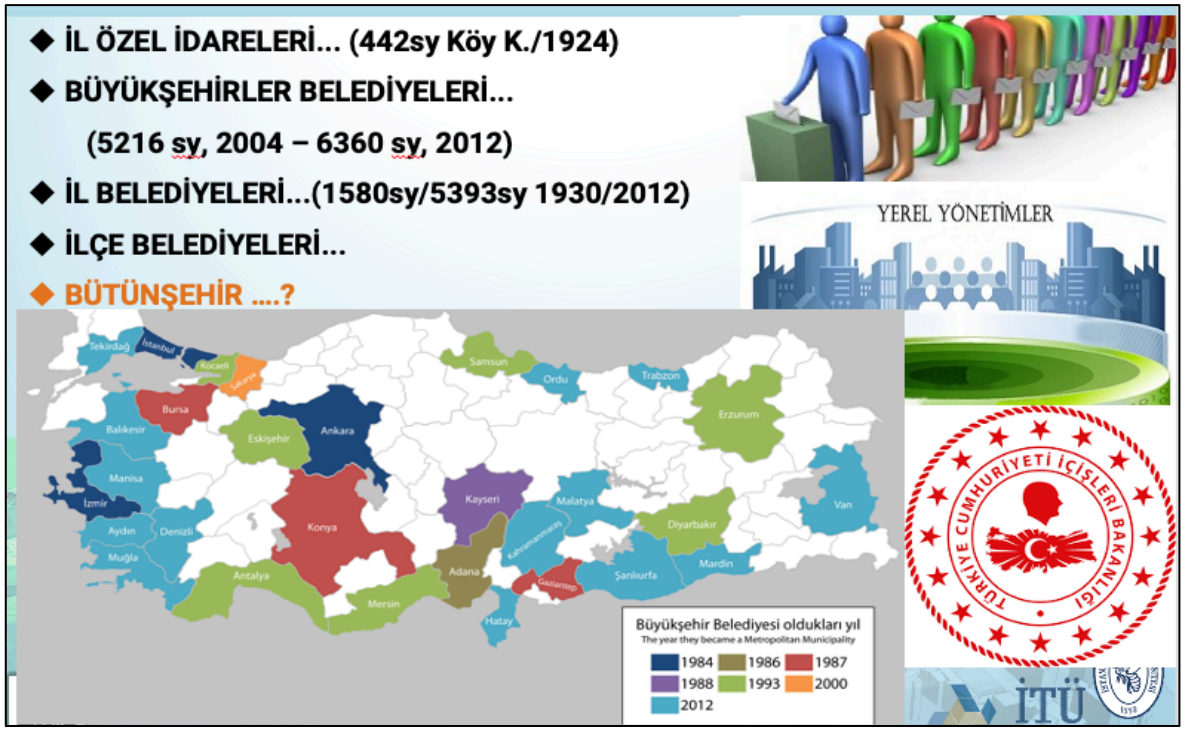
5.3 The institutional structure of land management

The implementation of the legislation on land management, which sets the rules for the implementation of the land policies, is carried out by the institutions carrying out land activities. For this reason, the effectiveness of land management and administration depends on the efficiency of the organization of the institution as well as the legislation prepared in this area.

Table.x Matrix of institutions and activities for the land

FAALİYETLER / KURUMLAR	Harita Yapımı	Kamulaştırma	Çevre ve Toprak Koruma	Taşınmaz Değerlemesi	Planlama	Altyapı Hizmetleri	İskan Düzenleme	Hazine Arazilerinin İdaresi	Madenlerin İdaresi	Arsa ve Konut Üretimi	Kadastro	Ormanların İdaresi	Tarihi Varlıkların İdaresi	Toplulaştırma	Gecekondu Önleme	Tapu Sicili	Vakıf Taşınmazlarının İdaresi	Kıyı Yönetimi	TOPLAM FAALİYET SAYISI
Belediye	■	■	■	■	■	■	■	■		■			■		■				11
İl Özel İdaresi	■	■	■	■	■	■	■						■	■					9
Tarım Reformu GM*	■	■	■	■	■		■	■		■				■					9
Devlet Su İşleri GM	■	■	■	■		■	■				■			■					8
Toplu Konut İdaresi	■	■		■	■	■	■			■					■				8
Orman GM	■	■	■	■				■	■			■							7
Afet İşleri GM	■	■			■	■	■			■				■					7
BOTAŞ GM	■	■	■	■	■	■	■												7
Karayolları GM	■	■	■	■		■					■								6
Teknik Araştırma ve Uygulama GM	■	■		■	■					■								■	6
Tapu ve Kadastro GM	■			■				■			■					■			5
İller Bankası GM	■	■	■		■	■													5
Türkiye Kömür İşletmeleri	■	■	■	■					■										5
Vakıflar GM		■		■									■				■		4
Orman - Köy İlişkileri GM		■	■	■								■							4
Maden İşleri GM	■	■	■						■										4
Tarımsal Üretim ve Geliştirme GM	■	■	■					■											4
Kültür Varlıkları ve Müzeler GM		■	■		■								■						4
GAP Bölge Kalkınma İdaresi Başkanlığı	■				■	■													3
Yatırım ve İşletmeler GM		■	■		■														3
Maden Tetkik Arama GM	■		■						■										3
TEDAŞ GM		■		■							■								3
Özelleştirme İdaresi	■			■	■														3
Türkiye Petrolleri Anonim Ortaklığı	■		■						■										3
Valilik				■	■														2
Ağaçlandırma ve Erozyon Kontrolü GM			■									■							2
Doğa Koruma ve Milli Parklar GM			■									■							2
Petrol İşleri GM		■							■										2
ÇED ve Planlama GM			■		■														2
Yapı İşleri GM	■				■														2
Harita Genel Komutanlığı	■																		1
Milli Emlak GM								■											1
Tarım Kredi Koop. Merkez Birliği GM				■															1
Enerji Piyasası Düzenleme Kurulu		■																	1
Çevre Yönetimi GM			■																1
Sermaye Piyasası Kurulu				■															1
TOPLAM KURUM SAYISI	21	21	20	18	15	9	7	6	6	5	4	4	4	4	2	1	1	1	

Administrative structure of local government in Turkey



The establishment and duties of the administration are based on the principles of **central government** and **local government**. Local government units; **the special provincial administrations and municipalities.**

LOCAL GOVERNANCE: In order to meet the common needs of the people living in cities, towns and villages, it is the election of various institutions organized by the elections, and the provision of public services with these institutions. Local administrations, in the words of the local administrations or the constitution, form the administrative bodies in terms of location. These; Special Provincial Administrations, Municipalities and Villages.

Within the framework of the authority granted by the Constitution, the establishment and boundaries **of municipalities**, powers and responsibilities of the municipalities, organs, organization, budget, **Law No. 5393** which was enacted in 2005; The establishment and boundaries, bodies, organization and personnel, budget of the **metropolitan municipalities** are regulated in the **Law No. 5216** on the Metropolitan Municipality, which was enacted in 2004.

The establishment, boundaries, duties, powers and responsibilities, organs, organization, control, budget and economic initiatives of the **provincial special administrations** are regulated in the Law on Special Provincial Administrations numbered 5302 in 2005. Special provincial administrations are located at the head of the governor, who is the representative of the central government.

5.4 Legal and institutional issues

1) The most striking feature of the land administration laws in our country is that they have a multi-part structure. Legal changes are more and more the way of new laws, which leads to a complete conflict of law.
2) A significant part of the laws on land administration remains far from the requirements of developing and changing countries.
3) Some land administration activities are regulated by more than one legislation. This leads to authority confusion, repetition of work and loss of efficiency in practice.
4) The law of the amnesty, which is issued, damages the effectiveness of the existing laws. Therefore, social expectations are the triggers of new negativities in the future. There are many such laws in our legislation.
5) Although there are many regulations in our legislation to regulate the land administration and solve some of the problems in this area, land problems have not been solved yet.
6) In our laws, the existence of some expressions which do not clearly state what the meaning or the scope is, may lead to different interpretations, while irreversible problems may arise.
7) There are provisions that are not fully implemented in our land administration laws.
8) With some laws, some institutions may be assigned missions without infrastructure. In this case, the cost and effort spent trying to fulfil this task may be wasted.
9) When the land management is considered in a sense of integrity, in practice this integrity is not reflected in the land administration institutions. Because there is no leading institution to ensure effective coordination between institutions.
10) The institutions can easily be established or structurally modified except for the "total quality management" approach. The closure of some institutions shortly after the establishment or changes in the parent organizations they are often affiliated with are among the most important indicators of this.
11) There are no specialized structures in some fields of activity (eg information systems, real estate valuation, expropriation, etc.) that have an important place in land administration. Many institutions authorized in these areas carry out such transactions independently of each other.
12) Regarding the structure of municipalities which have an important place in the field of land administration in our country, although they are obliged to perform the same duties, there is not yet a standard structure in their administrative structures.

5.5 Land Management Applications in Turkey

For human activities which are the source of personal property and wealth, and which increase with the growing population; more land acquisition, use, change, conversion and demand emerged. Public and local administrators want to obtain more land to meet increasing public services. Rapid urbanization, taking all kinds of disaster measures including earthquake, necessity of balanced and effective use of natural resources, necessity of clean environment necessitates planned use of land. Especially in our country, one-way and continuous migrations from rural to urban; it has increased the need for land use for urban purposes, and this has made terrain and land values extremely expensive and valuable. Here are all of these are in the world as it is in Turkey also make mandatory the rational use of land and managed.

Planned urbanization, urban transformation, land sale to foreigners, erosion studies, protection of watersheds, flood-landslide prevention, real estate valuation, use of areas that lose the character of the forest in the last quarter of the last quarter of the year, where local and central administrators are constantly looking for solutions, effective land management and land-based issues. On the other hand, Geographical / Land Information Systems, which appear parallel to the development of information technologies, are also an important tool in ensuring the land management, feasibility and sustainability. In order to adapt to the European Union Common Agricultural Policy in Turkey "Restructuring and Reform Project in Agriculture" it was introduced. However, since the spatial data / information infrastructure is not at the desired level in our country, the expected benefits of such projects have not been achieved.

Managing and eliminating all these issues and related problems; It is possible with the correct "Land Management Model" systematic. But how can a manageable, unique model be realized? This model; technical, economic and social dimensions, with which administrative institutions and in what way; the questions that need to be eliminated; responses and solutions should be discussed. In this sense, for a sustainable land management in our country; the process of producing a model was introduced by putting forward the technical, legal, economic and social dimensions of the subject and this workshop was organized for this purpose (www.ayop.info).

land management issues in Turkey; technical, economic and social aspects of the relevant experts, scientists, politicians, representatives of public and local administrations, and representatives of the professionals came together to evaluate the following results are determined.

1 *Since land is the main place of human activities, it has an important place both in individual and social life. In addition, the land is a source of wealth for individuals, as well as an important financial value for countries, even an important part of the social and political phenomenon that strengthens societies. However, "land", which has an important place in the life of individuals and societies, is also a consumable, finite resource.*

2. *Therefore, sustainable management of the land is needed. Sustainable land management (SAY) will only be possible with the existence of a healthy land policy which has been developed with long-term thinking. It is an accepted view that urban development is gaining momentum and it is possible to gain healthier environment and living spaces for future generations. This is due to the fact that the land has a multi-player user base. In this context, sustainable management of the land stands out.*

3. *The most striking feature of the land administration laws in our country is that they have a multi-part structure. A significant portion of the laws on land administration are far from being able to meet the needs of developing and changing countries. Some activities related to land are regulated by more than one legislation. One activity can be carried out by more than one institution and repetitive jobs are emerging due to the lack of coordination. This means wasting both national resources and labor. This leads to confusion and injustice in practice. In particular, the European Court of Human Rights (ECtHR), our country is undergoing significant economic losses.*

4. *In the new constitution works to be revised, with a human-oriented approach, the sections related to "land" should be organized in the context of SAY and should be organized by very participatory actors. In particular, the immovable property should include trust. Legal arrangements should be included in order to prevent the payment of the fee or the use of private / public real estates with the aim of rent. In order to encourage investment in the real estate market, the state should establish mechanisms in which the land markets can be operated effectively and effectively.*

5. *It is known that there are important deficiencies in the land registry in our country. Some kind of deed records are "dead", so they are not up to date. A deed reform is needed in our country. The existing Land Registry and Cadastre system should be designed to be able to integrate with the national GIS and present statistical information. TKGM should publish regular alerts in certain processes based on the information it possesses (eg property acquisition of mortgages, mortgage facility rates, purchase-sale transactions, etc.).*

6. *Multi-piece land management needs to be integrated. For this purpose, there is a need for an institutional restructuring such as effective and effective, coordinating, umbrella organization and Land Administration. This institution should be able to regulate the real estate-based legislation and prevent and manage conflicts, register the immovable values and work effectively with other institutions.*

7. *KBS is one of the most important tools to accelerate land management. For the national geographic database, the infrastructure of national geographic information systems should be established by the leading institution. In this context, the creation of orthophoto maps Turkey will make significant contributions to the actors in the context of land management. In this context, it is useful to measure the sub-parcel boundaries of the immovable in the determination of the type of the parcels.*

8. *Urban regeneration projects, which are one of the implementation tools, should be arranged in a way to include the owners and immovable fair values of the project, as well as the economic contribution of the project owners to the immovable owners and the regulation and valuation models. The Urban Development Strategy (KENTGES), which targets the year 2023, should be followed and necessary updates should be made.*

9. *Immediately reviewing international valuation standards, standards and parameters should be determined, and an information management system needs to be developed that can analyse this structure as a whole.*

10. *The purpose of land management is to protect the land, to improve it, to maximize its benefits and to ensure its sustainability. In the context of urban land management and rural land management, we have to consider two main headings. Rural areas should be re-planned together with village areas. In urban areas, the applicability of land consolidation should be investigated in the Agricultural Conservation Areas (TNKA) defined in the zoning plans.*

11. *A new legal work on public property and non-owned areas should be carried out. Current areas should not be completed with cadastre and renewal 22 / A. These areas should be managed in the context of sustainable land management. Especially in the 22 / A applications made in the areas of consolidation should be considered together with the consolidation.*

12. *In order to prevent migration to developed cities, treasury lands in rural areas should be directed to industrial workforce and contribution should be made to urban development. The coastal plans should be reviewed and Coastal Edge Line*

measurements should be made for all parts of the country and studies based on integrated coastal planning approach should not be performed.

13. *The priority values of 2 / B areas should be determined. Legal regulations should be introduced to prevent such areas from occurring again. In the forest law, parcel registration must be made in the case of the "Special Forest", which may be owned by private citizens.*

14. *The transition from mining sites, virtual mining licenses (exploration licenses) to real mining licenses (operating license) should be provided. Specifically, by the forest ministry, which forest areas will not be licensed is defined as positional and should be presented to users. After mining activities, projects to evaluate these areas should be developed and necessary legal arrangements should be made. New approaches to immovable property for mining sites, in other words, new approaches other than expropriation should be investigated.*

All the above description in the context of Turkey is clear that a wide variety of land management practices. However, considering the definition of land management and the provisions of the general legislation, especially the constitution, the most common of the applications; ***natural resources, rural areas and urban areas***.

In this context; ***land management, land resources, cultural and natural assets, mines, agriculture, pasture areas, coasts, cities and all their ownership conditions such as land registry, cadastre, real estate appraisal, land, geographic and urban information system for the establishment of technological infrastructure. application areas.***

In the following sections, land management practices are discussed in more detail.

6 PROPERTY MANAGEMENT: CADASTRE

The main the subject of land management is the immovable property in Turkey. The immovable property may be privately owned, reserved for public use, in the provision and saving of the state or may be unregistered. If an effective and sustainable land management is to be mentioned, all the immovable properties of the country and any land data and information related to them are needed in detail. This is the "cadastre" which firstly supplies the data. For this reason, cadastre is the main "engine" of a holistic land management.

A **cadastre** (also spelled **cadaster**) is a comprehensive land recording of the real estate or real property's metes-and-bounds of a country. In most countries, legal systems have developed around the original administrative systems and use the cadastre to define the dimensions and location of land parcels described in legal documentation. The cadastre is a fundamental source of data in disputes and lawsuits between landowners. A cadastre commonly includes details of the land ownership, the land tenure and the precise location of a legal land.

A **Cadastre** is normally a parcel based, and up-to-date land information system containing a record of interests in land (e.g. rights, restrictions and responsibilities). It usually includes a geometric description of land parcels linked to other records describing the nature of the interests, the ownership or control of those interests, and often the value of the parcel and its improvements. It may be established for fiscal purposes (e.g. valuation and equitable taxation), legal purposes (conveyancing), to assist in the management of land and land use (e.g. for planning and other administrative purposes), and enables sustainable development and environmental protection.

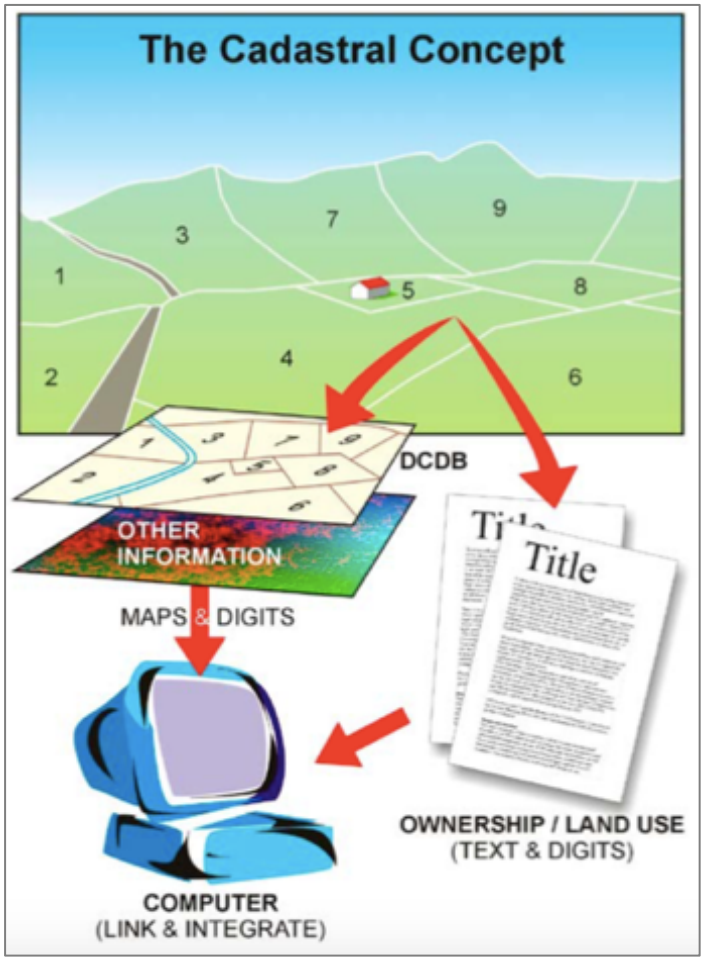
A cadastral map is a map that shows the boundaries and ownership of land parcels. Some cadastral maps show additional details, such as survey district names, unique identifying numbers for parcels, certificate of title numbers, positions of existing structures, section or lot numbers and their respective areas, adjoining and adjacent street names, selected boundary dimensions and references to prior maps.

Cadastral maps commonly range from scales of 1:10,000 to 1:500. Large scale diagrams or maps showing more precise parcel dimensions and features (e.g. buildings, irrigation units, etc.) can be compiled for each parcel based on ground surveys or remote sensing and aerial photography.

The Cadastre is a land information system, usually managed by one or more government agencies. Traditionally the Cadastre was designed to assist in land taxation, real estate conveyancing, and land redistribution. The Cadastre is the primary means of

providing information about property rights. More specifically, the Cadastre provides the private and public sector with:

- information identifying those people who have interests in parcels of land;
- information about those interests (e.g. nature and duration of rights, restrictions, and responsibilities);
- information about the parcels (e.g. their location, size, improvements, value).



The Cadastre forms part of the base data required in any public land information system. Since information about land parcels and land holdings is often needed by many different users, having a unified, standard Cadastre for each jurisdiction helps to avoid duplication and assists in the efficient exchange of information. The Cadastre is usually created and managed through a government organization. In some countries, Cadastre may be the responsibility of local governments; in others it is a state or national responsibility.

Other information can also be connected to land parcels through the unique parcel identifiers and through cadastral index maps. Such information may be of importance to specific user groups and includes:

- buildings and other improvements
- agricultural data (land capability classifications, land use)
- forestry data
- utilities (e.g. water, electricity, communications)
- fisheries (noting individuals holding rights in inland and coastal waters)
- environmental quality (particularly for site-specific analysis and monitoring)
- demography (population statistics, consumer marketing data, etc.)

The Cadastre plays an important role in the regulation of land use. Land use regulations stipulate conditions for the initial establishment of a parcel (e.g. subdivision or amalgamation); the use to which the land will be put; parcel size; and the necessary access to water and sewerage, roads, etc. In land development, the Cadastre forms an essential part of the information required by the private developer, land owners, and the public authorities to ensure that benefits are maximized and costs (economic, social, and environmental) are minimized.

6.1 Purpose and scope of Cadastre

Cadastre is an essential formal process in Turkey. In this sense Cadastre; It is the whole of the process of issuing the title deed documents to the right holders by registering the legal status of the immovable properties within the borders of the country on the land and map and by registering it in the land registry in accordance with the Turkish Civil Code as a result of the finalization of the transactions.

These duties were given to the General Directorate of Land Registry and Cadastre (TKGM) under the law. The main task of TKGM; To determine the basic principles for the realization of the land registry, to determine the legal and technical status of the real estates and to keep them up to date. All these activities are carried out under the Cadastre Law No. 3402.

According to the Cadastre Law No. 3402, **the aim of the cadastre is to establish the property rights of immovable property and to perform cadastral maps in accordance with the provisions of the Turkish Civil Code**. As a result of these studies, the geometric positions and legal conditions of the parcels on the supply are determined and a modern title deed is created under the responsibility of the state. Therefore, "**cadastre**" is carried out with technical measurement and mapping procedures on the ground, then the other legal rights on the "**parcel**" with the boundaries determined, by registering "**title deed**" and the certification process of the property is completed.

"**Cadastre"** shows the legal and similar situations determined by the questions "**Who and how?"** for real estate. "**Title Deed**" answers "**Where and how much?"** questions with the position, is seen as a unified whole the technical situation under one roof of activities.

The Cadastre helps to provide those involved in land transactions with relevant information and helps to improve the efficiency of those transactions and security of tenure in general. It provides governments at all levels with complete inventories of land holdings for taxation and regulation. But today, the information is also increasingly used by both private and public sectors in land development, urban and rural planning, land management, and environmental monitoring.

6.2 Components of Cadastre

Information in the textual or attribute files of the Cadastre, such as land value, ownership, or use, can be accessed by the unique parcel codes shown on the cadastral map, thus creating a complete Cadastre. Examples of the functional data of general interest to a wide user community, that is usually considered part of the Cadastre, include:

- **Land parcels** (e.g. location, boundaries, co-ordinates)
- **Land tenure** (e.g. property rights, ownership, leases)
- **Land value** (e.g. quality, economic value, tax value, value of improvements)

However, in order to be able to set a fitting cadastre structure, ***at least three basic components must exist and be linked with each other***. These are;

a) Cadastral parcel

The cadastral parcel is a volumetric bounded area of land, where homogeneous relations or property rights are assumed to exist. In the three-dimensional structure of the earth, a parcel covers the rights of the down and upper use in addition to the rights above the ground. As long as the rights are spread to all three dimensions of the parcel as homogeneous, the relationship of property is directly related to the spatial definition (location of the parcel). How to determine the structure of the parcel in a particular cadastral system is determined by the institutions responsible for the cadastral legislation in the country.

b) Cadastral records

Cadastral records may consist of one or more graphical and textual parts. The integrity of a cadastral system is provided by a descriptive code (**PID**) that is singular for each parcel in a given region; all parcels are linearly linked to the cadastral map. The

map layers establish the relationship of the property relationship to the other parcels, a coordinate system and other graphical information in the system (eg roads or zone boundaries). This graphical representation, which is accepted as a legal record for the definition of the property or as an index only to other legal records, depends on the objectives of the cadastral system, the standards for the construction and maintenance of the cadastral system and the institutional environment in which the transactions are made.

In addition to the cadastral map, a significant cadastral record is a land registration book. The map, which can display the boundaries of the parcel graphically, cannot show many other property rights. For this reason, these rights are registered in the title-deed registry. In the land registry; *There are legal information including parcel and block number, location, size, owner, share status, legal rights, reason of obtaining, annotation, mortgage and similar restrictive rights.*

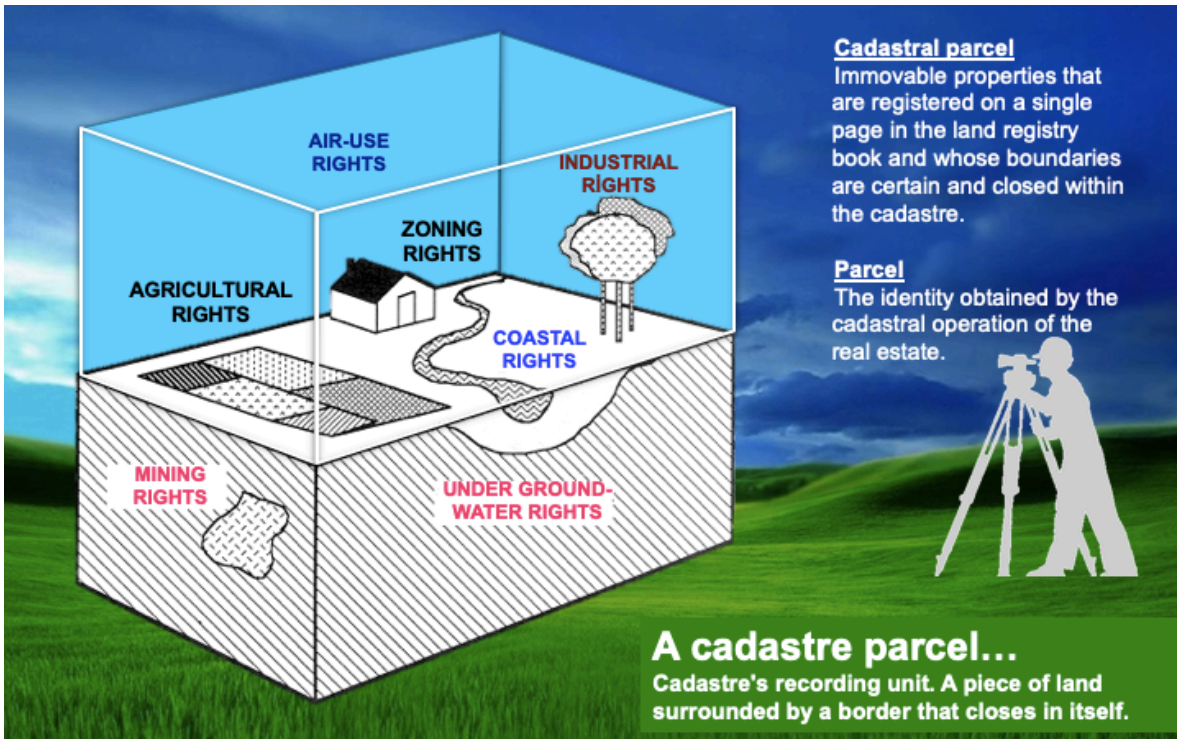
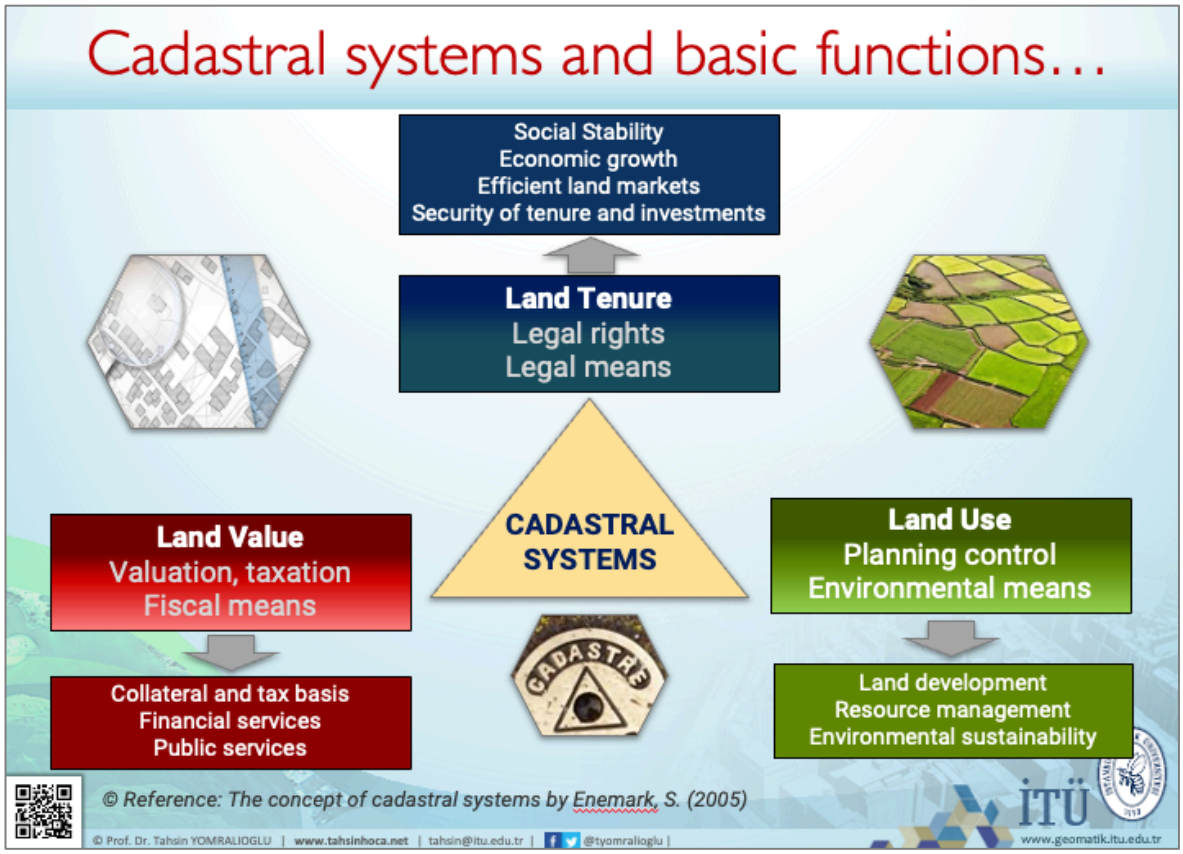


Fig. A land parcel and its related property rights

c) Cadastral parcel number (PID)

The relationship between attribute information (land registers) in the written records and spatial information (cadastral maps) in graphical records; the parcel codes, which serve as the access and connection mechanism and which are singular for each parcel, are set up with parcel numbers (PID). Not only the cadastre's own records, but also the relations of property information with other spatial map layers can only be linked with parcel numbers.

The parcel number representation may be different in countries that they choose it according to their cadastral systems. For example, the parcel number used to describe any parcel in Turkey; ***province name, district name, village/neighbourhood name, map sheet no, block number and parcel no***.



6.3 Functions of Cadastre

As societies evolved and property transactions became important, Cadastral records began to take on a greater legal role. Today, Cadastres often serve many functions and multiple users. Cadastral functions may be classified in many ways, e.g. by:

- primary function (e.g. supporting taxation, conveyancing, land distribution, or multipurpose land management activities);
- the types of rights recorded (e.g. private ownership, public use and rights, mineral leases);
- the degree of state responsibility in ensuring the accuracy and reliability of the data (e.g. complete state mandate, shared public and private responsibility);
- location and jurisdiction (e.g. urban and rural Cadastres; centralized and decentralized Cadastres);
- the many ways in which information about the parcels is collected (e.g. ground surveys tied to geodetic control, uncoordinated ground surveys and measurements, aerial photography, digitizing existing historical records, etc.)

All of these factors help to determine the required resolution and scale of graphical data (such as cadastral maps), the type and characteristics of data recorded in both the graphical and attribute files, and the organizational and professional responsibility for managing the data. Other factors that will influence the format and management of the Cadastre include:

- history, culture, and traditional land tenure arrangements;
- size; population distribution; physical and economic geography;
- level of technology; traditional public administration arrangements;
- land and property law arrangements; land policy priorities for the jurisdiction.

6.4 Types of Cadastre

When the developments from the emergence of the cadastre to the present day, three basic approaches are seen in cadastral systems. These approaches reveal the types of cadastre. These;

a) **Fiscal cadastre;** aims at taxation and valuation of immovables.
b) **Legal cadastre;** aims to regulate land ownership concepts and records in accordance with legal regulations.
c) **Multipurpose cadastre;** is a cadastre that can cover both fiscal and legal cadastre and may include other land information on the basis of parcels.

Fiscal Cadastre

The fiscal cadastre (*also called as tax-based cadastre*) is subject to the evaluation of each parcel for tax purposes and the inventory of the parcels. The first occurrence of the cadastre was for tax collection purposes. In 1807, Napoleon's instructions to a commission headed by the mathematicise Delambre set forth the first realistic implementation of fiscal cadastre. According to this, approximately one hundred million parcels would be classified and classified according to land use and their income and production capacities would be determined. According to the owners of these parcels will be made necessary records of inventory made. This process took 40 years to complete. This approach then led to the development of many cadastral systems in Europe. (http://cadastre.pagesperso-orange.fr/expo.htm).

There are three basic steps in the realization of the tax cadastre. The first of them; determination of all parcels that may be subject to assessment separately. Then each parcel is classified according to usage types and its values are determined. In the last stage, the tax amounts of each parcel are collected from the related parties based on the determined values. The taxpayer may not be the owner of the parcel. However, the user is obliged to pay taxes.

The taxes collected from the immovables are very important in the development of the principles. In this respect, the parcel detection and immovable assessment subject to the tax system must have a dynamic structure. In terms of income generation, although some institutions, especially municipalities, give priority to creating an information system in Turkey, the fact that the cadastral structure is not fully prepared and the problems in evaluating the parcels cannot be overcome cause many systems to fail at the beginning. Therefore, the solution should be searched at the facility in a short term rather than in the long term as a permanent and updatable property infrastructure system.

Legal Cadastre

Legal or legal cadastre is based on parcel registration system. In this system, the conditions and how the cadastre should be done are determined by law. The most distinctive feature of the legal cadastre is to measure the parcel boundaries in the field, as well as to record the rights and property information on the parcel. Therefore, the cadastral sheet and the title deed registry are considered as a whole. As a result of the cadastral activities carried out according to the law, the title deed issued to the owners is a legal document and the property rights are under state guarantee.

The main function of the legal cadastre is to determine the size of the territory of the country, to determine and register *the possession rights* (=*zilyetlik hakları*) belonging to the public and private property and to establish the immovable law in the country. In our country, the land registry and cadastre procedures, which were previously made under the name of different legislations, were revised in 1987 with the Cadastre Law no. 3402. The General Directorate of Land Registry and Cadastre (TKGM) is a public institution responsible for the cadastral offices and the land registry offices in the provincial offices and provincial offices.

Multipurpose Cadastre

Multipurpose Cadastre is a system that collects and shares information on parcel basis, including tax and legal cadastre, as well as other services requiring property information. The classical cadastral concept that emerged at the beginning was transformed into multi-purpose cadastre concept by being affected by other developments in 1970s. This concept was later influenced by the developments in information technology in the 1980s and began to be called as parcel-based information system and nowadays it is also known as land information system.

In the multi-purpose cadastre including the main objectives of the land information system; taxation of the land and the establishment of an effective system for the collection of these taxes, thus accelerating the investments in the land, contributing to

the developments in rural and urban areas in particular, providing support to the planning activities to be done in the public interest by producing large scale property maps and records, land use, agriculture. It is essential to create statistical information on the land.

In the transition to the land information system with a multi-purpose cadastral system, a national surface reference network should first be established and other basic maps should be produced based on this network. Large scale cadastral map layers to be produced should be established to establish standards that will ensure the exchange of information with other map sectors as well as written records within themselves.

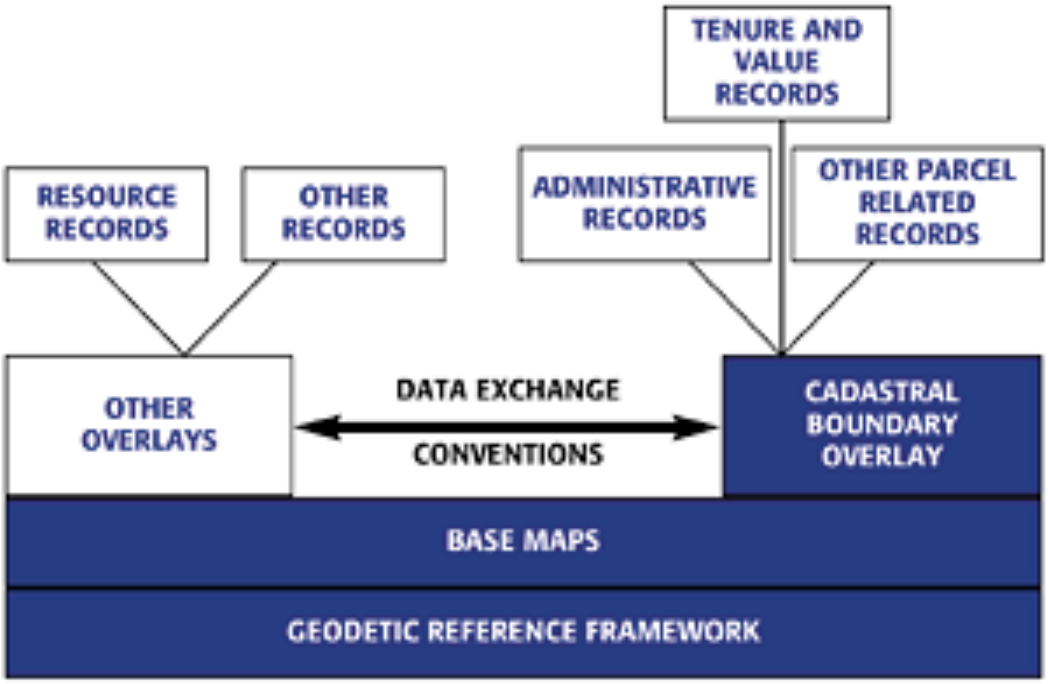


Fig x. The main structure of a multipurpose cadastre

6.5 What is property analysis?

The terminology of "Property Analysis" is not a concept in the property law, it is a general concept put forward in the field of occupation related to land ownership procedures. In this context, the areas where property analysis is used as the content can be classified as follows.

a) Applications that reorganize land property in terms of its geometric and ownership structure: Expropriation, land consolidation, land readjustment, urban regeneration

b) Real estate valuation

c) Land property development

d) Determination of the future income of immovable properties

Since the above-mentioned areas of interest are directly related to property, the necessity of examining the properties in terms of both land registry and cadastre and the development plan reveal the need for property analysis. In this context, it is necessary to conduct the following research on the relevant property for the analysis of property:

A) In case of land ownership (malik) in land title registry:

- ✓ Whether the landowners are alive,
- ✓ The existence of the "gaip" person in the property landowners,
- ✓ Whether the address information of the immovable owners can be reached,
- ✓ The accuracy of the equality of the shares / denominator in the portions,
- ✓ Whether there is a judicial case for the landowner or not,
- ✓ Whether the landowners name in the land registry is empty or not,
- ✓ Whether a floor easement or condominium ownership was established on the related immovable,
- ✓ Whether there are partners among landowners under the age of 18,
- ✓ Whether there is a partner with a mentality health problem among landowners,
- ✓ Whether the real estate owner is a foreign or natural legal person
- ✓ Whether there is any discrepancy between the actual type of the parcel on the ground and the registered in the title deed,

B) In case of statement (*şerh*) in land title registry:

- ✓ Whether there is an expropriation statement,
- ✓ Whether there is a military prohibition zone statement,
- ✓ Whether there is a SIT statement,
- ✓ Whether there is a land readjustment statement,
- ✓ Whether there is a land consolidation statement,
- ✓ Whether there is a trespass statement in favor or against the neighboring parcels,
- ✓ Whether there is a precaution decision statement,
- ✓ Whether there is a statement in favor of third parties for elements such as structure and trees on it,

C) In case of easement/ confiscate/ mortgage conditions:

- ✓ Whether there is an easement of "Energy Transmission Line" in favor of TEK / TEDAŞ,
- ✓ Whether there is a right or passage right in favor of neighboring parcels,
- ✓ Whether there is a confiscate or mortgage right against one or all of the landowners,

D) In case of cadastral condition:

- ✓ Whether there is an incompatibility between the area in the land title and the area in the cadastral map sheet,
- ✓ If there is a "pylon" under a separate parcel number within the land parcel,
- ✓ Whether the cadastral map sheet has graphical or numerical content in terms of its ability to apply it to the field,
- ✓ Whether there is a front facing to cadastral road,

E) In case of zoning condition:

- ✓ Whether it is within the scope of zoning plan,
- ✓ The amount of zoning right and the type of construction,
- ✓ In the zoning plan whether the green area, road and such public areas are overlapped,
- ✓ Whether it is within the scope of a closed geological area,

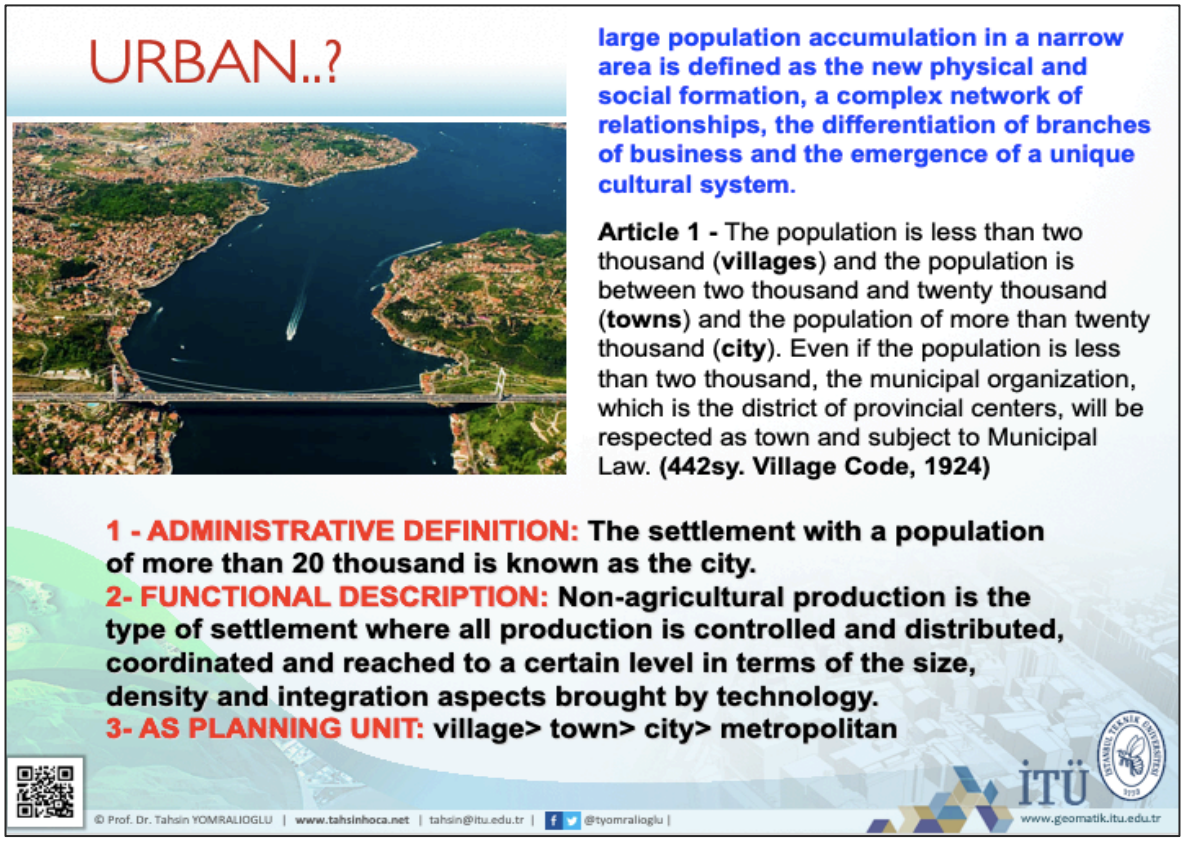
F) In case of land appraisal condition:

- ✓ Location in the city,
- ✓ Distance to city center and main transportation axes,
- ✓ Distance from value-enhancing factors,
- ✓ Distance from the value-reducing factors,
- ✓ Whether there is valid value of real property,

7 LAND MANAGEMENT IN URBAN AREAS

7.1 Urbanization and planning process

What is urban?



"LIFE FUNCTIONS" IN PHYSICAL PLANNING

1- HOUSING. (Housing according to family texture ...)

2- WORKING. (Workplace in various sectors)

3- INFRASTRUCTURE AND EQUIPMENT. (Public administration, cultural, religious, health, technical and social facilities)

4- EDUCATION. (Schools, vocational and art schools, theater, cultural centers, concert halls, etc.)

5- RESTING. (Forest, park, sports, navigation areas)

6- TRANSPORTATION. (Urban and non-urban, near and far transportation facilities)

7- COMMUNICATION. (Intercity, international communication)

Zoning statutes

Quote: An overview of the zoning legislation through the eyes of a city planner

CITY PLANNING- *In planning, we need to see everything as planning as a general concept rather than planning the place where we live directly. First of all, we can plan our time and use our cities as long as you can use them properly. This city can extend from planning, management to the company or a small trade unit within its own functioning scheme. The most fundamental feature of planning is that it is a systematic whole. It is to inform each other and to the next data and to provide mutual interaction. In the integrity of the planning, if the connections between these inputs cannot be established, the system will collapse.*

SETTLEMENT- *The phenomenon called settlement is theoretically a whole of housing, working surfaces, open spaces, educational and cultural facilities and transportation channels, but these four cases are never seen separately. These phenomena are intertwined in the neighbourhoods where we live, mainly consisting of these functions. The main task of the planners is to ensure that people can live happily in this city since the birth of cities. Our main task is to add value to people's parcels or real estates or to expand the way ahead of them to provide a habitable environment. People are happy if they can easily reach from one place to another and this is the plus value of planning. If we are not approaching the right data, analyses and syntheses in a city in the growth process as urban planners, we succeed in killing cities before natural disasters.*

Our settlement and plan worth the first plan is the zoning plan. This is located near the end or even near the end. The 5-year development plan has targets determined only by sector. Regional plans should be prepared in line with these objectives. Regional plans, Turkey's highest scale are planned. Regional plans are environmental plans that concern the decisions taken by the plans. The common scale is 1 / 25,000. After the plans of the landscaping plans, 1 / 5,000 zoning plans, 1 / 1,000 zoning plans and the zoning plans come. We can reach building densities with various global methods in master development plans. However, we should see the structure intensities, the element we need to use, zoning plans and plans must be 1 / 1.000 scale. If the regional plans have forbidden the construction of industry in one place, the environmental plan cannot bring industry here. If it is due to a number of obligations, these should be shown in a higher scale plan as required by law. This interaction is for each one. The basic requirement of the zoning plan for us is the elements that contain a legal limitation area that specifies the building rights in the region.

WHAT ARE THE FEATURES OF THE ZONING PLAN? *Fundamentally, the objectives of the zoning plan are to prepare the most appropriate conditions for people to live. It is to enable the distrust of the country in the context of social-economic developments. To protect the public interest and to provide the logic of it. To protect the public interest and to establish the logic of this, to ensure a balanced distribution.*

The first needs of people come to the city. While the urban settlement area is so rural and there are agricultural areas around it, agricultural land gradually decreases. The fact that agricultural lands go out of agriculture, enter into the boundaries of the development plan, in this context outside the length of the right, the right to have the construction we call the 3-dimensional, a change in the zoning law brings with the team and now takes the name of urban land, not agricultural land.

As far as the development of this is concerned, very fundamentally, the first planning approach in the world is the sole objective of the classical urban planning approach; it is also beautiful cities. Classic urban planning approach in Turkey is an approach applied to the 1956 period. by most of the foreign experts of the largest cities in Turkey, we need socio-economic features of our plans are made known. The projection period of these plans is 20-30 years. When the projection period was over, those that were far above the planner's suggestion became very populist. So classic urban planning approach, he could not catch the dynamism of the cities in Turkey during this period. Later in the world this approach was abandoned. It re-examines the history of today's settlement and today's analytical values in a wide range of planning approaches. There is a planning hierarchy in a comprehensive planning approach. This hierarchy was greatly paid attention.

Principles of urban planning

- ✓ *Protection of **natural, historical and cultural** values*
- ✓ *Reduction of **disaster damages***
- ✓ *Ensuring efficiency, efficiency and transparency **in public benefit** and resource utilization*
- ✓ *Distribution of infrastructure, service and production activities in accordance with development policies to cover all urban and rural areas*
- ✓ *Preparation with participatory processes*
- ✓ *Preparation in a multi-disciplinary structure*
- ✓ *Establishment of complementarity and totality between sectoral priorities*
- ✓ *Making spatial arrangements to create an innovative, flexible and competitive economic structure*
- ✓ *Adaptation to changing conditions*
- ✓ *Observing spatial cohesion*
- ✓ *Improving the quality of life*
- ✓ *Strengthening spatial relations between urban and rural areas*
- ✓ *Preparation based on scientific research and data is essential*

Five-year development plans

The Five-Year Development Plan has been implemented since the establishment of the State Planning Organization. Within the framework of economic philosophies and approaches of the plans; Plans before 1960 plans: partial, 1960-1980 plans: mixed economy, holistic, 1980-2000 plans: liberal, can be described as strategic. Before 1980, "import substitution policies" in industrialization and "transition to open economy" became the guide after 1980.

Turkey, entering the planned period in 1963, to assess the socio-economic potential, and the potential for this country to be able to steer you in the best way with plans in the medium term, purpose and has felt the need to prepare a 15-year perspective plan which determines the priorities of the target.

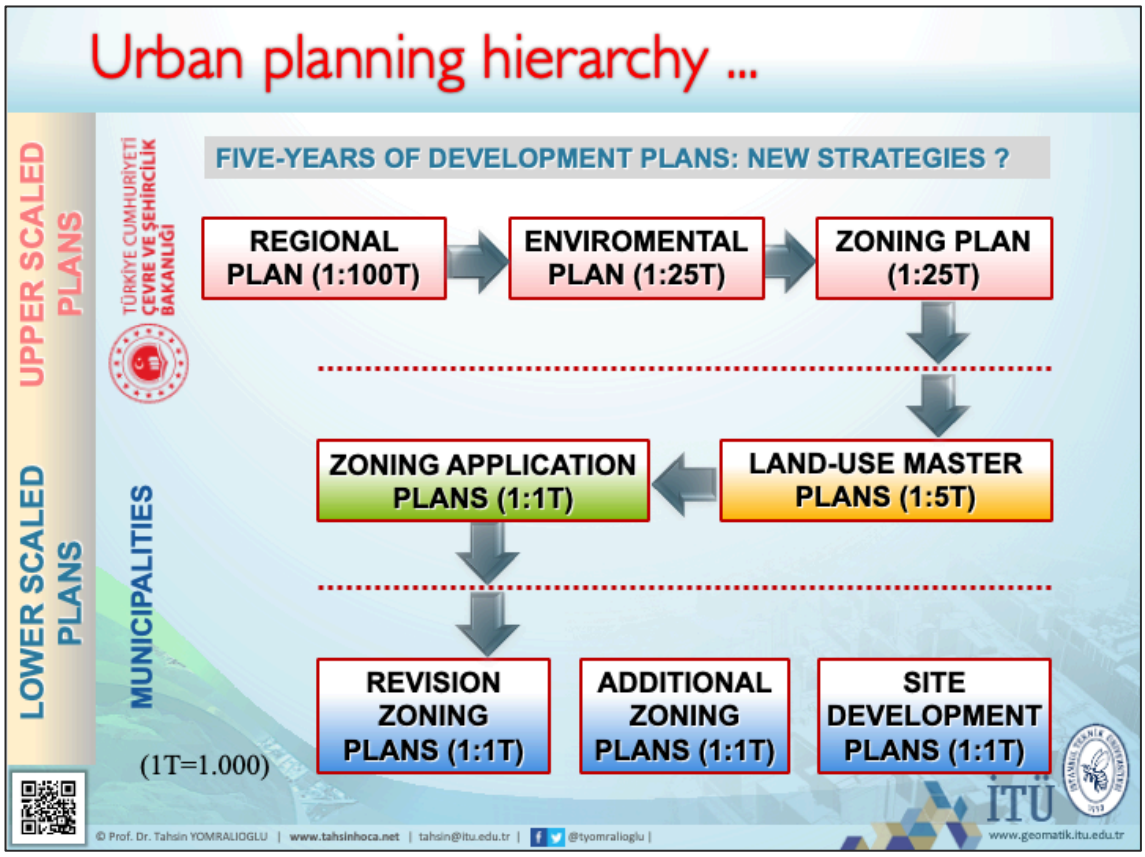
Turkey takes into account the perspective of the Five-Year Development Plan put forward by changing the approach of the era as the economic and social development priorities and policies prepared in order to create the necessary infrastructure to prepare the 2000s.

For preparation of Turkey to 21st century, covering the years 2001-2023 plans prepared in order to create the necessary infrastructure to prepare century perspective reveals the Long-Term Development Strategy takes into account the changing economic and social development of the era as priorities and policies.

The main purpose of the Long-Term Development Strategy; In line with the target to surpass the level of contemporary civilization, Turkey's 21st-century culture and producing the civilization reached its most advanced stage of world standards, revenue fair sharing of human rights and which secures their responsibility, the rule of law, participatory democracy, secularism, performing at the highest level of religion and freedom of conscience is an effective world state at a global level. The transformation of the information society into a higher proportion of the world's output, raising the quality of life of the society, contributing to science and civilization, and effective territorial control at regional and global levels constitute the objective objectives of the long-term development strategy. To take its place among the world's top ten economies in 2020, Turkey's economy is predicted.

The Long-Term Development Strategy will play an important role in directing economic and social transformations, taking into account the comprehensive and rapid change in the world. Intended more compatible format conversion and the efficient use of resources, the realization of Turkey's plan to meet the needs will be an important contribution.

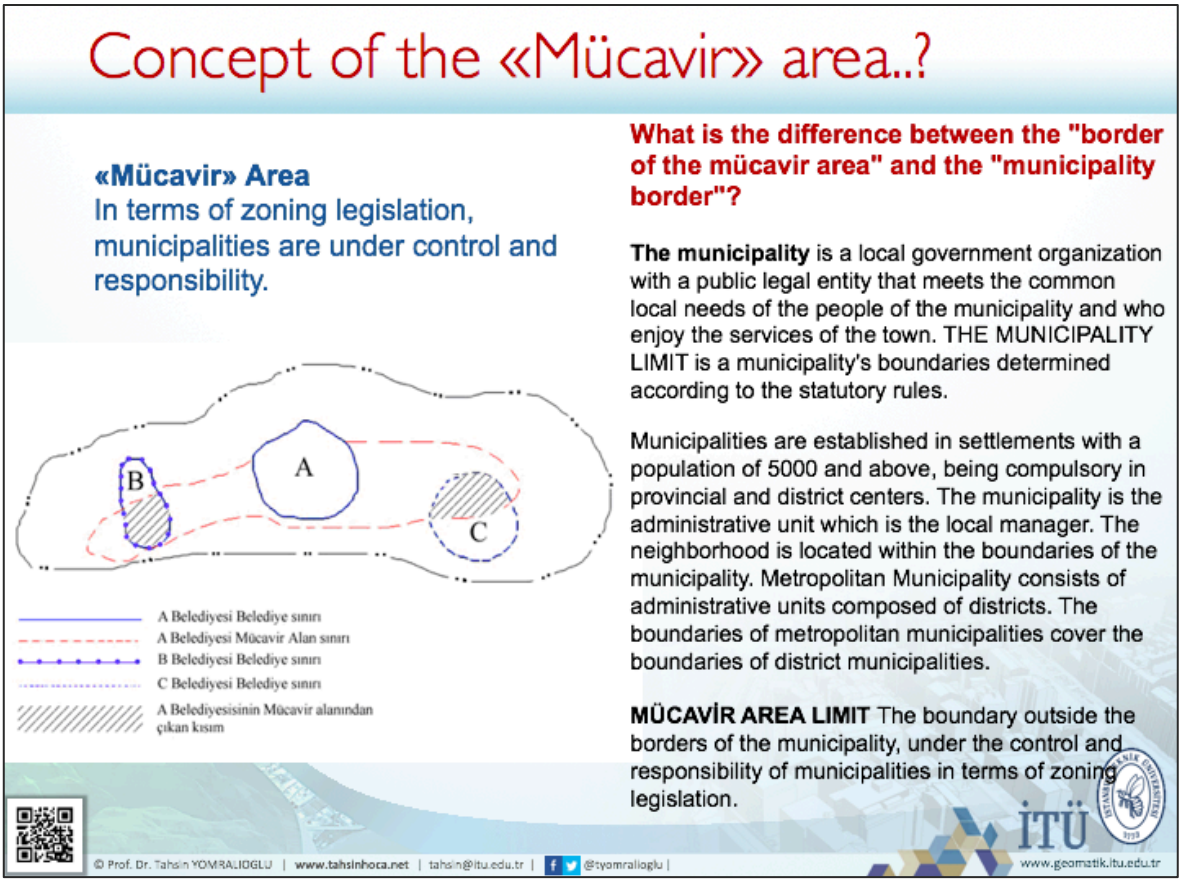
The steps in urban planning…
UPPER SCALED PLANS
LOWER SCALED PLANS
FIVE YEARS OF DEVELOPMENT PLANS: SPATIAL STRATEGIES
TÜRKİYE PLANI
ON BİRİNCİ KALKINMA PLANI (2019-2023)
REGION-ENVIRONMENTAL PLAN (1:100B - 25B)
TÜRKİYE CUMHURİYETİ ÇEVRE VE ŞEHİRCİLİK BAKANLIĞI
ZONING APLICATION PLANS (1:1000)
LAND-USE MASTER PLANS (1:5000)
ALIŞVERİŞ MERKEZİ
© Prof. Dr. Tahsin YOMRALIOGLU | www.tahsinhoca.net | tahsin@itu.edu.tr | @tyomralioglu |
www.geomatik.itu.edu.tr


Urban planning hierarchy …
UPPER SCALED PLANS
LOWER SCALED PLANS
TÜRKİYE CUMHURİYETİ ÇEVRE VE ŞEHİRCİLİK BAKANLIĞI
MUNICIPALITIES
FIVE-YEARS OF DEVELOPMENT PLANS: NEW STRATEGIES ?
REGIONAL PLAN (1:100T)
ENVIROMENTAL PLAN (1:25T)
ZONING PLAN (1:25T)
LAND-USE MASTER PLANS (1:5T)
ZONING APPLICATION PLANS (1:1T)
REVISION ZONING PLANS (1:1T)
ADDITIONAL ZONING PLANS (1:1T)
SITE DEVELOPMENT PLANS (1:1T)
(1T=1.000)
ITÜ
© Prof. Dr. Tahsin YOMRALIOGLU | www.tahsinhoca.net | tahsin@itu.edu.tr | @tyomralioglu |
www.geomatik.itu.edu.tr

Concept of "Mücavir" area

The **municipality** is a local government organization with a public legal entity that meets the common local needs of the people of the municipality and who enjoy the services of the town. "Municipal Boundaries" are the limits of a municipality determined in accordance with the Law. Municipalities are established in settlements with a population of 5000 and above, being compulsory in provincial and district centers. The municipality is the administrative unit which is the local manager. The municipalities are governed by a municipal council elected by the people of the environment and a mayor. It is both an administrative and financially independent entity.

The **village** has a legal entity with the smallest settlement of the local administration organization and the headman. The boundary of the contiguous area is the limit given to the municipalities for the control and accountability of the municipalities. **Municipal or provincial, district and village borders are administrative boundaries. "Mücavir" area is not an administrative border**. For example, the establishment of a municipality in an area and the arrival of elected bodies of the municipality lead to the end of the administrative existence and legal personality of the villages within this area. However, the fact that a village is taken to the "mücavir" area does not mean that the administrative and legal personality of the village is over.



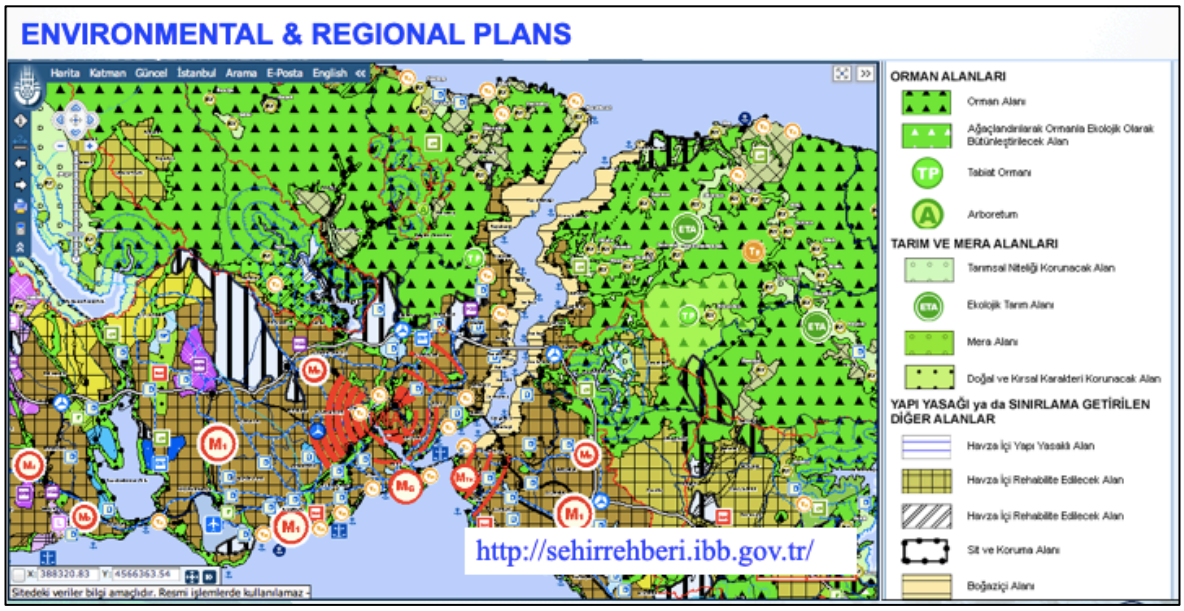
Spatial strategy plans

Spatial Strategy Plan: economic, social policies and environmental policies and strategies associated with the place of physical development and sectoral decisions, directing the country and the regions considered necessary, the report is complete with the plan. Spatial plans, in accordance with their Spatial Strategy Plans in terms of their scope and objectives; "Environmental Plans" and "Development Plans". Development plans are prepared as master plan and application zoning plan. Each plan is prepared in accordance with the plan at an upper level.

In spatial strategy plans, the development plan and the targets set out in the regional plans, regional development strategies and other strategy documents, if any, are taken into account. The fact that 1/25.000 scale master development plan is made in metropolitan cities is not an obstacle for making 1/5.000 scale master development plans in the regions deemed necessary.

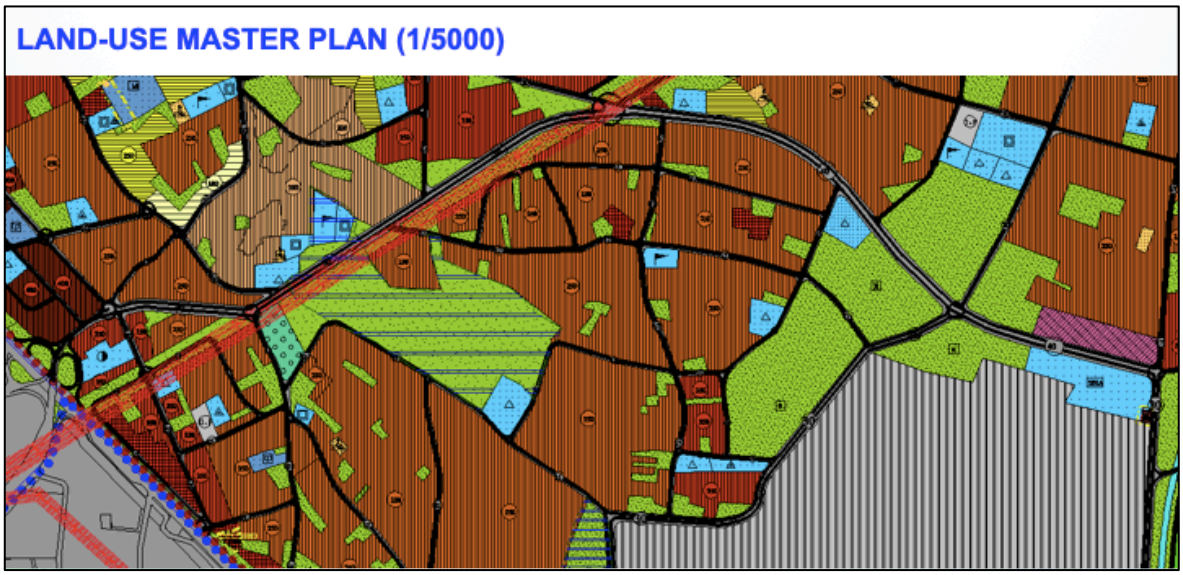
Environmental Plans

Environmental Plan: Determines the settlement and land use decisions, such as housing, industry, agriculture, tourism, transportation and land use decisions in accordance with the Country and Regional plan decisions, and is available on a scale of 1/25.000, 1/50.000, 1/100.000 or smaller plan. Environmental Plan; The plan, which sets out the principles and criteria within the framework of general land-use decisions that direct the sub-plans of the settlement, development areas and sectors in accordance with the objectives and strategies of the spatial strategy plans, is a whole prepared with the plan provisions and report prepared in the region, basin or province.



Master Plans

The Master Plan, if any, shall be prepared on the existing maps in accordance with the regional or environmental plans; 1/2000 – 1/5000 scale, which aims to show general usage forms, major types of regions, future population densities of regions, density of buildings, when necessary, direction and magnitude of development of various settlement areas, principles of transportation systems and problems, and preparation of implementation zoning plans. It is a complete and detailed with report.



Zoning application plans

Zoning Application Plan; approved maps which are prepared according to the principles of master zoning plan and their cadastral status, if any, and the intensity and order of the various regions, their roads and their implementation, and the implementation steps to be based on the zoning implementation programs.

Article 7/3914 - The following points shall be complied with in the preparation of the current map and zoning plans.

a) The existing maps of settlements with no existing maps are made or built by the municipalities or governorships. A certified copy of these maps shall be submitted to the Ministry and a copy shall be sent to the relevant land registry office.

b) In the last census, it is obligatory to make the zoning plans of the settlements with a population exceeding 10,000.

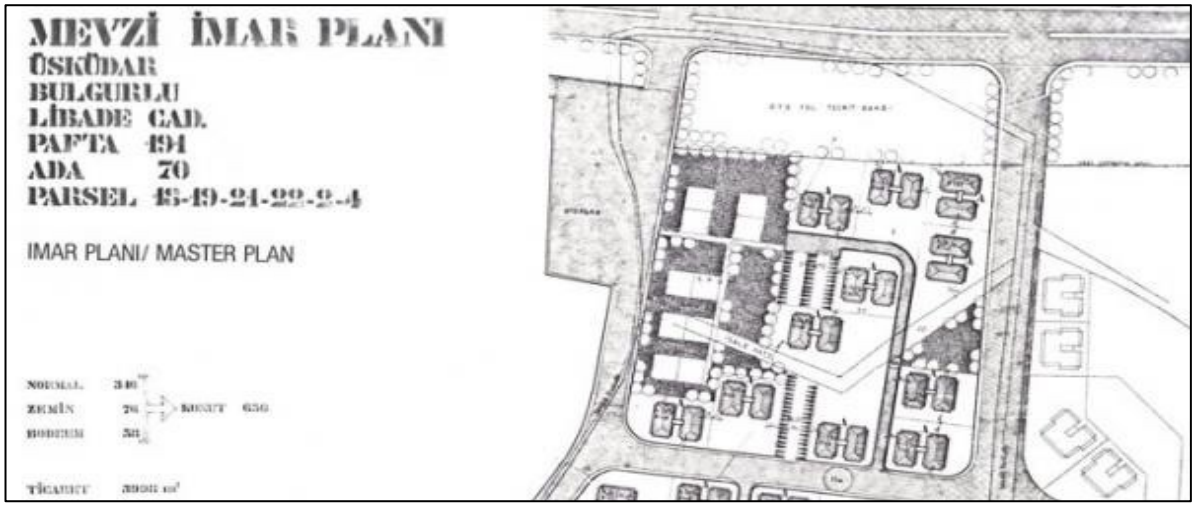
c) In order to ensure that the existing plans are insufficient for the settled population or that new settlements are opened for immediate use; It shall be implemented according to the regulations which will be prepared by the Ministry in the places which do not have zoning plans or development plans to be made by municipalities or governorships.

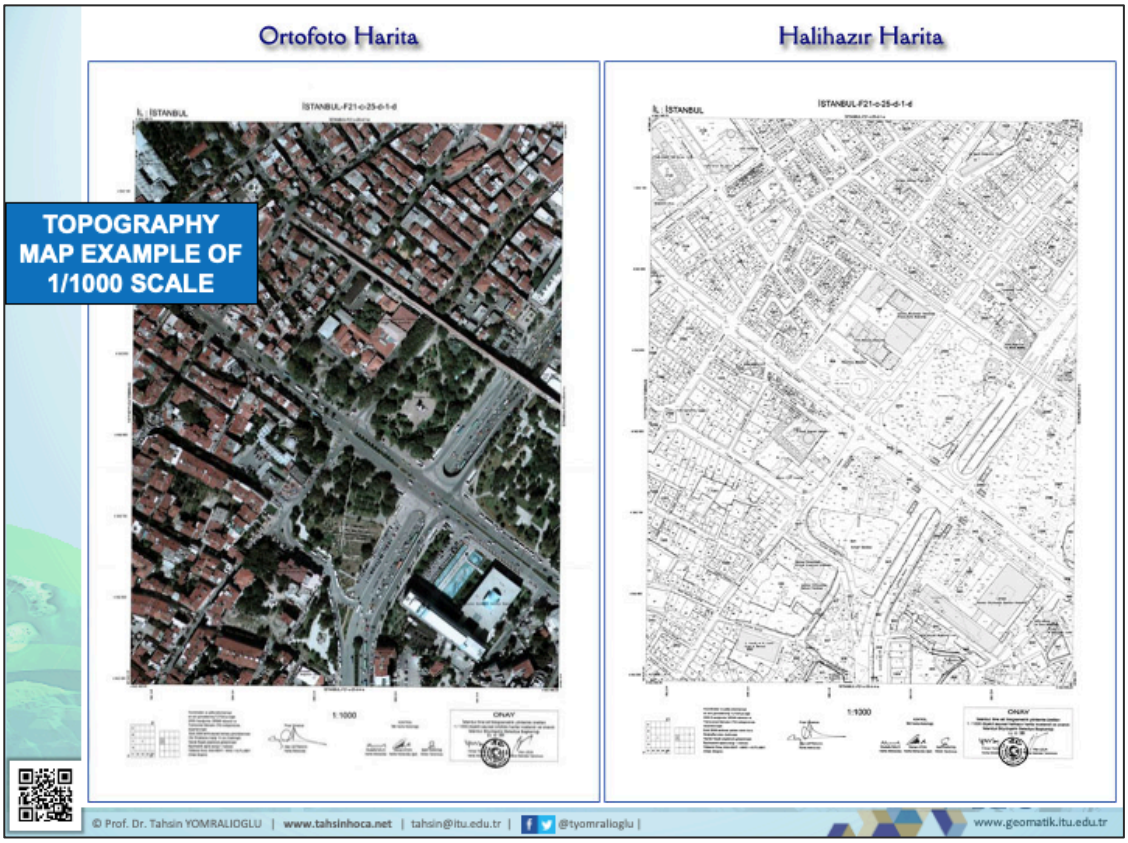
Implementation zoning plans can be in three ways. These;

Revision zoning plan (revizyon imar planı); it is defined as the plan obtained by the renewal of the plan or a part of the plan that will affect the plan's main decisions in order to ensure compliance with the upper scale plan decisions and the situations where all types and sizes of the plan do not respond to the need or cannot be applied or cause problems.

Additional zoning plan (İlave imar planı); In case the existing zoning plan does not respond to the needs in terms of development areas, it is called an additional zoning plan, which is adjacent to the existing zoning plan and consistent with the general land use decisions of the existing zoning plan and which are prepared in a way to ensure integrity and harmony with the existing zoning plan and transportation. In areas where planning is insufficient and, in the areas, adjacent to the existing planning limit, the Council of State has the authority to approve the Additional Plan, which can be prepared as 1 / 25.000, 1/5000 and 1/1000 scale, provided that it is integrated with the main plan decisions. The preparation and approval process is the same as the Implementation Zoning Plan.

Location zoning plan (Mevzi imar planı); if the existing plans are insufficient for the settled population or the need to open new settlements and the boundaries are determined by the relevant administration, the social and technical infrastructure needs, which are not integrated into the plan, are not integrated within the scope of the plan limits, zoning plan, which provides a whole with its report.





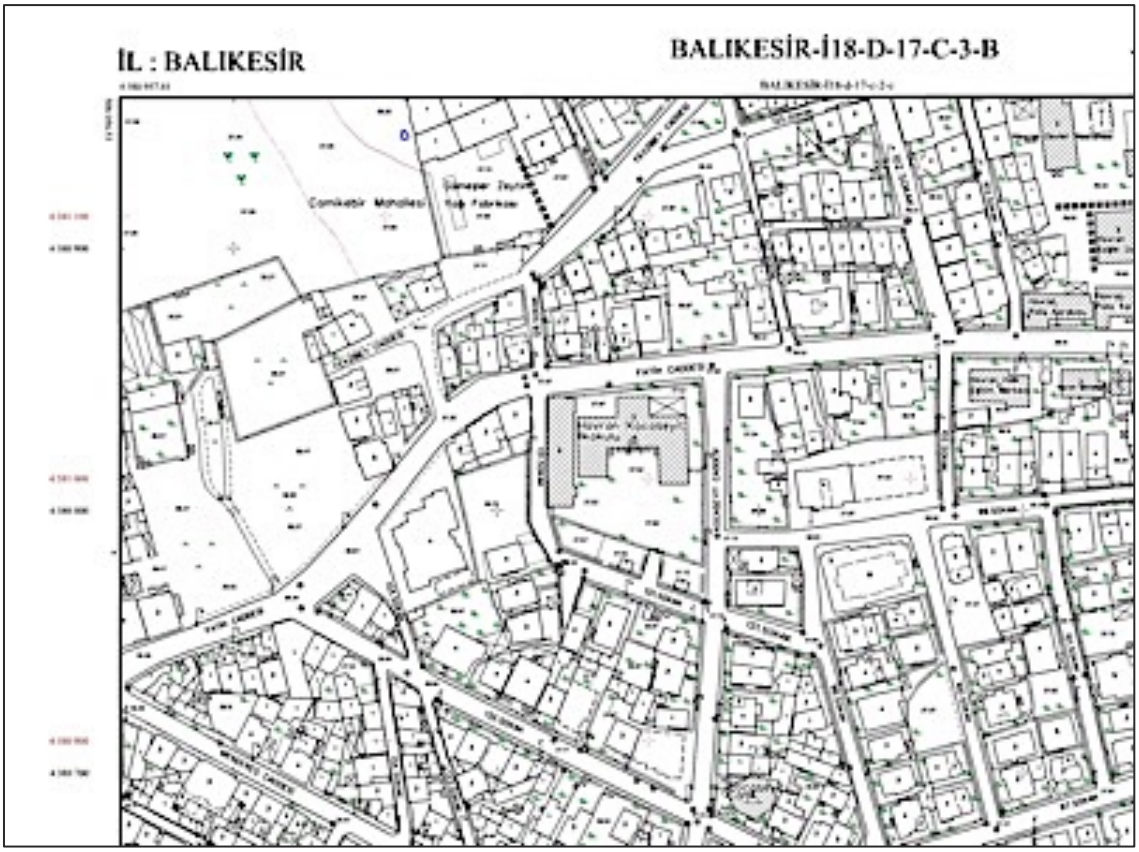
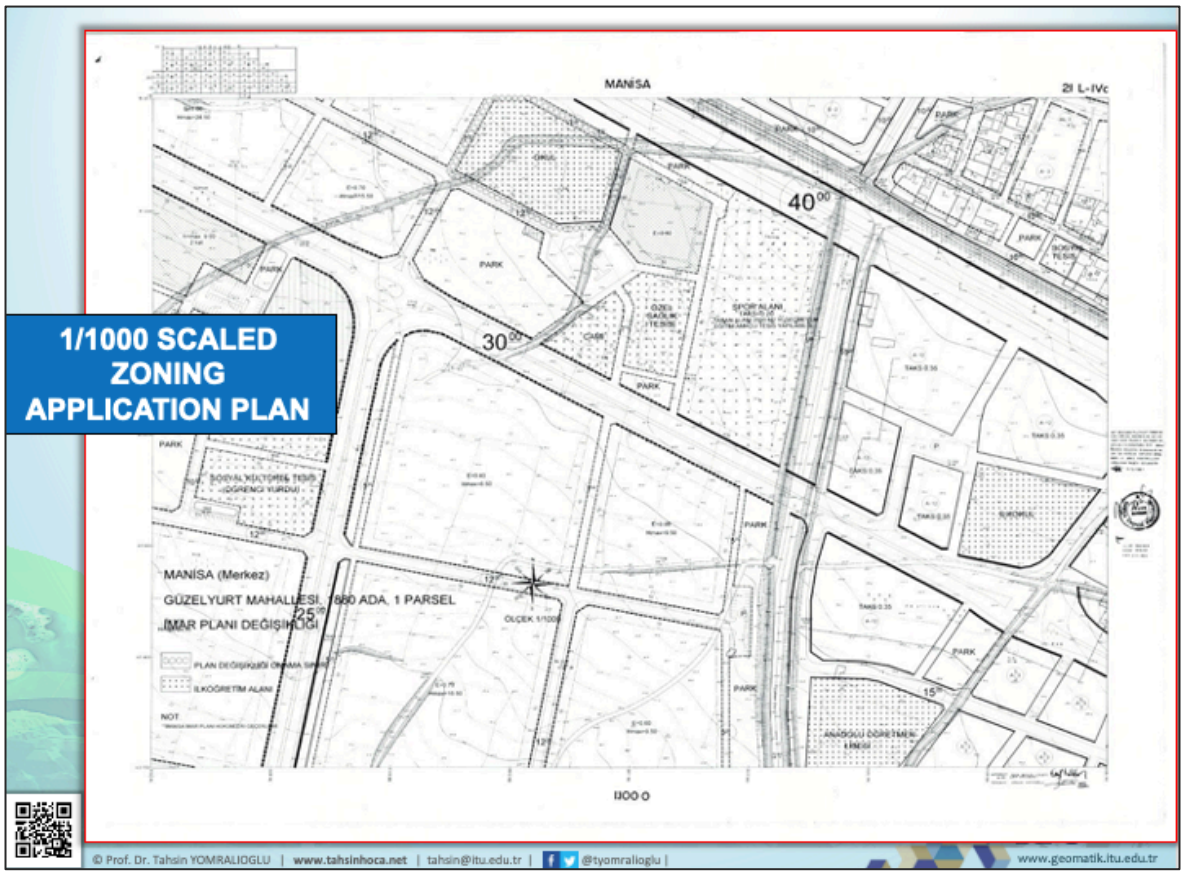


Fig x. Large scale topographical map examples



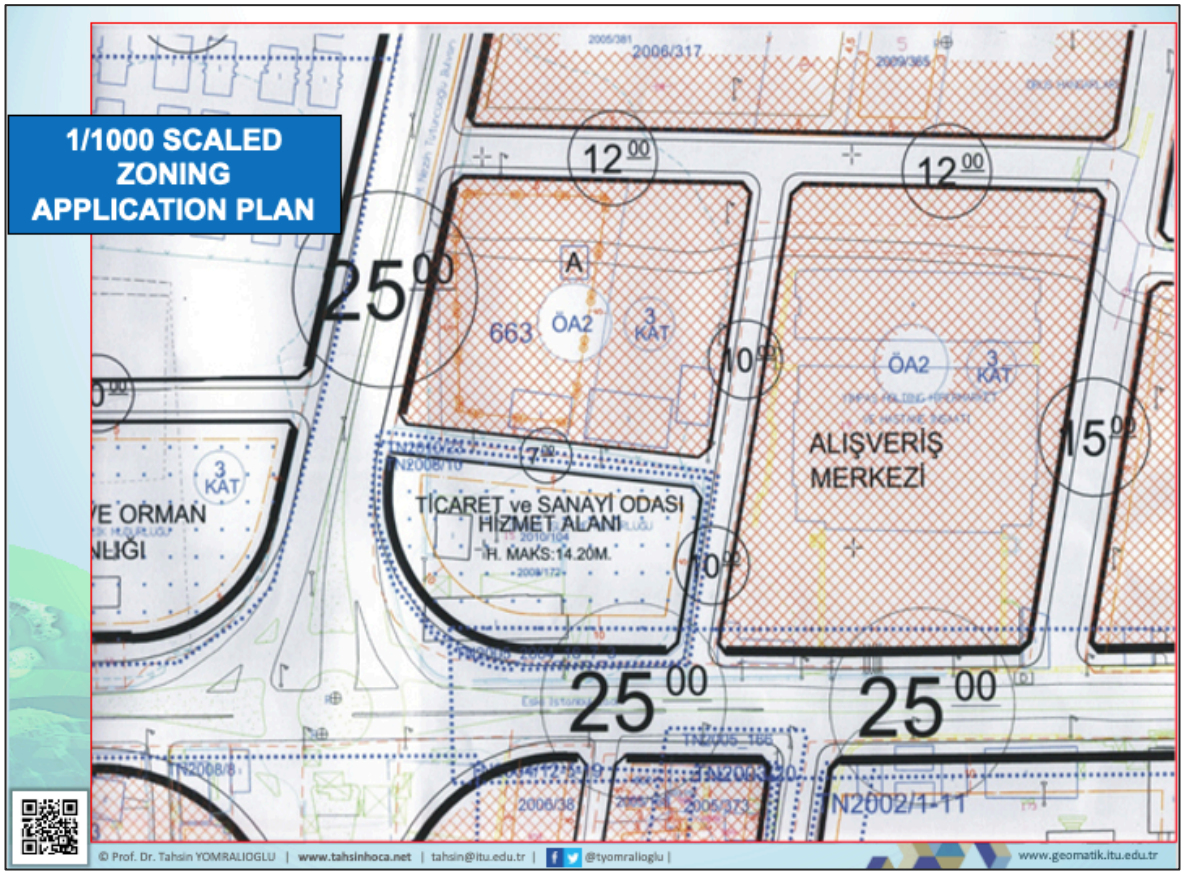


Fig x. Zoning plan samples

7.2 Applications of zoning plans

Following the approval of the zoning plans in urban areas, these plans should be reflected to the land in the foreseen form as soon as possible and the plan should be realized. Zoning plans, which are one of the basic tools of regular urbanization and land use decisions defined according to these plans are reflected to the property, to ensure that the reinforcement areas are taken into the hands of the public and to contribute to the healthy development of the region socially and economically are covered by the zoning plan applications.

Therefore, the main objective of the zoning plan applications is to reshape the existing property structure existing in the urban area in accordance with the land use decisions defined in the zoning plan and to transform it into a new ownership structure by registering with the title deed.

In this way, new residential areas suitable for reconstruction are created on the one hand with zoning practices, on the other hand, the need of the area subject to implementation (health facility, cultural and social facility, educational institutions, road, square, parking, parking, children's playground, sports areas, market place, the necessary reinforcement areas for public services such as places of worship and police station are also provided.

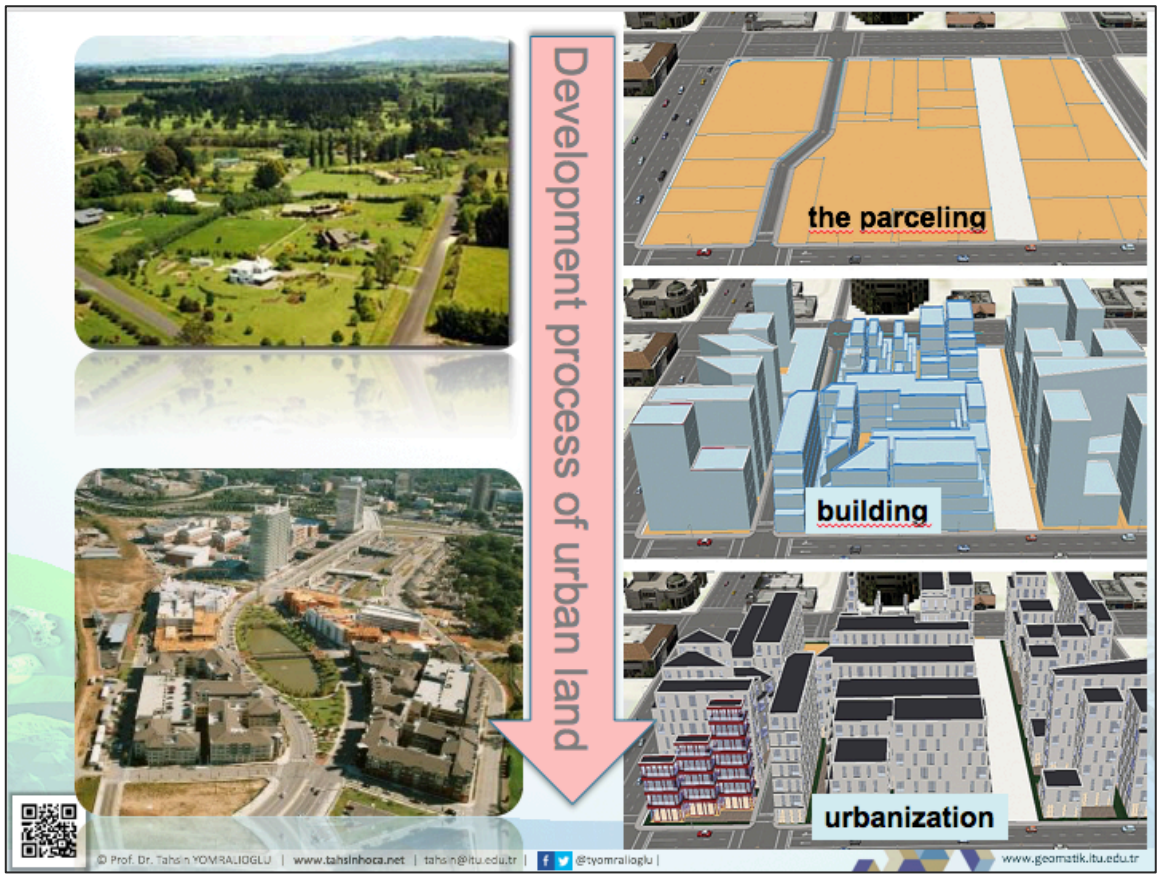


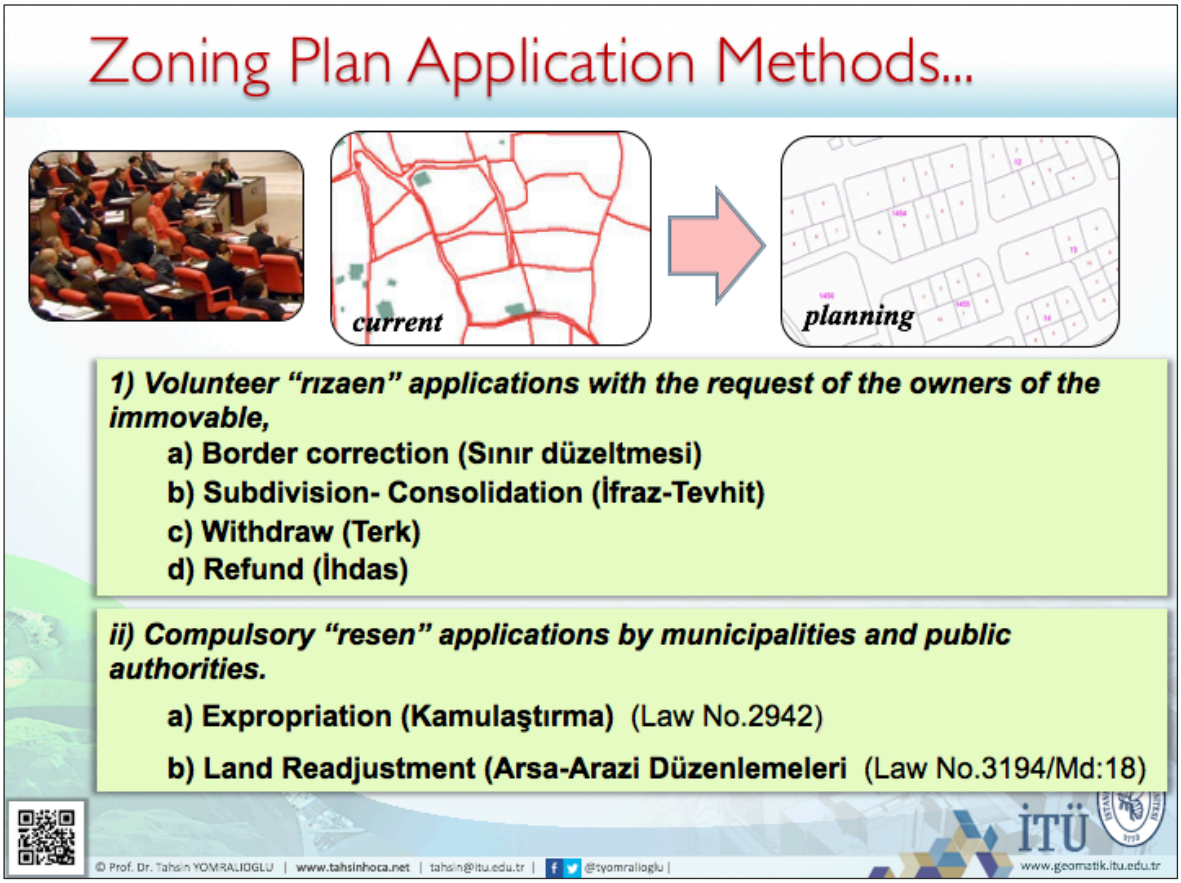
Figure x. Cadastre and zoning plan relations

In this context, property arrangements are carried out in accordance with the provisions of Article 11, 15, 16 and 18 of the Zoning Law numbered 3194. The essence of zoning is the desire to conclude that the existing property is registered with its new geometry in accordance with the zoning plan. For this purpose, zoning plan applications in our country are generally two ways;

i) ***Volunteer "rızaen"*** *applications with the request of the owners of the immovable,*
ii) ***Compulsory "resen"*** *applications by municipalities and public authorities.*

Volunteer (Rızaen) is the application made by the request of the owners of the real estate; According to the provisions of Articles 11, 15 and 16 of the Zoning Law No. 3194, it is composed of the relinquishment, expulsion and abandonment procedures in accordance with the land use decisions specified in the current zoning plans and the registration of the property made depending on the will of the person concerned.

Compulsory (Resen) applications are applications by municipalities and public authorities. These applications are done according to the **Expropriation** (*Kamulaştırma- İstimlak*) Law No. 2942 and the provisions of Article 18 of the Zoning Law No. 3194 by "**Land Readjustment** (*Arsa ve Arazi Düzenlemeleri*)". The approval, announcement and registration procedures of the Land Arrangement in accordance with the provisions of Article 19 of 3194.



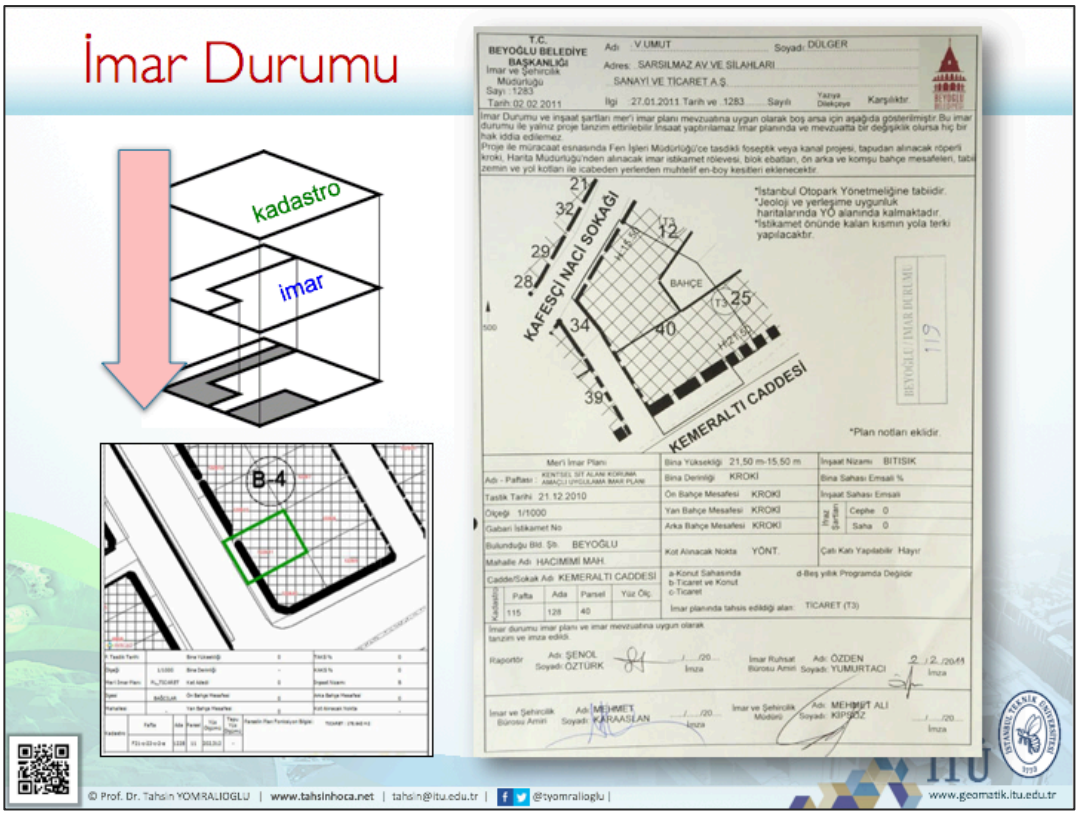
Information: zoning status document?

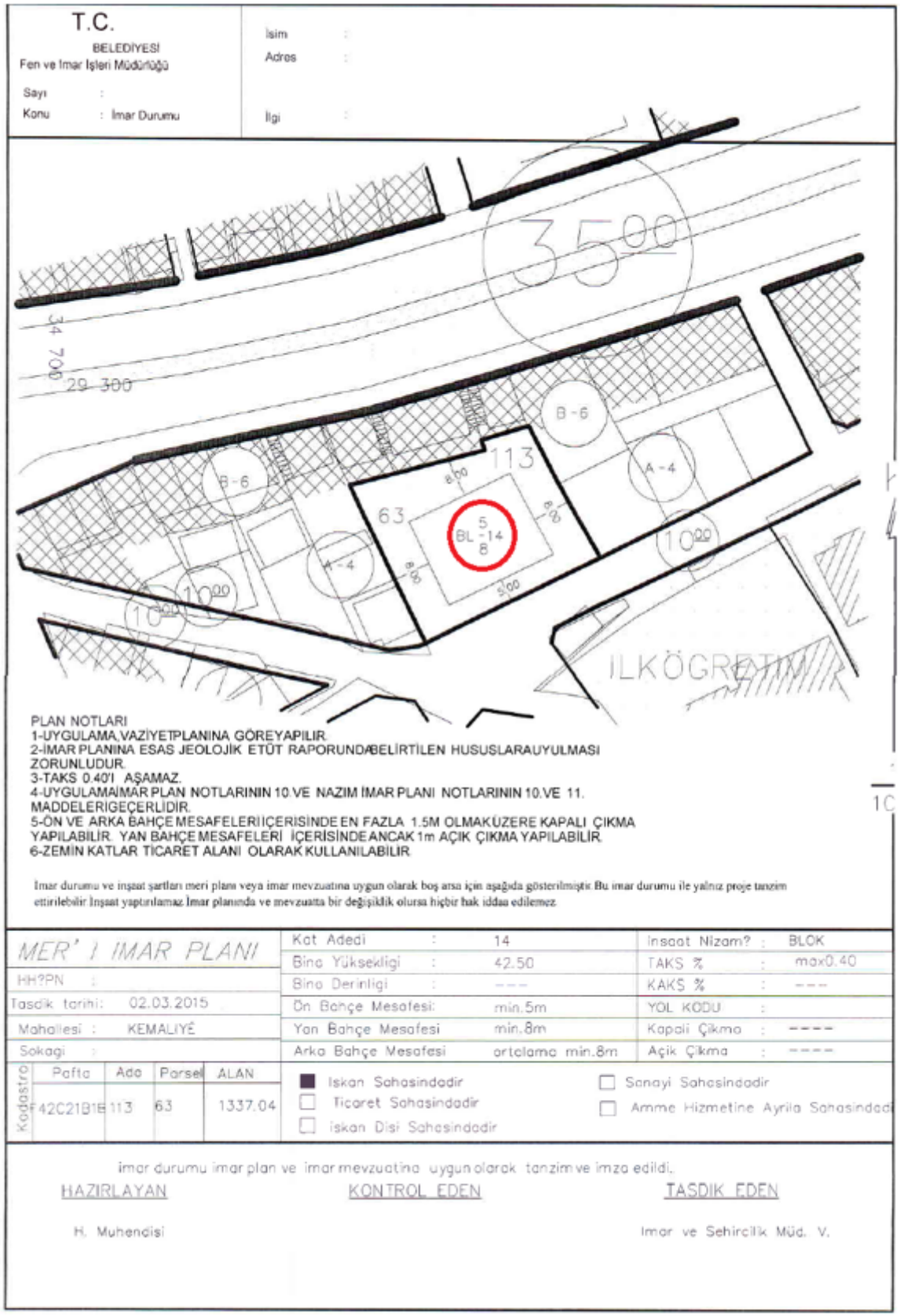
The official document prepared by the Reconstruction and Urbanization units of the municipalities, showing the construction conditions on the cadastral parcel of land, according to the zoning implementation plan, is called the "***zoning status (imar durumu)***". The zoning status document is a scaled and approved document containing both geometric and textual information, which is formed by overlapping the cadastral and zoning plan sheets in the same coordinate system. It is also called as "***zoning diameter (imar çapı)***".

What is the Use of Zoning Status? The zoning status document, which shows the dimensions of the building that can be built on the land, the height of the floors, the drawing distances, and the quality of the building, is an official obligation to be obtained in order to construct. A construction permit cannot be obtained without a zoning status document.

Documents Required to Obtain Zoning Status:

- Development Status Application Form
- Copy of Identity Card
- Land Registry
- Diameter (Çap) (Taken from Cadastre)





T.C.
BELEDİYESİ
Fen ve İmar İşleri Müdürlüğü

Sayı :
Konu : İmar Durumu

İsim :
Adres :

İlgi :

PLAN NOTLARI
1-UYGULAMA,VAZİYETPLANINA GÖREYAPILIR.
2-İMAR PLANINA ESAS JEOLOJİK ETÜT RAPORUNDABELİRTİLEN HUSUSLARAUYULMASI ZORUNLUDUR.
3-TAKS 0.40'I AŞAMAZ.
4-UYGULAMAİMAR PLAN NOTLARININ 10.VE NAZIM İMAR PLANI NOTLARININ 10.VE 11. MADDELERİGEÇERLİDİR.
5-ÖN VE ARKA BAHÇE MESAFELERİİÇERİSİNDE EN FAZLA 1.5M OLMAKÜZERE KAPALI ÇIKMA YAPILABİLİR. YAN BAHÇE MESAFELERİ İÇERİSİNDE ANCAK 1m AÇIK ÇIKMA YAPILABİLİR.
6-ZEMİN KATLAR TİCARET ALANI OLARAK KULLANILABİLİR.

İmar durumu ve inşaat şartları meri plan veya imar mevzuatına uygun olarak boş arsa için aşağıda gösterilmiştir. Bu imar durumu ile yalnız proje tanzim ettirilebilir İnşaat yaptırılamaz. İmar planında ve mevzuatta bir değişiklik olursa hiçbir hak iddaa edilemez.

MER' I IMAR PLANI

HH?PN :
Tasdik tarihi: 02.03.2015
Mahallesi : KEMALİYE
Sokagi :

Kadastro	Pafta	Ada	Parsel	ALAN
	F42C21B1E	113	63	1337.04

Kat Adedi	:	14	Insaat Nizam?	:	BLOK
Bina Yüksekligi	:	42.50	TAKS %	:	max0.40
Bina Derinligi	:	---	KAKS %	:	---
Ön Bahçe Mesafesi:		min.5m	YOL KODU	:	
Yan Bahçe Mesafesi		min.8m	Kapali Çikma	:	----
Arka Bahçe Mesafesi		ortalama min.8m	Açik Çikma	:	----

■ Iskan Sahasindadir
☐ Ticaret Sahasindadir
☐ Iskan Disi Sahasindadir
☐ Sanayi Sahasindadir
☐ Amme Hizmetine Ayrila Sahasindad

imar durumu imar plan ve imar mevzuatina uygun olarak tanzim ve imza edildi.

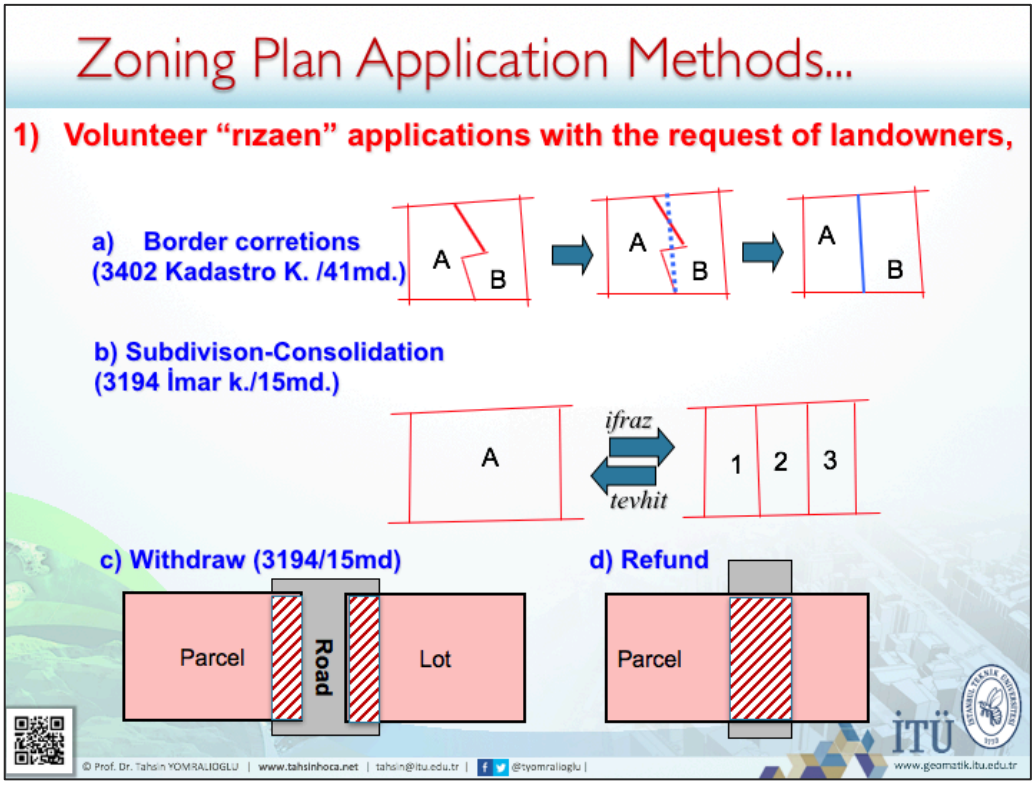
HAZIRLAYAN — H. Muhendisi
KONTROL EDEN
TASDIK EDEN — Imar ve Sehircilik Müd. V.

Figure.x A sample zoning status document

7.3 Volunteer applications with the request of the landowners

If the public does not produce or produce deeply rooted solutions to the zoning, the landlords are obliged to produce solutions in order to use their land appropriately. Since they have nothing else to do, they must seek solutions. Some may find a solution for a small concession because of the advantage provided by the zoning plan, while others are in a state of great sacrifice. The volunteer applications (*rızaen*) made by the owners of the real estate are as follows;

a) Border correction (*Sınır düzeltmesi*)
b) Subdivision- Consolidation (*İfraz-Tevhit*)
c) Withdraw (*Terk*)
d) Refund (*İhdas*)



Border correction

The existence of a broken border between two parcels can create difficulties in using the real estate. For example, an immovable land may have some geometrical formations in the placement of the building. In such cases, the boundary breaks between two **neighbouring** parcel owners can be corrected. The parcel size is not changed after the boundary correction of the **neighbouring** two parcels is done.

Subdivision-Consolidation processing

In urban areas, when the owners of the immovable properties want to build buildings on their land, first of all, the appropriateness of the existing cadastral parcel shape should be investigated. This situation occurs when the zoning plan and the cadastral sheet are overlaid in the same coordinate system. For a cadastral parcel, according to the "zoning status" document to be obtained from the municipality, the parcel is examined geometrically according to the existing zoning plan. The parcel should not hit a public area like road, square, park and so on, its geometric shape should be suitable for building construction and there should not be any obstacle for the development rights for neighbouring parcels. Therefore, taking into account the zoning status document, the parcel alone or in combination with its neighbouring parcels is subjected to a series of ***"subdivision-consolidation"*** processes in order to convert the existing cadastral parcel into the zoning plan.

In this context, the zoning law shall make arrangements on the following matters depending on the wish of the owners of the immovable.

İrtifak Hakları: 3194/Madde 14- *Belediye veya valilikler, imar planlarının uygulanması sırasında, bir gayrimenkulün tamamını kamulaştırmadan o yerin muayyen saha, yükseklikte ve derinliğindeki kısmı üzerinde kamu yararı amacıyla irtifak hakkı tesis edebilir. Belediyeler veya valilikler, mümkün olan yer ve hallerde mal sahibinin muvafakatiyle, bedelsiz irtifak hakkı verme karşılığında, bedelsiz irtifak hakkı tesis edebilir.*

İfraz ve Tevhit: 3194/Madde 15- *İmar planlarına göre yol, meydan, yeşil saha, park ve otopark gibi umumi hizmetlere ayrılan yerlere rastlayan gayrimenkullerin bu kısımlarının ifrazına veya tevhidine izin verilmez. İmar parselasyon planı tamamlanmış olan yerlerde yapılacak ifraz veya tevhidin bu planlara uygun olması şarttır.*

İmar planlarında parsel cepheleri tayin edilmeyen yerlerde yapılacak ifrazların, asgari cephe genişlikleri ve büyüklükleri yönetmelikte belirtilen esaslara göre tespit edilir. İmar planı dışında kalan alanlarda yönetmeliklerinde tayin edilecek miktarlardan küçük ifrazlara izin verilmez.

İfraz işlemi için gerekli belgeler: *Dilekçe, Tapu belgesi, Kadastro çapı (Koordinatlı aplikasyonlu harita planı), Kurum görüşü, (İl Tarım Müdürlüğü / İlçe Tarım Müdürlüğü) Dosya ve muhteviyatının incelenmesinden sonra uygun bulunanlar İl Encümenince karara bağlanıp; Harçları yatırılır İfrazı yapılır.*

Tevhit işlemi için gerekli belgeler: *Dilekçe, Tapu belgesi, Kadastro çapı (Koordinatlı aplikasyonlu harita planı), Kurum görüşü, (İl Tarım Müdürlüğü / İlçe Tarım Müdürlüğü) Dosya ve muhteviyatının incelenmesinden sonra uygun bulunanlar İl Encümenince karara bağlanıp; Harçları yatırılır Tevhidi yapılır.*

Things to be followed in consolidation procedures…

- The parcels to be acquired by allotment must have a frontage to a public road, which is on the cadastral or land registry map. A road cannot be created by leaving the parcel. Parcels with fronts to dead-end streets cannot be allocated. A dead-end street cannot be created by allotment.
- The width of the parcel cannot be less than (15.00) m and the depth of the parcel cannot be less than (20.00) m. A maximum of five parcels can be obtained by allotment, parcels obtained by plowing cannot be subdivided for the second time.
- Each parcel to be obtained after the allotments to be made in non-residential areas without an upper scale plan cannot be smaller than (5000) m2 in the planted lands. It cannot be smaller than 20.000 m2 in marginal agricultural lands and empty lands. At least (25.00) m. to a road in the hands of the public on the cadastral or land registry map of these parcels. front is required. A road cannot be created by leaving the parcel. Allotment cannot be made for the purpose of creating a new settlement area.
- Within the scope of the Agricultural Settlement Projects prepared in accordance with the Settlement Law No. 2510, the condition of fronting the road is not sought for agriculturally-purposed allotments that do not have the purpose of settlement.
- **Allotment in areas with zoning plans: According to the zoning plans, <u>it is not allowed to allocate or unify</u> these parts of the real estates that coincide with the places reserved for public services such as roads, squares, green fields, parks and parking lots.**

The working steps in consolidation procedures…

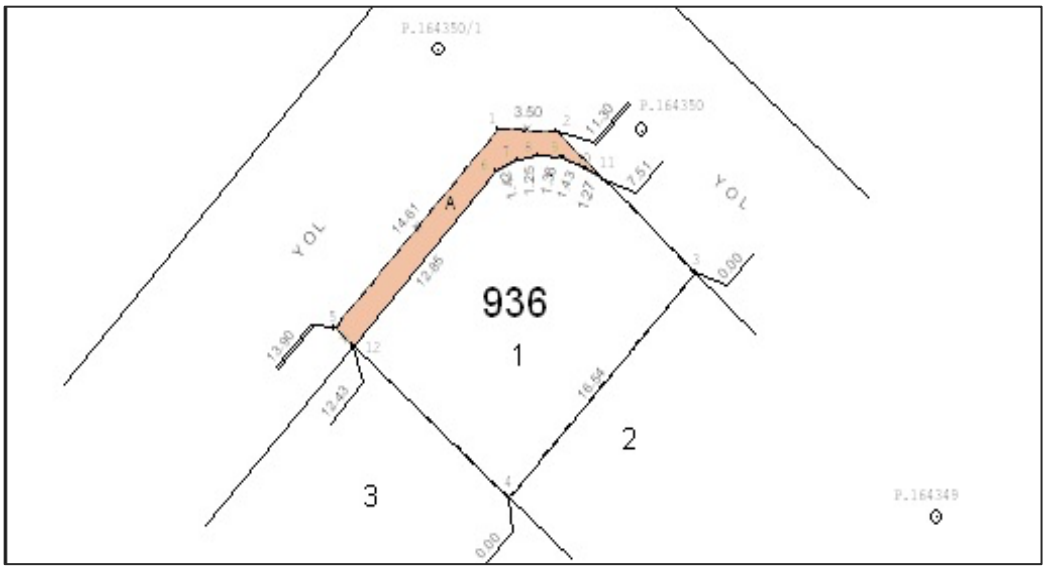
1. The person or institution applies to the Land Registry Office and the title deed information is obtained.
2. The petition of the owners of the parcels being traded, the signature of the shareholders in the registered deed, and the power of attorney if someone else is following the business other than the property in the personal title deeds.
3. It is given to the map office with the title deed information.
4. The map bureau applies to the Land Registry Office for the cadastral diameter.
5. Field work is done, measurement sketch detail and polygon point output, if necessary, conversion calculation output, area calculation, polar application value, current polygon values are prepared as a file by map bureaus.
6. The institution or person applies to the Directorate of Zoning and Urbanization of the municipality in the adjacent area.
7. Technical file control is done; As a result of whether it is suitable according to the façade depth measurement control, the allotment process is continued.
8. After the technical file is completed, it is submitted to the committee.
9. According to the decision of the committee, the allotment is approved or the person or institution is notified of the cancellation of the allotment by an official letter.
10. The approved allotment file is notified to the relevant person or institution, and it is directed to the Financial Services Directorate for fee depositing according to the area information.
11. The technical file is sent to the Cadastre Directorate with a cover letter.

Withdraw procedures

It is known as the "withdrawal" procedure that the owners of the immovable property have left the property in part or completely to the public interest by means of a zoning application. These practices are more common in the implementation of zoning plans. A withdrawal can be paid or free of charge. For example; the municipality may request a paid or unpaid real estate owner to extend a road in a road extension. Paid demand is a matter of expropriation. The issue of withdrawal is often a matter of confrontation with municipalities and owners of real estates. Because municipalities, although they do not have the authority to receive the property free of charge. However, if the owners of the immovable property will carry out a zoning operation on their parcels, the owners may be forced to withdraw from the construction permit against technical permission.

With the withdrawal application, it is stated on the request of the person concerned that the immovable registered in the relevant page of the land registry book is to leave a part of this parcel in accordance with Article 15 of the Zoning Law no.3914. The process is shown in the sheet and the size of the part that is withdrawn is deducted from the book. The areas included in the leave are also included in the public areas due to the zoning plan. The expression of leaving the road also applies to public services such as green space, park, car park, square, children's playground and mosque.

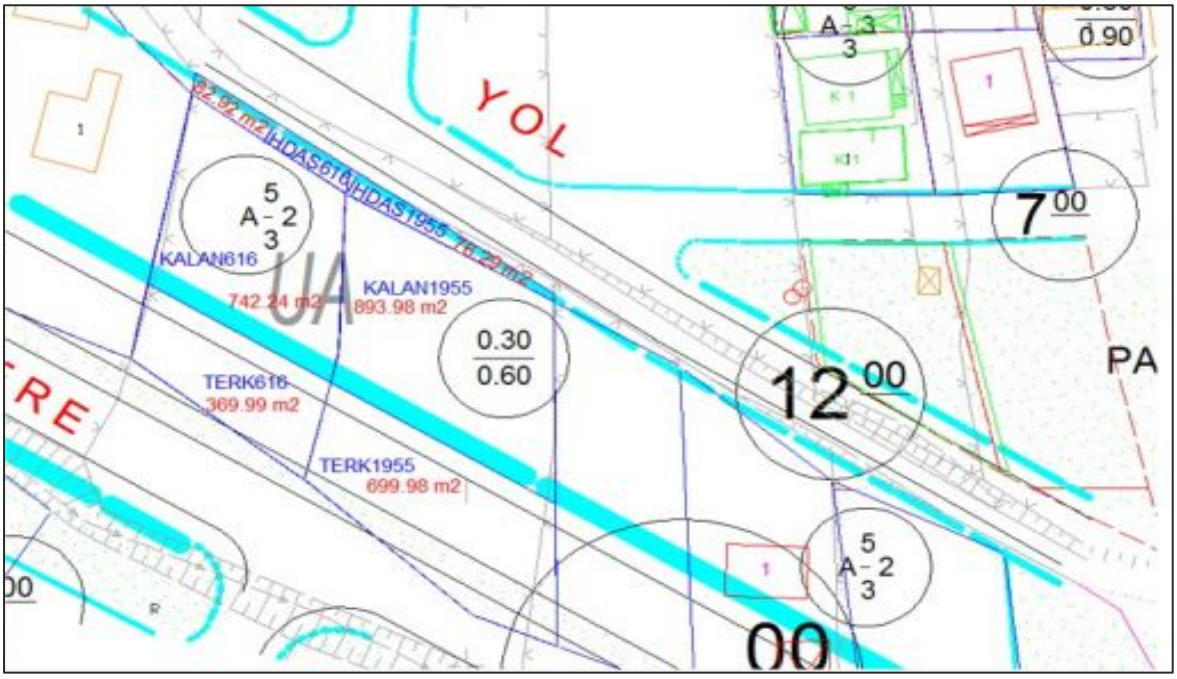
The withdrawal is essentially a special form of the parcelling process. In the construction of the withdrawal maps, the mapping rules with the nature of parcelling are applied. Since the processed parcel number has not been changed, a new page will not be opened in the deed register. The area of the land left to the public is reduced from the land registry. If layouts are created for parcelling-like operations, the changes are processed on the same sheet.



Refund procedures

Refund, word meaning, to bring back to re-establish. During the arrangement of land or land in the area, some unregistered cadastral roads may lose this qualification together with the development plan. Therefore, the part of the public space that was previously a road and similar can gain a new skill by hitting a reconstruction island this time. If this re-occurring area does not hit a public space, it may be subject to private property. The process of registering such areas as a new parcel and registering it to the deed is known as "refund."

3914 numbered zoning law in accordance with article 17 revision of the zoning plan after the closed road, such as parking areas can be returned. After the decision is made for the process as a basis for the zoning plan and the decision of the council is taken, the file is checked by the municipalities and sent to the registry. When returning, it is necessary to look before the road or park which is closed. If the return is an immovable property of the treasury, it must be registered on behalf of the treasury. In the registration of the return transactions, Article 21 of the Land Registry Law No. 2644 shall be taken as the basis.



7.4 Compulsory applications by municipalities and public authorities.

Land expropriation

The ownership of the land on which the public will be used, such as roads, parks, children's playgrounds, schools, hospitals, etc., will be owned by private persons. In order to use such places, they must first pass their ownership to the relevant public institution. The process of transferring ownership to the public without permission of its owners is known as ***expropriation (kamulaştırma- istimlak).*** Expropriation shall be applied in accordance with the provisions of *"Expropriation Law" dated 04/11/1983 and numbered 2942. With the law no. 4650 dated 05/05/2001, some provisions of the law have been amended.*

At first glance this law can be seen as a law that damages the right to property. However, for the benefit of society, one's rights must be waived. As a matter of fact, **Article 46 of the 1982 Turkish Constitution** covers the provisions related to expropriation and in the first paragraph: *"State and public legal entities are authorized to expropriate and establish administrative easement on all or part of immovable property found in private ownership, in accordance with the principles and procedures stipulated by law, provided that public benefits require it to be paid, if required by public benefits".* The elements of expropriation can be listed according to the relevant articles of the constitution and expropriation law. Accordingly, in order to realize an expropriation process;

1. Public interest should be found.
2. The expropriation decision must be approved by the official authorities (Art.5-6).
3. The price of the expropriated property must be paid in advance (Art. 3).
4. It should be used for the purpose of expropriation (Art. 23).
5. The expropriated real estate must be owned by private persons (Art. 30).

In other words, public legal entities and institutions, to be used in public works for the benefit of the public, regardless of the property of the private property and resources, regardless of the request of the competent authorities by the decision made by the competent bodies and wages in advance (except for some privileges), the acquisition of property is called "expropriation".

Expropriation Practice in Municipalities

Municipalities: they prepare 5-year zoning programs in order to implement this plan within 3 months after the zoning plans come into force. During the discussion of the five-year zoning programs, the relevant investor participates in the Assembly meeting to take the views of the public institutions. These programs are finalized after being accepted in the municipal council.

The areas allocated to public institutions within this program are notified to the relevant public institutions. The public institutions that are allocated to the public service facilities in the areas within the boundaries of the five-year zoning programs expropriate within this program period. For this purpose, the necessary appropriation is placed in the annual budgets of public institutions.

In zoning programs, the rights reserved for public services and the rights granted by other laws regarding these places continue until the immovable properties which are restricted by special laws are expropriated or projects related to public services are realized.

2942 Sayılı Kamulaştırma Kanunu

Amaç ve kapsam (Kabul Tarihi: 04/11/1983)

Madde 1 - Bu Kanun; **kamu yararının gerektirdiği hallerde gerçek ve özel hukuk tüzel kişilerinin mülkiyetinde bulunan taşınmaz malların,** Devlet ve kamu tüzelkişilerince kamulaştırılmasında yapılacak işlemleri, kamulaştırma bedelinin hesaplanmasını, taşınmaz malın ve irtifak hakkının idare adına tescilini, kullanılmayan taşınmaz malın geri alınmasını, idareler arasında taşınmaz malların devir işlemlerini, karşılıklı hak ve yükümlülükler ile bunlara dayalı uyuşmazlıkların çözüm usul ve yöntemlerini düzenler.

Kamulaştırma şartları

Madde 3 – İdareler, kanunlarla ve Cumhurbaşkanlığı kararnameleriyle yapmak yükümlülüğünde bulundukları kamu hizmetlerinin veya teşebbüslerinin yürütülmesi için gerekli olan taşınmaz malları, kaynakları ve irtifak haklarını; **bedellerini nakden ve peşin olarak** veya aşağıda belirtilen hallerde eşit taksitlerle ödemek suretiyle kamulaştırma yapabilirler.

Cumhurbaşkanınca kabul olunan, büyük enerji ve sulama projeleri ile iskân projelerinin gerçekleştirilmesi, yeni ormanların yetiştirilmesi, kıyıların korunması ve turizm

amacıyla yapılacak kamulaştırmalarda, bir gerçek veya özel hukuk tüzel kişisine ödenecek kamulaştırma bedelinin o yıl Genel Bütçe Kanununda gösterilen miktarı, nakden ve peşin olarak ödenir. (Ek fıkra: 24/04/2001 - 4650/1. md.) İdarelerce yeterli ödenek temin edilmeden kamulaştırma işlemlerine başlanılamaz.

Kamu yararı kararı verecek merciler (Madde 5)

a) Kamu idareleri ve kamu tüzelkişileri;

1. 3/2'üncü maddede sayılan amaçlarla için kamulaştırmalarda ilgili bakanlık,
2. Köy yararına kamulaştırmalarda köy ihtiyar kurulu,
3. Belediye yararına kamulaştırmalarda belediye encümeni,
4. İl özel idaresi yararına kamulaştırmalarda il daimî encümeni,
5. Devlet yararına kamulaştırmalarda il idare kurulu,
6. Yükseköğretim Kurulu yararına kamulaştırmalarda Yükseköğretim Kurulu,
7. Üniversite, Türkiye Radyo- Televizyon Kurumu, Atatürk Kültür, Dil ve Tarih Yüksek Kurumu yararına kamulaştırmalarda yönetim kurulları,

….

b) Kamu kurumları yararına kamulaştırmalarda yönetim kurulu veya idare meclisi, bunların olmaması halinde yetkili idare organları,

c) Gerçek kişiler yararına kamulaştırmalarda bu kişilerin, özel hukuk tüzelkişileri yararına kamulaştırmalarda ise; yönetim kurulları veya idare meclislerinin, yoksa yetkili yönetim organlarının başvuruları üzerine gördükleri hizmet bakımından denetimine bağlı oldukları köy, belediye, özel idare veya bakanlık.

Kamulaştırma bedelinin tespiti esasları (Madde 11)

15 inci madde uyarınca oluşturulacak bilirkişi kurulu, kamulaştırılacak taşınmaz mal veya kaynağın bulunduğu yere mahkeme heyeti ile birlikte giderek, hazır bulunan ilgilileri de dinledikten sonra taşınmaz mal veya kaynağın;

a) Cins ve nev'ini,

b) Yüzölçümünü.

c) Kıymetini etkileyebilecek bütün nitelik ve unsurlarını ve her unsurun ayrı değerini,

d) Varsa vergi beyanını,

e) Kamulaştırma tarihindeki resmi makamlarca yapılmış kıymet takdirlerini,

f) Arazilerde, taşınmaz mal veya kaynağın (…)[(2)] mevkii ve şartlarına göre ve olduğu gibi kullanılması halinde getireceği net gelirini.[(2)]

g) Arsalarda, kamulaştırılma gününden önceki özel amacı olmayan emsal satışlara göre satış değerini,

h) Yapılarda resmi birim fiyatları ve yapı maliyet hesaplarını ve yıpranma payını)

i) Bu fıkrada belirtilen unsurlara göre tespit edilen arazi bedelinin yarısını geçmemek ve her bir ölçünün etkisi açıklanmak kaydıyla bedelin tespitinde etkili olacak diğer objektif ölçüleri,

Esas tutarak düzenleyecekleri raporda bütün bu unsurların cevaplarını ayrı ayrı belirtmek suretiyle ve ilgililerin beyanını da dikkate alarak Sermaye Piyasası Kurulu tarafından kabul edilen değerleme standartlarına uygun, gerekçeli bir değerlendirme raporuna dayalı olarak taşınmaz malın değerini tespit ederler.

Taşınmaz malın değerinin tespitinde, kamulaştırmayı gerektiren imar ve hizmet teşebbüsünün sebep olacağı değer artışları ile ilerisi için düşünülen kullanma şekillerine göre getireceği kâr dikkate alınmaz.

Kamulaştırma yoluyla irtifak hakkı tesisinde, bu kamulaştırma sebebiyle taşınmaz mal veya kaynakta meydana gelecek kıymet düşüklüğü gerekçeleriyle belirtilir. Bu kıymet düşüklüğü kamulaştırma bedelidir.

Kısmen kamulaştırma ve Dava hakkı

Madde 12 – Kısmen kamulaştırılan taşınmaz malın değeri;

Kamulaştırılmayan kısmın değerinde, kamulaştırma sebebiyle bir değişiklik olmadığı takdirde, o malın 11 inci maddede belirtilen esaslara göre takdir edilen bedelinden kamulaştırılan kısma düşen miktarıdır.

Kamulaştırma dışında kalan kısmın kıymetinde, kamulaştırma nedeniyle eksilme meydana geldiği takdirde; bu eksilen değer miktarı tespit edilerek, kamulaştırılan kısmın (a) bendinde belirtilen esaslar dairesinde tayin olunan kamulaştırma bedeline eksilen değerin eklenmesiyle bulunan miktardır.

Kamulaştırma dışında kalan kısmın bedelinde kamulaştırma nedeniyle artış meydana geldiği takdirde ise, artış miktarı tespit edilerek, kamulaştırılan kısmın (a) bendinde belirtilen esaslar dairesinde tayin edilen bedelinden artan değerin çıkarılmasıyla bulunan miktardır.

Şu kadar ki, (c) bendi gereğince yapılacak indirme, kamulaştırma bedelinin yüzde ellisinden fazla olamaz. (b) ve (c) bentlerinde sözü edilen bedelin düşüş ve artış miktarları, 11 inci maddede belirtilen esaslara göre bedel takdiri suretiyle tespit olunur.

Kamulaştırma dışında kalan kısım, imar mevzuatına göre yararlanmaya elverişli olduğu takdirde; kesilen bina, ihata duvarı, kanalizasyon, su, elektrik, havagazı kanalları, makine gibi tesislerden mal sahiplerine kalacak olanlarının eski nitelikleri dairesinde kullanılabilecek duruma getirilebilmeleri için gereken gider ve bedel, belirlenerek kamulaştırma bedeline ilave olunur. Bu masraf ve bedeller (b) bendinde yazılı kıymet düşüklüğü miktarının belirlenmesinde göz önünde tutulmaz.

Bir kısmı kamulaştırılan taşınmaz maldan artan kısmı yararlanmaya elverişli bir durumda değil ise, kamulaştırma işlemine karşı idari yargıda dava açılmayan hallerde mal sahibinin en geç kamulaştırma kararının tebliğinden itibaren otuz gün içinde yazılı başvurusu üzerine, bu kısmın da kamulaştırılması zorunludur.

Madde 14 – Kamulaştırmaya konu taşınmaz malın maliki tarafından mahkemece yapılan tebligat gününden, kendilerine tebligat yapılamayanlara tebligat yerine geçmek üzere mahkemece gazete ile yapılan ilan tarihinden itibaren otuz gün içinde, kamulaştırma işlemine karşı idari yargıda iptal ve maddi hatalara karşı da adli yargıda düzeltim davası açılabilir. İdari yargıda açılan davalar öncelikle görülür.

Acele kamulaştırma

2942 sayılı Kamulaştırma Kanunu'nun "acele kamulaştırma" başlıklı 27. maddesinde düzenlenmiştir. 27. maddede; acele kamulaştırmanın şartları, şartların varlığı halinde mahkemece taşınmazın değerinin tespit ettirilmesi, kamulaştırma bedeli karşılığı tespit edilecek meblağın bankaya yatırılması ve böylece idarece taşınmaza el konulmasına ilişkin hususlar düzenlenmiştir.

Madde 27 – 3634 sayılı Milli Müdafaa Mükellefiyeti Kanununun uygulanmasında yurt savunması ihtiyacına veya acilliğine Bakanlar Kurulunca karar alınacak hallerde veya özel kanunlarla öngörülen olağanüstü durumlarda gerekli olan taşınmaz malların kamulaştırılmasında kıymet takdiri dışındaki işlemler sonradan tamamlanmak üzere ilgili idarenin istemi ile mahkemece yedi gün içinde o taşınmaz malın seçilecek bilirkişilerce tespit edilecek değeri, idare tarafından mal sahibi adına bankaya yatırılarak o taşınmaz mala el konulabilir.

Mahkemece yaptırılan değer tespitinde belirlenen bedel idarece bankaya yatırılıp, makbuzunun mahkemeye sunulmasından sonra acele el koyma kararı verilir ve karar taşınmaz sahibine tebliğ edilir. Yapılan bu tebligattan sonra taşınmaz sahibi tapuda ferağ vererek, bankada adına yatırılan parayı alırsa, işlem kesinleşir. Taşınmaz sahibi tapuda ferağ vermezse, idarece 2942 sayılı Kanunun ilgili hükümlerine göre kamulaştırma bedelinin tespiti ve tescil davası açılır.

Acele kamulaştırma, olağan kamulaştırmadan farklı olarak, kıymet takdiri dışındaki işlemler daha sonradan tamamlanmak üzere, öngörülen usul ve şekilde taşınmaza el konma şeklidir. Acele Kamulaştırma/El Koyma davası bir nevi delil tespiti davasıdır. Davanın kabulü ile idare orada kamu yararı olan işlemi yapabilecektir. Tıpkı normal kamulaştırma sürecindeki gibi işlemler aynen yapılacaktır. İdare öncelikle malın sahibi ile anlaşma yoluyla satın almayı deneyecektir. Bu işlemde uzlaşma olursa belirlenen bedel ödenerek kamulaştırma işlemi sonlandırılacaktır.

Land readjustment applications

Land Readjustment (LR) ***(Arsa ve Arazi Düzenlemesi (AAD)),*** *is a planning tool that provides the transformation of cadastral parcels which are useless in terms of urban planning to a more economical usable structure in accordance with the zoning plan principles.* The basic principle is to ensure that the existing cadastral parcels in a regulation region are transformed into a single mass, then planed as new zoning plots and returned to the owners, as well as providing public services to the public service.

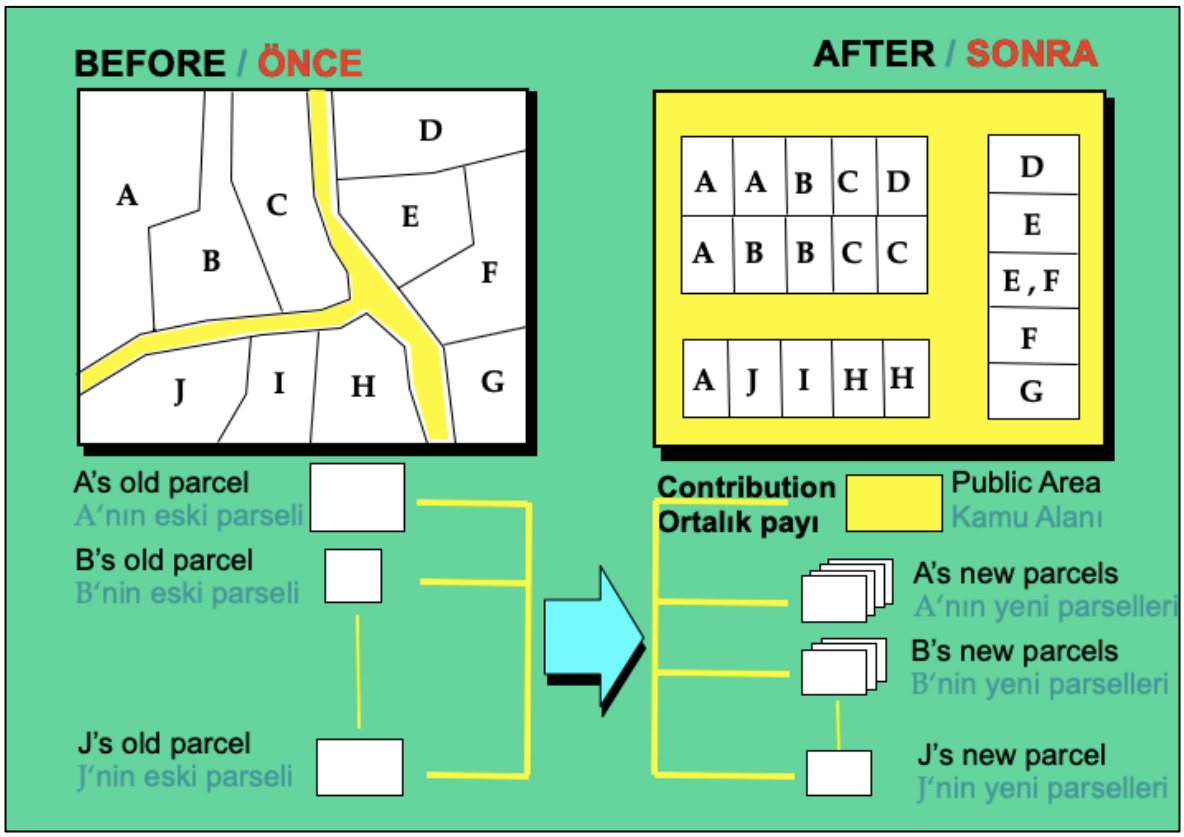


Figure x. General operation structure of land readjustment

With the LR applications in our country, the zoning implementation plans were reflected to the land within a short period of time and the new construction parcels suitable for the construction were intended to be produced. The current laws and regulations that are applied in the LR studies conducted throughout the country allow for this purpose and it is seen that there are still serious problems in the regulation studies. Especially in the applications, the redistribution of the parcels, the failure to evaluate the parcels according to objective criteria, the lack of project planning, the inadequacy of use of technology and the practices which are sometimes negatively affected.

In Turkey, the Land Readjustment, distribution is done by making cuts commensurate with the only areas of cadastral parcels. However, the values of the cadastral parcels before the land and land arrangement are not the same, and the values of the parcels formed after the arrangement are different from each other. Cadastral parcels adapted to zoning plan; They have different values due to factors such as their location, distance from social facilities, and criteria for making use of public structures. In order for the cadastral parcels to benefit equally from the increase in value after the zoning plan implementation, it is necessary to implement the equivalence-based distribution instead of the co-distribution. The purpose of land and land arrangement based on equivalence is the fact that the cadastral parcels are equal before and after the regulation. In order to achieve this, it is necessary to determine the values of the cadastral parcels and the post-regulation parcels before the regulation and distribution according to the value change. But this approach is not yet implemented in Turkey.

The AAD actually forces the existing cadastral structure in any region to change with the zoning plan. Because, with the application, not only the boundaries of the cadastral parcels within the region, but also the existing economic values of the property change. In particular, the arrival of the zoning plan in the region has a positive impact on the current economic values of the cadastral parcels in the region, but this effect may not be the same for all parcels. Therefore, the owners often complain about the practices. However, the main benefits of land arrangement can be summarized as follows;

a) AAD complies with the principles of social justice. The positive and negative effects brought by the plan by making an equal number of cuts are distributed to the owners at the size of their immovables.

b) AAD is economic. By regulation, municipalities can transfer these areas to public ownership without making any payment for public spaces such as roads, squares, parks and parking. As the application covers a wide range of areas, the construction of infrastructure facilities is facilitated and the costs are reduced.

c) AAD also provides great benefits in terms of technical aspects. First of all, the plan has the opportunity to be applied as a whole without damaging the principles. Since at least one zoning island is handled as a unit in practice, it is no longer necessary to solve the problem of particulate solutions and regulations.

d) AAD produces a large number of lands in practice. Thus, supply-demand balance is established in the land market and hence land speculation can be prevented to some extent.

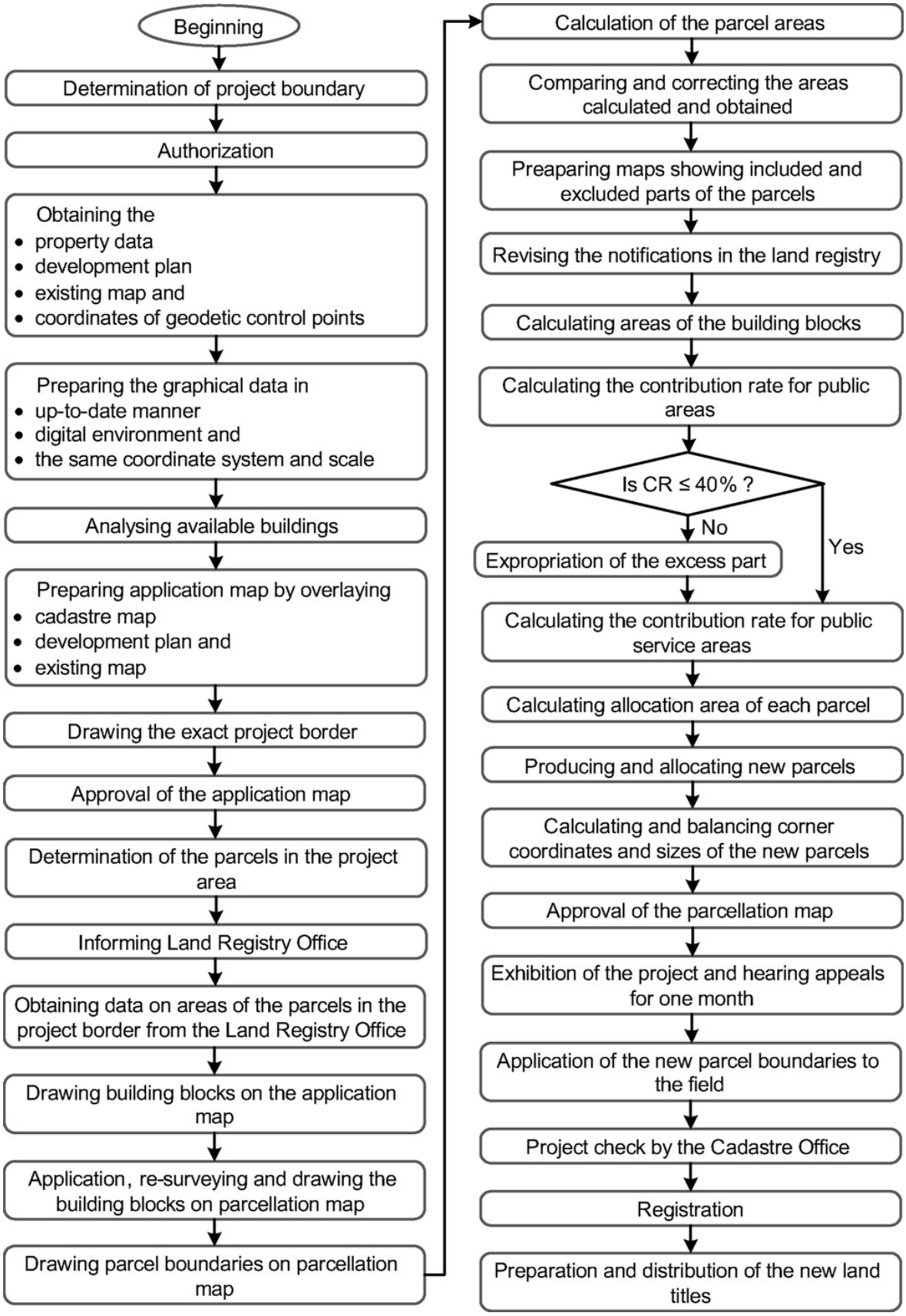


Figure x. Process flow in a plot and land readjustment

▲ Figure 3.6. Original cadastral map before the land readjustment implementation (2000)

▼ Figure 3.7. Subdivision map after the land readjustment implementation (2002)

▼ Figure 3.43. District of Toklu-Besirli before the project and cadastral land parcel distribution (1985)

▼ Figure 3.44. District of Toklu-Besirli and the proposed replotted new land parcels (1987)

▼ Figure 3.45. District of Toklu-Besirli after the project implementation (2002)

3194 Sayılı İmar Kanunu'nun 18. maddesi

İmar Kanunun (Kabul Tarihi: 03/05/1985) "Arazi ve Arsa Düzenlemesi" başlıklı 18. Maddesi ne göre;

"3194/Madde 18- İmar hududu içinde bulunan binalı ve binasız arsa ve arazileri malikleri ve diğer **hak sahiplerinin muvafakati aranmaksızın**, birbirleri ile, yol fazlaları ile, kamu kurumlarına veya belediyelere ait bulunan yerlerle birleştirmeye, **bunları yeniden imar planına uygun ada veya parsellere ayırmaya, müstakil, hisseli veya kat mülkiyeti esaslarına göre hak sahiplerine dağıtmaya** ve **re'sen tescil** işlemlerini yaptırmaya **belediyeler yetkilidir**." Sözü edilen yerler belediye ve mücavir alan dışında ise yukarıda belirtilen yetkiler valilikçe kullanılır.

Belediyeler veya valiliklerce düzenlemeye tabi tutulan arazi ve arsaların dağıtımı sırasında bunların yüzölçümlerinden yeteri kadar saha, düzenleme alanındaki nüfusun kentsel faaliyetlerini sürdürebilmeleri için gerekli olan umumi hizmet alanlarının tesis edilmesi ve düzenleme dolayısıyla meydana gelen değer artışları karşılığında **"düzenleme ortaklık payı (DOP)"** olarak düşülebilir. Ancak, bu maddeye göre alınacak düzenleme ortaklık payları, düzenlemeye tabi tutulan arazi ve arsaların düzenlemeden önceki **yüzölçümlerinin yüzde kırk beşini (%45) geçemez.**

Düzenleme ortaklık payları (DOP), düzenlemeye tabi tutulan yerler ile bölgenin ihtiyacı olan **yol, meydan, park, otopark, çocuk bahçesi, yeşil saha, ibadet yeri ve karakol, Milli Eğitim Bakanlığına bağlı öğretime yönelik eğitim tesis alanları, Sağlık Bakanlığına bağlı sağlık tesis alanları, pazar yeri, semt spor alanı, toplu taşıma istasyonları ve durakları, otoyol hariç erişme kontrolünün uygulandığı yol, su yolu, resmî kurum alanı, mezarlık alanı, belediye hizmet alanı, sosyal ve kültürel tesis alanı, özel tesis yapılmasına konu olmayan ağaçlandırılacak alan, rekreasyonalanı olarak ayrılan parseller ve mesire alanları gibi umumi hizmet alanlarından oluşur** ve bu hizmetlerle ilgili tesislerden başka maksatlarla kullanılamaz. Kapanan imar ve kadastro yollarının öncelikle düzenleme ortaklık payına ayrılan toplam alandan düşülmesi esastır.

DOP toplamı, yukarıdaki fıkrada sözü geçen umumi hizmetler için, yeniden ayrılması gereken yerlerin alanları toplamından az olduğu takdirde, eksik kalan miktar belediye veya valilikçe kamulaştırma yolu ile tamamlanır. Bu fıkraya göre, **herhangi bir parselden bir defadan fazla düzenleme ortaklık payı alınmaz.** Ancak, bu hüküm o parselde imar planı ile yeniden bir düzenleme yapılmasına mâni teşkil etmez.

Düzenleme sırasında, plan ve mevzuata göre muhafazasında mahzur bulunmayan bir yapı, ancak bir imar parseli içinde bırakılabilir. Hisseli bir veya birkaç parsel üzerinde kalan yapıların bedelleri, ilgili parsel sahiplerince yapı sahibine ödenmedikçe ve aralarında başka bir anlaşma temin edilmedikçe veya şüyuu giderilmedikçe bu yapıların eski sahipleri tarafından kullanılmasına devam olunur.

3194 sayılı İmar Kanunu'nun 18 inci maddesine göre yapılacak arazi ve arsa düzenlemesinin nerelerde ve ne şekilde tatbik edileceği ve bununla ilgili diğer teknik ve genel hususlara açıklık getirmek üzere **yönetmelik hükümleri uygulanır**.

Arazi ve Arsa Düzenlenmeleri Hakkında Yönetmelik

Düzenleme sahalarının tespiti esasları

MADDE 9 – (1) Belediye ve mücavir alan sınırları içinde belediyeler, belediye encümeni kararı ile; dışında ise valilikler, il idare kurulu kararı ile 5 yıllık imar programlarına öncelik tanımak ve beldenin inkişaf ve ihtiyaç durumuna göre, imar planları ile getirilen tüm kullanım alanlarını hazır bulunduracak şekilde düzenleme sahalarını tespit etmek ve kesinleşen uygulama imar planlarına göre parselasyon planlarını yaparak yeterli miktarda parseli oluşturmak mecburiyetindedir.

(2) 10/7/2019 tarihinden sonra yapılan imar planlarında kesinleşme tarihinden itibaren 5 yıl içerisinde, 10/7/2019 tarihinden önce yapılmış imar planlarında 10/7/2019 tarihinden itibaren 5 yıl içerisinde; düzenleme sahalarının tespit edilerek, parselasyon planlarının yapılması ve onaylanması esastır.

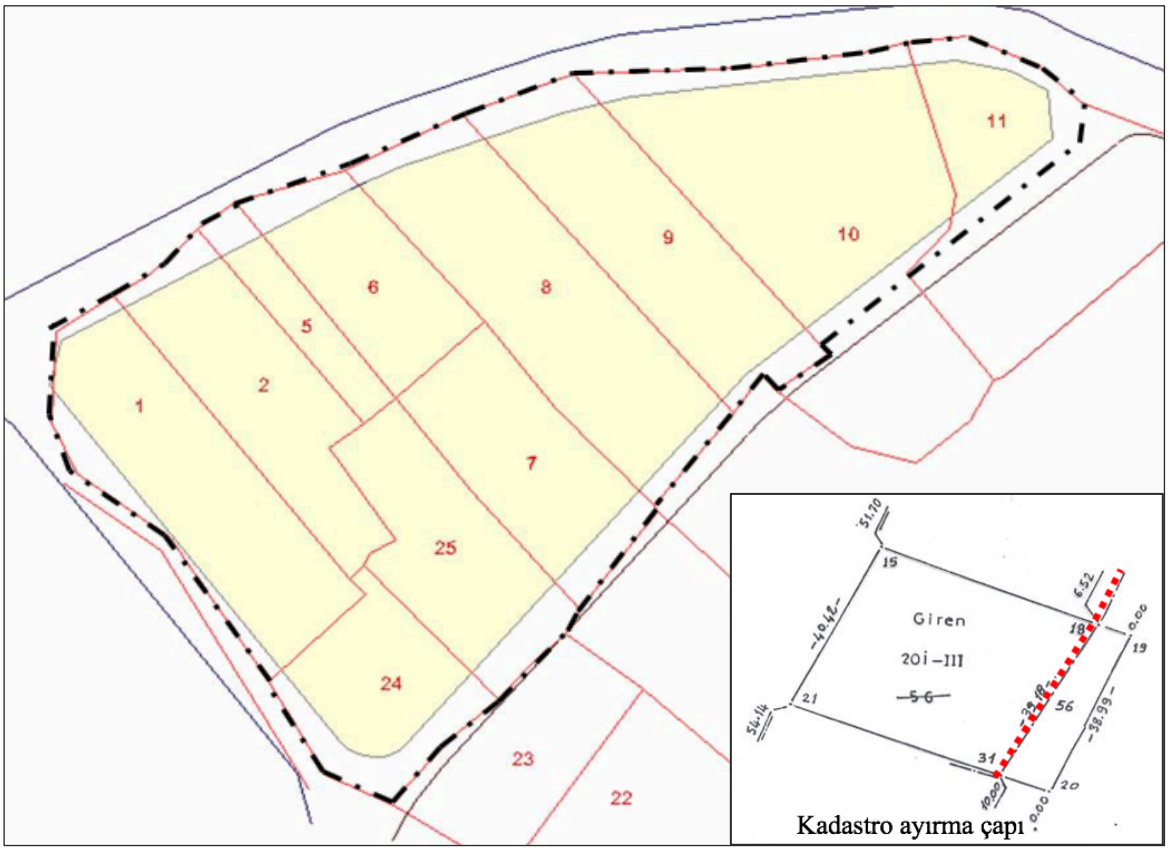
(3) İmar planı içerisinde düzenleme sahaları tespit edilirken, düzenleme sahalarındaki Düzenleme Ortaklık Payı oranlarının mümkün mertebe dengeli olmasına dikkat edilir.

(4) Kamunun mülkiyeti ile Kamu Malî Yönetimi ve Kontrol Kanununda belirtilen merkezi yönetim kapsamındaki kamu idareleri yetkisi içindeki kamu yatırımlarının bulunduğu alanlar hariç olmak üzere, belirlenen düzenleme sahası bir müstakil imar adasından daha küçük olamaz.

(5) Ancak, imar adasının bir kısmının imar mevzuatına uygun bir şekilde teşekkül etmiş olması nedeniyle, yeniden düzenlemesine ihtiyaç bulunmaması halinde adanın geri kalan kadastro parselleri müstakil bir imar düzenlenmesine konu teşkil edebilir.

Düzenleme sınırının geçirilmesi

MADDE 10 – (1) İmar plânlarında gösterilmiş düzenleme sınırları varsa bu durum dikkate alınır.
(2) İmar planlarında düzenleme sınırı ile ilgili herhangi bir belirtme olmaması durumunda, düzenleme sınırı;
a) İskân sahasının bittiği yerlerde iskân sınırlarından,
b) Yola cephesi olmayan parsel oluşturmamak kaydıyla iskân sahası içindeki yollardan,
c) Düzenleme sınırının herhangi bir parseli iki veya daha fazla parçaya bölmesi halinde, imar planlarında gösterilmiş düzenleme sınırları olsa dahi; sınır, bu parçalardan düzenleme sahası dışında kalıpta başka bir imar adasına girmeyenleri varsa bunları da içine alacak şekilde,
ç) Park, meydan, yeşil alan, rekreasyon alanı, ağaçlandırılacak alan, mezarlık ve otopark alanlarının düzenleme ortaklık payı oranına göre uygun görülecek yerinden, geçirilir.
(3) Düzenleme sınırı; gerek görülmesi halinde kentsel dönüşüm alanı, orman, mera ve sit alanı gibi özel kanunlarla korunan alanların dış sınırından ve kıyı kenar çizgisinden geçirilebilir.
(4) Düzenleme ortaklık payı oranını aşmamak kaydı ile düzenleme sahasına bitişik ancak başkaca bir düzenleme sahasına dâhil edilmesi ya da müstakil bir düzenleme sahası oluşturması mümkün olmayan parsel ya da parseller, imar planında düzenleme sınırı bulunsa dahi, imar planı varsa düzenleme sahası dışında bırakılamaz.



Şekil x. Düzenleme sınırı geçirilmesine ilişkin örnekler

Düzenleme Ortaklık Payı Oranına Ait Esaslar

Düzenleme ortaklık payı (DOP): Düzenleme alanındaki ve bölgedeki yaşayanların kentsel faaliyetlerini sürdürebilmeleri için gerekli olan umumi hizmet ve kamu hizmet alanlarını elde etmek ve/veya düzenleme dolayısıyla meydana gelen değer artışları karşılığında; düzenlemeye tâbi tutulan arazi ve arsaların, düzenlemeden önceki yüzölçümlerinden, imar planındaki kullanım kararlarına göre yüzde kırk beşe (%45) kadar düşülebilen miktardır. Düzenleme ortaklık payı, düzenlemeye tabi tutulan yerler ile bölgede yaşayanların ihtiyacı olan ve herkesin ortak kullanabileceği, kamusal alanı ifade eder ve bölgede yaşayan insanların ortak kullanımı dışında hiçbir fonksiyon için kullanılamaz.

Düzenleme ortaklık payı oranı (DOPO): Bir düzenleme sahasındaki toplam düzenleme ortaklık payı miktarının, bu saha içinde düzenlemeye giren kadastro veya imar parsellerinin toplam yüzölçümü miktarına oranıdır. *Düzenleme ortaklık payı oranı, virgülden sonra yedi basamak olarak hesaplanır.*

Kadastral parsel: Herhangi bir imar düzenlemesi yapılmamış, kadastro mevzuatı uyarınca oluşarak tescil edilmiş parsellerdir.

İmar parseli: İmar adaları içerisindeki kadastro parsellerinin İmar Kanunu, imar planı ve bu Yönetmelik esaslarına göre düzenlenmiş şeklidir.

MADDE 14 – (1) Düzenlemeye tabi tutulan yerler ile bölgenin ihtiyacı olan umumi ve kamu hizmet alanları için, İmar Kanunu'nun 18 inci maddesine göre alınacak düzenleme ortaklık payları, düzenlemeye tabi tutulan arazi ve arsaların düzenlemeden önceki yüzölçümlerinin yüzde kırk beşini (%45) geçemez.

(2) Düzenleme ortaklık paylarının aşağıdaki öncelik sırasına göre alınması esastır:

a) Yol, su yolu, meydan, park, otopark, çocuk bahçesi/parkı ve yeşil alan. b) İbadet yeri, karakol ve Millî Eğitim Bakanlığına bağlı öğretime yönelik eğitim tesis alanları, kamuya ait kreş alanları. c) Pazar yeri, semt spor alanı ve şehir içi toplu taşıma istasyonları ve durakları. ç) Sağlık Bakanlığına bağlı sağlık tesis alanları. d) Otoyol hariç erişme kontrolünün uygulandığı yol. e) Kent meydanı, kent parkı, spor alanı. f) Belediye hizmet alanı, sosyal ve kültürel tesis alanı. g) Teknik altyapı alanı, kamuya ait trafo alanı. ğ) Rekreasyon alanı, mesire alanları ve özel tesis yapılmasına konu olmayan ağaçlandırılacak alan. h) Resmî kurum alanı. ı) Diğer umumi ve kamu hizmet alanları. i) Mezarlık, otogar alanı.

İmar planı bulunan ve arazi ve arsa düzenlemesi yapılacak alanlarda; kadastro yollarının imar adasına denk gelen kısımları, alan kazanmak amacıyla, parselasyon planı yapılmadan önce 22/12/1934 tarihli ve 2644 sayılı Tapu Kanunu'nun 21 inci maddesi uyarınca ihdas edilemez ya da parselasyon planı ile belediye/köy tüzel kişiliği/Hazine adına ihdas edilerek parselasyon planına alınamaz. **Düzenleme sahası içerisindeki kapanan imar ve kadastro yolları varsa, parselasyon planı sırasında toplam düzenleme ortaklık payından düşülerek düzenleme ortaklık payı oranı hesaplanır.**

Parselasyon planı yapılmadan ifraz, tevhit ve terk yoluyla; düzenleme ortaklık payına konu alanlara terk edilen ya da bağışlanan alan miktarının, uygulama sahasındaki düzenleme ortaklık payı oranına göre kesilecek alandan az olması durumunda, parselasyon planı sırasında düzenleme ortaklık payına tamamlayan fark kadar düzenleme ortaklık payı kesintisi yapılır.

Düzenleme Ortaklık Payı Oranı (DOPO) ve Kamulaştırılacak Alanın Hesabı

Düzenleme ortaklık payı oranı ve kamulaştırılacak alan tutarı şu şekilde hesaplanır; Düzenleme ortaklık payı oranı, umumi hizmetlere ayrılan miktarın, düzenleme ortaklık payı alınacak parsellerin düzenlemeye giren miktarları toplamına bölünmek suretiyle bulunur. Düzenlemeye giren miktar, bu parsellerin tapu senedi alanında düzenlemeye girmeyen ve bağışlanan alanların çıkarılması ile bulunur.

Bu oran %45'den fazla çıktığı takdirde; kamulaştırılması gereken alan, umumi hizmetlere ayrılan alandan, düzenlemeye giren parsel alanları toplamının %45`ini çıkarılması ile bulunan farkın 100 ile çarpılıp 55'e bölünmesiyle bulunur.

Örnek 1: DOPO (Düzenleme ortaklık payı oranı) hesaplama:

Bir düzenleme bölgesinde, düzenlemeye giren kadastro parsel alanları toplamı (katılım kütlesi) [KPA] = 100.000 m^2 ve düzenleme sonunda dağıtıma esas olacak, imar parsellerine tahsis edilen toplam alan (imar kütlesi) [İAA] = 55.000 m^2 ise; Buna göre DOPO hesabı şu şekilde olacaktır.

Düzenleme Ortaklı Payı [DOP] = [KPA] – [İAA] = 100.000 – 55.000 = 45.000 m^2

[DOPO] = [DOP] / [KPA] = 45.000 / 100.000 = 0,45 (%45)'dır.

Bunun anlamı, düzenleme giren her bir kadastro parselinden %45'lik bir DOP kesintisi yapılırken, geri kalan %55'lik alan yeni bir imar alanı olarak parsele tahsis edilecektir. Dolayısıyla; 1- [DOPO] katsayısı her bir kadastro parsel alanı ile çarpılarak, parsellerin düzenleme sonrası dağıtımla alacakları tahsis alanları hesaplanmış olur.

Örneğin 1.000 m^2'lik bir parselden (1.000 x 0,45) = 450 m^2'lik DOP kesintisi yapılacaktır. Geri kalan (1.000 – 450) = 550 m^2'lik alan ise ilgili parsele tahsis edilecektir. Diğer bir ifadeyle 550 m^2'lik alan, düzenleme sonrası yeniden dağıtım aşamasında parsele geri verilecek ve tapuda tescile esas olacak alandır.

Örnek 2: DOPO > %45 halinde toplam Kamulaştırma Alanı **[KAM]** hesabı

Bir düzenleme sahasında düzenlemeye giren parsellerin toplam yüzölçümü 100.000 m^2, bu sahada kamu hizmetleri için ayrılan alan 47.750 m^2 olsun. Bu uygulama alanında yapılacak kamulaştırma miktarı şu şekilde hesaplanır;

Düzenleme sahası 100.000 m^2 dir. Bu sahada %45 DOP kesintisi yapıldığında kamu için ayrılabilecek alan 45.000 m^2 olur. Oysa kamuya ayrılan alanlar için 47.750 m^2'ye ihtiyaç vardır. 47.750 – 45.000 = 2.750 m^2'lik bir fark bulunur. Bu fark, 2.750 m^2 100 ile çarpılıp, 55'e bölündüğünde ihtiyaç duyulan kamulaştırma miktarı bulunmuş olur. Bu da 2.750 x (100 / 55) = 5.000 m^2 olarak hesaplanır.

Yapılan işlemin doğruluğunu saptamak için; düzenleme sahasında [KPA] = 100.000 m^2, umuma ait tesisler için gerekli miktar [KPA] – [İAA] = 47.750 m^2, kamulaştırma miktar 5.000 m^2 ise; kamulaştırılan bu alandan DOP kesilemeyeceğinden DOP kesilebilecek alan 95.000 m^2'ye düşecektir. Diğer taraftan kamu alanları için gerekli olan 47.750 m^2'nin, 5.000 m^2'si kamulaştırma ile elde edildiğine göre, artık 42.750 m^2'ye ihtiyaç kalmış olacaktır. Bu bilgilerden sonra, eldeki verilerle DOPO yeniden hesaplanacak olursa; 42.750 / 95.000 = 0,45 bulunur. Bu durumda düzenleme bölgesinde 5.000 m^2'lik bir alan kamulaştırıldığında doğru sonuca varılacaktır.

DOPO > %45 halinde toplam Kamulaştırma Alanı için **[KAM]** formülasyonu:

Bir düzenleme bölgesinde, düzenlemeye giren Toplam Kadastro Parsel Alanları = [KPA] ve Toplam İmar Ada Alanları = [İAA] ise;

Amaç → { [KPA] – [İAA] – [KAM] } / { [KPA] – [KAM] } = 45 / 100 olmalıdır.

Buna göre eşitlik açılır ise;

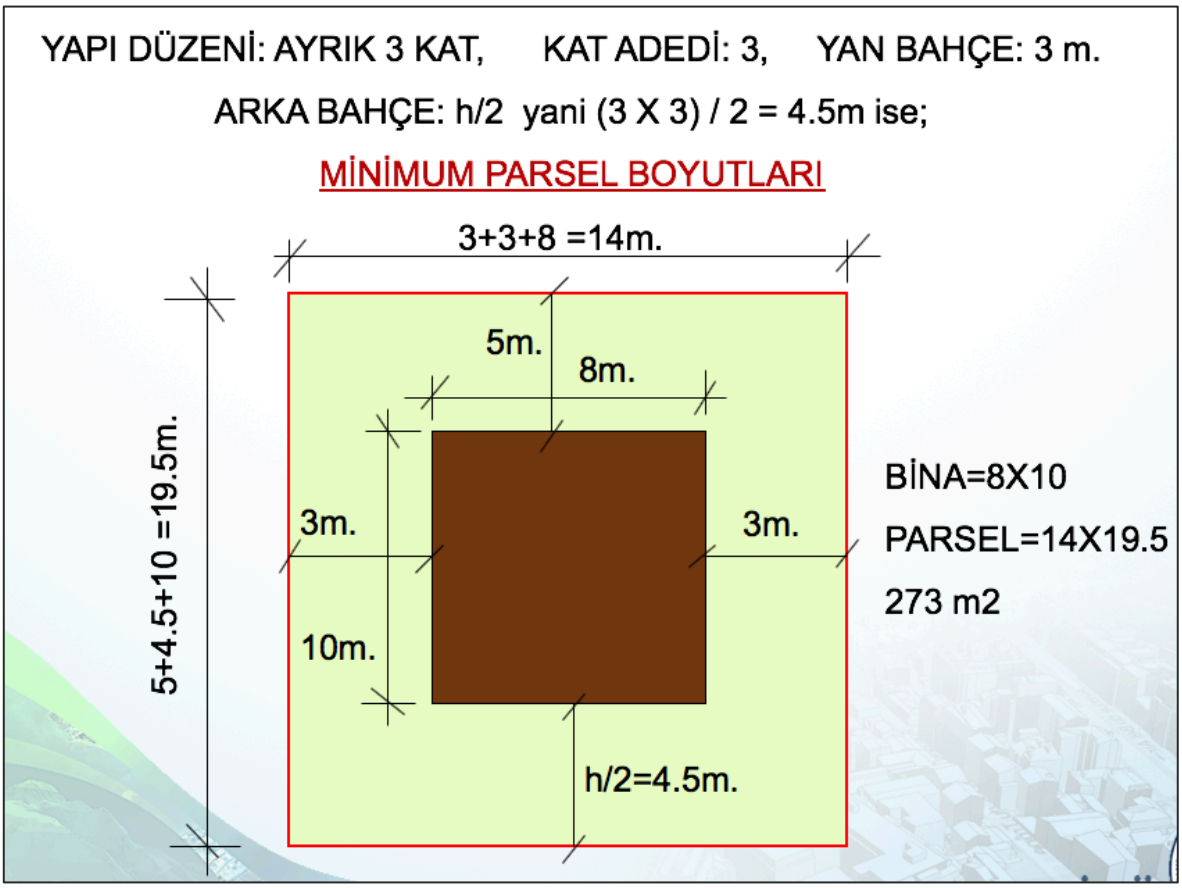
100 x [KPA] – 100 x [İAA] – 100 x [KAM] = 45 x [KPA] – 45 x [KAM]

55 x [KPA] – 55 x [KAM] = 100 x [İAA]

55 ([KPA] – [KAM]) = 100 x [İAA]

[KPA] – [KAM] = (100 / 55) x [İAA]

[KAM] = [KPA] – (100 / 55) x [İAA] olur.



Parselasyon planlarının yapımı ve dağıtım esasları

MADDE 17 – (1) İmar parsellerinin oluşturulması ve dağıtımında aşağıdaki esaslar dikkate alınır:

a) Düzenlemeye giren parsellerin tahsisi, uygulama sonucunda mümkün olduğunca düzenleme öncesi parselin bulunduğu yerden yapılır. Düzenlemeye alınan parsellerin imar planında umumi ve kamu hizmet alanlarına denk gelmesi halinde ise, diğer parsellerin bulunduğu yerden tahsisinin yapılmasından sonra, teknik zorunluluklar da dikkate alınarak en yakın ve tahsise uygun olabilecek imar parsellerine tahsisi sağlanır.

b) Parselasyon planıyla; imar planına, imar planında aksine bir hüküm yoksa, imar mevzuatında belirtilen minimum parsel büyüklüklerinin altında parsel oluşturulamaz.

c) İmar plânı ve mevzuata göre korunması mümkün olan yapıların, asgari parsel büyüklüğünü sağlaması kaydıyla, tam ve hissesiz bir imar parseline denk gelmesi sağlanır. Asgari parsel büyüklüğünün sağlanamaması halinde, 16'ncı maddede belirtilen hükümlere göre tahsis ve bedele dönüştürme işlemleri yapılabilir.

ç) Kamu yatırımlarının yürütülmesi amacıyla, kamu kurumlarına ait taşınmazdaki hisseler müstakil bir imar parselinde toplanabilir.

d) Düzenleme sahasında kalan hisseli arazi ve arsalar, hisse sahiplerinin muvafakatı halinde veya ilgili idarece arazideki fiili kullanım durumunun tespit edilmesi halinde muvafakat

aranmaksızın; imar planında aksine bir hüküm yoksa imar mevzuatında belirtilen asgari parsel büyüklüğünü sağlamak kaydıyla müstakil hale getirilebilir. İlgili idarece fiili durumun oluştuğuna dair mahallinde yapılan tespit, özel parselasyon krokileri, emlak vergisi kayıtları, belediyesince hazırlanmış çap ve benzeri diğer belgelerin değerlendirilmesiyle hazırlanan ve imza altına alınan tutanak belediyesinde belediye başkanınca, diğer yerlerde ilgili birim amirince onaylanır. Bu durumun belediye encümen kararı, il idare kurulu kararı veya ilgili idare onayında belirtilmesi durumunda, müstakil parseller oluşturulabilir.

e) Taşınmaz sahibine tahsis edilen miktarın asgari imar parsel alanından küçük olması veya diğer teknik ve hukuki nedenlerle müstakil imar parseli verilememesi halinde, bu miktar mümkün mertebe tek bir imar parseline hisselendirilir.

f) İmar planına ve mevzuatına uygun olması kaydıyla arazideki mevcut yapılaşmalar dikkate alınarak imar parselleri oluşturulur.

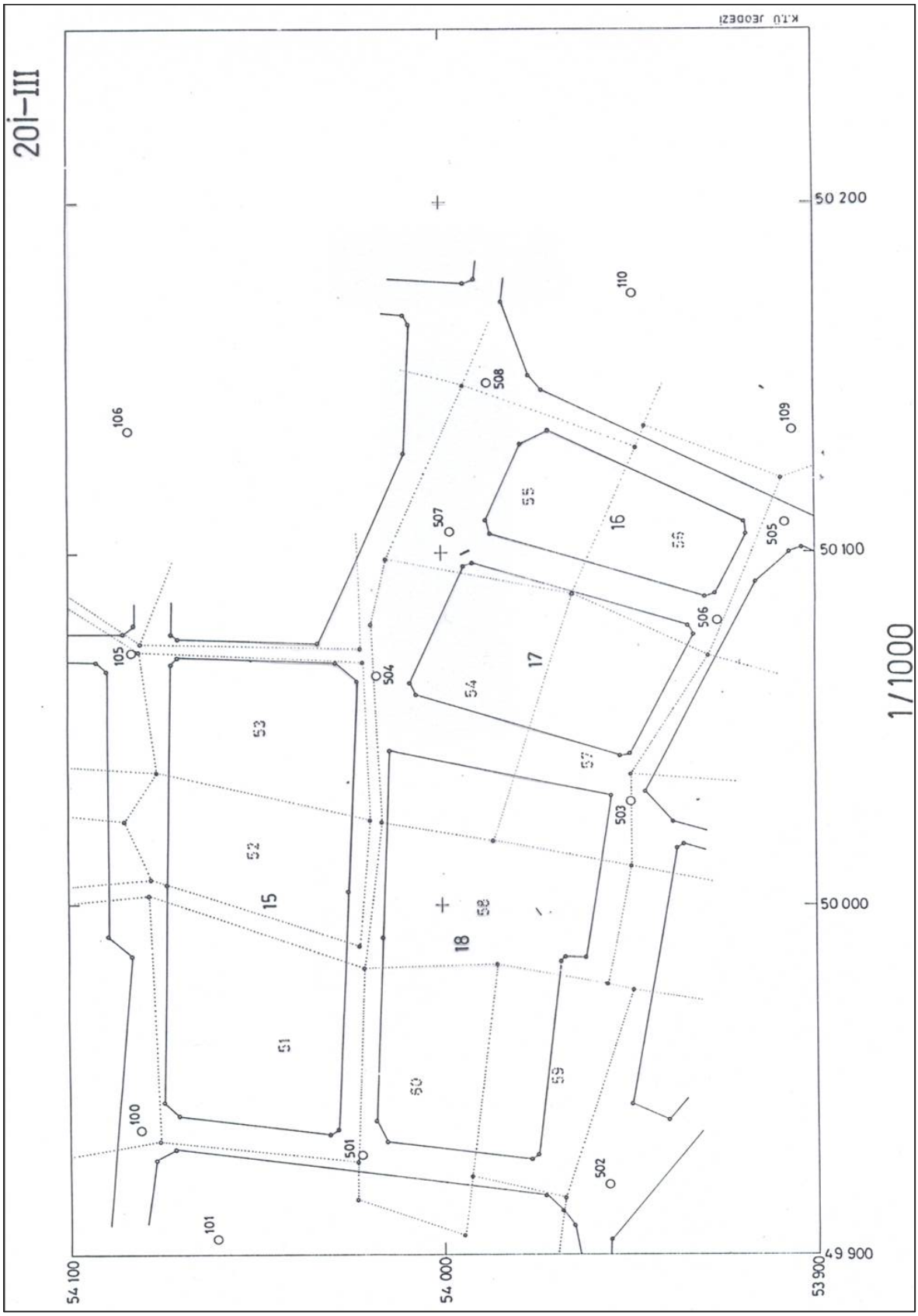
(2) Düzenlemeye tâbi tutulması gerektiği halde, 7 nci maddenin ikinci fıkrasının (b) ve (c) bentlerinde belirtilen istisnalardan dolayı İmar Kanununun 18 inci maddesinin uygulanmasının mümkün olmadığı hallerde veya 7 nci maddenin ikinci fıkrasının (a) ve (ç) bentlerine istinaden İmar Kanunu ve bu Yönetmelik hükümlerine göre ifraz, tevhit ve cins değişikliği yoluyla; imar planına uygun, müstakil ve inşaata elverişli hale getirilen parsellere inşaat ruhsatı verilebilir.

(3) 10/7/2019 tarihinden önce imar planında kamu kullanımına ayrılıp da, tescil olan parselasyon planında kamu ortaklık payı hisselendirmesiyle oluşan kamulaştırmaya konu parsellerin bulunduğu alanlarda, yeniden parselasyon planı yapılması durumunda; bu alanlar imar planında yine kamu kullanımına ayrılan yerlere, herhangi bir kesinti yapılmadan tahsis edilir ve eski statülerini devam ettirerek kamulaştırılmak üzere mevcut hissedarları adına tescil olunur. Ancak imar plan değişikliği ya da revizyonu ile kamu ortaklık payı hisselendirmesi ile oluşan alanlarda bir azalma olduğu takdirde; azalan miktar kadar alan özel mülkiyete konu alanlara tahsis edilir.

(4) Belediye hizmet alanı, semt spor alanı, belediye kreş alanı, pazar yeri, şehir içi toplu taşıma istasyonları ve durakları, tescile konu otoparklar, ağaçlandırılacak alan, rekreasyon alanı, mesire alanı, mezarlık alanı ve belediyelerin hizmet verdiği diğer alanlar belediyesi adına, kalan alanlar Hazine adına tescil edilir. Belediyesi adına tescil edilecek alanların büyükşehir belediyesi sınırları içerisinde kalması halinde, Büyükşehir Belediyesi Kanununda belirtilen; büyükşehir belediyelerinin görev ve yetki sahaları içerisinde kalan alanlarla, şehrin bütününe hizmet eden sosyal donatı alanları büyükşehir belediyesi adına, diğer alanlar ilçe belediyeleri adına tescil olunur.

(5) Spor alanı, teknik altyapı alanı, sosyal ve kültürel tesis alanı gibi hem belediyenin hem de diğer kamu kurumlarının kullanımında olabilecek alanlar Hazine adına imar planındaki kullanım vasfıyla tescil edilir. Bu alanlar Hazine tarafından, imar planındaki kullanım amacında kullanılması şartıyla, belediyesince hizmet verilmesinin planlanması halinde belediyeye devir veya tahsis, diğer kamu kurumlarınca hizmet verilmesinin planlanması halinde ise, hizmeti verecek kamu kurumuna tahsis edilir.

(6) Kamuya ait mülkiyetlerde; düzenleme ortaklık payı, terk veya bağış yolu ile umumi ve kamu hizmet alanlarına bırakılan alanların, imar planı değişikliği ile umumi ve kamu hizmet alanları dışında başka bir kullanıma konu edilmesi halinde, bu alanlar kesinti, terk ya da bağış yapılan taşınmazın sahibi kamu kurumu adına tescil edilir.



Şekil x. Uygulama haritası örneği

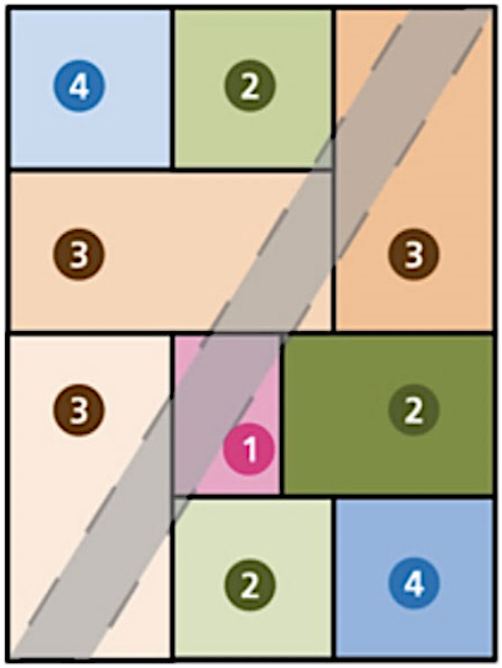
Şekil x. Parselasyon haritası örneği

LR Benefits for the government

- ✓ The expanded urban land project areas can be achieved rapidly using LR,
- ✓ Compensation expenses are greatly reduced. This positively affects the use of the municipality budget in other land development activities,
- ✓ Provision of public land is accomplished economically,
- ✓ A zoning plan is realized in a short time,
- ✓ The existing cadastral records are updated, reorganized and cadastral administration is improved,
- ✓ A regular land development process is provided.

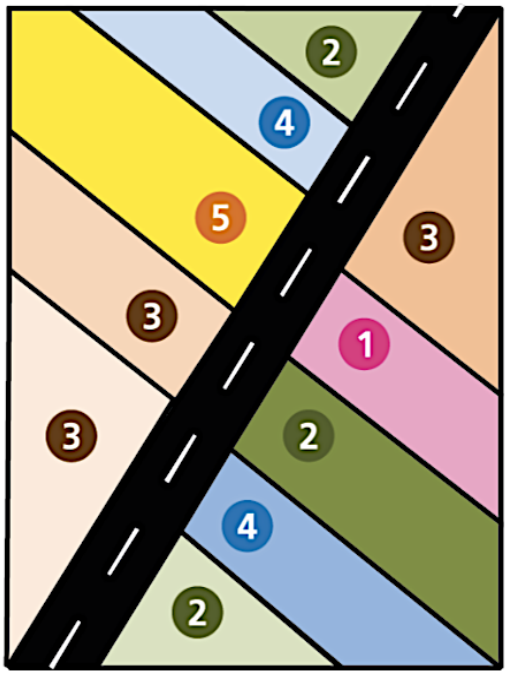
LR Benefits for landowners

- ✓ After the project, land values increase very rapidly and land becomes more valuable. This provides an economical gain to the landowners,
- ✓ A cadastral parcel is re-shaped and transformed into a sufficient site lot that can be used in an economic way,
- ✓ Because of LR project affects landowners in the same way, disputes about land planning are reduced, so that the problems which are created by the zoning plan are eliminated,
- ✓ Boundary conflicts are also minimized between landowners, due to re-organization of land parcel boundaries,
- ✓ Fragmented small parcels are consolidated into a new housing parcel. Landowners, therefore, can get an opportunity to use of their land more actively,
- ✓ At the end of the project, basic public services are supplied to new lots by municipalities, therefore LR project brings new social services to the project area,
- ✓ There is no extra charge to landowners for the project expenses, except that they forfeit part of their land. All project expenses are met by the municipalities.



Outcomes of parcels for planning needs

- ***Landholders I*** *will lose out: their land will be purchased at a price determined by the city (or a court), with not enough left for a viable plot. They will be displaced.*
- ***Landholders 2*** *will lose a small part of their land and be left with some frontage on the road — enough for access, raising considerably the value of their remaining plots*
- ***Landholders 3*** *lose a larger chunk of land to compulsory acquisition but are left with larger road frontages.*
- ***Landholders 4*** *do not benefit at all: left without road access.*



Outcomes through land readjustment

- *After a land readjustment process, with new land allocations, each landholder gets a smaller, but more valuable plot with road frontage.*
- *No one is displaced, and the costs and benefits are shared.*
- *Rather than a few landholders giving up all their land, all give up a little, creating the public space required for the road.*
- *In addition to the road itself, the municipality is allocated plot 5, which it can use for public space or sell to cover the cost of providing the infrastructure.*

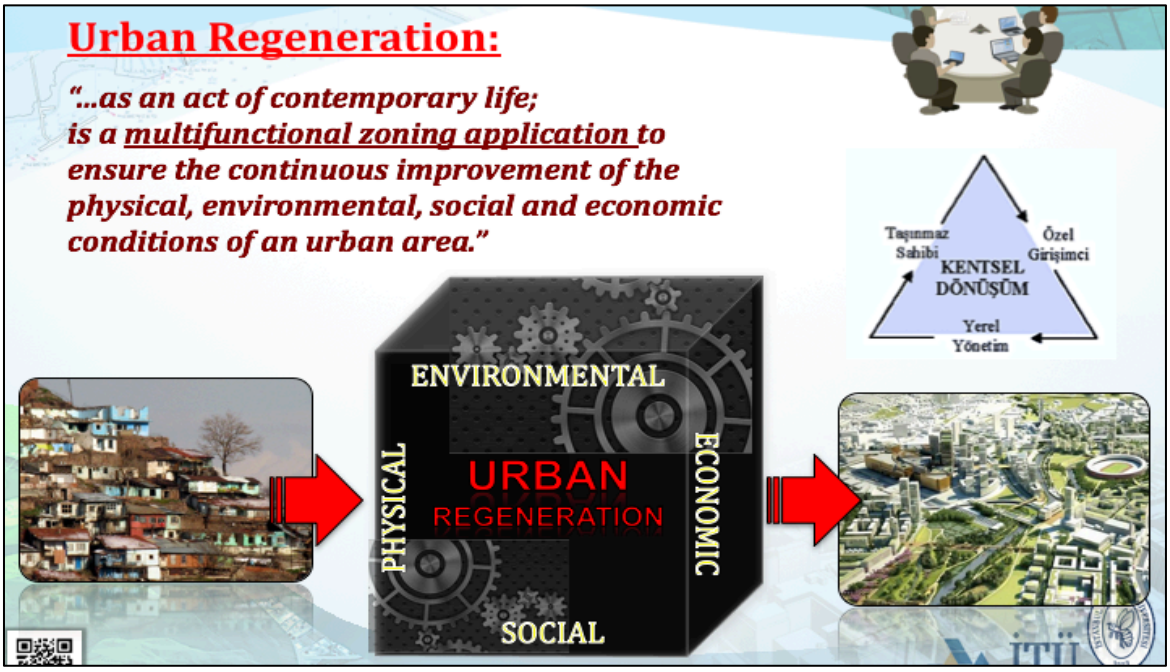
Urban regeneration applications

"**Urban Regeneration (UR)"** is a reconstruction application for reorganization of the property in accordance with the planning needs in the densely built areas of the city. Urban regeneration is a reorganization of the property in accordance with the zoning data of the property in areas that are distorted, drenched, ruthless, sensitive to disasters and urban risks, inadequate infrastructure and unqualified, densely structured, legally or immediately. Briefly, it is defined as the renewal of a certain part of the city and it is the applications made to change the region to have more favourable living conditions.

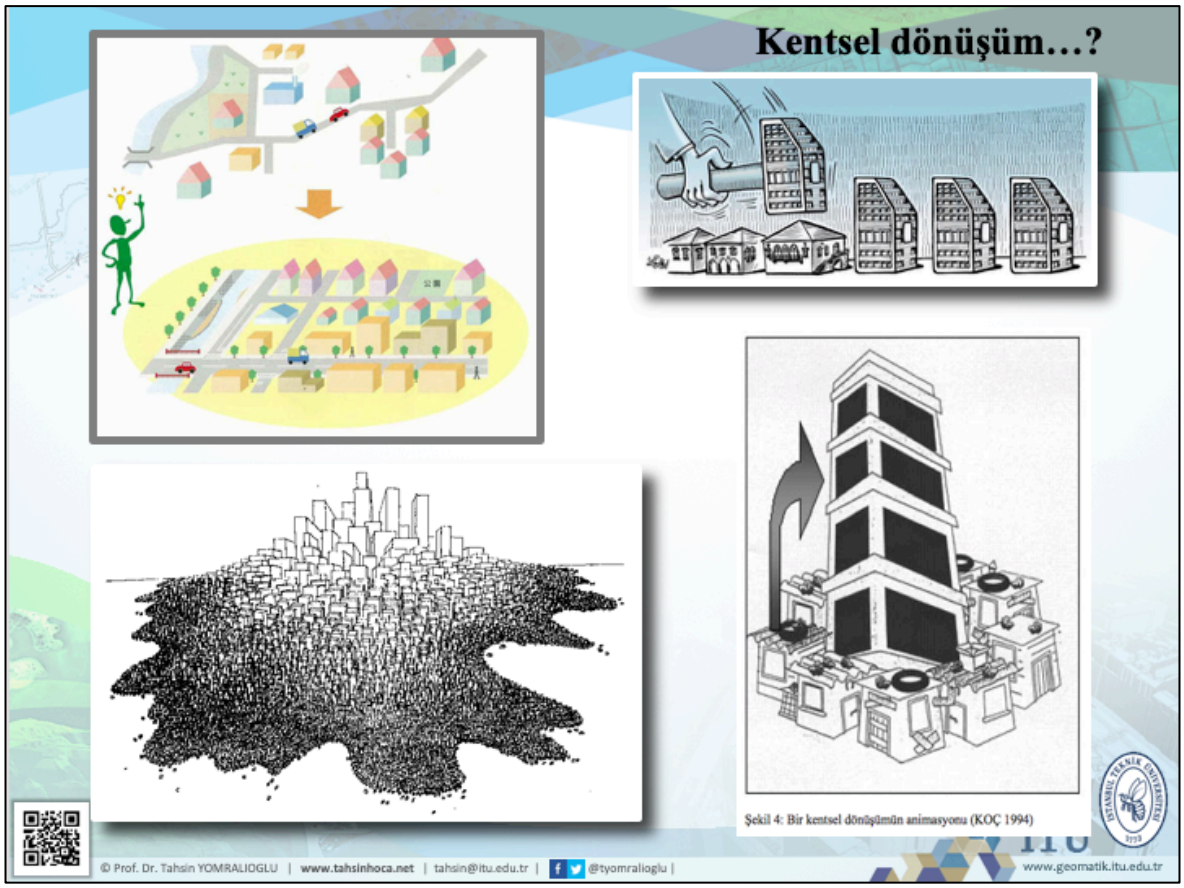
In particular, after the industrial development, the urban areas of the city, which are moved out of the city, port and shipyards in the development of urban areas to provide the development of the urban areas of the historical buildings to be renewed, in addition to the renewal, public-private sector-non-governmental organizations and local people. The aim of the project is to carry out works that will be implemented together.

In addition, even though land properties are registered in land registry in urban areas, squatter and illegal buildings are formed due to the emergence of public immovable properties such as municipalities, finance, foundations and governorships. Over time, the living conditions in such areas develop quite far from the phenomenon of urbanization.

Other reasons for urban regeneration applications are the transformation of unlicensed construction areas and shanty areas, which necessitate the implementation of structures which are obligatory to be recycled as a result of natural disasters.



"KED-BULUTU"
İpotek
Kadastro
plan
Kredi
MÜLKİYET
Tapu
Değer
Kat-Mülikyeti
Tescil
imar
KENTSEL-DÖNÜŞÜM
KENTLEŞME
Kira
Malik
Kıyı
Mevzuat
Kamulaştırma
MÜLKİYET
Mülkiyeti
Plan
Tapu
Sistem
Sözleşme
Vergi
Yatırım
TOKİ
Yeşil
Bakanlık
Afet
Alan
Anlaşma
ARSA
Çevre
Değer
Belediyeler
İlan
Finans
Gayrimenkul
ipotek
Hukuk
İMAR
İnşaat
ilgi
Devir
Harita
Kayıt
Kadastro
krediKonut
Paydaş
Proje
Risk
Şehircilik
Taşınmaz
Takas
TKGM
Yaşam
Altyapı
Park
Çevresel
Dağıtım
Ekonomik
Sosyal-Tesis
Ulaşım
Fiziksel
Üstyapı
Konfor
Mimar
Park
© Prof. Dr. Tahsin YOMRALIOGLU | www.tahsinhoca.net | tahsin@itu.edu.tr | @tyomralioglu |
www.geomatik.itu.edu.tr


Kentsel dönüşüm…?
Şekil 4: Bir kentsel dönüşümün animasyonu (KOÇ 1994)
© Prof. Dr. Tahsin YOMRALIOGLU | www.tahsinhoca.net | tahsin@itu.edu.tr | @tyomralioglu |
www.geomatik.itu.edu.tr

Urban regeneration: Development in the world

- *Urban transformation applications first emerged as a result of the urban growth movements of Europe in the 19th century.*
- *In this period, the urban regeneration processes realized with the leadership model of the public sector are based on two different foundations. These are the House Law enacted in the UK in 1851 and the Haussmann operations that carried out developmental interventions for the city of Paris between 1851 and 1873 in Paris.*
- *After the Industrial Revolution, the inhuman conditions of the working class in the big cities of Europe influenced many thinkers and planners and accelerated the emergence of the first urban regeneration idea.*
- *Over time, the political and economic structure of the urban regeneration process has shifted from the national development to the goal of global integration and changed the urban planning process. For this reason, it is seen that different approaches are observed in different periods in urban regeneration practices in the world.*

URBANREGENERATION

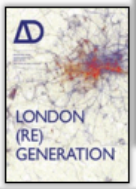
- Yenileme (renewal)
- Sağlıklaştırma (rehabilitation)
- Koruma (conservation)
- Yeniden canlandırma (revitalization)
- Yeniden geliştirme (redevelopment)
- Düzenleme (improvement)
- Temizleme (clearance)
- Boşlukları doldurup geliştirme (infill development)
- Tazeleme-parlatma (refurbishment)

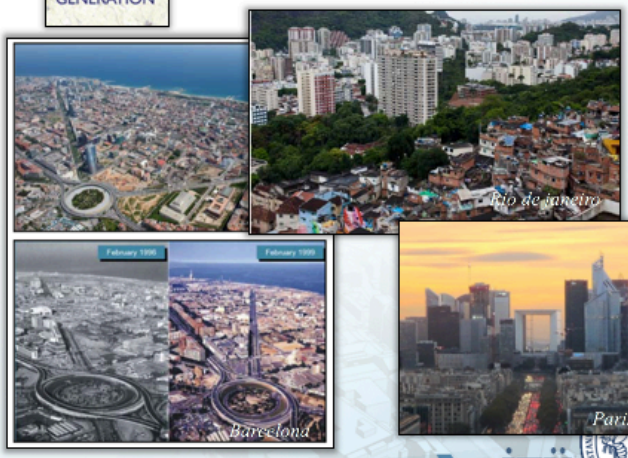
İTÜ

Urban regeneration: in the World ...

URBANREGENERATION

- Hiroshima - Urban Regeneration Project of Danbara City (Japan) 1973-1995
- London-Trafalgar Square Urban Regeneration Project (UK) 1996
- Berlin-Postdam Square Urban Transformation Project (Germany)
- Paris-La Defense Urban Regeneration Project (France)
- Guangzhou Pearl River Urban Regeneration Project (China)
- Rio City Slum Rejuvenation Program (Brazil) 1994-1998
- Barcelona (Spain) - 2008





İTÜ

© Prof. Dr. Tahsin YOMRALIOGLU | www.tahsinhoca.net | tahsin@itu.edu.tr | @tyomralioglu |

Urban regeneration: in Turkey ...
Batıkent Urban Regeneration Project (Ankara) 1981-1987
Portakal Çiçeği Valley Urban Regeneration Project (Ankara) 1989-1994
Dikmen Valley Urban Regeneration Project (Ankara) 1989-1994
Northern Ankara Entrance Urban Regeneration Project (with 5104 sy law) 2006-
Doganbey Mah. Urban Regeneration Project (Osmangazi, Bursa) 2009-
Istanbul Districts (Kartal, Esenler, Gaziosmanpasa, Avcilar, Zeytinburnu, Pendik et al., Urban Regeneration Projects (Istanbul) 2007-
Other...
Doganbey Mahallesi, Bursa
Dalga dalga yıkacağız
Kuzey Ankara kentsel dönüşüm projesi...
© Prof. Dr. Tahsin YOMRALIOGLU | www.tahsinhoca.net | tahsin@itu.edu.tr | @tyomralioglu |
www.geomatik.itu.edu.tr

Urban regeneration: in Turkey ...
SİTEDER'Ki
MAHALLEMİZ RANTİYE ve ŞANTİYE SAHASI OLMAYACAK
ASMAR
KAMULAŞTIRMA BAHANE RANT SAHANE!
RANT İÇİN DEĞİL HALK İÇİN PROJE
RANT İÇİN DEĞİL, HALK İÇİN PLAN!
BARINMA HAKKIMIZA SAHİP ÇIKIYORUZ!
OKMEYDANI PLAN TAKİP KOMİSYONU
AFET YASASI YIKIM YASASIDIR. BARINMA HAKKIMI SAHİP ÇIKALIM!
RANT İÇİN DEĞİL HALK İÇİN KENTSEL DÖNÜŞÜM
POLATLI.YENİMAHALLE SAKİNLERİ
İTÜ
© Prof. Dr. Tahsin YOMRALIOGLU | www.tahsinhoca.net | tahsin@itu.edu.tr | @tyomralioglu |
www.geomatik.itu.edu.tr

Urban regeneration: with numbers..

RENEWAL COST ESTIMATION	TOTAL	PER YEAR
No of Units ('000)	6,684	334
Renewal Cost (TL, billion)	884.3	44.2
Renewal Cost (US$, billion)	465.4	23.3

SOURCE: Data compiled from TURKSTAT

In generally;

- ✓ There are about 19 million houses in our country.
- ✓ Approximately 25% of these are made after 2000 and are technically more resistant to earthquakes.
- ✓ Therefore, the amount of construction that should be re-examined in terms of disaster risk is 75%.
- ✓ And about 40% of these structures are considered to be at risk.
- ✓ One in every three buildings; is insufficient in terms of earthquake and material resistance and needs to be renewed and strengthened in terms of engineering service.
- ✓ period prescribed for the conversion of existing risk structure in Turkey for 20 years. The budget is about $ 500 billion.
- ✓ According to TUIK figures, 2.5 million additional houses are still needed in the country.

Budget resources

- It is foreseen that the law can be transferred to the conversion account of up to 90% of the revenues of 2D forest lands.
- 50% of environmental penalties,
- 5% of the municipal investment budgets and 50% of the tuition income,
- 50% of the Bank's profits from certain activities and
- The funds to be transferred by the Ministry of Finance will be used.

The president of Istanbul BB stated that the urban regeneration project planned to be carried out in Istanbul could exceed 100 billion dollars.

İTÜ

Objectives in Urban Regeneration ...

Law No. 6306 OBJECTIVE: Areas under risk of disaster and areas other than those areas where risky buildings and lands; to form healthy and safe living environments

improvement> liquidation> renovation the procedures and principles for renewals.

- ❖ Purification of cities from the elements that threaten the environment and human health,
- ❖ Developing and improving the preservation of nature, culture and historical values,
- ❖ Establishment of brand cities with high quality of life with sustainable development,
- ❖ Establishing cities with aesthetic and visual value with urban design projects,
- ❖ Establishing healthy and safe living spaces in every aspect,

İTÜ

© Prof. Dr. Tahsin YOMRALIOGLU | www.tahsinhoca.net | tahsin@itu.edu.tr | @tyomralioglu | www.geomatik.itu.edu.tr

Türkiye'de ilk olarak, **5393 sayılı Belediye Yasası'nın 73. Maddesi'nde** (Değişik: 17/6/2010-5998/1 md.) kentsel dönüşüm ve gelişim alanları hakkında açıklamalar yapılmıştır. Buna göre;

Madde 73- *Belediye, belediye meclisi kararıyla; konut alanları, sanayi alanları, ticaret alanları, teknoloji parkları, kamu hizmeti alanları, rekreasyon alanları ve her türlü sosyal donatı alanları oluşturmak, eskiyen kent kısımlarını yeniden inşa ve restore etmek, kentin tarihi ve kültürel dokusunu korumak veya deprem riskine karşı tedbirler almak amacıyla* ***kentsel dönüşüm*** *ve gelişim projeleri uygulayabilir. Bir alanın kentsel dönüşüm ve gelişim alanı olarak ilan edilebilmesi için yukarıda sayılan hususlardan birinin veya birkaçının gerçekleşmesi ve bu alanın belediye veya mücavir alan sınırları içerisinde bulunması şarttır. Ancak, kamunun mülkiyetinde veya kullanımında olan yerlerde kentsel dönüşüm ve gelişim proje alanı ilan edilebilmesi ve uygulama yapılabilmesi için ilgili belediyenin talebi ve Çevre ve Şehircilik Bakanlığının teklifi üzerine Bakanlar Kurulunca bu yönde karar alınması şarttır.*

Kentsel dönüşüm ve gelişim proje alanı olarak ilan edilecek alanın; üzerinde yapı olan veya olmayan imarlı veya imarsız alanlar olması, yapı yükseklik ve yoğunluğunun belirlenmesi, alanın büyüklüğünün en az 5 en çok 500 hektar arasında olması, etaplar halinde yapılabilmesi hususlarının takdiri münhasıran belediye meclisinin yetkisindedir. Toplamı 5 hektardan az olmamak kaydı ile proje alanı ile ilişkili birden fazla yer tek bir dönüşüm alanı olarak belirlenebilir.

Büyükşehir belediye ve mücavir alan sınırları içinde kentsel dönüşüm ve gelişim projesi alanı ilan etmeye büyükşehir belediyeleri yetkilidir. Büyükşehir belediye meclisince uygun görülmesi halinde ilçe belediyeleri kendi sınırları içinde kentsel dönüşüm ve gelişim projeleri uygulayabilir.

Kanun ile belirtilen kentsel dönüşüm ve gelişim projelerinin büyükşehir belediye meclisinin onayı ile uygulanacağı, büyükşehir belediye ve mücavir alan içerisindeki alanlarının kentsel dönüşüm bölgesi olarak ilan edilmesi de büyükşehir belediyeleri tarafından yapılacağı ve kamu mülkiyetinde bulunan yerlerin ise proje alanı olarak belirlenmesi Bakanlar Kurulu tarafından belirleneceği açıklanmıştır.

6306 sayılı Afet Riski Altındaki Alanların Dönüştürülmesi Hakkında Yasa'nın 6. Maddesinde uygulamaların hangi kurum tarafından yetkilendirileceği açıkça belirtilmiştir.

Madde 6- (1) (Değişik: 14/4/2016- 6704/23 Md.) Üzerindeki bina yıkılarak arsa hâline gelen taşınmazlarda daha önce kurulmuş olan kat irtifakı veya kat mülkiyeti, ilgililerin muvafakatleri aranmaksızın Bakanlığın talebi üzerine ilgili tapu müdürlüğünce resen terkin edilerek, önceki vasfı ile değerlemede bulunularak veya malik ile yapılan anlaşmanın şartları tapu kütüğünde belirtilerek malikleri adına payları oranında tescil edilir. Taşınmazların niteliği resen mevcut duruma göre tescil edilir. Bu taşınmazların sicilinde bulunan ayni ve şahsi haklar ile temlik hakkını kısıtlayan veya yasaklayan her türlü şerh, hisseler üzerinde devam eder. Belirtilen haklar ve şerhler, tapuda; tevhit, ifraz, terk, tescil, kat irtifakı ve kat mülkiyeti tesisine ilişkin işlemlerin yapılmasına engel teşkil etmez ve bu işlemlerde muvafakat aranmaz. Bu şekilde belirlenen uygulama alanında cins değişikliği, tevhit, ifraz, terk, ihdas ve tescil işlemleri muvafakat aranmaksızın Bakanlık, TOKİ veya İdare tarafından resen yapılır veya yaptırılır. Söz konusu madde ile taşınmaz değerleme faaliyetlerinde yetkili olan kurumlar açıkça belirtilmiştir.

Kentsel dönüşüm kapsamında çıkarılan 5366 ve 6306 sayılı yasa kapsamında yapılacak kamulaştırmaların, "2942 sayılı Kamulaştırma Yasası'nın 3. Maddesinin ikinci fıkrasındaki iskan projelerinin gerçekleştirilmesi amaçlı kamulaştırma sayılır" kamulaştırma bedellerinin 5 yıl içerisinde 6 eşit taksitte ödenmesine yasal dayanak oluşturulmuş buna ek olarak, Bakanlık, TOKİ veya İdarenin tarafından acele kamulaştırma yoluna gidilmesi durumunda 04.11.1983 tarihli ve 2942 sayılı Kamulaştırma Yasası'nın 3. maddesinin 2. fıkrasının iskan projelerinin gerçekleştirilmesi amaçlı kamulaştırma yapılması ve değerin tespit edilmesi açıklanmıştır.

Basic Principles of Urban Regeneration

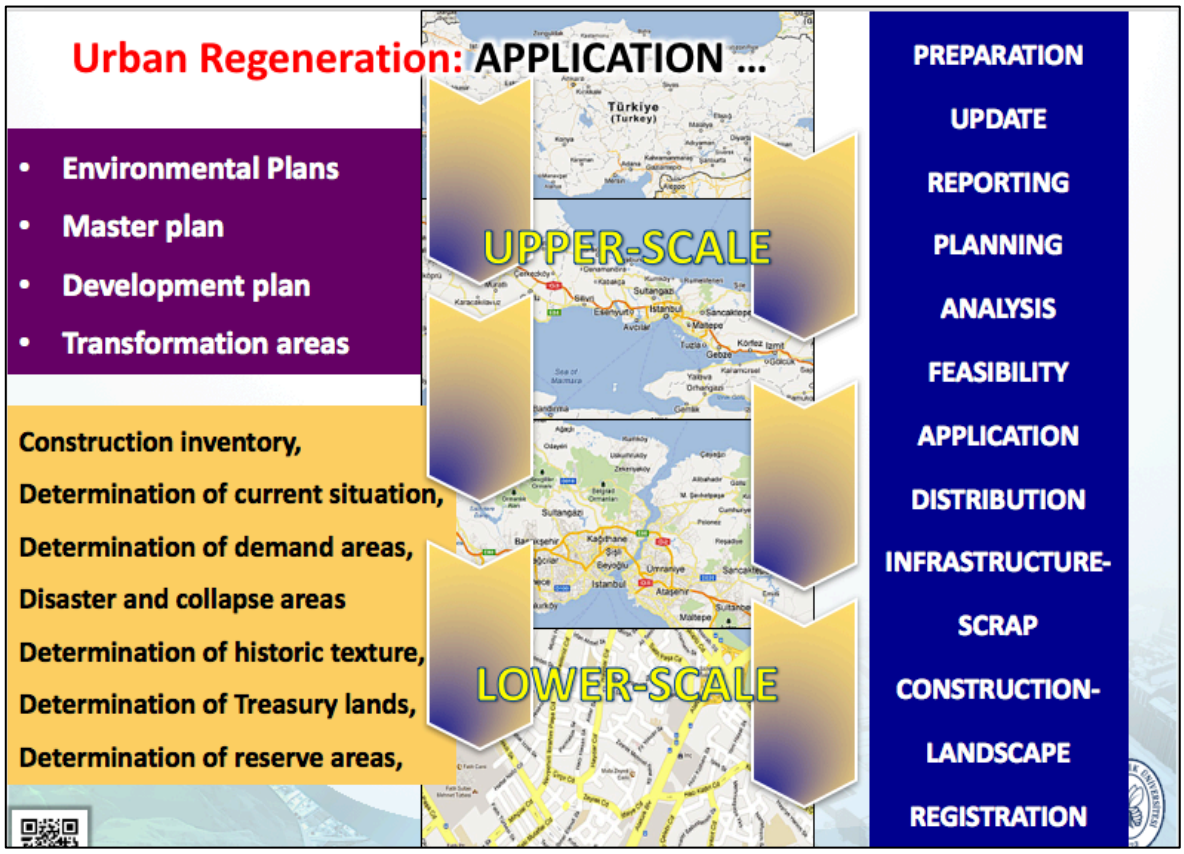
- A detailed analysis of the relevant area should be made in the process of urban regeneration.
- Simultaneous adaptation of the physical, economic, social and environmental characteristics of the relevant area should be ensured.
- The field should have a comprehensive and integrated strategy.
- In the process of urban regeneration, the objectives of the concept of sustainability should be taken into account.
- In addition to human resources, economic and natural resources should be used in the most efficient way.
- In the process of urban regeneration, the participation and consensus of all groups affected by the transformation should be ensured.
- In the process of urban regeneration, the importance of the measurement process should be understood and changes should be monitored.
- The principles to be applied in the process of urban regeneration should be revised according to changing requirements and changing conditions.

© Prof. Dr. Tahsin YOMRALIOGLU | www.tahsinhoca.net | tahsin@itu.edu.tr | @tyomraliogla |
İTÜ www.geomatik.itu.edu.tr

Areas of Urban Regeneration

- Geological condition and soil characteristics are not suitable for building areas.
- Natural disasters and places to stop (earthquake, landslide, flood, fire, etc.).
- In the past, where unplanned and uncontrolled building, insufficient infrastructure and living conditions are insufficient.
- In areas where historical structures are heavily damaged and under threat of destruction.
- In areas where social equipment and infrastructure services are insufficient.

© Prof. Dr. Tahsin YOMRALIOGLU | www.tahsinhoca.net | tahsin@itu.edu.tr | @tyomraliogla |
İTÜ www.geomatik.itu.edu.tr



Steps in urban regeneration

- Identifying and Declaring Transformation Areas,
- Determination of the Current Situations of Real Estate,
- Determination of Participation Value and Determination of Entitlement,
- Preparation of Urban Design Projects and Reconstruction Plan,
- Technical Infrastructure Project,
- Architectural Application Project,
- Preliminary for the feasibility analysis of the project value for distribution,
- Feasibility Analysis of the Project,
- Finalization of Regeneration Development Plan,
- Project - Finalization of Distribution Value
- Distribution,
- Implementation of Regeneration Development Plan,
- Approval of the Assembly / Council,
- Registration to the Land Registry,
- Removal of demolitions and debris,
- Construction.

Urban Regeneration: APPLICATION ...

- Dönüşüm (Uygulama) Alanlarının Belirlenmesi ve İlan Edilmesi
- Bölgeye Ait Halihazır Bilgilerinin Güncellenmesi (Halihazır Harita)
- Mülkiyet Analizi (Taşınmazların Mevcut Yasal Durumların Tespiti)
- Bina-Bağımsız Bölümlerinin Mevcut Kullanım Durumlarının Tespiti
- Proje Hakkında Bilgilendirme ve Koordinasyon Çalışmaları
- Demografik, Sosyal ve Ekonomik Yapının Tespit ve Analiz Çalışmaları
- Taşınmaz Değerlemesi ve Değerleme Raporlarının Düzenlenmesi
- Hak Sahipliğinin Belirlenmesi ve Projeye Katılım Değerinin Tespiti
- Dönüşüm-Projelendirme ve İmar Uygulama Planın Hazırlanması
- Mimarı Uygulama Projesinin Hazırlanması
- Teknik Altyapı-Ulaşım Projesinin Hazırlanması
- Proje Dağıtım Değerinin, Yapılabilirlik Analizi İçin Ön Hesaplamalar
- Projenin Yapılabilirlik (Fizibilite) Analizi
- Dönüşüm Amaçlı İmar Uygulama Planının Kesinleştirilmesi
- Proje Dağıtım Değerinin Kesinleşmesi ve Mülkiyet Dağıtım İşlemleri
- Dönüşüm Amaçlı İmar Planın Araziye Uygulanması (Aplikasyon)
- Kamulaştırma İşlemleri
- Parselasyon Planlarının Hazırlanması, Onayı ve Tapu Kütüğüne Tescil
- Yıkım-Yapım ve İnşaat İşlerine Başlama, Plankote, Bina Aplikasyonu
- Kat Mülkiyetinin Kurulması ve Proje Onayı

© Prof. Dr. Tahsin YOMRALIOGLU | www.tahsinhoca.net | tahsin@itu.edu.tr | @tyomralioglu | İTÜ www.geomatik.itu.edu.tr

Urban Regeneration: Application approaches ...

Looking at the practices in the world, there are two different approaches to urban transformation. These;

1) «On-site transformation» the demolition and reconstruction of a particular region of the city step by step.

2) «Transfer» transfer of a part of the city to another location (reserve area), demolition of the vacated spaces and construction of new ones.

Since urban transformation practices in developed countries are human-oriented, on-site transformation is preferred to satisfy the participants.

© Prof. Dr. Tahsin YOMRALIOGLU | www.tahsinhoca.net | tahsin@itu.edu.tr | @tyomralioglu | İTÜ www.geomatik.itu.edu.tr

Urban Regeneration Roadmap for Buildings in Risk Areas

1. Providing legal information to the public authorities in charge of urban transformation in the risky area and in the negotiations between the floor owners or landowners; to provide legal support in contract negotiations with the contractor / construction company; The municipality shall be understood by TOKI in the process of rebuilding, in the process of risk report in the Ministry and the provincial directorate and by a lawyer or law office to assist in its appeal.

2. Municipalities, special provincial administrations, owners or areas demanded by TOKI; Upon the approval of the Ministry of Environment and Urbanization, the Council of Ministers declares a risky area.

3. Risky structures in risky areas are determined according to the provisions of the Regulation on Buildings to be Constructed in Earthquake Region.

4. Risky structure detection;

• It is done by the building owners or legal representatives (with their own expenses), by the photocopy of the title deed and the identity document.

• The Ministry may be granted a period of time from the owners or legal representatives. If no risky structure is determined within the given period, it shall be made or built by the Ministry of Environment and Urbanization or by the administration.

• The Ministry of Environment and Urbanization may request the municipality and special provincial administration to determine the risky structures in the determined areas.

5. The sample of the report regarding the risky structure determination shall be sent to the Directorate of Infrastructure and Urban Transformation in the province where the structure of the structure is located within 7 days at the latest after the date determined by the risk assessment institution.

6. If there is not any deficiency in the risk assessment report, the report will be notified to the relevant title deed by the Directorate of Infrastructure and Urban Transformation within 10 working days and the Ministry of Environment and Urbanization will be informed.

7. The notifications made to the land registry are notified to the same and personal rights holders by the title deed office. (In the Communiqué, it is stated that within 15 days from the date of notification, the object can be objected, otherwise the structure must be demolished / evacuated within the period not less than 60 days after the notification date.)

8. In-kind and personal rights holders may object to the risk assessment report communicated to them within 15 days as stated above.

9. Against the report and the decision to appeal, other owners may file a lawsuit in the administrative court for the cancellation of the decision or the Report. If a cancellation decision is made, the status is notified and processed.

10. If the risky structure is not demolished / evacuated by the proprietors within the given period, it shall be determined on-site by the Directorate of Infrastructure and Urban Transformation and shall be annulled by the administrative authorities and shall be given an additional period of not less than 30 days.

11. The buildings not destroyed in the additional period shall be burned or demolished by the local authorities and the local authorities. The Ministry, if necessary, can carry out the evacuation and demolition operations by itself.

12. In the field of urban transformation application; either the municipalities, the special provincial administration or the re-construction work by TOKI or the re-construction process is carried out by the owners.

a) Reconstruction work by municipalities, special provincial administration/ TOKI:

• The related institution (municipality, special provincial administration, TOKI) makes the owners, properties, value of the immovable and expropriation maps if necessary.

• It makes sharing agreements with real estate owners and right holders in buildings in accordance with re-construction agreements. If necessary, the relevant institution may purchase or expropriate immovable property instead of sharing a property with the owners.

• The relevant institution makes construction and investment companies and floor or revenue shared construction contracts for the project to be carried out in the risky area.

• Ministry of Environment and Urbanization conducts land arrangements, purchase agreements, zoning rights to other areas, transfer of investment properties to land, determination of land shares, sharing according to the ownership of the land within the scope of the agreements made by the owners.

• The title deeds of the new immovables discovered in accordance with the agreements with the owners shall be distributed to the owners.

• If the housing is left in the hands of the relevant institution after the distribution, the contractor can be contracted to give the tenants, the immovable property expropriated and other rights holders housing and workplace.

b) The reconstruction process of the building by the owners:

In risky areas and risky structures, it is essential to implement the practices primarily.

• If the floor owners board is convened within 60 days following the notification of the risk assessment report in kind and to the personal rights holders, a Building Partner Decision shall be signed with the unanimous or at least 2/3 majority of the building owners in line with the agreement made with the contractor. The agreement includes decisions on how to demolish the building, how to share it in the new construction against the land shares, how to do the construction, and how to share it with the contractor.

• It is notified to those who do not participate in the Building Partner Decision and who are not in the meeting and 15 days are allowed to participate in this decision.

• The Building Partner Decision shall be submitted to the Ministry of Environment and Urbanization, Directorate of Infrastructure and Urban Transformation.

• A similar process will be applied to the side parcels if the application will be done by combining the neighboring land and parcels next to the risky building or on the basis of zoning island.

• After the building is demolished, the condominium is removed with the request of the owners or the Ministry of Environment and Urbanization. According to the agreement made land arrangement is made.

• The land shares of the independent parts of the independent decision, if any, shall be determined by the Ministry of Environment and Urbanization, and shall be sold to the other stakeholders, which are not less than this value, on the basis of each parcel. If the sale is not realized to the stakeholders, these shares are transferred to the Ministry, TOKI or the administration.

• Contractor with contractor license in accordance with the Common Decision and Contract for Construction and Sales Promise with Floor shall be made at a notary public.

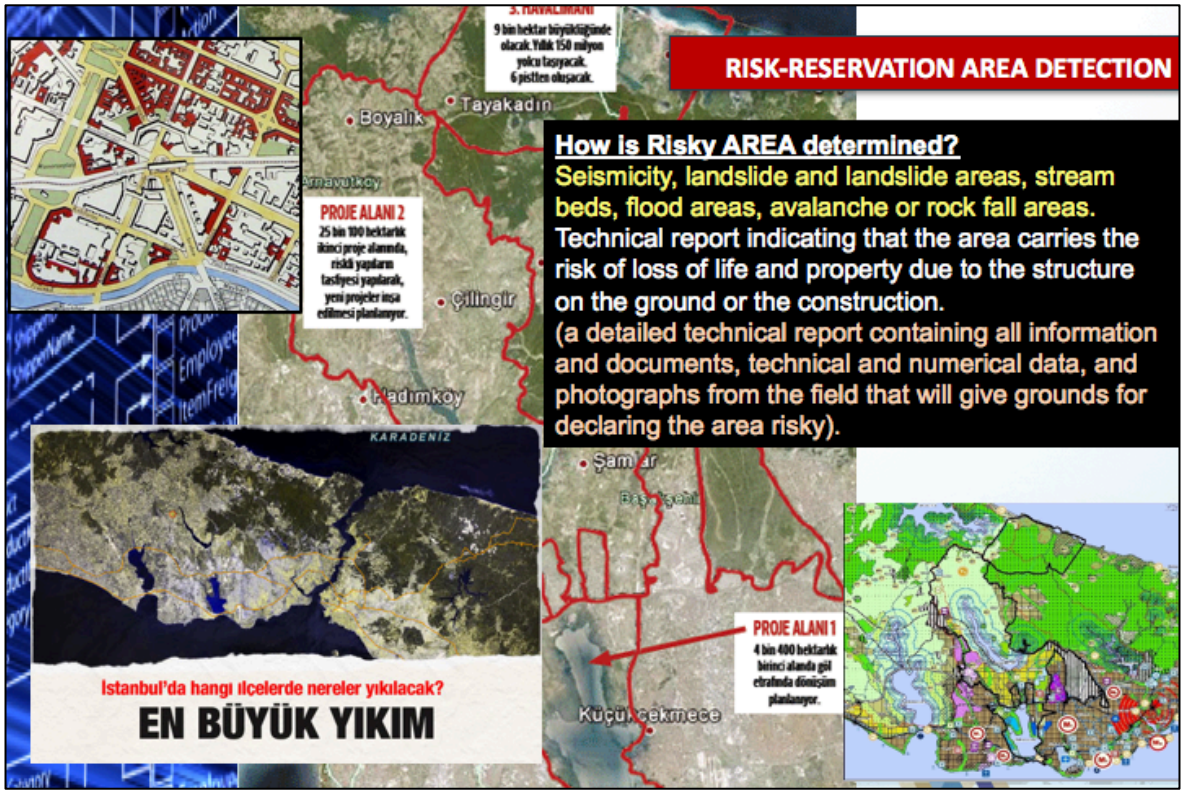
13. If no agreement is reached with at least two-thirds majority within 30 days following the notification to inform the owners about the land on which the building has been demolished, real estate or private property owned by the civil servants can be expedited by the Ministry, TOKI or the administration.

14. All projects are prepared by the Contractor for the construction of the building again or in accordance with the project and the related municipality is licensed.

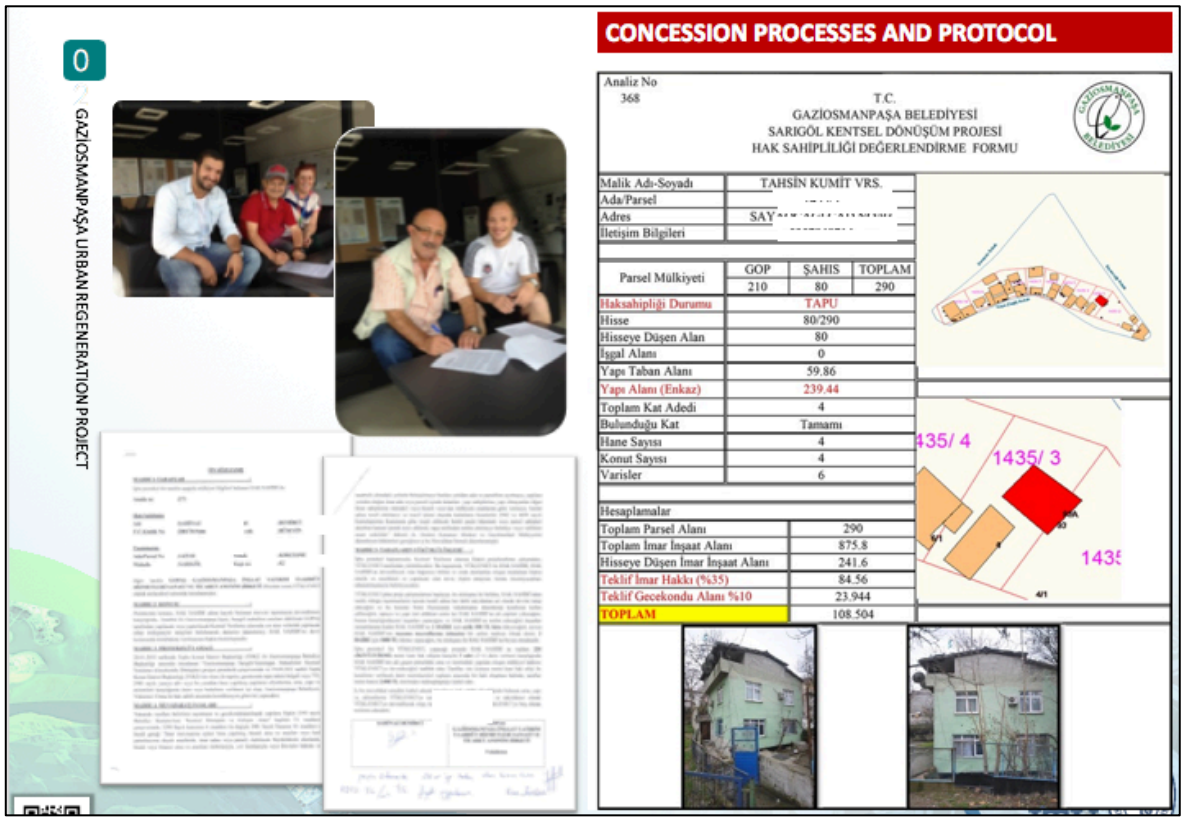
15. If there is risk-free structure in the risky area, this structure can be excluded from the application or taken into the project by agreement, purchase or expropriation.

16. The construction process begins.

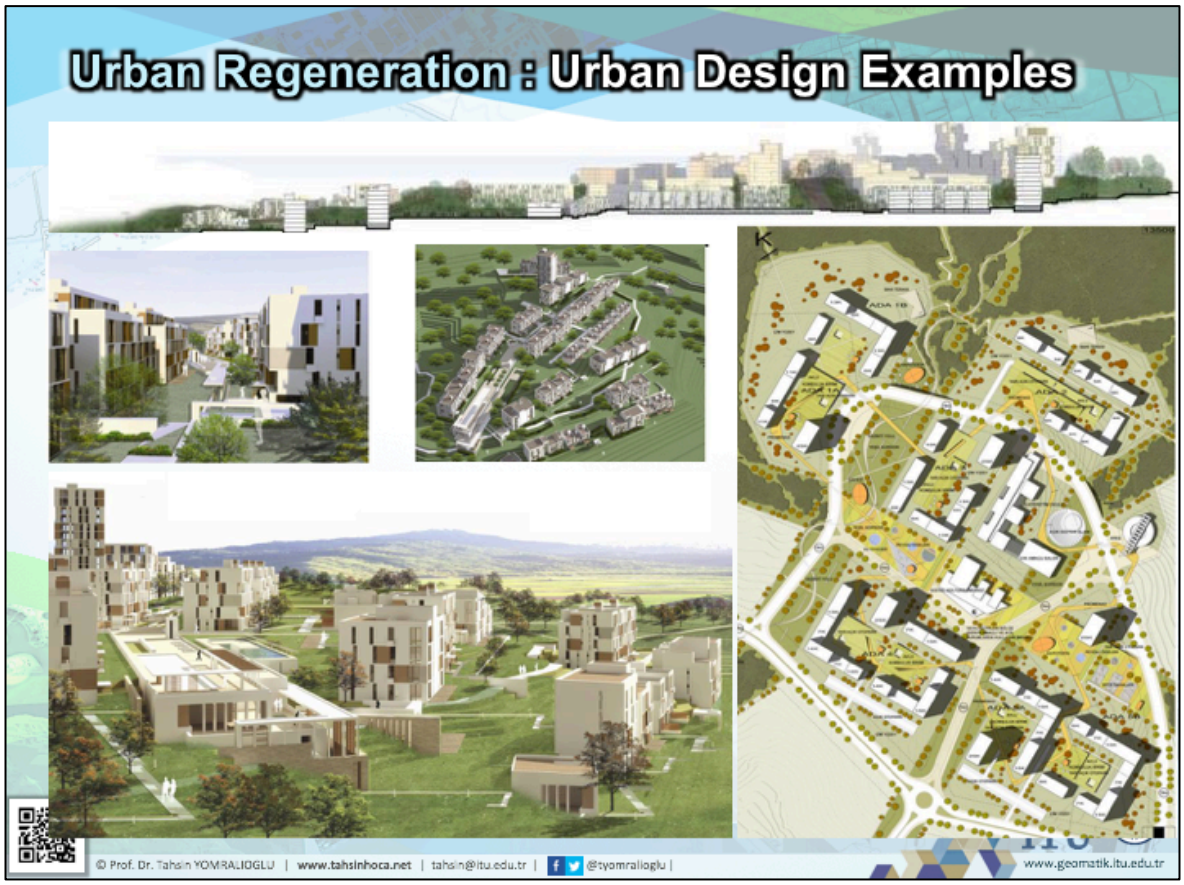
RISK BUILDING DETECTION
How is Risky STRUCTURE Determined?
that most of the buildings are unlicensed and illegal, or they have not received engineering services during the project and implementation phase. The inadequacy of the transport network and infrastructure resulting from the construction.
RISK STRUCTURE?
Structure within or outside a risky area, based on scientific and technical data that has completed its economic life or is at risk of collapse or severe damage.
Riskli Yapı Tespiti Lisans Belgesi
3. HAVALİMANI
Tayakadın
Yeniköy
© Prof. Dr. Tahsin YOMRALIOĞLU | www.tahsinhoca.net | tahsin@itu.edu.tr | @tyomralioglu
www.geomatik.itu.edu.tr


RISK-RESERVATION AREA DETECTION
How is Risky AREA determined?
Seismicity, landslide and landslide areas, stream beds, flood areas, avalanche or rock fall areas.
Technical report indicating that the area carries the risk of loss of life and property due to the structure on the ground or the construction.
(a detailed technical report containing all information and documents, technical and numerical data, and photographs from the field that will give grounds for declaring the area risky).
PROJE ALANI 2
25 bin 100 hektarlık ikinci proje alanında, riskli yapıların tasfiyesi yapılarak, yeni projeler inşa edilmesi planlanıyor.
PROJE ALANI 1
4 bin 400 hektarlık birinci alanda gül etrafında dönüşüm planlanıyor.
3. HAVALİMANI
9 bin hektar büyüklüğünde olacak. Yıllık 150 milyon yolcu taşıyacak. 6 pistten oluşacak.
Tayakadın
Boyalık
Arnavutköy
Çilingir
Küçükçekmece
KARADENİZ
İstanbul'da hangi ilçelerde nereler yıkılacak?
EN BÜYÜK YIKIM

Urban Regeneration: APPLICATION ...
SAHA İŞLEMLERİ
Risky area announcement
Establishment of Field Offices
Organization of Field Team
Distribution of Invitation Letters
Information and Document Collection
Reconciliation Talks
Protocol
Evacuation and Demolition
© Prof. Dr. Tahsin YOMRALIOGLU | www.tahsinhoca.net | tahsin@itu.edu.tr | @tyomralioglu |
www.geomatik.itu.edu.tr

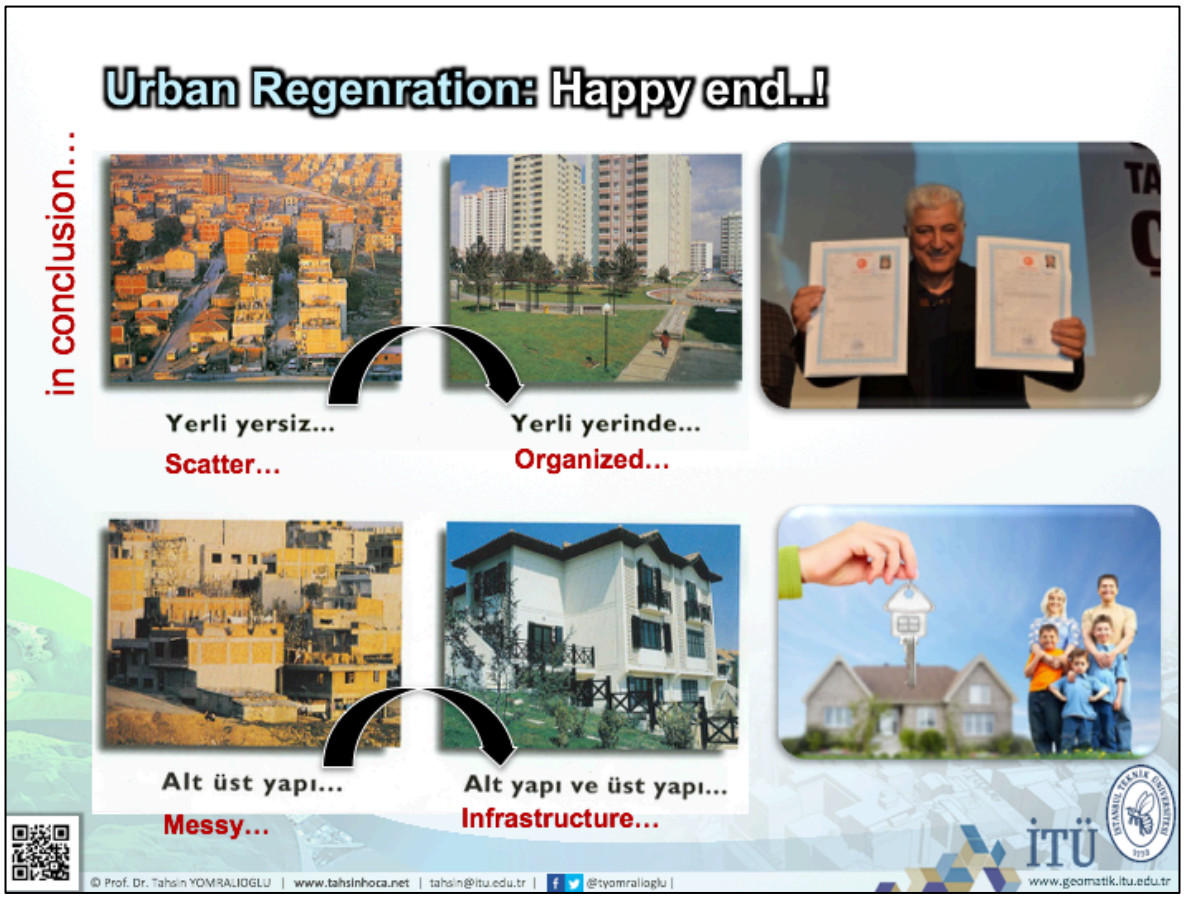

0
GAZİOSMANPAŞA URBAN REGENERATION PROJECT
CONCESSION PROCESSES AND PROTOCOL
Analiz No
368
T.C.
GAZİOSMANPAŞA BELEDİYESİ
SARIGÖL KENTSEL DÖNÜŞÜM PROJESİ
HAK SAHİPLİLİĞİ DEĞERLENDİRME FORMU
Malik Adı-Soyadı TAHSİN KUMİT VRS.
Ada/Parsel
Adres
İletişim Bilgileri
Parsel Mülkiyeti GOP 210 ŞAHIS 80 TOPLAM 290
Haksahipliği Durumu TAPU
Hisse 80/290
Hisseye Düşen Alan 80
İşgal Alanı 0
Yapı Taban Alanı 59.86
Yapı Alanı (Enkaz) 239.44
Toplam Kat Adedi 4
Bulunduğu Kat Tamamı
Hane Sayısı 4
Konut Sayısı 4
Varisler 6
Hesaplamalar
Toplam Parsel Alanı 290
Toplam İmar İnşaat Alanı 875.8
Hisseye Düşen İmar İnşaat Alanı 241.6
Teklif İmar Hakkı (%35) 84.56
Teklif Gecekondu Alanı %10 23.944
TOPLAM 108.504
435/ 4
1435/ 3

Urban Regeneration : Urban Design & Planning
LANDSCAPE ARCHITECT
URBAN DESIGN
URBAN HYDROLOGY
ENVIRONMENTAL ENGINEERING
ARTISTIC DESIGN
© Prof. Dr. Tahsin YOMRALIOGLU | www.tahsinhoca.net | tahsin@itu.edu.tr | @tyomralioglu |
İTÜ
www.geomatik.itu.edu.tr


Urban Regeneration : Urban Design Examples
© Prof. Dr. Tahsin YOMRALIOGLU | www.tahsinhoca.net | tahsin@itu.edu.tr | @tyomralioglu |
www.geomatik.itu.edu.tr

Urban Regeneration : Urban Design & Planning
Density (TAKS, KAKS),
Similar,
Height - silhouette,
Housing - Typology of Urban Space
City Identity,
Public Spaces,
Street, square, green area,
Livable environment,
Ecology and environment.
Similar- Emsal..?
Density..?
© Prof. Dr. Tahsin YOMRALIOGLU | www.tahsinhoca.net | tahsin@itu.edu.tr | @tyomralioglu |
www.geomatik.itu.edu.tr

© Prof. Dr. Tahsin YOMRALIOGLU | www.tahsinhoca.net | tahsin@itu.edu.tr | @tyomralioglu |
İTÜ
www.geomatik.itu.edu.tr



INTEREST-RESPONSIBILITY MATRIX FOR URBAN REGENERATION

URBAN REGENERATION PROJECT
STEPS AND SECTORAL RESPONSIBILITIES...

	URBAN PLANNER	ARCHITECT	CIVIL ENG	FINANCIAL EXPERT	SOCIOLOGIST	GEOLOGIST	ENVIRONM. ENG.	SURVEYING GEOMATICS
Determination and Announcement of UR project (Application) Areas,	■	■	■			■	■	■
Updating of Current Current Information of the Region,								■
Property Analysis (Determination of Existing Legal Status of Immovable Properties)								■
Determination of the current use of buildings,		■	■			■		■
Information and coordination activities about the project,	■	■	■	■	■	■	■	■
Detection and Analysis of Demographic, Social and Economic Structure,	■			■	■		■	
Evaluation of real estate valuation and valuation map and reports,	■	■	■	■				■
Determination of Entitlement and Determination of Participation Value of the Project (Hak sahiplik analizi),			■	■				■
Preparation of Regeneration-Design and Development Implementation Plan,	■	■		■		■	■	
Preparation of Architectural Application Project,		■		■			■	
Preparation of Technical Infrastructure Project,			■			■	■	■
Preliminary Calculations for feasibility analysis of Project Distribution Value,	■	■	■					■
Feasibility Analysis of the Project,	■	■	■	■	■	■	■	■
Finalization of Regeneration Implementation Plan for Transformation,	■							
Finalization of the Project Distribution Value and Distribution Operations,				■				■
Implementation of Regeneration Development Plan to Land,		■	■				■	■
Expropriation transactions,	■	■	■					■
Subdivision and Registration in the Title Land Registry,								■
Demolition-Construction-Rubble-Excavation and Starting Construction Process		■	■	■			■	■
Project delivery and approval – Happy end ☺ ☺ ☺								■

© Prof. Dr. Tahsin YOMRALIOGLU | www.tahsinhoca.net | tahsin@itu.edu.tr | @tyomralioglu | www.geomatik.itu.edu.tr

8 RURAL LAND MANAGEMENT

8.1 Rural planning

In rural areas in Turkey, it has been significant changes in recent years. The main reasons for these changes can be listed. The first is the process of entry into the European Union. In this process, agriculture has been one of the most important negotiation tools. Legislative changes have been made regarding the common agricultural policy, support systems have changed, and the institutional structure has changed. The second factor was the emphasis on more horizontal and cooperative approaches rather than vertical approaches in rural development. The third factor is the agricultural policies that shake the agricultural sector. The agricultural subsidies of the state decreased, and the agriculture was opened to international competition and the institutional changes caused changes in social and cultural conditions. Another factor is the fact that the environment has become a danger. Today, it is now a necessity to look at rural areas within the framework of environmental problems and global climate change.

Another factor is the Law No. 6360 issued in 2012. With this law, the entry into force of the Law on the Establishment of the Metropolitan Municipality in Fourteen Cities and the process of change brought by it. In 30 provinces that were converted into a metropolitan municipality due to the law, the village legal entities were removed, and these settlements gained neighborhood status and the traditionally rural areas were defined as urban areas. As a result of this situation, the problems of rural areas have been re-emerged. However, the existing zoning legislation and planning practice in rural planning are inadequate and uncertain. Therefore, the above listed factors in Turkey and Turkey's own dynamics of decision-induced changes and requirements of the application and a new rural planning process needs to be felt.

Rural planning in implementation and development plans

Various methods of rural development and rural planning trials in Turkey were held until today. In 1940 the Village Institutes started to be implemented. The institutes were created to provide the children with village backgrounds with the necessary professional equipment for the village, especially to trainers, and to be employed in the villages to contribute to the socio-economic development of the villages. In the same period, in 1945, the Law on Soil for Farmer came into force. The law started with the purpose of reorganizing the human-land relations in terms of rural development and preventing the economic and social disadvantages of gathering land ownership in certain hands.

Different approaches and practices have emerged from the First Five-Year Development Plan (1934-1938), depending on the political, economic, social and technological developments and changes that have taken place until today. Due to the changes in the process, there are also differentiations in rural development and rural planning.

III. During the Five-Year Development Plan (1973-1977), the central village approach was introduced. IV. During the Five-Year Development Plan, the Köykent approach was put forward and it was stated that the bride would overcome many problems through the villages. During the V. Five-Year Development Plan (1985-1989), the idea of Priority Regions in Development was developed. In the following period, it is emphasized that Integrated Rural Development Projects will be implemented in order to increase the income of rural people and contribute to their social and cultural developments and to accelerate their development.

VII. When the Five-Year Development Plan (1996-2000) period was reached, the transition from the industrial society to the information society was tried to be achieved. Another issue highlighted in this period was the structural transformation activities which were tried to be realized within the scope of the Common Agricultural Policy of the European Union. In the following years, the issue of rural development VIII. The plan is addressed in a way to highlight regional decisions.

In the process, a shift from the point and area rural development approach to the regional rural development approach has been experienced and rural development has been expressed as a factor in the development of regional inequalities. It is also emphasized that the rural labour force does not only work in the agricultural sector, but it is also important to increase non-agricultural employment opportunities.

Spatial strategy plans

Spatial strategy plans have taken place in the plan stage as a top-scale spatial strategic plan that directs these plans on the layout of the environment and the zoning plans with the amendment made in Article 8 of the Zoning Law No. 3194. In the plan, It is aimed to be dealt with a schematic on the maps of sectoral and thematic maps, underground and aboveground sources, natural, historical and cultural values, urban social and technical infrastructure, spatial policies and strategies of sectors on 1/250.000 and 1/500.000 or higher scale maps.

To determine the land use decisions related to sectors such as urban and rural settlements, development areas, industry, agriculture, tourism, transportation, energy, etc., showing basic geographical data in accordance with the objectives and strategies of spatial strategy plans. 1/50.000 or 1/100.000 scaled region, which provide plans, can be prepared at the basin or provincial level in the plans of the landscaping, rural area

planning, rural area, settlement area, rural center, village center and central village demonstrations were limited.

Village settlement plans

Village Settlement Plan: It is a form of parceling plan different from the zoning law number 3194 and related regulations. The Annex 10 of the Law no. 3367 on the Village Settlement Plan *regulates the settlement plan of the village according to the housing and general needs, considering the current and developmental status of the village. On this plan, the Ministry of Forestry and Rural Affairs of the Republic of Turkey shall carry out or make the works determining the location of the parcels.* At this stage, the provisions of the Zoning Law and related regulation do not need to be considered.

After taking the positive decision of the village council, the village headman may request the settlement plan of the village from the civilian governor to which it belongs. The village settlement plan includes the settlement and development area of the village. If the request of the Governor or the village headman is found to be appropriate, the village is sent to the Village Settlement Area Detection Commission for the settlement plan. The Village Settlement Area Detection Commission is composed of the representative of the village and the technical staff of the local authorities of the Ministry of Finance and Customs, Public Works and Settlement, the Ministry of Agriculture and Forestry and the General Directorate of Land Registry Cadastre under the chairmanship of the Deputy Governor. The Commission organizes the settlement plan of the village according to the housing and general needs, considering the current state of the village and its development. On this plan, the Ministry of Forestry and Rural Affairs, and the provisions of the regulations on this subject, makes the work of the determination of the position of the parcel. This plan is confirmed by the governorship and becomes effective.

8.2 Land consolidation

The problem of fragmentation of rural land

Small, fragmented and scattered agricultural lands, lack of adequate utilization of the irrigation network and transportation network make irrigation management more difficult, making it difficult to realize the expected benefits of water and soil resources. This situation leads to an increase in labor, capital and production losses.

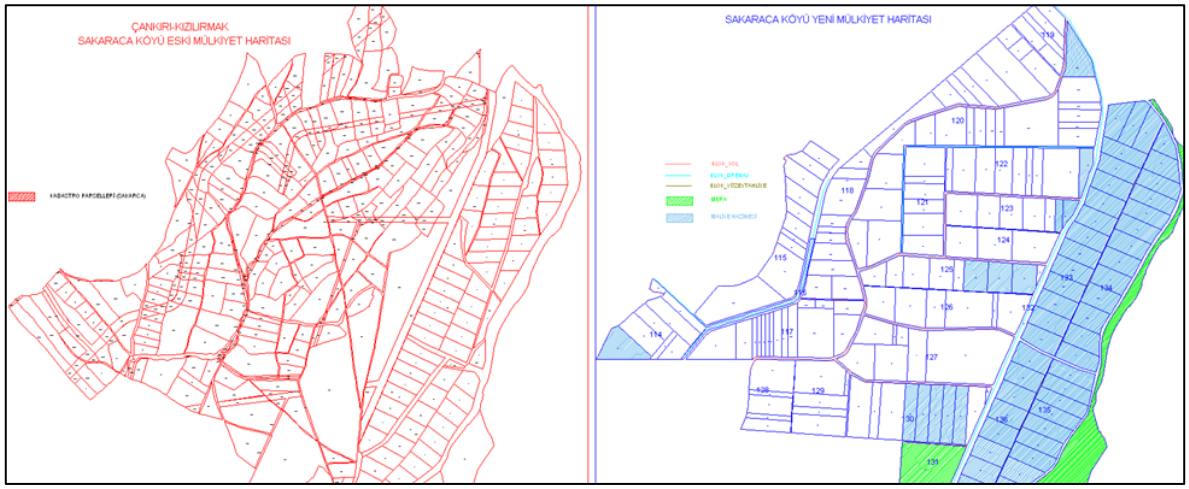
Irrigation and drainage projects, which are not considered for rural lands, increase the structural problems further and increase the investment costs and cause waste of resources. The causes of these are the fragmentation of rural areas. These reasons are mainly caused by the following issues.

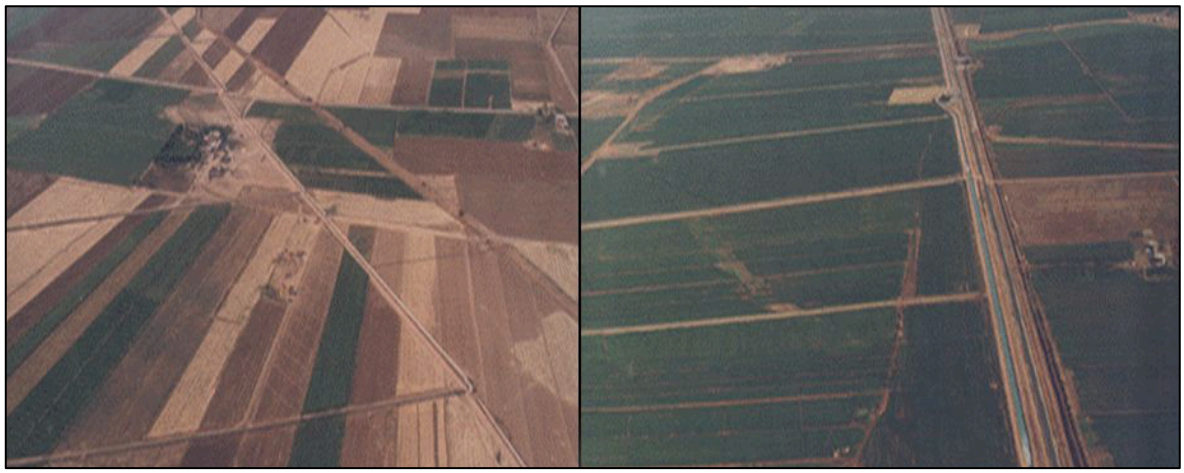
- Fragmentation through inheritance and inheritance,
- Commonly sharing and divided sales,
- Partial tenancies and partnerships due to insufficiency of capital and labor,
- Natural disasters such as floods, floods and landslides,
- Public investments through agricultural lands such as irrigation, highways and railways,
- High population density pressures in the agricultural sector lead to fragmentation of land.

What is land consolidation?

Land consolidation shall be carried out on the same person or the farmer family, for various reasons, in such a way as not to permit economic production or to make soil conservation and agricultural irrigation measures difficult; It can be defined as the process of combining, disassembling, disintegrating, disintegrated, small pieces of land and shares of the land, uniformly assembled, integrating and reorganization of enterprises.

Land consolidation is the substitution of agricultural lands for their characteristics by assigning them to the person who has the least amount of land (if possible, a single part) to meet the sum of the land. Thus, the profit from the labor force, fuel oil, losses in the field boundaries; also the processability and quality of soil increases. Other improvements (drainage, additives, etc.), irrigation, fertilization and disinfestation can be cheaper.





Legislation infrastructure in land consolidation

Regarding the immovables in our country, the land is explained with separate laws. According to Article 44 of the Constitution; *The State shall take the necessary measures to protect and improve the efficient operation of land, to prevent the loss of erosion, and to provide land to the plowed peasant who is landless or has no sufficient land. For this purpose, the law may determine the width of the soil according to different agricultural regions and varieties. Providing land to the landless or unsupervised farmer cannot result in the reduction of production, reduction of forests and reduction of other land and underground wealth.* The constitution explained the sanctions on the use of land and stated the effective use of land. In addition, the necessary arrangements and definitions for land consolidation have been made by special laws.

There are two basic special laws in land consolidation, the first is the ***Re-form Law of Agriculture on Land Arrangement in Irrigation Areas dated 1984 and numbered 3083 "Sulama Alanlarında Arazi Düzenlemesine Dair Tarım Reformu Kanunu"***. The other is called the ***Law on Soil Conservation and Land Use No. 5403***. ***"Toprak Koruma ve Arazi Kullanma Yasası"***. The explanations regarding the determination of the land value regulated by different laws are explained by two different laws in various definitions.

According to the Law No. 5403, the Regulation on the Use of Protection of Agricultural Lands and Land Consolidation was established and information about the land properties and qualifications to be taken into account in the regulation and information on land development practices were also given. In addition, in Law 3083; with reference to Article 6 of the Law on consolidation is mentioned.

Article 6- In order to realize the purposes, set forth in this Law, land consolidation can be done in the application areas without the consent of the related institution, optional or owners. Supportive measures may be taken to expand land consolidation and to benefit more from credit facilities, in order to encourage land consolidation, provided that priority is given to them. At the end of the consolidation, the land that is distributed or left to its owner is registered in the name of the owners, and the remaining land is registered to the land registry upon the request of the implementing organization on behalf of the Treasury. Land registered in the name of the owners of this Law except for the provisions of the distribution of the distribution norms determined for that region cannot be consigned to the parts or cannot be subject to subcontract transactions. This issue is annotated to the land registry.

The Act No. 3083 came into force on 30.11.1994 "Agrarian Reform Law Relating to Land Arrangement in Irrigation Area" alone agrarian reform area of application covers the reform of or watering areas that have been declared Turkey does not allow

the entire consolidation activities. Therefore, studies are carried out in the areas other than Agricultural Reform implementation according to the existing Land Consolidation Regulation and regulation.

"Land Protection and Land Use Law" No. 5403, which entered into force on 03/07/2005; determination of land and land resources in accordance with scientific principles, classification, preparation of land use plans, evaluation of social, economic and environmental dimensions of the conservation and development process with participatory methods, prevention of out of purpose and misuse, responsibility for the creation of methods to ensure protection, identification of duties and authorities. This standard covers the relevant procedures and principles.

Process steps in land consolidation

By using land consolidation, it is ensured that the unused land strips are separated from each other and used in agriculture. Land consolidation is not easy. Several technical, social and economic studies are needed to achieve land consolidation. The land consolidation work goes through the following stages:

a) Providing the ownership information of all fields and farmers.

b) Elimination of all discrepancies in the land registry, cadastral sheet and the quantity and size of the land.

c) Determination of land use status, suitable agricultural land borders, fixed facilities,

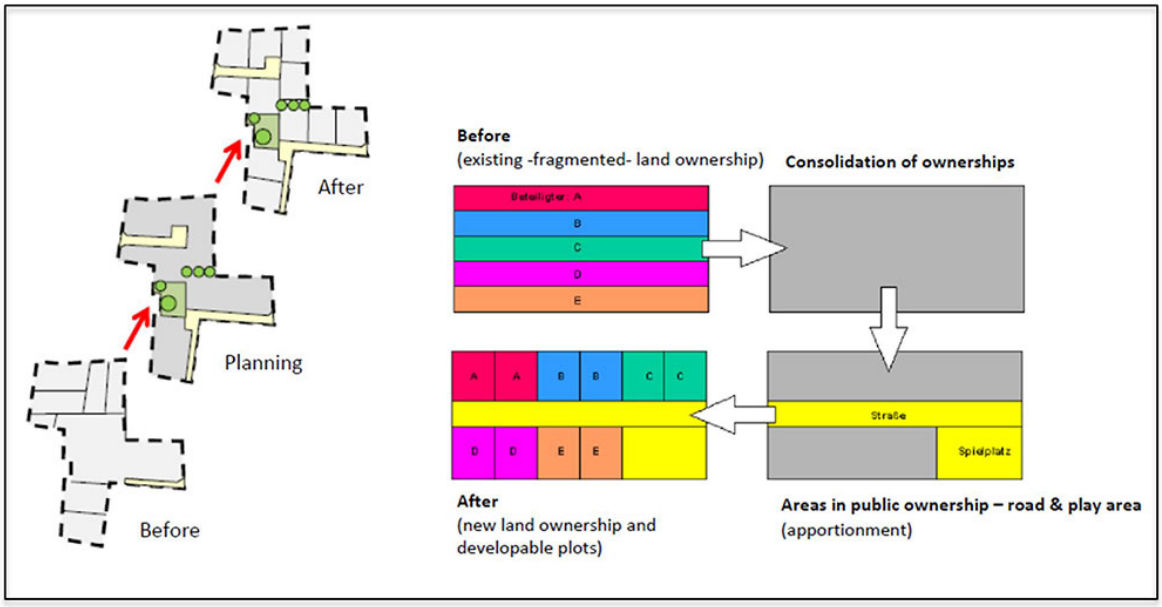
d) Providing soil maps indicating soil characters. If non-exist, the creation of them.

e) With a technical team, the rating commission established with the participation of landowners and civilian administrators, the rating maps of all lands shall be issued. At this stage, the commission makes a separate, separate and rigorous rating for each parcel, taking into account the soil maps and other assets of all lands. The aim of the rating study is to determine the differences of the parcels with respect to each other.

f) Preparing block (island) planning in line with new road, irrigation and drainage network.

g) The landowners' preferences are taken after the consolidation, taking their preferences about where they want their fields and showing them to a map with their owners, old parcels and new blocks.

h) New parcelling planning is made.



Benefits of land consolidation

a) The benefits of consolidation for farmers;

- Parcels are growing, agricultural techniques and irrigation methods are easier to implement,
- The number of parcels (40%) decreases,
- The size of the parcel (80%) increases,
- Each parcel reaches the road and channel,
- The distances between the business centre and the parcels are decreasing (50 TL / ha fuel savings)
- Irrigation rates and yields increases.

Thus, social peace is ensured although yield and income increasing benefits are provided.

b) The benefits of consolidation in terms of public investments;

Land consolidation is an important tool for reducing investment costs and accelerating investments in public investments such as irrigation and transportation. Particularly in the investments planned and implemented in aggregated areas, up to 40% savings can be achieved in investments due to common usage area cuts (maximum 10%), clearing with treasury lands, saving from physical investments and less expropriation.

8.3 Management of forest areas

Forests are as important as soil, water and air for human health. All around the world, the necessary measures are taken for the protection and development of forests, and the foreseen investments and regulations are implemented seriously.

Forests in the world and in Turkey, the people are constantly influenced by improper land use. Most of these are the opening of forests for agricultural areas and new settlements / areas of use, the change of traditional land use methods (opening of dry farming areas to irrigation, etc.), irregular segments (fires and industrial purposes), overgrazing and fires. After the fire, the soil deprived of vegetation increases the warming of the wind by the effect of the black ash, increasing the wind erosion and water erosion on the slopes.

The deterioration of the hydrological cycle caused by global and local climate changes as a result of deforestation leads to the formation of floods and an increase in landslide and soil erosion. Easily detected / observed except in the case in question, Turkey, the long process much more efficient and deforested the entire mountain is the most important factor causing erosion, destruction of forests and plains ecosystem. Problems caused by erosion can be rectified in a long time and with high expenditures and in some cases public investment.

With the amendments made to the laws, the use of the land of the country more economically and for the benefit of the country, the fulfilment of the land requirement as a result of social developments (population increase), the problems of property cannot be prevented from reducing the forest areas guaranteed by the Constitution. Since forest cadastre that could secure the forest boundaries could not be completed, property disputes were encountered in the conduct of forestry activities, and these property disputes have led to the destruction of forests in some places.

For all these reasons, for the management of good forest areas, forest cadastral works should be completed in order to solve the problems of property in forests.

Forest cadastre; State forests, public legal entities, forests, special forests and all forests within and adjacent to these forests, the common boundaries of forests with the determination and identification of the process is connected to the map.

In this context, transactions are carried out according to the provisions of the ***"Forest Law" numbered 6831 and "Cadastre Law" numbered 3402***.

8.4 Management of natural and cultural heritage sites

Turkey, under the place of cultural and natural assets, and the place is situated on top of a very special geography where there are concentrations under water. Anatolia is a special area where many civilizations have lived together throughout history. In our country, where various civilizations have been born and developed, there are many rich natural beings as well as settlements formed by the cultural existence of all kinds and qualities starting from prehistory. Sometimes rare geographic, topographical, geological or geomorphological formations, sometimes the presence of a very special flora (vegetation or a plant species) or an environment in which a particular species live, sometimes due to the physical environment and the natural qualities created by the human hand beauties and features emerge as natural beings.

The cultural and natural assets that exist in our country and are still part of our life are still in the process of being a serious and unimaginable extinction. The most important reason for this process is the rapid and uncontrolled urbanization that started in the second half of the 1940s for modernization. The increase in the unplanned urban population brought from rapid migration from the village to the city caused the destruction of cultural assets, especially traditional houses, by creating a demand much higher than the housing stock which is present in large cities and / or prepared by zoning plans. As a result of this development, the cultural assets have been abandoned and destroyed.

Cultural assets, *in the broadest sense, can be defined as movable and immovable artefacts that provide information on past cultures that exist above ground, underground or under water.*

Legislation on protection of cultural and natural assets

With the Law No. 5226 entered into force in 1983, the Law No. 2863 on "Protection of Cultural and Natural Property" sets out the protection rules. Accordingly, the purpose of the law; *To determine the definitions related to the movable and immovable cultural and natural assets, to arrange the operations and activities to be carried out, to determine the organization and duties of the organization that will take the necessary principles and implementation decisions in this regard.*

Some definitions

"Cultural assets"; All movable and immovable assets that belong to prehistoric and historical epoch which are related to science, culture, religion and fine arts or which have unique scientific and cultural value in prehistoric or historical periods.

"Natural assets"; geological periods, the prehistoric and historical periods belonging to the rarity or characteristics and beauties that need to be protected in terms of ground, underground or under water are the values.

"Sit"; The city and city ruins reflecting the social, economic, architectural and similar characteristics of the periods they are experienced in, are the products of various civilizations from the prehistory to the present, the places where the cultural assets are intense, the subject of social life or important historical events, and the nature characteristics determined.

"Protection"; and / or "Protection ve; immovable cultural and natural assets, maintenance, repair, restoration, function change operations; In the case of movable cultural assets, preservation, maintenance, repair and restoration works.

"Protection zone"; It is the area that is obliged to be protected by the conservation of immovable cultural and natural assets or the preservation of the historical environment.

"Ruins -Örenyeri"; It is the product of various civilizations from prehistoric times to the present day, and it is noteworthy to be defined as topographically, and it has the characteristics of the same, historical, archaeological, artistic, scientific, social or technical. are the areas.

"Conservation zoning plan"; based on the field research, which includes archaeological, historical, natural, architectural, demographic, cultural, socio-economic, property and construction data, in order to protect cultural and natural assets in accordance with the principle of sustainability, on existing maps, improving the social and economic structures of the households living in the protected area and the social and economic structures of the operating places, the strategies that create employment

and added value, the protection principles and conditions of use, the limitations of construction, the renewal areas and projects, the application stages and programs, the open space. system, pedestrian circulation and vehicle transportation, design principles of substructure facilities, densities and parcel designs, local ownership, implementation of participatory field management models in accordance with the principles of financing of the application, targets, tools, strategies, planning decisions, attitudes, plan notes and description These are the plans required by the master and application zoning plans.

"Environmental regulation Project"; The archaeological potential of the ruins, to protect the archaeological potential to visit, to promote the presentation, to solve the problems arising from the current use and circulation, to meet the needs of the field with the equipment required by the modern technological developments are prepared taking into account the characteristics of each site. These are 1/500, 1/200 and 1/100 scale editing projects.

When the protection zone of a site is established, its announcement as a site halts the implementation of plans of all sizes in this area. If the site has an interactive transition area, 1 / 25.000 scaled plan decisions and notes are reviewed and approved by the relevant administrations by considering the site's site status.

Ownership of cultural and natural assets

Those who find the movable and immovable cultural and natural assets, who know that there are cultural and natural assets in the land they own or own, or who are newly informed, are obliged to notify this to the nearest museum directorate or to the local administration chief in the village or other places within three days at the latest (Art.4).

The movable and immovable cultural and natural assets, which are known to be present in the immovables, which are the property of real and legal persons subject to the immovables of the state, public institutions and organizations and the provisions of the private law, shall be the property of the state and the properties of the state (Art. 5).

The immovable properties owned by the real and private law legal entities in the "Sit" areas, which are prohibited for definite construction with protection development plans, may be exchanged with the real estates of the municipality and the provincial special administration upon the application of the owner.

Cultural and natural assets that must be protected

a) Immovable properties to be protected by the end of the 19th century,

b) The immovable properties which are made after the date determined and which are deemed necessary for their protection by the Ministry of Culture and Tourism in terms of their importance and characteristics,

c) Immovable cultural assets within the "Sit" area,

d) National history of our measures because of time without concepts and registration is concerned, the National Struggle and Turkey in the Republic of organizations with a large historic building was the scene of events and will be identified fields Mustafa Kemal used by Atatürk houses.

Rock cemeteries, written, pictorial and relief rocks, illustrated caves, mounds, ruins, acropolis and necropolises; fortresses, fortresses, bastions, fortification, historical barracks, bastions and fixed weapons in them; ruins, caravanserais, inn, baths and madrasas; tombs, tombs and inscriptions, bridges, aqueducts, waterways, cisterns and wells; historical road ruins, distance stones, perforated stones indicating old borders, standing stones; altars, shipyards, wharfs; historic palaces, mansions, houses, mansions and mansions; mosques, masjids, monks, prayer rugs; fountains and fountains; imarethane, mint, nursery, muvakkithane, lodge and dungeons; cemeteries, bowels, arenas, bedestens, covered bazaars, chests, synagogues, basilicas, churches, monasteries; the ruins of the old monuments and walls; frescoes, reliefs, mosaics, fairy chimneys and similar properties; examples of immovable cultural assets.

Expropriation procedures

The immovable cultural assets and their protected areas are nationalized in accordance with the principles set out below:

a) Cultural and natural assets and protected areas, which are partially or fully owned by real and legal persons, shall be nationalized in accordance with the programs to be prepared by the Ministry of Culture and Tourism.

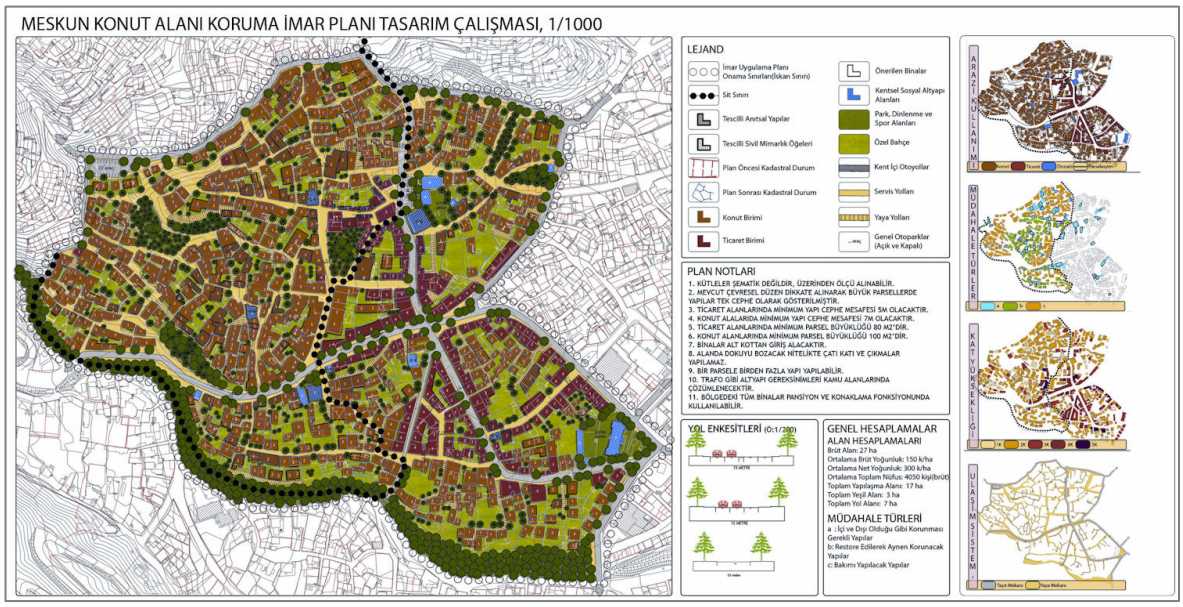
Public institutions and organizations, municipalities, special provincial administrations and local administrative units may expropriate registered immovable cultural assets provided that they are used in the function determined by the protection regional committees.

b) The expropriation of immovable cultural and natural assets and their conservation areas, which are the origin of the foundation, which are the origin foundation and which are partially or wholly owned by the real and legal persons, shall be made by the General Directorate of Foundations.

c) The protected areas of the immovable cultural and natural assets that are to be protected, if they come to the road, parking lot, green field in the zoning plan, shall be carried out by the municipalities; It is essential that these public institutions and organizations are responsible for the maintenance and repair of such cultural assets and those that are protected by these institutions and organizations.

d) Expropriation shall not be taken into consideration in the discretion of the expropriation, the obsolescence, artefact and art value of immovable cultural assets.

e) Expropriation transactions are carried out in accordance with the provisions of this Law and the provisions of the Expropriation Law no. 2942 which are not contrary to this Law.



9 MANAGEMENT OF COASTAL LAND

9.1 Problems in coastal use and planning needs

Since the existence of mankind, the coasts have been a comfortable life or attraction centers for relaxation. For this reason, all countries have always been in the race to offer their shores the best way for their people and the world.

Coastal resources management is inseparable with the economy of each country. In developing countries, coastal areas have great economic value in terms of food production and basic industry. In addition, tourism in coastal areas is an important source of income. In developed countries, the coast is usually the locomotive of the country's economy. In these countries, coastal tourism is also a source of wealth.

One of the limitations of the coastal areas is that the coastline extends in the form of a narrow band of land. The length of the coasts that are opened for use as a result of the development and facilitation of transportation increases with the kilometres and the sections of the coastal areas that are opened for new usage are measured with the square kilometres. This situation always leads to a pressure on the land values along the coast. In fact, the coastal area is scarce in terms of housing. Coastal areas are sensitive and have a tendency to erosion. This prioritizes the protection and preservation of the lesser ones.

The excessive development of potential value of coastal areas can lead to environmental degradation, which in some cases may result in complete destruction of these values. In addition, due to the intense and often conflicting use demands of the various sectors, the balance of protection and use on the coasts cannot be established, and therefore the presence of natural and cultural resources remains under threat.

In today's developed countries, an integrated approach, called Coastal Areas Management, is used to prevent such negativities. The use of our coastal areas, which are our most valuable natural resources, at balanced, long-term, efficient and non-destructive levels; it should contribute to the preservation of the natural properties of these areas.

Natural resources in the coasts have enabled economic and social development of societies, and played a more important role in the development of coastal areas and even in countries than in other areas. The coastal areas, which have been the focus of interest since the first settlements of people, have been facing various pressures caused by intense and often contradictory demands on industrial and commercial development as well as on recreational uses and environmental protection.

In our country, which has four different seas, the total length of our sea coasts exceeds 8300 km and this length constitutes 75% of our total country border. In addition, there are many lakes of various sizes which make up 12% of the country's surface area.

Especially in the last 25-30 years, Turkey depending on the demand of domestic and foreign tourism coast to come under intense population pressure, the construction of second homes and vacation sites, excessive and unplanned construction studies; The highways and many other applications carried out on behalf of the solution of the transportation problem clearly show how the cradle of civilization and the ecosystem of ecology are under great pressure today. For all these reasons, there is a need for management models based on broad perspectives on the management of land in coastal areas, the development and use of resources, and on the many disciplines of technical, socio-economic and environmental issues.

Main problems encountered in the management of coastal regions

1) There are many competent bodies on the protection and use of resources and there is a lack of authority and coordination among them,

2) The existence of a large number of laws and regulations regulating the distribution of authority and resource utilization among organizations, as well as the unity between them, often containing provisions and gaps that mutually weaken each other,

3) Planning and investment decisions are often taken without adequate preliminary research and no Environmental Impact Assessment before implementation,

4) The lack of expert opinions in the determination of the coastal line and the inadequacy of the Coastal Law.

5) The current planning system is insufficient for the following reasons,

   - Lack of multi-sectoral and environmentally sensitive regional plans,
   - In the event that the authority to make zoning plan is transferred to the local administrations,
   - Failure to take into account the recommendations of scientific circles and voluntary organizations in the planning process and the lack of mechanisms to ensure the participation and participation of the local people in decisions,
   - An effective monitoring, supervision and enforcement system cannot be implemented by both the central authority and the local authorities;
   - The planning and implementation process is open to various external pressures and therefore political preferences can prevent scientific truths,
   - Lack of control of urban settlements and second homes on the coast,

9.2 The development of coastal legislation in Turkey

The fact that the coast is considered to be a public good and that it is not subject to private property has been included in every legal legislation with little differences. In the Ottoman Laws, it is known that the coasts are generally state property. In the Republican period, in 1926, adopted in the Civil Code adopted in the Civil Law and the goods belonging to the interests of the state is under the rule of the state and with the phrase that the coast is open to everyone's use of the principle is adopted.

As a result of the coastline of the Municipality Building Roads Law No. 2290 (1933-1957), a 10m area was considered and protected as a coastline. In Turkey, sea, lake and river shores with which the influence of this place and the first legislation regarding planning and construction in the coastal strip in the sequel, 07.11.1972 date and 1605 No. added to the law numbered 6785 Zoning Law 7 and 8. the coastal areas were also included in the zoning scheme.

Article 43 of the 1982 Constitution under the heading of "Public Benefit and the Utilization of Coasts" has been stipulated as follows.

"The coasts are under the sovereignty and savings of the State". The public interest is considered to benefit from the coastal strips surrounding the shores of the sea, lakes and rivers and the shores of the sea and lakes. According to the purpose of the use of coastlines and coastal strips, the depth and the possibilities and conditions for the use of these places are regulated by law.

"The Coastal Law No. 3086", which was adopted in accordance with this Constitution, entered into force on 01/12/1984. Upon the annulment of some articles of this law by the Constitutional Court, until the new law came out, the Circular No. 110 was issued by the Ministry of Public Works and Settlement.

Subsequently, on 17/04/1990, Coastal Law No. 3621 was adopted and entered into force. However, since the Constitutional Court annulled some articles of this law on 18/09/1991, some amendments were made to **the Law No: 3621** on Law No. 3830 adopted on 11/07/1992.

The aim of t**he Coastal Law No. 3621/3830** is to determine the principles of use for public benefit, which are open to the benefit of the society by taking into account the natural and cultural characteristics of the coastal lanes, which are under the influence of sea, natural and artificial lakes and rivers, and the sea and lakes.

According to the Implementing Regulation of Law No. 3830; Various definitions related to the coastline have been made.

9.3 Definitions of coastal legislation

Coastal Line (Kıyı Çizgisi): It is a natural line which varies according to meteorological events in the sea, natural and artificial lakes and streams, except the flood conditions, where the water touches the land part. It determines the maximum water level of coastal line determined by the General Directorate of State Hydraulic Works (DSİ) in the artificial lakes.

Coastal Edge Line (Kıyı Kenar Çizgisi-KKÇ): The natural boundary of sandy, pebble, rocky, stony, reeds, marsh-like areas composed of sandy and coastal dunes formed by water movements in the direction of the sea after natural and artificial lakes and streams and low flattened coastal areas; in the narrow and high coastal areas, the upper limit of slope or cliff.

This limit cannot be changed if the land is obtained by filling.

The coastal edge line is determined as a coastal line where rivers, which are not subject to coastal edge line detection, are combined with sea, natural and artificial lakes.

Natural and artificial lakes and streams, the General Directorate of State Hydraulic Works of the flood, or not yet made, but the border shown on the map in the sections shown on the coastal border line is located on the intersection with the land on the land side of the flood deck.

Shore: The area between the coastline and the coastal edge line. There are two forms of shore.

a) Narrow-High Shore: It is a coastline that does not have a beach or abrasion platform or ends with a very narrow slope or cliff.

b) Low-Flattened Coast: The coastal beach, which continues after the coastline, including the beach, the moving and stable sand dunes, including the reeds, marshy and sandy pebbles, rocky and rocky areas.

Shoreline: It is at least 100 meters wide in horizontal direction from the coastal edge line.

a) The first section of the shoreline: 50 meters wide in the direction of the land from the KKÇ, only open areas, green areas, promenades, children's playgrounds and areas that can be used as a pedestrian way.

b) The Second Section of the shoreline: From the first part of the shoreline, it is at least 50 meters wide in the direction of the land and open to the benefit of the community, and it is the areas where day-to-day tourism structures and facilities, motorways, open car parks and treatment facilities can be made.

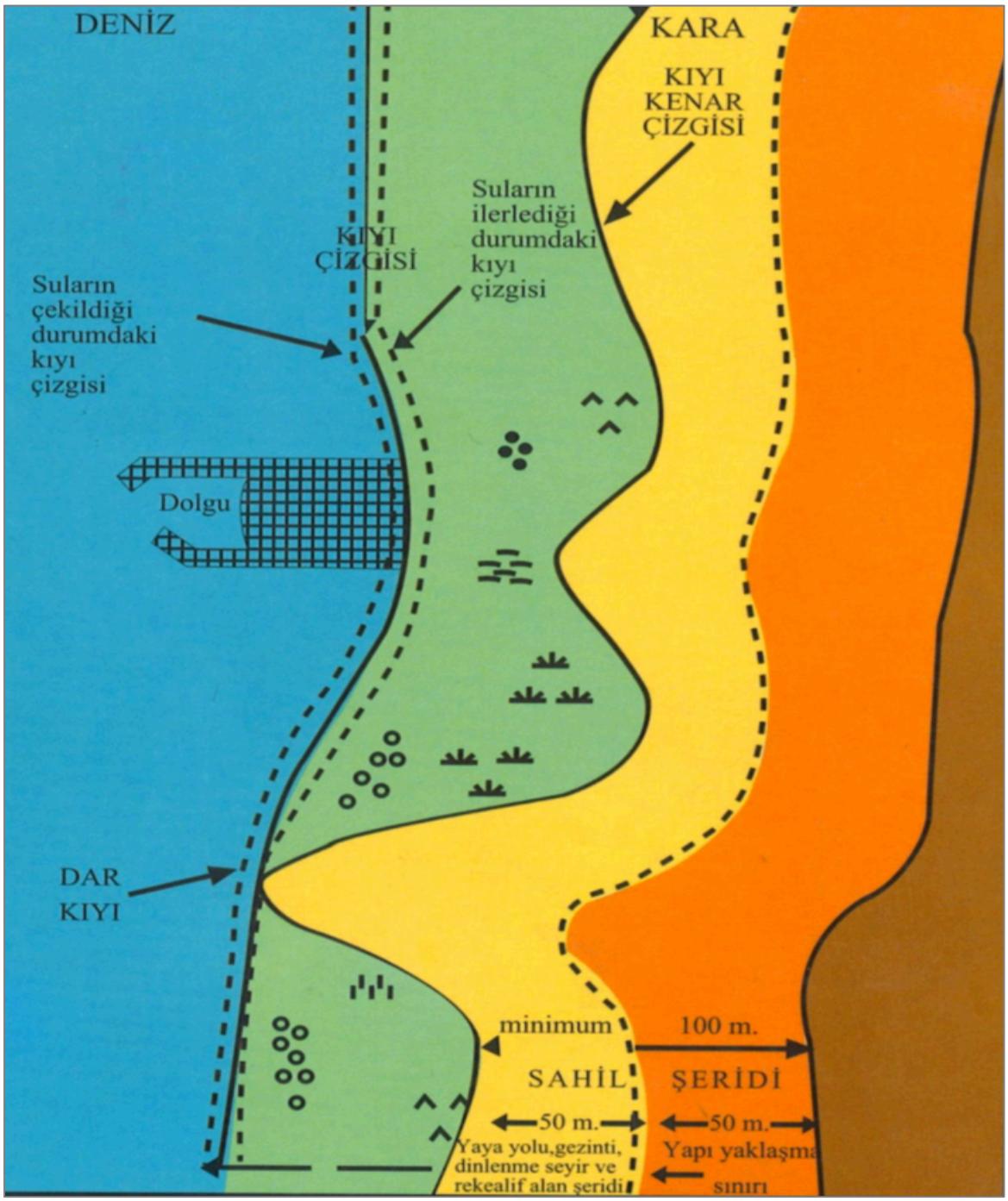
The coasts are the areas under state provision and savings and are open to free and equal use of everyone. Cannot be built on the coast, walls, fences, railings, wire mesh, ditches, piles and similar obstacles cannot be created, the coast to change the size of the excavation cannot be done, sand gravel, etc. It cannot be retrieved. Rubble, soil, slag, garbage cannot be poured into the coasts.

In the coastal zone but with the decision of implementation zoning plan; scaffolding, port, berthing place, docks, jetty, bridge, culvert, retaining wall, lantern, boat place, boathouse, salt, dalyan, liquidation and pumping stations such as the public interest to provide the use of the public interest and infrastructure to protect the coast and facilities structures and facilities, such as shipyards and aquaculture facilities, which are mandatory, can be constructed and cannot be used for purposes other than their intended purpose.

The benefit of the public is considered to benefit from the coast and coastline.

It is mandatory to determine and approve the KKÇ before planning and implementation on the coasts of coastal and coastal shores and coastal strips and rivers mentioned in the Coastal Law Implementing Regulation.

In case the request is made by private or legal persons, KKÇ should be determined within three months.



As a result of the land and office studies of the KKÇ Determination Commissions established by the Governorates, the KKÇ are transferred to the existing maps with 1/1000 scale (1/5000 maps can be used in the Governorate program) and the necessary information and documents are sent to the Ministry of Environment and Urbanization for approval. The assessments evaluated in the relevant unit of the Ministry shall be submitted to the approval after being examined on-site together with the commission members if necessary or returned to the relevant governorship if they are incomplete and inaccurate.

In cases where public interest is required in sea, lake and rivers, land can be acquired through filling or drying by taking into consideration the ecological balance with the decision of implementation zoning plan. In these areas, technical and social infrastructure facilities such as parks, green areas, outdoor car parks, children's gardens can be constructed. The location of KKÇ does not change if land is obtained by filling and drying.

9.4 Determination of coastal line

The first step of the conservation of the coastal ecosystem, the protection of the coastal ecosystem and the planning and construction of the coastal and coastal lines on the coasts, is to determine the coastal line (KKÇ) according to the natural and scientific data.

Formation of coastal line detection commissions

The KKÇ assessment commissions are formed by the participation of at least one person from each of the five occupational groups that are required to be public officials and with the approval of the relevant governorship.

Earth Scientist (Geological Engineer, Geologist or Geomorphologist): *Geological and geomorphological survey of the area and the area under investigation. Determines the boundaries of the current and past effects of water movements on the ground by determining the characteristics of the ground and the conditions of formation and determines the optimum boundaries to be passed by the KKÇ.*

Surveying Engineer: *Determines whether the current map to be used in the determination of KKÇ reflects the current situation of the land and provides the control of the broken points determined in the field for the KKÇ by transferring on the map and checking it. Draws the measurement chart of the determination and the current maps on a 1 / 25.000 scale map, prepares the index of the index if the number of layouts is more than one. If there is an old approved KKÇ in the detection area and a revised base map is used, this allows the detection to be correctly transferred to the new map.*

Agricultural Engineer: *Determines the flora of the area under investigation. Determines the variation and variation of the vegetation cover between the places where water movements are effective and the other places, the species that can grow in the influence of fresh and salt water, the agricultural quality of the ground and the soil boundary, determine the plant species that can grow on this ground and determine the limits of the effect of the water movements.*

Architect or Urban Planner: *They are actively involved in land surveys and office studies, and participate in KKÇ determination in line with their opinions on their subjects and contribute to the correctness of the determination.*

Civil Engineer: *Actively in the field surveys and office works, they participate in KKÇ determination in line with their opinions and contribute to the correctness of the determination.*

Records of coastal line detection commission

- The place where the detection is made in the entrance of the records should be written in full of the name of the province, district and district.

- It should be clearly stated which sea, lake and riverbank belong to the detection.

- The layout, scale and numbers on which the determination is made must be written sequentially and one by one from the number one fracture point or from the beginning of the examination.

- Earth scientist and Agricultural Engineer should explain the findings obtained because of the investigations under separate headings in the records.

- In the case of fixations in many sections, this information should be provided on the basis of the surveyed area, not on the basis of layouts.

- The location of the coastal edge line, which is the common view of the members of the Commission, and the reasons for it, and the type of soil structure and vegetation cover, should be explained in detail.

- The approval date of the old, approved line should be specified at the start and end points of the detection, where the coastal edge line is coincident (if any).

- If there are old approved KKÇ determinations in the detection area, this should be indicated with the approval dates and the commission reports and measurement charts of the former approval should be added to the commission report.

- The date on which the records are issued should be written and signed separately by each member of the commission.

Production of topographical maps

- Current maps should comply with large-scale map construction regulations.

- In cases where the date of approval of the current maps is too old, the maps should be updated and revised before the coastal line detection, and the additional and revised maps should be re-approved by the relevant administration.

- The approval of a surveying engineer is required to verify that the current maps that have been approved by both the governorships and municipalities are checked.

- The topographical map layouts where the coastal edge line fixations of the same area are processed should be opened according to the same coordinate system.

- At least 200 m. area should be shown. If the area ends at least 200m. on the boundary of the layout, the side sheet should be sent to the Ministry as the information sheet.

- If the coastal line determination is made on request, the property boundaries of the immovable properties subject to demand should be shown on the current map.

- The fracture points of the coastal edge line should be numbered, and the height values of these points should be stated on the scale.

- The accuracy of the transfers of the old approved coastline on the map should be confirmed by the governors. Samples of old approved sketches should also be sent for information.

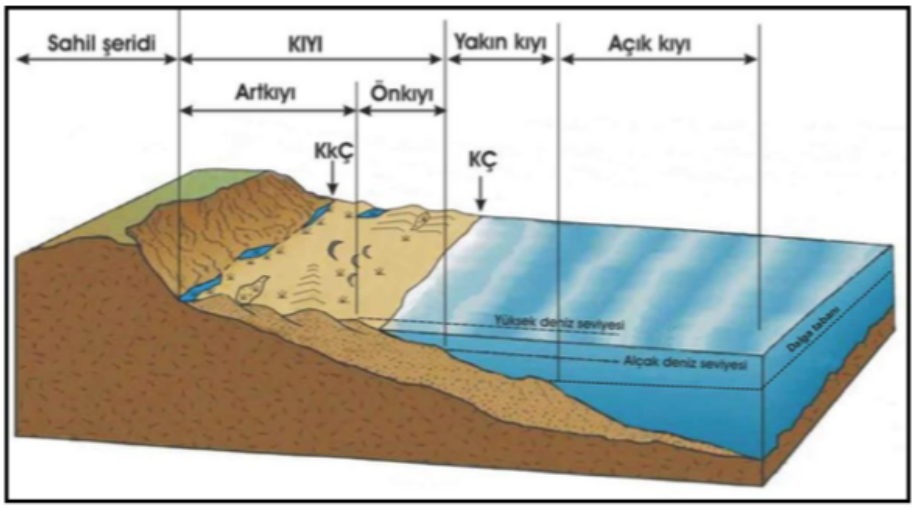
- If there are partial approvals made in the subject within the subject, this should be indicated on the map.

- If there is an old approved coastal edge line at the boundary of the plot, the date of the approval of this old approved coastline should be written on the edge of the map.

- The detected coastal line should be shown schematically on a 1 / 25,000 scale map.

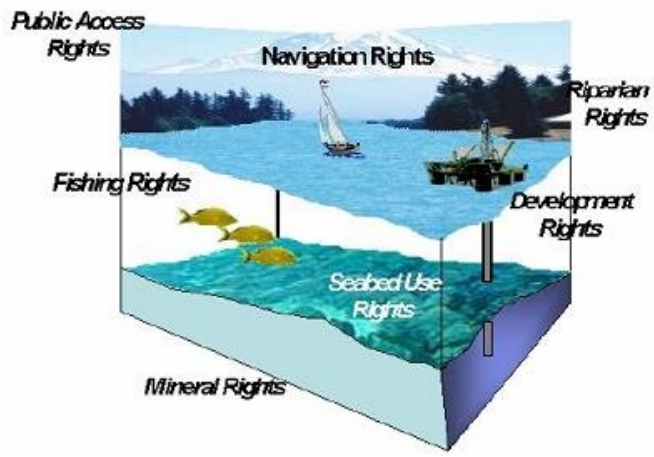
- If the number of layouts sent to the approval is more than one, the layout index reflecting the position of the shoreline and shoreline should be created.

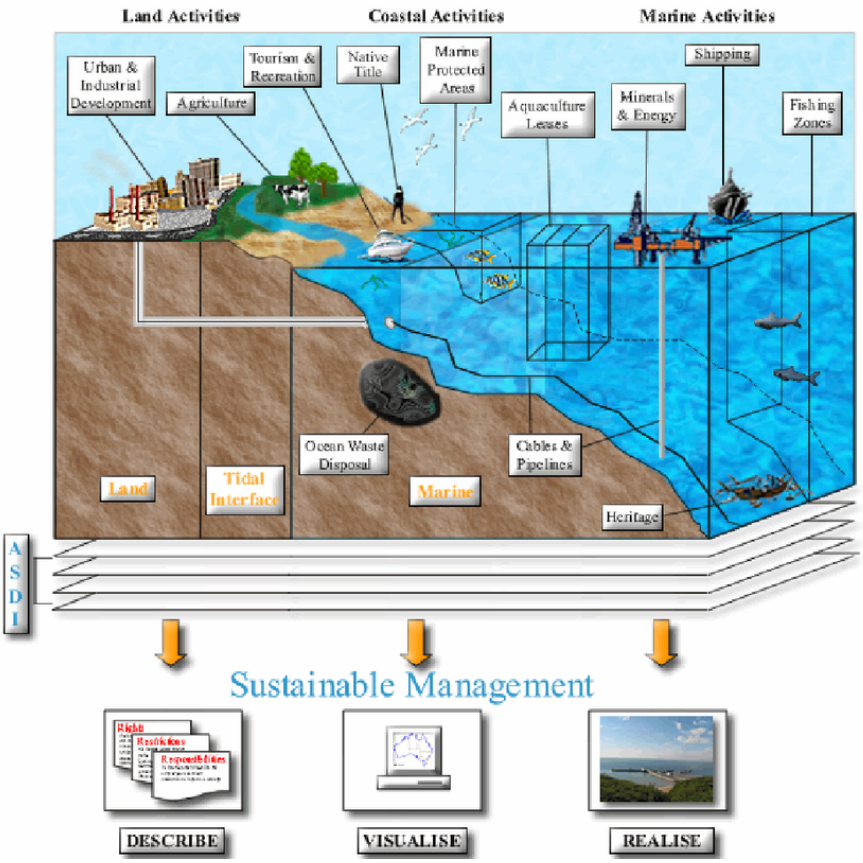
- The photographs of the area where the coastal line is determined within the context should be taken and recorded in the minutes.



9.5 Marine cadastre

Marine cadastre: defines a system that allows the rights and interests related to the use of marine areas to be recorded, spatially managed and physically identified in relation to other neighbouring or fundamental rights and interests. Marine cadastre is considered to be one of the basic layers of spatial data infrastructures of marine areas.





10 REAL-ESTATE VALUATION

10.1 Background and legal base

In the Ottoman Empire, most of the lands were miri lands. In this system, since the ownership of immovables belongs to the state and given to the villagers for a certain price to be operated, the valuation was needed in determining the amount of taxes to be taken from the land, not in many different areas as it is nowadays. In the last period of the Ottoman Empire, the property system and the transition to private ownership, which changed significantly with the beginning of the Republican period, started to be needed in different areas. Today, real estate values such as real estate tax, expropriation, nationalization, privatization, land regulations, registration procedures, easement right, public applications such as capital market, banking, lending and insurance are needed.

The activities carried out in Turkey in the field of real estate valuation has been identified with different regulations. Some basic regulations that include provisions for determining the value are summarized below.

***Constitution*:** In our constitution, the provisions on the real estate valuation are included in the provisions related to expropriation, nationalization and privatization practices where valuation is an important component. Republic of Turkey on the Expropriation entitled Article 46 of the Constitution, the state and public legal entities, in cases where the public interest requires, provided pay in advance for real money, private all or a portion of real estate in the property, may be expropriated according to the rules and procedures prescribed by law and express them can build on administrative Easements it was. In the continuation of the same article, arrangements were made regarding the way the price was paid. In Article 47 of Nationalization and Privatization, after the expression that public undertakings can be nationalized in the case of public interest, private bodies are made on the basis of nationalization. The mode of calculation of the actual provision is regulated by law. In summary, in our Constitution; It is envisaged that the real equivalents (values) of the immovables will be determined in the expropriation, nationalization and privatization works and the procedures for the determination of this provision shall be provided by law.

Expropriation Law: The most comprehensive law governing the determination of immovable assets in our country is the Expropriation Law No. 2942 dated 1983. This law has been significantly revised by the Law on Amendment to the Expropriation Law No: 4650 dated 2001. One of the most important of these changes is that the appraisal process of the real estates is done by the appraisal commission or commis-

sions that will be established in the institution which will make the expropriation initially, and then the contracting authority determines the price of the real estate by negotiating with the real estate owners on the basis of this estimated value. In the Expropriation Law, there are also regulations on the determination of the cost of expropriation and the principles of determination of the cost.

Real Estate Tax Law: The tax amounts of real estates in our country are determined based on the value of the relevant real estate. In this context, the Real Estate Tax Law numbered 1319, dated 1970, defines how real estate tax values will be determined.

Tax Procedural Code: Tax Procedures Law no.213 dated 1961 determination, announcement and finalization of the real estate tax, determination of land and land value appraisal commissions, duties and authorities of commissions, description of the valuation, principles, criteria, determination of gross income and land assets, and arrangements related to depreciation.

Income Tax Law: The Income Tax Law, dated 1960 and numbered 193, regulates the taxation of the value increases in real and immovable rights. In this context; Regardless of the acquisition of land, buildings and real estate's separately, and the acquisition of real estates as real estates, gains arising from the disposal of the acquisition in five years starting from the date of acquisition are deemed as gains in value.

Capital Market Law: Capital Market Law in 1981 and 2499, with the mandate given in the field of real estate valuation to SPK (Serpaye Piyasası Kurulu) and Turkey Appraisers Association (TDUB) structure, qualifications and duties are defined.

Regulation on the Appraisal of Tax Values as a Basis of Real Estate Tax: This bylaw issued by the Council of Ministers dated 1972 and numbered 7/3995; The principles and procedures to be followed in accordance with the natural, economic and regional conditions of the cities, towns and villages in the discretion of the tax values of buildings, land and land and the regulations to be requested from the taxpayers.

The Land Registry Regulation: The Land Registry Regulation, which was published in the Official Gazette dated 1994 and published in the Official Gazette No. 21953, regulates the real estate valuation activities that should be carried out in the context of the valuation issue of mortgage and bond shares. The regulations; who will be composed of the commission, how the appraisal will be made, which principles will be taken into consideration during the appraisal, how the buildings, land and land values for the landlord facility will be calculated, and how the income value of the agricultural land will be determined.

10.2 Valuation institutions and organizations

In our country, real estate valuation studies are carried out by the appraisal commissions formed within the body of many different institutions in order to reach the values needed in different applications. Apart from these, the expert commissions formed by the relevant courts also evaluate the disputes that have passed to the judiciary on the issues related to the valuation.

Tablo.x Some institutions engaged in real estate valuation in Turkey

Tapu ve Kadastro Genel Müdürlüğü	Vergiye esas birim değer hesabı	Kadastro Kanunu (3402) Tapu Kanunu (2644) Tapu Sicil Tüzüğü
Mekânsal Planlama Genel Müdürlüğü	Projelendirme	İmar Kanunu (3194) Kamulaştırma Kanunu (2942)
İller Bankası AŞ	Kamulaştırma	Kamulaştırma Kanunu (2942)
Devlet Su İşleri Genel Müdürlüğü	Kamulaştırma	Kamulaştırma Kanunu (2942)
Boru Hatları ile Petrol Taşıma Anonim Şirketi (BOTAŞ)	Kamulaştırma	Kamulaştırma Kanunu (2942)
Türkiye Kömür İşletmeleri Genel Müdürlüğü	Kamulaştırma/Kiralama	Kamulaştırma Kanunu (2942)
Orman Genel Müdürlüğü	Satın Alma/İnşaat/Kamulaştırma	Orman Kanunu (6831)
Sermaye Piyasası Kurulu	Değerleme Mevzuatı/Değerleme Uzmanları	Sermaye Piyasası Kanunu (2499)
Toplu Konut İdaresi Başkanlığı	Satın Alma/Projelendirme	Toplu Konut İdaresi Yasası (2985)
Özelleştirme İdaresi Başkanlığı	Özelleştirme	Özelleştirme Kanunu (4046)
Vakıflar Genel Müdürlüğü	Vakıf Taşınmazlarının Kiralama ve Satışı	Vakıflar Kanunu (5737)
GAP Bölge Kalkınma İdaresi Başkanlığı	Toplulaştırma/ Kamulaştırma	Sulama Alanlarında Arazi Düzenlemesine Dair Tarım Reformu Kanunu (3083) Kamulaştırma Kanunu (2942)
Tarım Reformu Genel Müdürlüğü	Toplulaştırma/ Kamulaştırma	Sulama Alanlarında Arazi Düzenlemesine Dair Tarım Reformu Kanunu (3083) Kamulaştırma Kanunu (2942)
Valilikler	Projelendirme	İl Özel İdaresi (5302)
Belediyeler	Emlak Vergisi Toplama	Emlak Vergisi Kanunu (1319)
İl Özel İdaresi	Taşınmaz Yönetimi/Yatırım	İl Özel İdaresi (5302)
DHMİ Genel Müdürlüğü	Kamulaştırma	Kamulaştırma Kanunu (2942)
Karayolları Genel Müdürlüğü	Kamulaştırma	Kamulaştırma Kanunu (2942)
Milli Emlak Genel Müdürlüğü	Hazine Taşınmazlarının Yönetimi	Hazineye Ait Taşınmaz Malların Değerlendirilmesi ve Katma Değer Vergisi Yasasında Değişiklik Yapılması Hakkında Kanun (4706)
Gelir İdaresi Başkanlığı	Vergi Toplama	Vergi Usul Kanunu (213) Gelir Vergisi Kanunu (193)

The manner in which the commissions are formed and how the valuation will be carried out are defined in different laws and regulations according to the purpose of the implementation. In this context, it is seen that the professional disciplines of the members taking part in the commissions also change according to the type and quality of the immovable to be determined. Technical staff from the relevant municipality and / or cadastre in the evaluation of the lands, agricultural engineers in the evaluation of the land, and civil engineers in the evaluation of the buildings are predominantly involved.

Apart from the public institutions mentioned above, there are also real estate valuation companies that make appraisal. Some important arrangements have been made recently about the activities of these companies. With these regulations made by the Capital Markets Board (SPK) in 2001; The principles regarding the qualifications of the companies that will provide real estate appraisal services under the capital market legislation, to be listed, taken from the SPK, the partners of the companies, managers and appraisers who will work in these companies have been determined and the rules that the companies have to follow while carrying out their activities have been defined. However, the authority of the SPK is only on the companies that will provide real estate valuation services within the framework of the capital market legislation and the real estate valuation companies other than this scope do not have the obligation to comply with the Board regulations.

10.3 Methods used in real estate valuation

In real estate valuation, the most commonly used methods in our country can be listed as comparison, cost and income method. Generally, in the valuation of empty land, the comparison method is used, the income method in the valuation of commercial and residential properties, and the cost method is used in the immovables to be evaluated according to the value of the insurance and the cost. However, different valuation methods are needed to support these methods or to support them with different methods. Recently, increasing stochastic (statistical) methods have an important place in real estate valuation.

The important factors in determining the real estate valuation methods can be summarized as the purpose of use, current situation, environmental characteristics, managerial objectives, social and economic characteristics, infrastructure properties, zoning status, legal restrictions. It is understood that many factors have an effect on the value of the immovable property. Therefore, different methods can be used to determine the value of the immovable and the valuation can be supported by different methods.

The purpose of using real estate valuation methods is; The final appraisal of the value is determined by the appraiser based on the correct data in the real estate market. Some of the international and national valuation methods will be explained below.

Comparison Method

In order for this method to be applied, first of all, the healthy version value and similar qualified immovable property that will provide this value should be sufficient in the same region. The precedent method is referred to as the comparison method, where the actual market value of a sufficient number of similar immovables is reached; Usually non-income immovables are applied for land and land without construction. The version value is; For example, the plot will be compared to the peers with similar characteristics in the value appraisal to be made for the qualified immovable and the values of these values are determined and the version value is determined. In order to determine the final value in the peer method, it is very important to transfer the trading values of similar peers.

However, if there is not sufficient number of benchmarks to be made in the same region with the immovable, this method can be used in comparison with the immovable properties in different regions and according to the various conversion coefficients, this method can be used depending on the feature deviations of the property. It is required that the properties with similar properties, which are valued on certain dates, to show the average values. Therefore, it is expected that the variable properties of the mentioned peers will be compatible with each other. The comparison method is an easier method to grasp than other methods, and the higher the similar quality of the real property of the appraised property, the greater the accuracy of the appraised value.

Income Method

It is the method used in the valuation of income generating properties. The income approach addresses the potential net revenue flow for an investor or a user in the remaining economic life of an immovable. To determine the gross income and expense activities of the mentioned immovable property, to estimate the net income and to determine the direct and income capitalization rate as a result. In this method, direct capitalization or indefinite income and return capitulation methods can be applied in unpredictable situations.

Based on the utilization of the immovable property, regional characteristics and economic conditions, annual net income is calculated and valued. It is generally used for commercial purposes. These real estates can be given as examples of land on land,

shops with rental income, enterprises with commercial yields and farms with agricultural income. The income method is preferred when the economic life of the structure is not very long, the cost of building will be unsafe and there are not enough number of precedent structures. Briefly, income method; taking into account the economic data in the country, it can be defined as the pricing of the property's current and subsequent years.

Cost Method

It can be defined as the calculation of the cost of reconstruction of the building, which is a structure, on the conditions of that day. Usually, the land value on which the immovable is located is evaluated by using the comparison method and the structures on it are appreciated by applying the cost method based on the unit values appropriate to the conditions of the day. While the value of the plot is determined according to the comparison of similar peers, the cost value of the property is determined after the depreciation value is deducted from the cost of reconstruction of the structure.

Values obtained using different methods can be used for different methods, for example; land value obtained from the precedent method, the cost method can create the basis for the value of the plot. The cost method is used in the valuation of buildings, detached houses, buildings with unknown rent return, hotels and administrative structures in industrial zones.

The cost method is also defined as a contractor method and has been accepted by different countries and it is the cost of constructing a new structure on the land while calculating the value or calculating the costs of renewing an old property with the same purpose. It is aimed to reach the current value by removing negative impact factors from the total cost value in the region and structure specific value. The cost unit values, which will be based on the cost method, are determined each year by the Ministries of Finance and Urbanization in accordance with the Law no. 1319 Real Estate Tax Law.

Stochastic Methods

Stochastic methods are based on statistical models that require analysis by computer when compared with other methods. Because stochastic methods are used for a large number of immovable and large areas. Differences between immovable values and similarities are related to the principle of acquiring numerical and proportional relations. The trading value of the immovables is statistical data and in stochastic methods, these data should be explained as a set statistically. Examples of stochastic methods are Nominal Valuation, Regression Analysis, Linearization, Matrix Method, Artificial Neural Networks, Fuzzy Logic.

In all valuation methods, the attribute of the immovable in question, the purpose of use, environmental, economic, social conditions, technical, legal limitations, infrastructure features, zoning status and many other parameters affect the value of the immovable. A single method can be used for the appraisal of the immovable property, and a number of methods can be applied to determine the value more accurately in terms of the nature of the immovable. In this case, mixed valuation method can be mentioned.

10.4 Applications related to real estate valuation

In our country, the real estate valuation applications made primarily for taxation purposes, determining the market, sales and similar values of immovable property, sales and rental prices, determining the rights on immovable property is very important in the activities. In these applications, which institutions and organizations are based on which legal basis and which institutions are carried out will be explained below.

Taxation

In order to determine the tax value in the appraisal of real estates, the real estate should be determined as land and building. The tax value of the immovable properties subject to property tax is determined according to the Regulation on the Appraisal of Tax Values which will be a Base for Real Estate Tax. The tax value stated in the statute is as the fair value of the immovable property subject to real estate tax application and the fair value in the law; the building is defined as the normal purchase price of land.

In the studies carried out for taxation purposes, it is made by the sales commissions as stated in Article 90 of the Law No. 6183 on Collection Procedures of Public Receivables. The Tax Procedures Law No. 213 shall not be less than the value calculated according to the type of the land that are appreciated in the unspoiled land to be found by the appraisal commissions according to the provisions for determination of the unit value at least (minimum). In determining the real estate tax value of the buildings, the Ministry of Finance and the Ministry of Environment and Urbanization will be specified and the construction will be published in the official newspaper.

Expropriation Transactions

The Expropriation Law No. 2942 is the most comprehensive law in our country on real estate valuation. The law is regulated and revisied by Law No. 4650. The evaluation of the immovable to be expropriated shall be carried out in accordance with the Principles of Valuation as set forth in Article 11 of Law No: 4650. The most important

ones in the appraisal of the immovable valuation made by Law No. 4650; the appraisal commission or commissions to be formed within the body of the institution that will perform expropriation first. In addition, the appraisal of the contracting authority is to determine the value by negotiating with the owners of the real estate and the value determined by the commission. However, in Article 3 of the Expropriation Law; administrations cannot start the expropriation process without having sufficient appropriation.

The evaluation of the immovable to be made by expropriation is carried out according to the principles of the Valuation Principles set out in Article 11 of the Law, which specifies the requirements for determining the value in land, land and buildings in the article and for the determination of the value and the authorized institutions.

Land Consolidation

Regarding the immovables in our country, the land is explained with separate laws. In Article 44 of the Constitution; The State shall take the necessary measures to protect and improve the efficient operation of land, to prevent the loss of erosion, and to provide land to the peasant who is landless or has no sufficient land. For this purpose, the law may determine the width of the soil according to the different agricultural regions and varieties. Providing land to the farmer who has no land or has enough land, could not result in the reduction of production, the reduction of forests and the decrease of other land and underground wealth, explained the sanctions for the use of the land and stated the effective use of the constitution and land. In addition, the necessary arrangements and definitions for land consolidation have been made by special laws.

SPK notification application

Law No. 6362 (dated in 2012) in relation to the real estate valuation in the Capital Market (Sermaye Piyasası) Law, Article 35 of the law; It is stated as independent auditing, appraisal and rating agencies to operate in the capital market and announced that the valuation companies are from capital market institutions. In addition, the notification on the Principles Regarding the Companies Providing Appraisal Services in accordance with the Capital Markets Legislation and the List of these Companies by the Board was published.

The purpose of the SPK notification is disclosed in the Official Gazette (2001a); The purpose of this course is to determine the principles of real estate appraisal companies that will be listed by the Board in order to provide valuation services related to the transactions that are subject to capital market legislation and that are subject to capital market legislation.

In the SPK notification formed based on the International Valuation Standards; It is emphasized that the valuation activities should be carried out independently by the "appraisers" who have sufficient equipment to work in the valuation activities. "Real Estate Appraisal Companies" are to determine the value of an immovable property independently and impartially, taking into account all rights and benefits affecting the immovable property, determining the market value under the conditions of the day and creating reports to be issued on the basis of internationally accepted valuation methods. These reports are provided by the valuation expert who is competent in the field. The conditions for being competent in Real Estate Appraisal Expertise are stated in the law and in addition to this, specialization examinations are conducted by the Capital Markets Board. Those who are successful in the exam have Real Estate Appraisal Expert License which has more importance and competence in the present day and takes part in real estate appraisal activities.

Privatization applications

In privatization applications, the determination of immovable assets is provided by the Value Assessment Commission and in the Privatization Law numbered 4046; The valuation studies of the institutions that are included in the privatization program are carried out by the valuation commissions established in the administration according to this Law.

In privatization activities, it is essential to determine the value with at least two of the determined immovable valuation methods and it is announced to the public after the approval of the value by the competent board. In the case of privatization practices, the value appraisal of the immovable property is determined by the Value Assessment Commissions set out in Article 18 of the Privatization Law, based on the value determined by the Expropriation Law.

Urban regeneration

The legal basis for the expropriations to be carried out under the urban regeneration within the scope of the Law No. 5366 and 6306, and the expropriation arrangement expropriated for the purpose of realization of the resettlement projects in the second paragraph of Article 3 of the Expropriation Law No: 2942, has been established in 6 equal instalments. In case of expropriation by the administration, the expropriation and determination of the value of the expropriation law no. 2942 dated 04.11.1983 and paragraph 3 of the Expropriation Law will be realized. There is a common provision that the legal basis of valuation in all laws is the Expropriation Law No. 2942.

10.5 International real estate valuation standards

In order to ensure reliable and transparent valuation by establishing the professional ethics rules of valuation, a large number of valuation organizations operating in developed countries, either nationally or internationally, have been established. "The European Valuation Units Group (TEGOVA)" and the "International Valuation Standards Committee (IVSC)" are among the most important international organizations.

TEGOV (https://www.tegova.org); is an organization that is structured in order to increase cooperation by providing coordination between real estate appraisal agencies in various countries of Europe and to set some standard rules in real estate appraisal and there are 40 member organizations in 28 countries. TEGOVA works in close cooperation with IVSC. The main objective of this is to establish transparency and reliability in the real estate valuation sector in the financial and industrial sector and capital markets by establishing standards for valuation methods and reports in the international arena. In this context, TEGOVA; The European Valuation Standards (EVS) has prepared a standard guide. Although the guidance does not include any compulsory or criminal provisions for the institutions which are members of TEGOVA, the real estate valuation includes some important arrangements in terms of the profession.

IVSC (https://www.ivsc.org)*;* Founded in 1981, the United Nations affiliated member organizations (53 members from 42 countries) work in close cooperation with the World Bank, OECD, the International Association of Accountants and valuation organizations. The main purpose of the organization in the UK is; to establish standard rules in the field of real estate appraisal and to increase cooperation between the members. For this purpose, IVSC has developed valuation standards including four parts and general practices and methods related to the valuation profession. These standards; In particular, it aimed to determine the basic concepts related to the profession such as determination of valuation methods with the definition of market value and to form a general framework by determining the ethical rules. These standards were translated into Turkish by the SPK and published in the Official Gazette dated 06.03.2006 and numbered 26100 and adapted to the legislation of the SPK. In the valuation procedures carried out in accordance with the capital market legislation, the appraisers must comply with and comply with these standards.

11 INFORMATION SYSTEMS FOR LAND MANAGEMENT

11.1 Spatial Information Systems

Spatial Information Systems is a comprehensive information system that addresses geographic objects not only with coordinate values but also with attribute information. The most important feature of these systems is the fact that any object is defined with the coordinate information (graphics), as well as alpha-numeric (non-graphical) textual information describing the properties of that object. Parallel to the developments in computer technology, graphic and non-graphic information is associated in a database system and new information system applications have emerged. Spatial information systems are space-based coordinate information systems and have a wide range of applications. From planning to health, from property to tourism, from trade to security, from education to transportation, many other activities are geographic information, so absolute position information is needed. If all this is considered to be within the scope of positional information, a wide variety of information systems will be encountered in practice. As a matter of fact, although there are many information systems in the literature, although no definitive classification can be made, the researchers propose a classification as follows to prevent complexity.

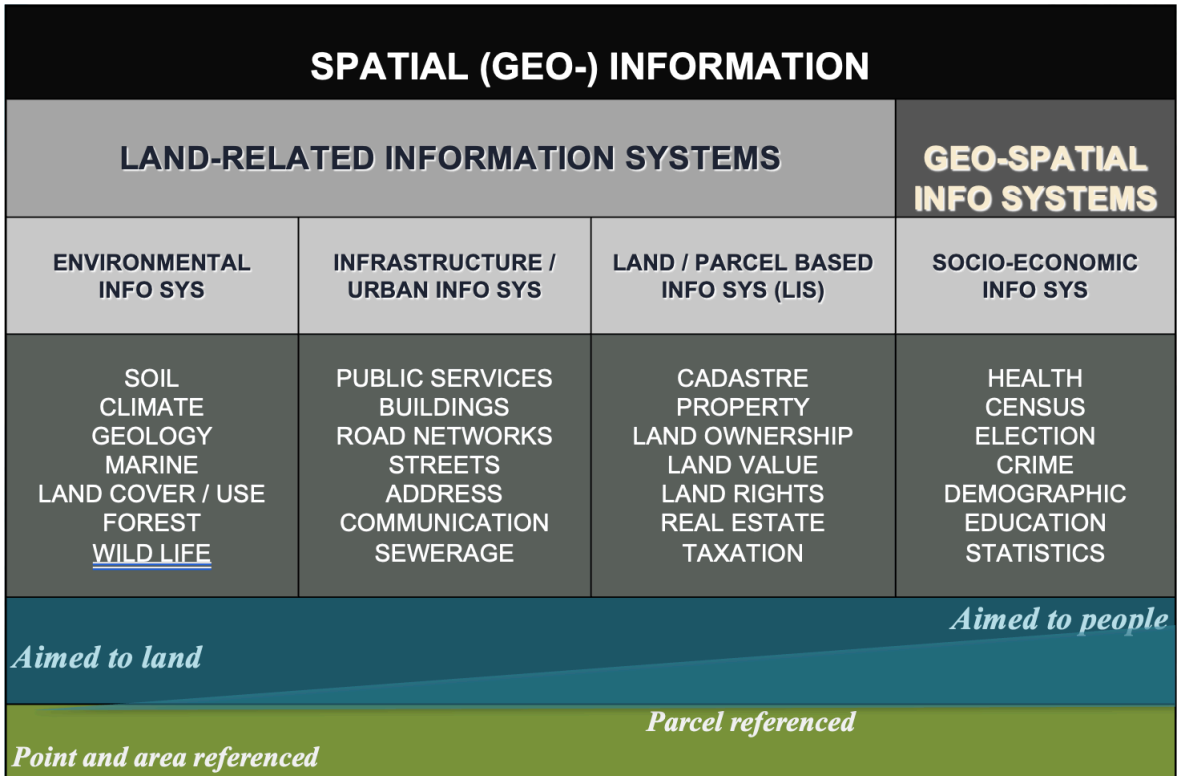


Figure x. Classification of Spatial Information System

Environmental information systems

It is an information system that examines the physical, chemical or biological structure of the environment and their effects on the environment through human-environment relationship. For example, environmental information systems are the main functions of environmental information systems such as air pollution, vegetation cover, coastal pollution, natural resources, geological and ecological structures, distribution and analysis of all kinds of data / information related to geographical regions. They are especially applied in geographic areas with a low sensitivity to location, but in terms of position characteristics, in areas of 1 / 10.000 and smaller scale, covering large areas. Such information systems are used extensively in the field of remote sensing in parallel with developments in recent satellite image processing techniques. Especially in the production of large-scale maps for environmental purposes, environmental impact assessment, urban and rural planning, marine and coastal pollution, monitoring of meteorology and erosion movements, studies of morphology, hydrology and geological fields, soil vegetation, determination of forest and agricultural areas, soil type and chemical Environmental information systems are used extensively in the analysis about the structure.

Urban information systems

It is a positional information system which takes an important place especially in city administrations and examines the relations between them. Based on the map data of 1 / 1,000 and larger scale, infrastructure-engineering information systems are the information system that local governments frequently refer to and are mostly referred to as urban information systems. There is a need for intensive data / information to provide more and more qualified services in cities. However, this information in the current system; They are located in different areas of expertise, in a limited number, scattered and kept in paper. These traditional approaches do not produce efficient results; control of technical infrastructure systems such as natural gas, electricity, drinking water, wastewater, telephone and sewerage networks; Health and safety decisions can be made by infrastructure-engineering or urban information systems. According to this; Urban Information Systems are urban systems based on the application of spatial information systems in order to make the optimum decisions for performing urban activities in order to make planning decisions, engineering, basic services, maintenance-repair and management information in a fast and healthy way.

Cadastral information system

The spatial information systems that collect, store, manage and present to the user the requirements of the land use and ownership of the cadastral transactions, which are the basis of their ownership, are called "cadastral" or "land information systems". The most basic unit in the land information system is the parcel, which is measured in the land with its borders and registered in the name of the owners. For all transactions in such information systems, the cadastral parcels in the property maps 1 / 5,000 and larger are considered reference. Accordingly, in the fulfilment of the duties related to land ownership, on the basis of parcel, land and building use, property analysis, zoning plan studies, inheritance rights, property law, property taxation, real estate appraisal, land registry, real estate purchase and sale transactions It is an information system that helps to make decisions that will contribute to land management by arranging the relations between them.

Socio-economic information system

It is an information system based on the collection and processing of information required for social and economic development and structuring on a country or region basis. These systems can be presented as a classic with small scale thematic maps, such as statistics, population, health, safety, security, demographic, etc. data, and countries, cities, administrative regions showing the difference in the geographical structure of the inventory according to the location of the inventory information to help examine. Socio-economic information systems usually provide a more comprehensible form of the archive data collected over certain periods of time. For example, the population and construction movements of a city can be monitored dynamically with cartographic or visual statistical techniques in the same environment with symbols showing different characteristics on the city map. However, the production of maps and reports based on very different purposed data according to user demands, analyzing the relations of health, commercial, economic, social, cultural, historical, tourism, investment, etc. related to the location in the same position for the country and regional planning and development. these are among the basic functions of such information systems.

11.2 GIS (Geographic information systems)

Today, in addition to the information produced on earth, the amount of data obtained by satellites is increasing day by day. Information is basically in “written” and “drawn” formats. According to statistics, up to 80% of all information is based on "location", that is, "geo". Again, according to research, the information collected each year increases at least two times compared to the previous year. Accordingly, there is an intense accumulation of information and traffic around us. Since the size and density of the information volume causes the information to take a complex structure, this information must be managed in an organized manner. This requirement has brought the concept of information systems to the agenda with the developments in information technology.

In our age, information technology serves humanity intensively in many different fields. Geographical Information Systems (GIS) plays an important role in applications that require complex analysis, such as the management and integration of many economic, political, social and cultural resources, especially in managing location-based, location-based information.

Traditional information systems are mainly used for administrative purposes, as a right-decision-making tool. However, in such transactions, it may be necessary to examine the information with location characteristics. For example, if a company is looking for a new investment location or customer potential, then "geographical" or "location" information is needed. Because at this stage, an answer to the "where" question should be sought. The most important feature of this type of information is that besides the descriptive information of the place, the geometric, that is, the coordinate information, is taken into account as a reference. In addition to information such as name, population, number of districts, which are called "attribute information", about the characteristic of a city, there is also a need for latitude-longitude, that is, coordinate information of the city. Coordinate information is usually expressed graphically with maps. Expressions other than graphical information are considered as "verbal" or "descriptive" information.

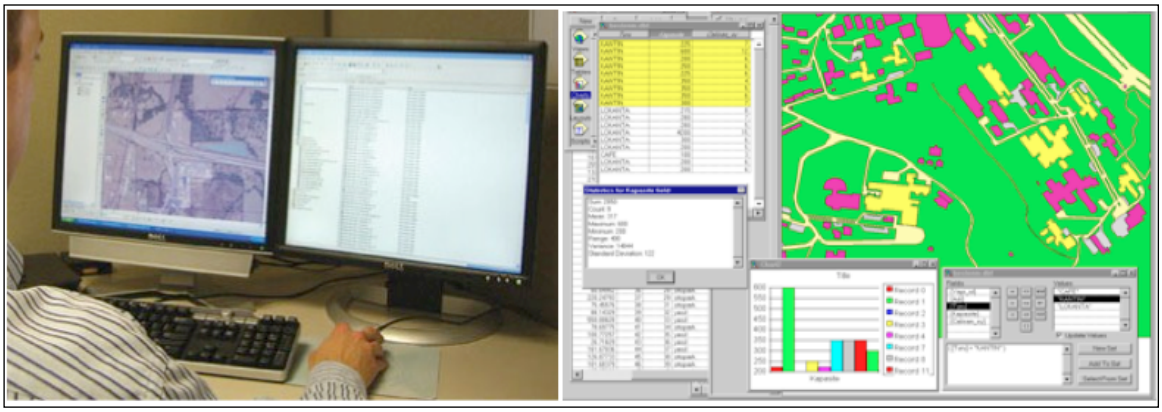
GIS is a comprehensive information system that deals with the definition of geographical objects not only by coordinate values, but also by attribute information. The most important feature of these systems is the absolute definition of any object with coordinate information (graphic), as well as the existence of alpha-numeric (non-graphic) textual information describing the properties of that object. Parallel to the developments in computer technology, graphical and non-graphical information have been associated in a database system and as a result, new information system applications have emerged. Geographical information systems are systems based on spatially referenced coordinate information and have a wide range of applications. From planning to health, from property to tourism, from trade to security, from education to transportation, many more activities are applications that require geographic information, therefore absolute location information.

What is GIS?

It requires the management of a very dense and complex body of information in order to describe the relationships between the objects that are the subject of physical and human geographical phenomena on the earth. At this stage, besides the "written" information that expresses the basic structure of the objects, "where?" "Graphic" information is also required. Therefore, it should be ensured that this two information are kept together and presented to the user quickly and accurately. Although maps fulfill this need, they are insufficient today. However, the developing information technologies have met this need in a sense, and the concept of "map-based" Geographic Information Systems, consisting of the words "geography", "information" and "system", has emerged.

Geographic Information Systems (GIS) is the English expression and can be defined in different ways since users are from many different disciplines. The wide interest of GIS among people, institutions and organizations interested in spatial information in the world, rapid changes in developments, different practices and ideas have not yet allowed a standard definition of GIS to be made. According to some researchers, GIS is a scientific concept that includes all geo-referenced information systems and examines spatial information. it is described as a computer-based tool that digitizes geographic information and, according to some, as a database management system that helps the organization.

GIS in the broadest sense; It is defined by three basic approaches such as toolbox, management and system. Accordingly, a data collection, processing and presentation tool based on GIS information technology; It is a management style in which dense and complex location information can be controlled effectively, and a system or a combination of these that allows more efficient use of geographical data.



Geographical information systems and graphical (map) and non-graphical (text) information can be viewed together in electronic environments.

After all***, GIS; It is an information system that performs the functions of collecting, storing, analyzing and presenting graphical and non-graphical data obtained by location-based operations in an integrated manner.***

In a very simple sense, GIS establishes an effective communication structure between graphic (map) and non-graphic (text) information. Unlike other information systems, GIS simultaneously stores and processes the geometric information of all kinds of objects on the map in a database. Therefore, there is a feature that does not exist in traditional databases, but only in GIS; it is the ability to perform geographic analysis, in other words, "spatially" based analytical operations. After all, GIS is, in a sense, a new approach that emerged with the completion of the evolution of classical databases.

GIS is used as an effective technological tool in all countries of the world, with its role in complex decision-support analysis such as the total management of socio-economic, political and cultural resources. In particular, the introduction of GIS with satellite technology, as well as its integration with Management Information Systems, gave a further impetus to this development process. As a matter of fact, with GIS, natural and artificial resources on earth are managed much more sensitively and efficiently today, and efforts are made for a more livable environment.

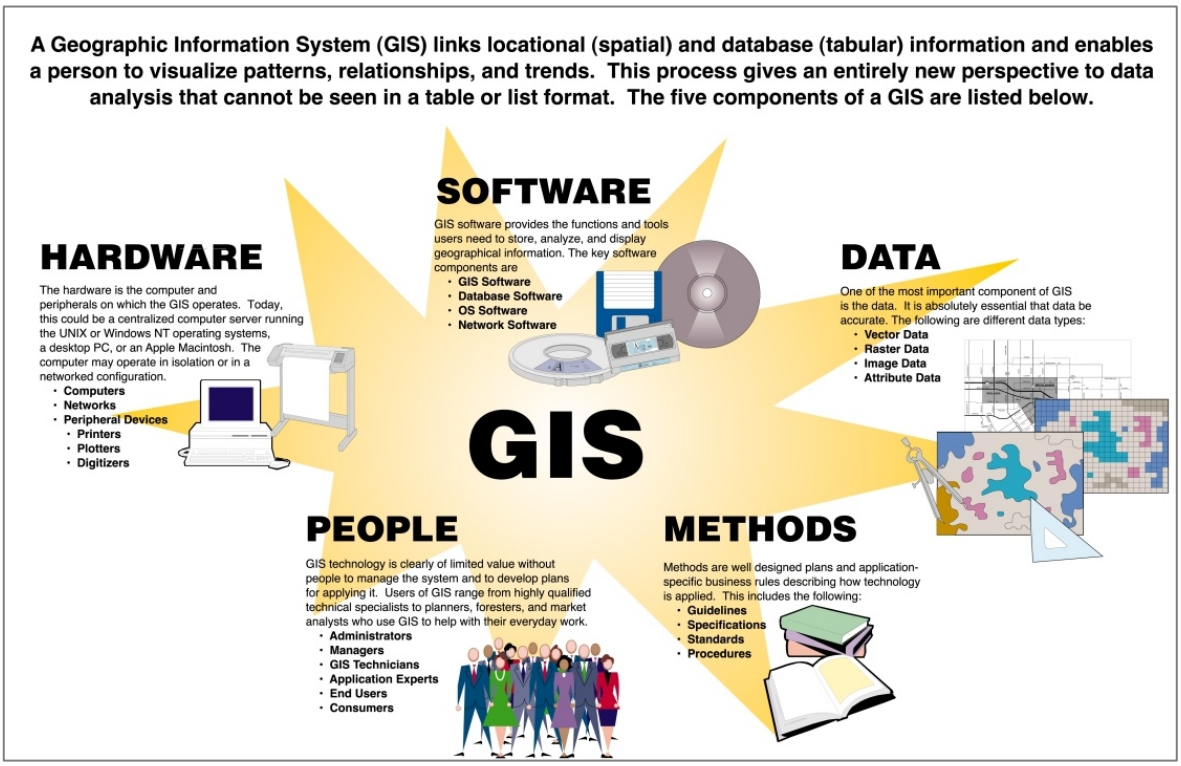
High-precision location information obtained from satellites with GPS technology is now combined with images taken from satellites much more quickly, making data collection processes much easier. With all these rapid developments, geographical information can now be managed and shared in a much healthier and more dynamic way. Thanks to the developments in GIS, the opportunity to produce the right policies in the social development process, to provide modern and quality services to individuals and to access information on the internet has increased.

How geographic information systems work?

In order for Geographic Information Systems to perform its basic functions, at least five main elements must be present together. These are ***software, hardware, data, people and methods*** known as components of GIS.

Component 1- Software: Software, in other words, a program that can run on a computer, is algorithms implemented with high-level programming languages to provide the user with needs and functions such as storing, analyzing and displaying geographic information. Most of the software is developed and produced by companies for commercial purposes, and there is also software developed for education and research by universities and similar research institutions. A significant part of the GIS

market in the world is in the hands of software development companies. In this respect, GIS is almost identified with such software today. A GIS software: It should have the necessary tools for geographic data/information entry and processing, have a database management system, support spatial query, analysis and display, and provide interface support for connections with additional hardware.



Component 2- Hardware: The whole of the computer and its by-products that enable the GIS to function are called hardware. In addition to the computer, which seems to be the most important tool in the whole system, there is also a need for peripheral equipment. For example, devices such as printers, plotters, scanners, digitizers, data and image recording units are hardware that can be considered important for GIS as information technology tools. Today, many GIS software runs on different hardware. There are many different types of hardware, from centralized computer systems to desktop computers, from mobile and personal computers to networked computer systems.

Component 3- Data: One of the most important components of GIS is "data". Data is the raw material of information. Geographic data in a graphic structure and descriptive attribute or tabular data can be collected from necessary sources, as well as digital data available in the market at a ready-made location. GIS can combine spatial data with other data sources. Thus, data belonging to many institutions and organizations are organized and spatial data is integrated. While data is considered by experts as the core element of GIS, it is also seen as the most difficult component to obtain. The

scattering, multiplicity and different structures of data sources require a great deal of time and cost to collect these data. As a matter of fact, at least 50% of the time and cost to be spent for a system designed to be installed for GIS is required only for data collection.

Component 4- People: GIS technology would be limited without humans. Because people manage the necessary systems and prepare development plans to implement real-world problems. GIS users range from the expert technicians who design and maintain systems to people who use these systems to improve their performance in their day-to-day work. The development of GIS is absolutely dependent on the existence and ownership of people, that is, users.

Component 5- Methods: A successful GIS operates according to well-designed plans and business rules. Such functions are in the form of models and applications specific to each institution. It is essential that the necessary rules, namely standards, are developed and applied in order to ensure the spatial information flow of GIS between units or institutions within institutions in an efficient way. For this purpose, legal regulations are made and necessary regulations are prepared and principles are determined.

Basic process steps in geographic information systems

For a Geographic Information System to function in a healthy way, four basic stages must take place. These are the ones that are going to ***1. Data collection, 2. Data management, 3. Data processing and 4. Data presentation*** stages.

1- **Data collection:** Geographical data must first be collected according to appropriate techniques and converted into digital format before being used in GIS. The process of converting data from paper or map media to computer media is known as digitizing. In modern GIS technology, such operations are carried out with automatic tools using the scanner technique in large-scale projects. In small-sized projects, manual digitization can be done by using mostly table-type digitizers. Today, many geospatial data are available in GIS-compatible formats readily available with databases in digital form. These can be obtained from the manufacturers and transferred directly to the system.

2- **Data management:** Geographical data are located in latitude-longitude (θ,λ) or geodetic coordinate system (X,Y,Z). Geographic data in a certain geometry are represented in the digital environment in “Vector” and “Cellular (raster)” data models. These data models can be used with preference based on data type and application form.

The vector data model is the actual representation of geographic data. Geographic entities have point, line, and area (polygon) geometry and topological information that governs the relationship between data. For example, while an electric pole, station, well is defined with a single (x1y1) coordinate with point geometry; A sequence of consecutive coordinates (x1y1, x2y2,..., xnyn) with road, river and railway line geometry and coordinate (x1y1, x2y2,..., x1y1 with lake, building, forest polygon geometry starting and ending at the same point) can be defined by the sequence.

The raster data model is used in the expression of geographical data that has more continuity on earth. It is formed by the coming together of cells of the same size, which are adjacent to each other, like a photographic image. Raster data models can often be used to manage assets that are continuous in the field, such as topography, climate, soil type, and vegetation.

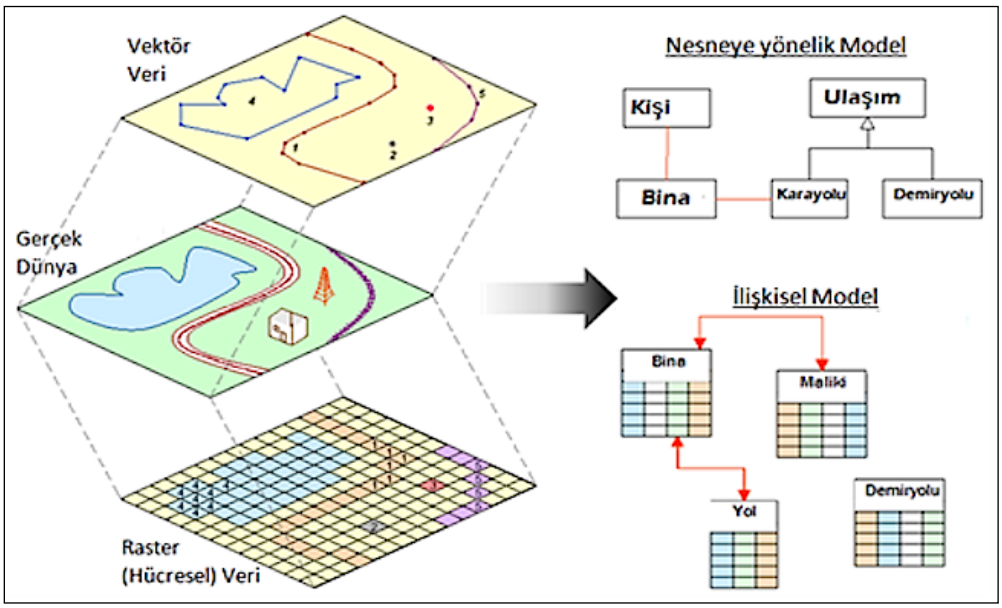
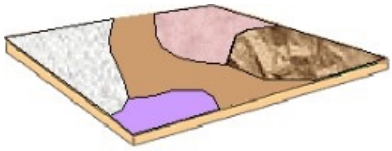
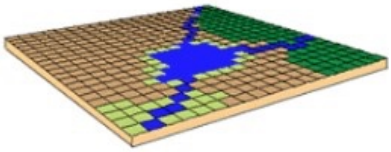
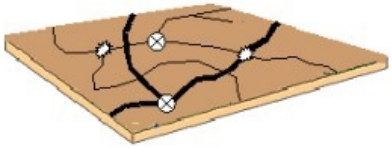
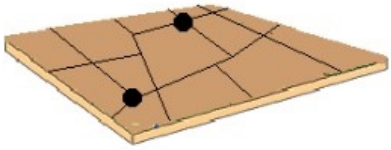
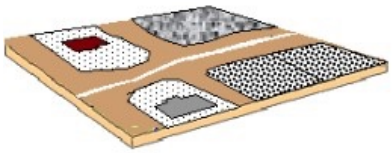
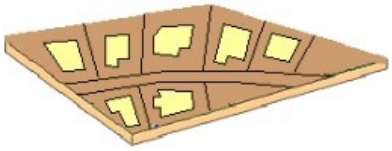
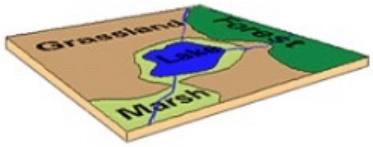
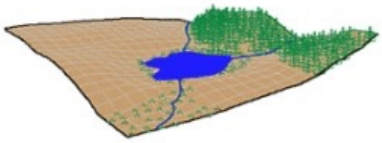
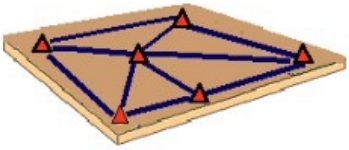


Figure x. Representation of vector and raster data models in GIS

Geographical databases to be developed for GIS applications should be created in such a way as to best represent the life process of real-world geographical assets or "objects" in the digital environment. Today, as a result of developments in software and hardware technologies, spatial and attribute data can be managed in a single database with relational and object-oriented approaches. In addition, in parallel with the developing technologies, semantic approaches and ontology definitions are made to best describe geographic data. A feature class or layer is a collection of features that have similar geometry and share common attributes, such as a building, road, rail, lake, lamppost. For example, building detail class with point geometry; owner, purpose of use, number of floors, etc. It can be defined by its attributes for application needs.

MAP LAYER EXAMPLES IN GEOGRAPHIC INFORMATION SYSTEMS		
MAPS (GRAPHIC) Socio-economic Political / Administrative Regions Population regions Security and Military areas Demographic areas Data distribution fields School districts Health care areas Voting Natural Resources and Environment Landscape, Land use Agriculture, soil Overflow areas, noise, and pollution Water beds and streams Forests, parks, gardens Infrastructure Facilities Sewage system Water systems Electricity Communication Natural gas Network Data Road axes and intersections Streetlamps and trees Transportation Navigation and routes Network cleaning Fire network Emergency services and vehicle route Road-traffic services Land Management Right of property use Zoning Plan Real estate, tax Property management Land use, coding, contracting Urban use and development Cooperative, land maintenance Field maintenance-development Facilities, services	      	**ATTRIBUTES (NON-GRAPHIC)** Socio-economic Income Population Logistics Classification Value Sales restriction Responsible units Political parties Natural Resources and Environment Production type Land type History Volume Name Infrastructure Facilities Dimension Age Material Number of channels Water flow Network Data Width Power Loading Report Street name Building type Sites Agent Land Management Deed promissory note Decision maker Rental Photograph Municipality Tenant Price Dimensions
Cadastral Parcels and borders Multipurpose cadastral Topography Buildings Roads, rivers Peer elevation curves 3D Surface End-sized (3D) Modeling Hydrographic models Other 3D applications Reference Network Checkpoints, range GPS stations	 	Cadastral Ownership Tax value Topography Area, size Length-width Heights 3D Surface Angle Slope Appearance, aspect Reference Network History Institution

Similar to the real-world life process, detail classes can be combined and split, and the complex relationships between them can be defined. For example, it can be defined that the person is the owner of the Building, the Building has an exit to the Highway, and the Transportation class consists of Road-Road and Railroad. Again, the temporal change processes of detail classes can also be managed in databases. For example, information changes such as the previous owner of a building, its purpose of use can be accessed. With all these approaches, topological or spatial relationships of feature classes can be defined. E.g; power lines and transformers extending from a power pole can be associated in the network topology. Details can be validated, data edits can be checked, and relationships between features can be defined.

3- **Data processing:** According to the application purpose, geographical data is processed and analyzes can be performed. Data may need to be transformed and described in a common geodetic coordinate system. Data available at different scales may need to be converted to the same scale. Data manipulation in GIS can be performed for simple queries as well as with various spatial analysis tools. In GIS, statistical analyzes can be made, as well as analyzes in the form of logical inquiries and scenarios.

Relevant details can be questioned spatially. E.g., What is the land information in the GAP region? What are the educational areas in Istanbul districts and where are they located? Where have earthquakes with a magnitude greater than 5 occurred in Turkey in the last 5 years? Similarly, more complex analyzes can be made by questioning the density of the details in certain features and their spatial distribution. E.g., What are the spatial changes in the district population distribution of a province? or What is the distribution of cancer cases and density in the Eastern Black Sea region? Or how will a forest fire be distributed depending on environmental conditions? It is possible to perform many complexes analyzes in the form of GIS in a short time.

As a result, the relationships between spatial analyzes and details can be examined. In this way, spatial analyzes such as determining the neighboring details in and near the details, determining the distance and the most appropriate path analysis, overlaying, buffering, intersection, and merging for the spatial relations between the details can be performed. E.g., What is the transportation distance between the two cities? Which buildings will be subject to expropriation in the road widening work or will be affected during flooding? What is the most appropriate way for the endangered area, risky buildings and teams to reach the scene in the event of an LPG tank explosion? Similarly, multi-dimensional spatial analysis, weighted or geo-statistical analysis of detail classes according to certain scenarios can be performed to determine the most suitable location and potential areas. E.g., Where is the best place for an industrial factory? Where are the most suitable regions for new residential areas? as…

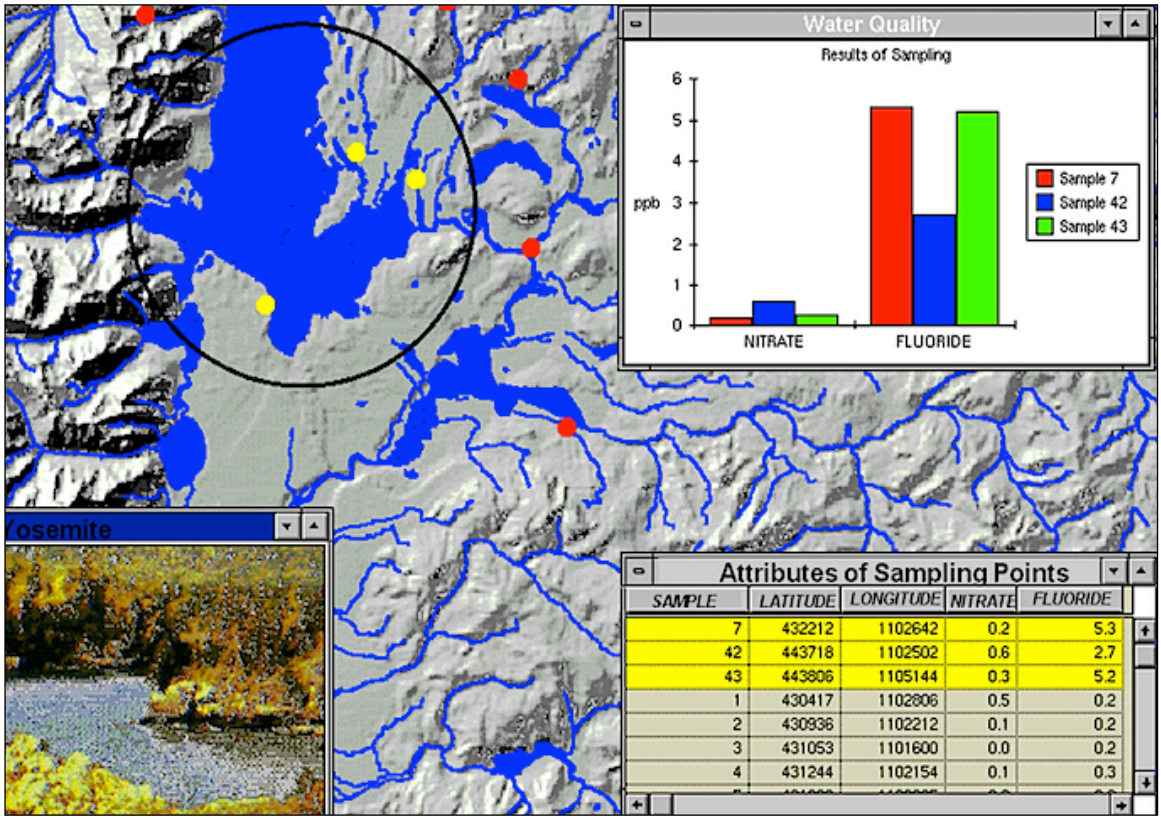


Fig x. Realization of spatial analyzes and graphical and tabular representations of results for the management of water resources with GIS

4- **Data presentation:** In GIS, application and analysis results are visualized with various map or graphic methods. Data processing results; It can be presented to the user as a digital map, as a printed map on paper, integrated with tables and graphics, with three-dimensional displays, multimedia tools and on the internet.

Thanks to the possibilities provided by internet technology, it contributes to the decision-making and forward-looking planning process with constantly updated and real-time geographical data. It is seen that users on different platforms can use maps and geographical information simultaneously, advantageously in terms of time and cost. Considering that it is more economical and rational to enrich data by sharing in an institution; hundreds of users can work in coordination in a shared environment. Thanks to the different architectures used, advanced performance, ease of use, data management and scalability can be achieved. Users on various platforms, from mobile to mobile and desktop users, can benefit from GIS functions.

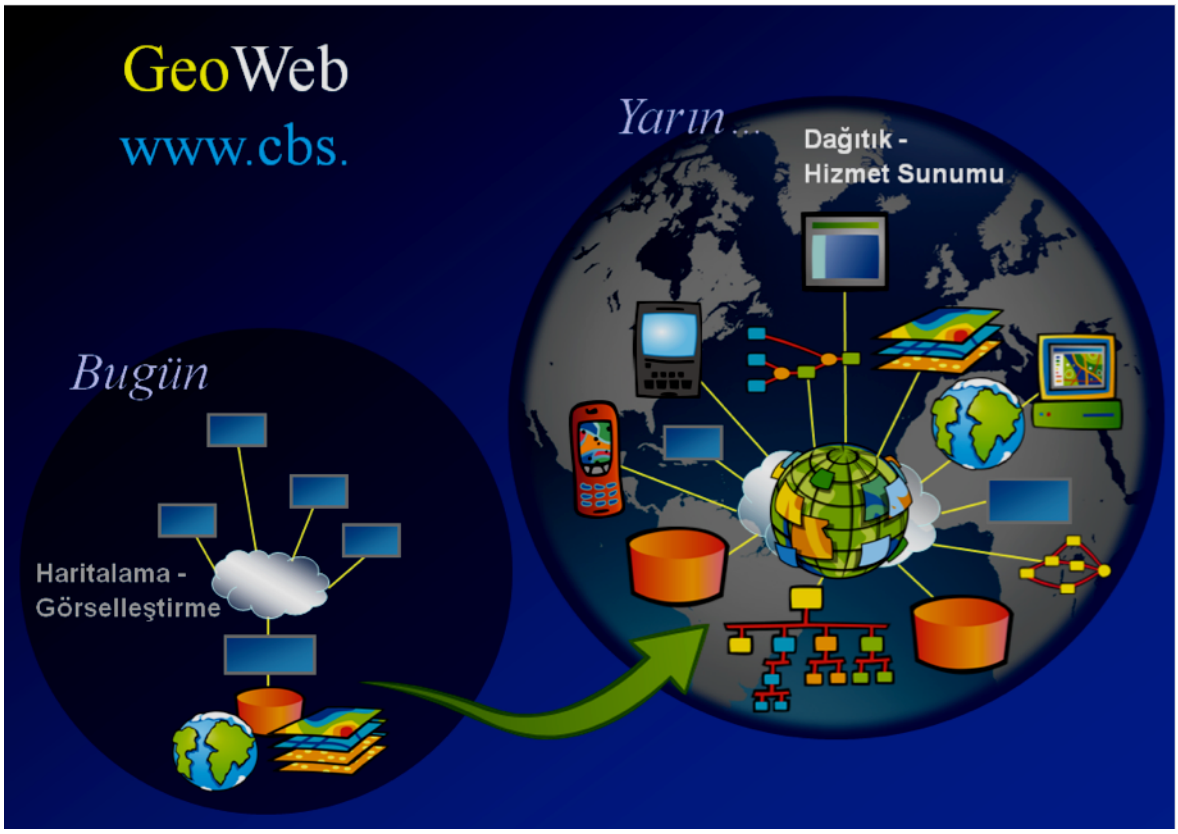


Fig x. Although GIS applications are mostly used in the production of digital maps today, they are in a rapid development process as web-based distributed geo-systems in the future, intertwining with all kinds of service sectors.

Geographic information system applications

It has become possible with GIS to manage map-based data, which constitutes a large part of the information collected and produced in today's world, in electronic media. GIS, which has become the most important tool of all kinds of decision-support activities, is a powerful information management tool of our age that can direct many developments not only in technical but also in governance, social and cultural fields.

In fact, GIS has a wide application area today as an effective spatial analysis tool used by many sectors. GIS is widely used in both private sector and academic research and public institutions. This excessive interest in GIS has led to the realization of many CBS-supported projects in a short time. Due to its features, GIS is included in all kinds of applications related to location information. In particular, GIS is an important common concept in many applied professions such as urban and regional planning, cadastre, agriculture, forest, landscape, geology, defense, safety, tourism, archeology, local government, population, education, environment, health and so on. started to be used. Basically, dealing with map information-based operations or location-related dense data, and making correct decisions according to the results to be obtained by

analyzing them is possible with the effective use of GIS functions. Today, there are many projects and application examples realized with GIS in the world and in our country.

Fig x. Geographic information technologies are used intensively in many countries of the world today. It is observed that geographic information systems are applied much more intensively in developed countries compared to others.

Local Administrations and Urban Information Systems

Urban Information Systems (UIS) is an inevitable need for local governments and municipalities that produce and use maps. The most important reason for this is the desire of local administrations to provide faster, up-to-date and quality services. The people living in the city want to do their transactions related to tax, zoning status, address, license with the help of technological devices such as internet, mobile phone or kiosk remotely. Today, many urbanites learn the traffic density on the daily road route and schedule their daily work accordingly before starting their daily lives. UIS constitutes the spatial area of the automation system that such a system needs. Developed countries can carry out their e-municipality activities together with UIS and deliver their services to wider masses with fixed or mobile information offices in the city. Today, smart maps are turning into smart cities. The most important role in this is the UIS, which collects, questions, and analyzes location-based information. In addition, UIS collects the spatial information of many institutions under a single system with the common data platform it has created. As a result, up-to-date and fast access to information about the city can be achieved.

Planning

Planning studies require a lot of spatial data. In reality, planning is a process that includes data collection, data entry, analysis, synthesis, alternative scenarios, plan and presentation of the plan. This process includes collecting and analyzing many spatial data such as protected areas, agricultural lands, power lines, geological structure, land cover under a single data roof. Such an intense spatial data volume and the analysis and querying of this data are faster, economical, and accurate with GIS. Environmental plans, which have been talked about frequently in recent years, cover large areas that include a province or several provinces. The spatial data needed for such a planning can only be collected using technologies such as GPS and remote sensing. In addition, data is exchanged with many local/central units during the implementation of the plans. For this reason, rapid access, updating and querying of these data are very important. Such a structure can only be possible with the effective use of GIS.

Environment and Natural Resource Management

The environment is one of the most intense application areas of GIS, as it is a subject that contains information about natural and artificial developments, where many geographical functions coexist. In order to be able to take environmental decisions and to determine the factors affecting the environment, the natural structure of the environment in question should be modeled in accordance with reality, and remedial and precautionary decisions regarding environmental changes should be taken with spatial analysis. Since satellite images provided by remote sensing provide important information about the land structure of very large areas, environmental planning is carried out more dynamically. Monitoring the sprawl trends of residential and industrial areas, protection of coasts, determination of green area masses, pollution studies, sound preparation of EIA reports, examination of the effects of chemical and biological elements on the environment, planning of land-air-sea transportation systems, solid and domestic Many environmental issues such as the identification of waste areas and their effects on their environment, determination of water resources and rivers, identification and management of national park areas, protection and improvement of basins can be examined more healthily with the basic functions of GIS.

Agriculture

GIS is used to plan agricultural production, to protect the environment during agricultural activities, to increase productivity with the use of appropriate techniques in agricultural production, and to process and market agricultural products. By classifying the lands in rural areas according to their basic characteristics, determining the soil characteristics, the most basic information is obtained for policy development,

planning and ultimately sustainability in the agriculture sector, which provides the most basic need for humanity. Increasing productivity in agricultural activities and using appropriate technology for production are required. Today, precision farming technique is applied for this purpose. This technique is an important GIS application in which farm-based soil information, specially designed tractors and satellite technology supported measurement methods are used. In the process of processing and marketing the products, the management of the farm, processing, packaging unit, warehouse and transportation information as a whole is required. In this context, the use of GIS, which enables the integrated use of information technologies with dynamic map information, is on the agenda.

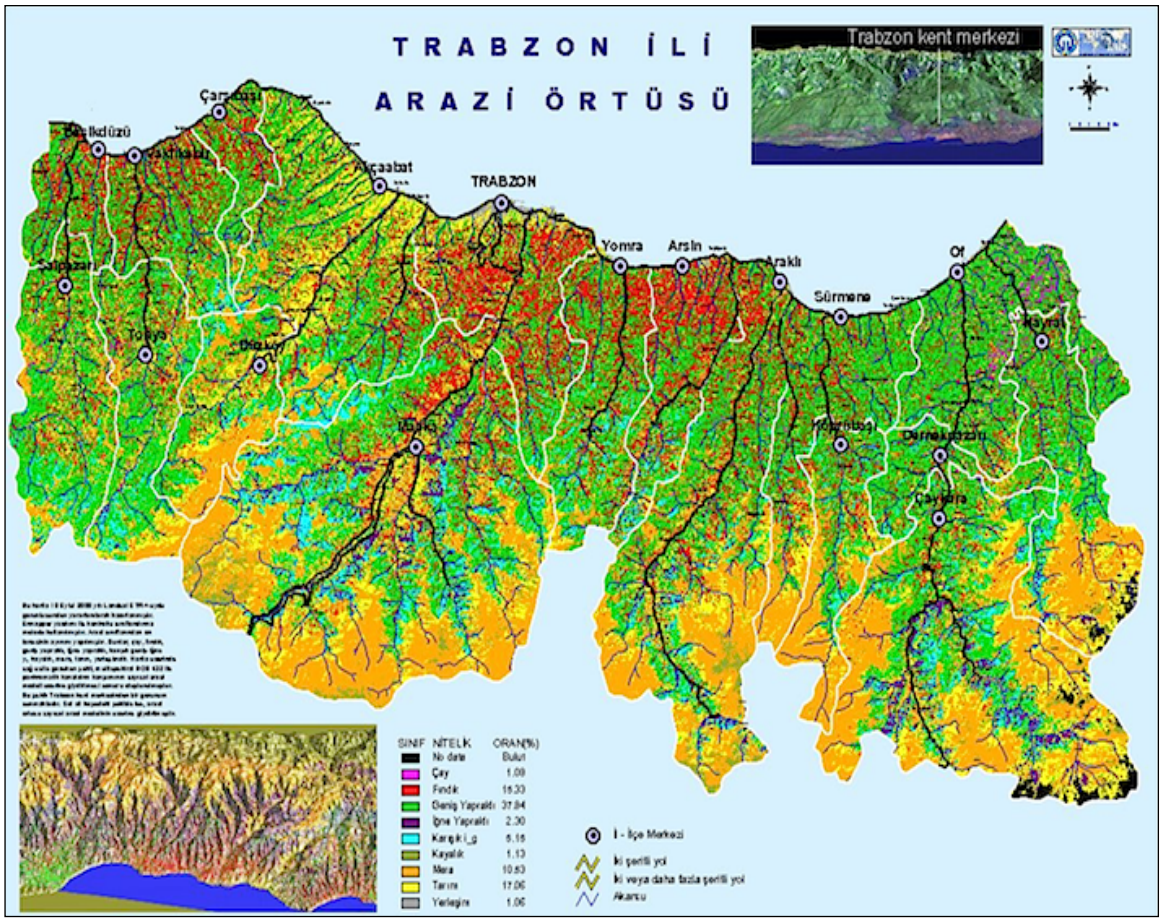


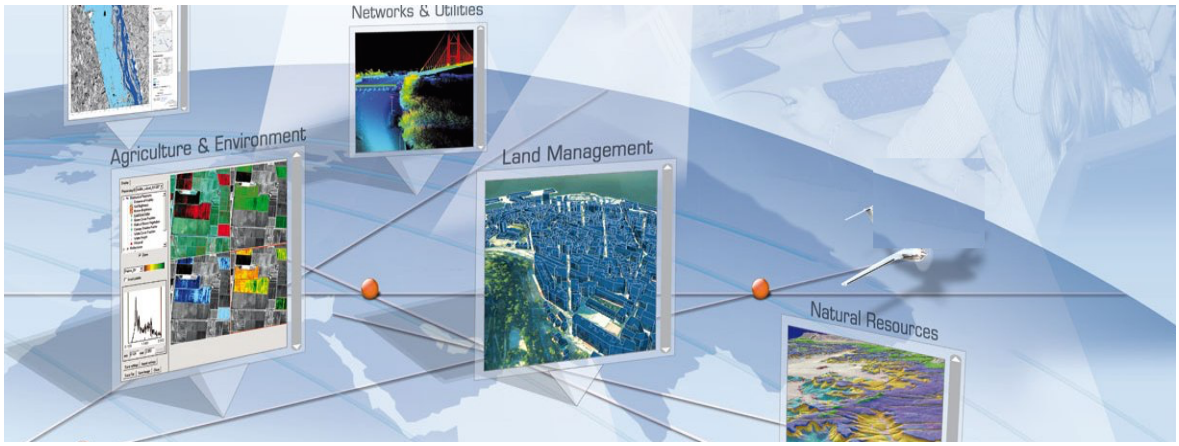
Fig x. Satellite images provide the most important data input for GIS. The land cover of the province of Trabzon, Turkey was obtained as a result of processing the remote sensing satellite data with GIS, and the vegetation distribution of the province was determined in a very short time and with high accuracy.

Biodiversity

The rapidly increasing population and industrialization in recent years have caused negative effects on animal, plant and microbiological varieties and the emergence of the concept of biodiversity. Biodiversity species are decreasing due to excessive use/consumption and environmental pollution and are in danger of extinction. The mapping, analysis and planning of biodiversity types found in nature has been one of the important uses of GIS. GIS assists in collecting biodiversity species in a database, creating species catalogs (flora and fauna), preparing maps showing their distribution on the earth's surface, and identifying species at risk. In order to make such analyzes related to biodiversity, it is possible to integrate many map bases (land surface, vegetation, rivers, administrative borders, roads, settlements, etc.) and biological species that are accurately and up to date identified with their geographical locations. The most important contribution of GIS to biodiversity studies is the ability to compare biological species in different geographical regions, to monitor them according to environmental factors, and to transfer them to future generations as a legacy.

Transportation and Logistics Services

GIS gives effective results in transportation planning, solving logistics problems, tracking road conditions, monitoring vehicles, and determining which way to go the shortest or fastest. Such applications, which are of vital importance for distribution, transportation and cargo companies, bus operators, security forces, fire brigades and similar organizations, aim to monitor the vehicles on the map and to provide communication between the vehicle and the viewer. For example, a transport company may want to check whether its vehicles are going on the specified routes at the scheduled times or whether the cargo is delivered on time. GIS-based navigation systems, in which data inventories of roads can be examined, queried, and analyzed, provide this control mechanism to managers effectively.

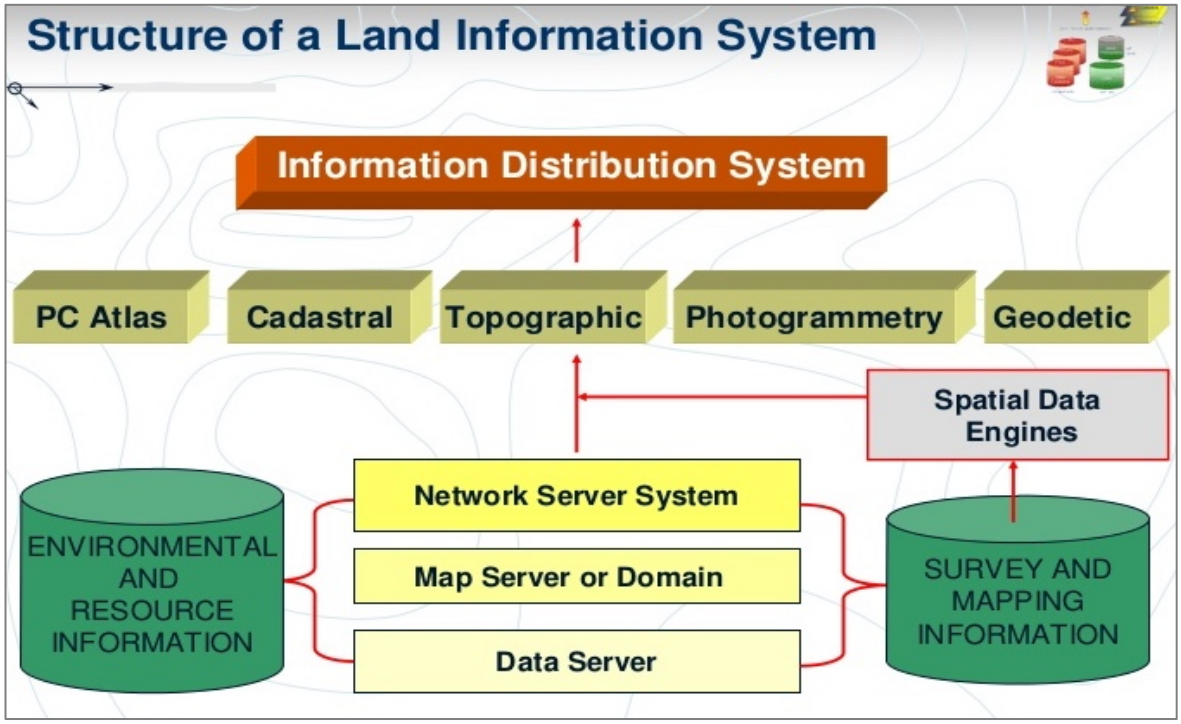


11.3 Land information systems

Land Information Systems (LIS) is one of the areas where geographic information systems are most intensively applied. The main purpose of LIS is the collection, production and management of property information for real estate. As the basic concepts and functions in cadastral information have been affected by information technology over time, the concept of multi-purpose cadastre has developed, but this concept has left its place to the land information system together with geographic information systems.

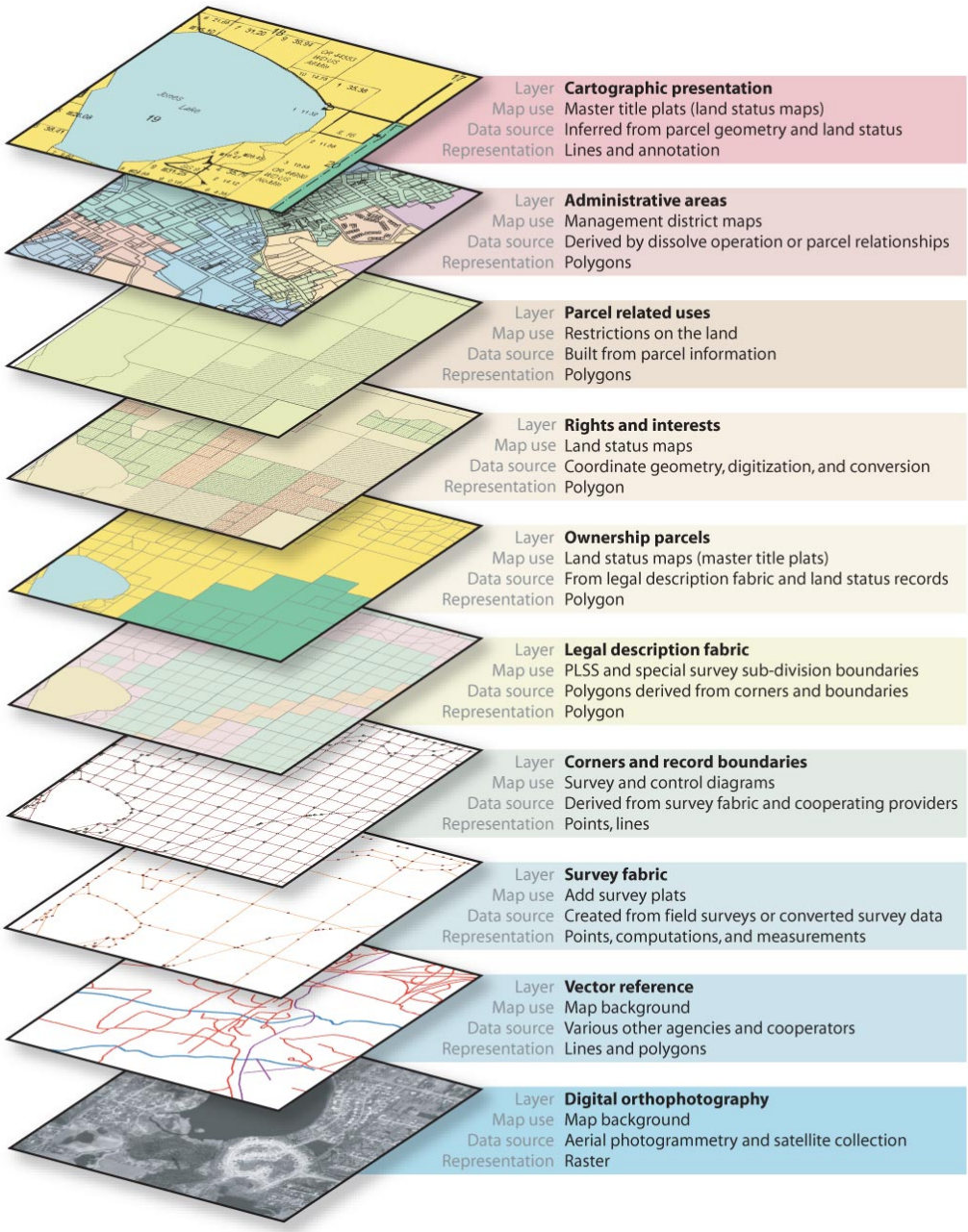
In both the private and public sectors, land information is a fundamental resource for making investments in land and making managerial decisions. Information that helps identify problems, patterns, and possible strategies in this area reduces uncertainty in property decision-making.

People with access to land information have an additional capacity to assess the current situation, analyze conditions in the past, and plan for the future. As with other sources, information requires clear management understanding to maximize potential benefits. Recently, new developments in data collection and processing, with increasing requests from various users, have turned the attention of many organizations to the needs of advanced field information management. Management strategies add to the value of information by reducing the cost of land information transactions and/or increasing the multifaceted integration of information. The development of the Land Information System (LIS) is one such management strategy.



***Land Information System**; It can be defined as "a combination of human and technical resources in terms of management, the science and art of decision-making in the support of clearly perceived objects, in the integrity of the organized procedures to produce information for some managerial requests".*

Land information systems, by helping to establish the necessary system for the management of land information, help the development of land policies on a country and regional basis much faster and healthier. In general terms, LIS contributes to planned development, presents land information to potential users with the support of technology at the decision-making stage for all kinds of investments in land, and ensures that the existing property structure becomes much more efficient and improves.



Land information networks

New developments in computer and telecommunications technology, for example, Advances in database hardware, networks that have become a part of communication, computerized map production systems equipped with internet/intranet, cartographic and geographical analysis capacities provide important benefits in collecting, storing, and presenting land information. With these developments, all attention has been turned to Land Information Networks, which enable more sharing and more active use of information resources in a multi-user environment. A communication network, or field information systems association, can be seen as an attempt to develop a healthy flow of information among its member users. A plot-based ABS plays an important role as one or more nodes in networks that address terrain information. In particular, the computer systems established or to be established by different institutions on a provincial basis and the information these systems have will be available to others via the network.

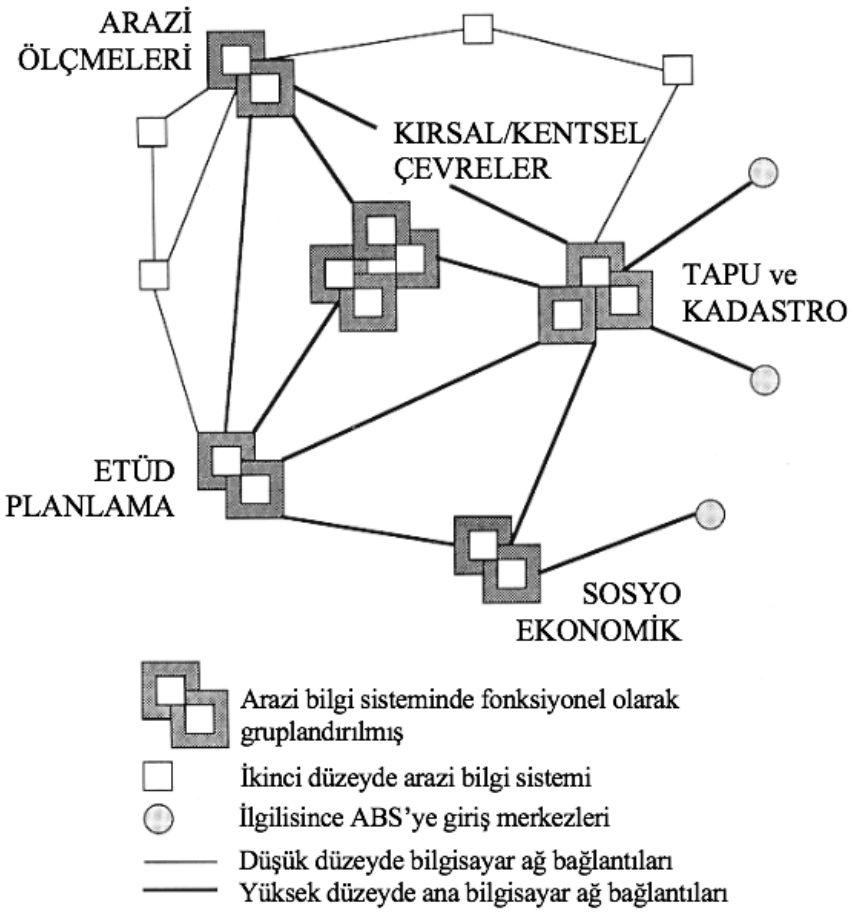


Fig x. Land information system networks

Requirements for the land information system

Implementation of the land information system includes not only major reforms regarding the information order in an administrative division dealing with property, but also reforms regarding the methods in which land information is collected, stored and used by many institutions in the public and private sectors. These reforms include new legal and administrative changes beyond the new technological requirements. In addition, public financial support should be provided. In order to implement a modern cadastral or land information system, many needs must be reviewed.

These needs generally consist of ***a) technical, b) organizational, c) institutional*** level arrangements.

a) Technical needs

A geodetic network to be established at the country level should be able to provide basic network service as a reference for spatial data by supporting the formation and production of base maps. At the local level, a higher point frequency should be provided for measurements for the purpose of improving coordinate references. Priority should be given to the use of GPS and similar new technologies in the reference network facility, and the renewal or complete replacement of all coordinate files in the system containing the coordinates of the references in a way that will increase the efficiency should be addressed. In addition, point numbering and parcel identification systems should be reviewed.

A standard set of base maps for the purpose of determining the legal and geometrical status of the lands is necessary both for referencing cadastral information and for efficient integration of planning and other information. Base maps should be of sufficient scale to show property information, with the generally desired 1/1,000 or 1/2,000 representation where plot size is small and detail is greater. Base map production methods (eg orthophoto, aerial photogrammetry or terrestrial method) should be determined based on user's requirement, cost, time and other factors. In addition, the base maps to be produced should be digitally stored in the digital environment.

Because of the cost and time-related delays in establishing systematic land registers (inventories) involving ownership, cadastral bases are usually compiled from information available during the initial setup of the system. There is a need to re-evaluate the quality and compatibility of these resources and to develop standards to ensure that the information on the data layer is as reliable and accurate as possible at the initial stage. In addition, there is a need for standards that determine how the cadastral bases will be kept up-to-date and how the layer will be reviewed later.

b) Organizational needs

The needs for consolidation or restructuring of the organizational structure can be considered in terms of the organization of information and the dynamical structure of the data flow. For the design and development of the system, some administrative arrangements are also needed at the management levels.

In a modern land information system, the advantages of new techniques and concepts emerging in the face of technological developments should be understood by the system and the system should be able to adapt these developments. For these reasons, the conceptual and detailed development-oriented designs of the system should allow for flexibility. With the step-by-step applications, the system gains in the short term, while the conceptual planning is reviewed and the support for further developments is gained in advance.

Implementation of the system may require reorganization of the internal structure of the organization in certain units or departments within the administration. The regulation of computer systems with different connection points, the control of data flow, the adaptation of technology, the development of general standards and procedures, and the making and coordination of decisions regarding relations with other systems require a new structuring.

c) Institutional needs

The institutional environment for the system to be created has the power to directly affect the design and developments. Reform arrangements to be made at the level of knowledge management generally affect the institutional environment and functioning. Since institutional needs rather than other needs are more dependent on legal regulations, this issue should not be ignored in system design. Institutional needs should also be considered as a dimension of organizational needs with the following elements.

Since a modern system will serve a wide range of users, understanding the needs of the users and the technical, administrative and institutional constraints in the system to be operated; It is necessary in terms of making a suitable design and gaining user support. These evaluations should be made not at the beginning of the system installation, but also at some steps after the system is put into practice in order to monitor the new requirements created by the system or other factors.

In a modern cadastral practice, there is an absolute need for the law. Reforms can be extended from changing the conventional concept of ownership to recording documents and plans, and to digital evidence provided by electronic devices. As legislative reforms will take years to make, the system can be designed to be independent of legal changes, especially in its initial phase.

11.4 Urban information systems

Urban knowledge is all phenomena in urban life, from infrastructure to superstructure, from planning to health, from security to transportation, from education to tourism. Each function in the services collected, stored, shared and provided to the public, when necessary, by institutions is directly related to the city information. Managing this information, which seems to be in a complex structure, is among the basic tasks of city information systems today.

In the 2000s, the creation and use of GIS and Urban Information Systems in the world and in our country has become a necessity for central and local governments. Urban-related problems are increasing day by day in Turkey, which is rapidly urbanizing. The settlement areas and the constructions in these areas, which constitute the spatial, social and economic plans; ensuring compliance with plan, science, health and environmental conditions, technical infrastructure (electricity, gas, telephone, drinking water, sewage water, etc.), transportation (bus, train, ferry, metro, etc.), health (hospital, dispensary, health center) etc.), education, art, tourism, security, evaluation of the statistical data obtained from them, securing the property, determining the immovable assets, creating value maps accordingly, auditing the prices of immovable goods, in the direction of strengthening the relations between institutions and increasing efficiency in the performance of services; The need for up-to-date, accurate and relational data is constantly increasing.

Local governments in cities, to provide more and more qualified services; They need data/information. However, this information; Due to the structure of the city, they exist in limited numbers and scattered in different areas of expertise. In the current system, these data can be used as paper, index, card, etc. have been stored in the environment. This classical approach is not sufficient for data processing, storage, updating, analysis and presentation. In addition, keeping the technical infrastructure of a city (natural, gas, electricity, drinking water, wastewater, telephone, sewerage networks, etc.) under control and solving problems, collecting property taxes in a healthy way, solving traffic problems, fire accident and in similar situations, it is not possible to reach the scene as soon as possible and to make healthy and quick decisions in many similar areas with the existing system possibilities. These facts have revealed the need to create "information management" and "management mechanisms", and they have led local governments to create information systems for themselves in order to solve their problems and own the city.

Urban Information Systems (UIS) *is a city-based application of geographic information systems, created to quickly and healthily examine the planning, infrastructure, engineering, basic services and administrative information needed to make optimum decisions in the fulfillment of urban activities.*

Scope of the urban information system

If the data obtained from the current maps, plans and property statuses, graphic and descriptive information, are classified into appropriate classes and kept in detail and up to date, the city inspection procedures will be no longer random and random. Thanks to the work of UIS, local governments will be able to collect more effectively and more equitably for the services they provide to the public, and as a result, better quality and more services will be produced.

The first basic element of the UIS is the urban register, which collects the population, property, occupation and tax information of the citizens living within the borders of the municipality. The second basic element is the current maps reflecting the topographic features of the city, cadastral maps reflecting the property status, zoning plans representing the city planning, and the graphic log containing the city's infrastructure information in the computer environment. By using these elements in an integrated manner, works related to zoning services, infrastructure services, city planning services and tax liabilities can be carried out more effectively, faster and more contemporary. Although the city information system deals with many data related to the city, it is also possible to divide its scope into groups as follows.

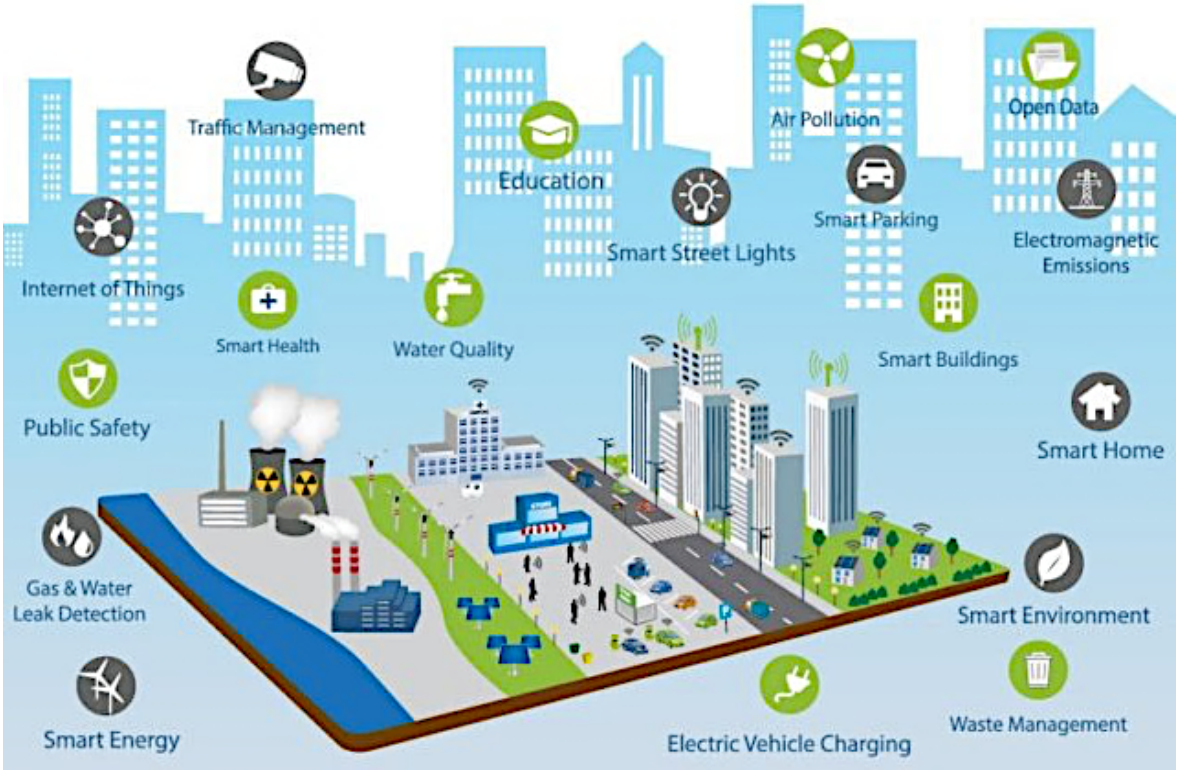


Table x. Data required for an urban information system

a) Topographic data	***d) Data on natural resources***
Geometric data	*Geological structure*
Descriptive, verbal data	*Trees and vegetation*
b) Legal data	*Water resources, amount of water*
Boundary and surface of real estate	*Climate*
Ownership information of real estate	***e) Technical factors affecting nature***
Value of real estate	*Pollution and Noise*
c) Data on technical equipment	*Other environmental polluting factors*
Water and sewer data	***f) Economic and socio-political data***
Air gas and natural gas data	*Usage information of immovables*
Telephone, telegraph, TV facilities	*Zoning information of real estate*
Energy facilities	*Traffic and transportation information*
Traffic facilities	*Healthcare data*
Industrial facilities	*Data on education and cultural services*
Trade areas	*Population information*
Residential areas	*Employment information*

Main benefits of urban information system

With UIS, all attribute and graphic information and documents related to geographical location, ownership and liability; transferred to the computer environment and associated with each other. As a result, the activation and survival of the system; especially, it takes an important place in the daily functioning, plans and decisions of the municipality, and takes time; It is possible to carry out many activities that are difficult to follow and control more quickly, effectively and economically. Some of the benefits that can be considered in this context are:

- Managers who are in a position to make decisions, and those who produce projects and services; it will be possible to see, know and evaluate the problems, economic and social indicators of the city and its citizens more easily; It will be ensured that the plans made, and the land-based projects prepared will be more suitable and applicable.
- Since it will be possible to identify unregistered taxpayers and illegal infrastructure service recipients and the records will be constantly updated, an increase in municipal revenues and efficiency in monitoring and auditing of revenues will be achieved.
- In particular, speed and economic gain will be achieved in the project design and implementation, operation, maintenance and repair activities of technical infrastructure facilities; the negative effects of maintenance and repairs on the environment will be reduced; It will be easier for units producing related services to cooperate; public relations will improve.

- Land, building, facility etc. owned by local administrations. in the protection, valuation and operation of assets; Efficiency will be ensured in the control of illegal and irregular construction, the impartial implementation of plans and rules, and the clarification of management and inspection activities.
- Archiving information and documents, accessing information, sharing information between services and updating information will be easier, especially for municipalities, on a city basis.
- Effectiveness will be ensured in the recognition, promotion and evaluation of touristic facilities and tourism potential.

Modeling of urban information system

With the implementation of UIS; By mastering the city's infrastructure and superstructure networks, a great deal of time and cost savings are achieved for the maintenance, repair and renewal of these networks; zoning, cadastre, building permit, tax, penalty etc. citizen-municipality relationship is accelerated and facilitated in services; property tax is controlled by municipalities and property owners, minimizing tax losses; Identification, analysis, use cases, rental costs, conditions of lodging buildings, monitoring and control of real estate belonging to the municipality and the treasury; the green area cadastre of the city can be obtained by facilitating the park and garden arrangement works; it is ensured that expropriation maps are drawn and information about land value is questioned at any time; physical planning studies are directed by monitoring the socio-cultural development of the city; fire sensitive areas are determined and the most optimum route selections are made for reaching the fires; the urban transportation system is planned more rationally.

Technological tools in information systems, especially GIS, provide great support in the fulfillment of all these activities. A GIS to be established according to the business volume will give a great impetus to the existing activities. However, this gain is directly related to the size of the system to be installed. A low-cost, single-user, microcomputer-level GIS can naturally qualify as a simple system as it can only be used for small-volume operations. In addition, there are many systems such as desktop mapping called desktop mapping today. In general, it is possible to collect the problems that arise in the evaluation of general volume UIS projects that serve different disciplines and in the management of such projects, under three main headings. These;

A. Assessment of needs for spatial information

In the realization of a long-term UIS project, determining the institutional goals separately and clearly in the development process and making final decisions on what data are necessary for the realization of these goals.

B. Gaining institutional support

Testing the cost/benefit estimations determined by a pilot project study to be realized by determining the economic value of the system that is planned to be established with cost/benefit analysis.

C. Management of the UIS project

In addition to the necessary personnel organization, updating the map information when necessary, transferring it to the computer environment, storing the information in this environment and producing the necessary information for the future.

Due to the size of the time and cost to be spent on the system to be created, examining these problems and producing alternative solutions requires a professional project management approach. As in other project studies, in a city information system project, necessary decisions should be taken and implemented based on a plan, and the results should be examined in detail.

Fig x. Components of a smart city concept

11.5 Spatial data infrastructures

Geographical or spatial data, expressed as direct or indirectly related information with the earth, has economic value as an important component of public information. In addition, it provides social and social importance due to its concrete benefits to citizen public institutions and organizations and private sector by providing the basis for country policies and decision-making mechanisms.

Geographical Information Systems (GIS) and geographic information-based decision-making processes in certain applications and projects can be carried out with integrity. However, coordinated production, updating, sharing and use of information at local / regional / national and international levels have been an important necessity.

For the effective use of spatial data in the service of the citizen by contributing to the decision-making process, the sharing and integration of spatial data and services has come to the agenda. This concept is referred to as ***Spatial Data Infrastructure (SDI).***

Today, many state institutions and organizations are in the process of realizing SDI. Many countries seek international co-ordination to support regional decision-making beyond their borders. With this approach, the SDI concept develops from a local level to a national, regional and global perspective. The main expectation from SDI is to prevent time, labor and financial loss by providing efficient production, updating, sharing and use of spatial data. Social and scientific interest in the concept of SDI has increased in recent years.

SDI includes spatial data, databases and metadata, data networks, technology, organizational changes, policies, standards, and end users.

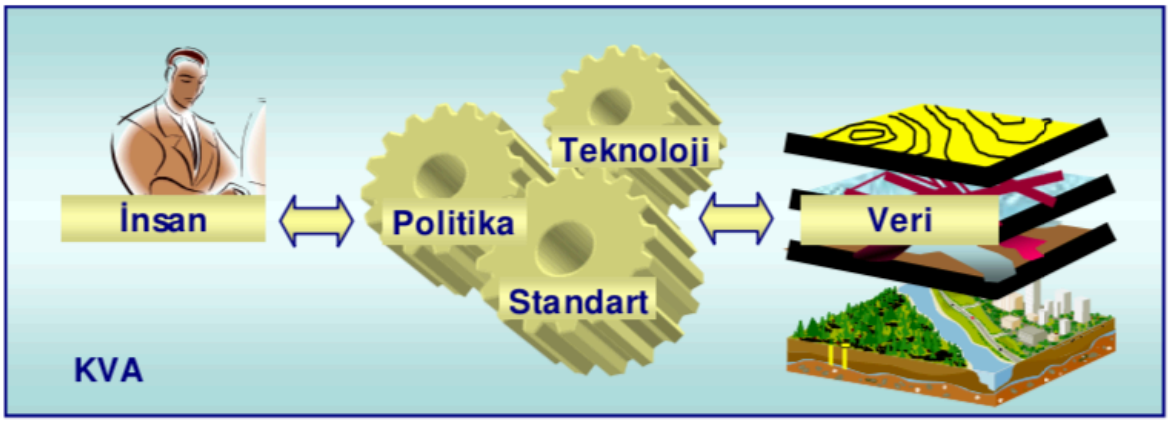


Fig x. SDI components

SDA components

In general terms, the basic role between human and data in SDI; technology, policy and standards. These components are dynamic in nature and diverse in view of the interactions between human and data, fast developing technology and the needs according to the SDI level. If the model expressing the SDI components is summarized;

(1) Human: public entities or organizations or positional data producers, providers and users in the private sector constitute the human component of SDI. Working areas of users; defence applications are addressed to many sectors including land registry, land management, transportation infrastructure, environmental projects, natural resource management, planning, socio-economic and development purposes.

(2) Data: geographic data; reference (basic) and thematic data. Reference Data is the basic geographic data layers that represent general surface details, which users can jointly use in their work and data sharing. Thematic Data are the layers of geographic data that the organization produces or uses according to its corporate needs and needs. Basic geographic data; geodesy, topography, vegetation, hydrography, transportation, administrative regions, settlement, property, address and orthophoto image was determined as.

(3) Policy: In order to plan and coordinate geographic information activities at the national level, it is necessary to establish an administrative structure enabling coordination among public institutions, local governments, private sector and academic circles. It is considered that legal arrangements should be made to include data exchange and security, meta data, structuring, budgeting, encouraging the use of producers and organizations and policies related to administrative infrastructure.

(4) Technology: With GIS Portal architecture to be established, it is possible to access geographic data and services from one-point users, to search the information of a certain area and interest, and to publish and share information. Depending on the development of ICT, technologies such as Java and .NET, GIS Portal and Web Services have been the subject of interest.

(5) Standard: Technical standards should be developed to ensure interoperability of data produced and used in different levels of applications. The standards for geodetic reference system, geographic data quality standard, resolution / scale and implementation priorities standard, format standard, metadata including descriptive information in the access to spatial data, data exchange, and interoperability of software can be considered as an important component in the functioning of SDI.

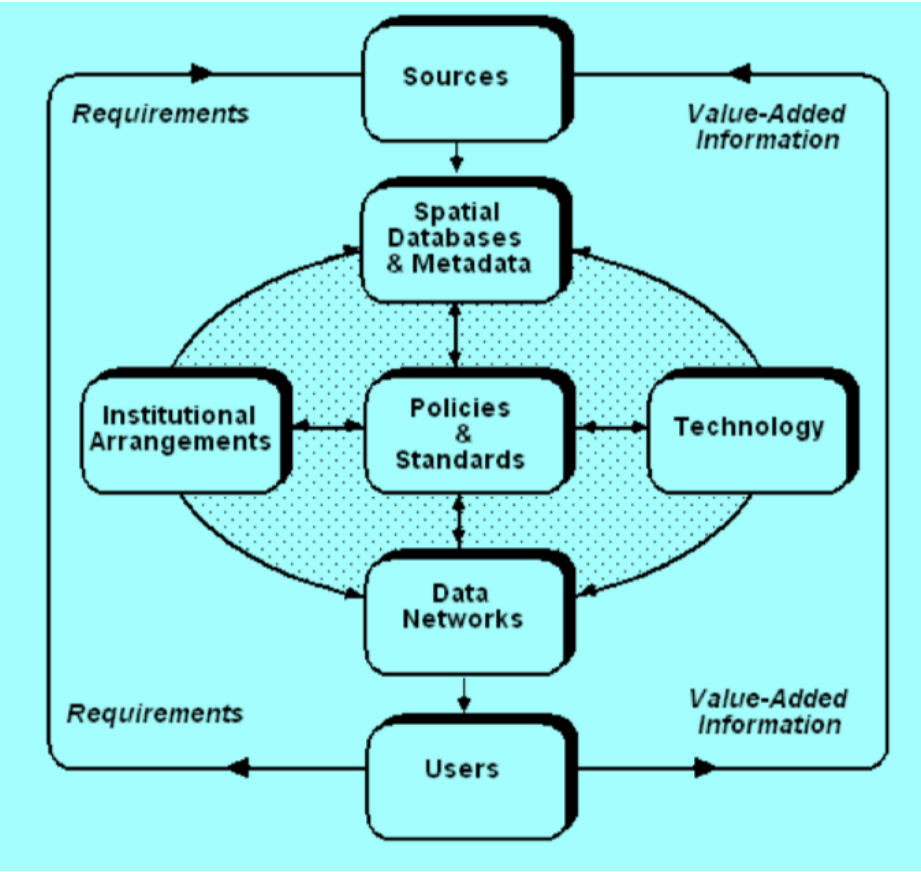


Fig x. SDI Components: A systems working principle

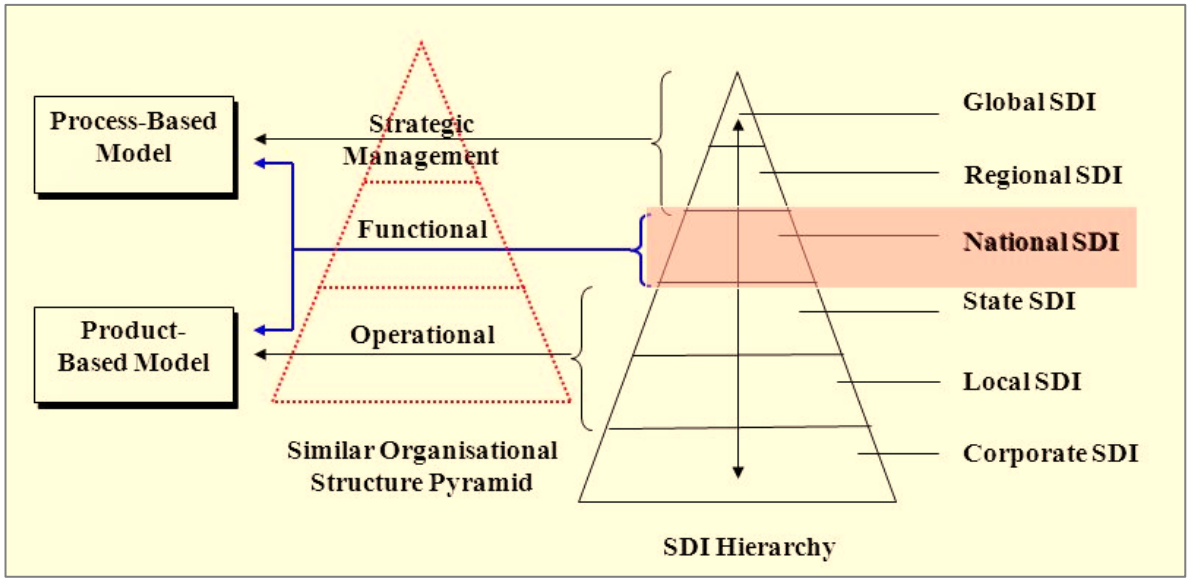


Fig x. SDI hierarchy

12 REFERENCES

Aydınoğlu, A. Ç., ve Yomralıoğlu, T. (2007). Coğrafi/Konumsal veri altyapısına ilişkin uluslararası girişimler. Harita Dergisi, 137, 72–86. [PDF]

Çete, M., (2008), "Türkiye İçin Bir Arazi İdare Sistemi Yaklaşımı", Doktora Tezi, Karadeniz Teknik Üniversitesi, Fen Bilimleri Enstitüsü, Jeodezi ve Fotogrametri Mühendisliği, s.1-240, Trabzon. [PDF]

Dale, P. F. ve McLaughlin, J. D., (1988). Land Information Management, Oxford University Press, New York, ISBN: 0-19-858404-0, 266 pages.

Dale, P. F. ve McLaughlin, J. D., (1999). Land Administration, Oxford University Press, New York, ISBN: 0-19- 823390-6, 169 pages.

Enemark, S., (2005). Understanding the Land Management Paradigm, FIG Com 7 Symposium on Innovative Technologies for Land Administration, Madison, Wisconsin, USA.

EU, (2004). European Union Land Policy Guidelines, Guidelines for Support to Land Policy Design and Land Policy Reform Processes in Developing Countries, EU Task Force on Land Tenure, 35 pages.

FAO, (1998). A New Framework for Conservation-effective Land Management and Desertification Control in Latin America and the Caribbean, Guidelines for the Preparation and Implementation of National Action Programmes, Food and Agriculture Organization of the United Nations.

FIG, (1995). FIG Statement on Cadastre, Publication No. 11, Fédération Internationale des Géomètres, http://www.fig.net/commission7/reports/cadastre/statement_on_cadastre.html, 10.01.2008.

FIG, (2002). Land Information Management for Sustainable Development of Cities - Best Practice Guidelines in City- wide Land Information Management, FIG Publication No 31, Copenhagen.

İnan, H.İ., (2010), "Arazi İdare Sisteminin Tarım Bileşeni Olarak Konumsal Veri Modeli Geliştirilmesi", Doktora Tezi, Karadeniz Teknik Üniversitesi, Fen Bilimleri Enstitüsü, Jeodezi ve Fotogrametri Mühendisliği, s.1-199, Trabzon. [PDF]

Molen, P., (2004). Good Administration of Land in Europe, UN, FIG, PC IDEA Inter-regional Special Forum on The Building of Land Information Policies in the Americas, Aguascalientes, Mexico 26-27.

National Research Council (1982). Procedures and standards for a multi-purpose cadastre. National Academy Press, Washington, D.C.

Nichols, S. E., (1993). Land Registration: Managing Information for Land Administration, PhD Dissertation, Department of Geodesy and Geomatics Engineering, Technical Report No. 168, University of New Brunswick, Fredericton, New Brunswick, Canada, 340pp.

Rajabifard, A., Collier, P. A. ve Williamson, I., (2003). Report on Australian Marine Cadastre Research and Activities, FIG and University of New Brunswick Meeting on Marine Cadastre Issues September 1516, 2003, University of New Brunswick, Canada.

Rajabifard, A., Williamson, I. P., Steudler, D., Binns, A. ve King, M., (2007). Assessing the worldwide comparison of cadastral systems, Land Use Policy 24, 275–288.

Sesli FA., Uslu G., (2010). Deniz Kadastrosu Kavramı ve Gelişmiş Ülkelerdeki Uygulamaları, Türkiye Kıyıları'10 Türkiye'nin Kıyı ve Deniz Alanları VIII. Ulusal Kongresi, Cilt 1, s. 159-171, Trabzon.

UN ve FIG, (1999). Report of the Workshop on Land Tenure and Cadastral Infrastructures for Sustainable Development, Final Edition, Bathurst, Australia.

UN, (1996). The Bogor Declaration, United Nations Interregional Meeting of Experts on the Cadastre, Bogor, Indonesia.

UNECE, (1996). Land Administration Guidelines, United Nations Publication, ISBN 92–1–116644–6, New York and Geneva.

UNECE, (2002). The Report of Workshop on Mass Valuation Systems of Land (Real Estate) for Taxation Purposes, Committee on Human Settlements, United Nation Economic Commission for Europe, Geneva.

UNECE, (2004). Guidelines on Real Property Units and Identifiers, United Nations Economic Commission for Europe, New York and Geneva, 68 pages.

URL. https://www.mevzuat.gov.tr

Ülger, N. E., (2016). Arazi Yönetimi, YEM Yayın, s. 228, İstanbul, ISBN 978-6058136618.

Ülger, N. E., Yomralıoğlu, T., ve Alas, B. (2011). Türkiye'de Sürdürülebilir Arazi Yönetimi, (Eds.) Bildiriler Kitabı, I. Arazi Yönetim Çalıştayı, s. 517, 26-27 Mayıs, Okan Üniversitesi Yayınları, İstanbul. [www][PDF]

WCED, (1987). Our Common Future: From One Earth to One World, World Commission on Environment and Development, Brundtland.

Williamson, I. P., (2001). Land administration ''best practice'' providing the infrastructure for land policy implementation, Land Use Policy 18 (2001) 297–307.

Williamson, I. P., Rajabifard, A. ve Feeny, M.-E., (2003). Developing Spatial Data Infrastructures: From Concept to Reality, ISBN: 0-415-30265-X, Taylor and Francis, New York, 338 pages.

Yomralıoğlu, T. (1997). Kentsel Alan Düzenlemelerinde İmar Planı Uygulama Teknikleri (Editör). JEFOD Yayın No.1, Akademi Kitabevi, ISBN 975-95369-2-4, Trabzon. [www]

Yomralıoğlu, T. (2000). Coğrafi Bilgi Sistemleri: Temel Kavramlar ve Uygulamalar. 7.Baskı (2015), s.480, ISBN 975-97369-0-X, İber Ofset, İstanbul. [www]

Yomralıoğlu, T. (2011). Dünya'da arazi yönetimi. Türkiye'de Sürdürülebilir Arazi Yönetimi Çalıştayı, 26–27. [PDF]

Yomralıoğlu, T. (2021). "Kadastro", Ders Notları Serisi (Yayınlanmamış), Geomatik Mühendisliği Bölümü, İstanbul Teknik Üniversitesi, İstanbul. [PDF-Türkçe]

Yomralıoğlu, T., Ülger, N. E. (2014). Yeni (6360) Büyükşehir Yasası ve Arazi Yönetimi, (Eds.) Bildiriler Kitabı, IV. Arazi Yönetim Çalıştayı, s. 173, 12-13 Mayıs, Karadeniz Teknik Üniversitesi, Trabzon. [www][PDF]