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**6-11 May 2018**  
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# FIG Congress 2018



**EMBRACING OUR SMART WORLD WHERE THE CONTINENTS CONNECT:  
ENHANCING THE GEOSPATIAL MATURITY OF SOCIETIES**

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# XXVI FIG Congress 2018

6-11 May 2018 ISTANBUL

EMBRACING OUR SMART WORLD WHERE THE CONTINENTS CONNECT:

ENHANCING THE GEOSPATIAL MATURITY OF SOCIETIES

## Sustainable Mass Plot Valuation

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## 1. Introduction

The land is a natural thing that exists and is not created by humankind even though its use can be changed by human beings.

Natural resources on the earth, such as land and water are decreasing rapidly due to rapid population growth, climate change and desertification.

It is necessary to take urgent measures for the protection of these resources in the individual, society, state chain and should be in planned and correct way usage of them.

Sustainable land management is administered by protecting the natural resource in order to convey the next generations the land on the earth.

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## 1. Introduction

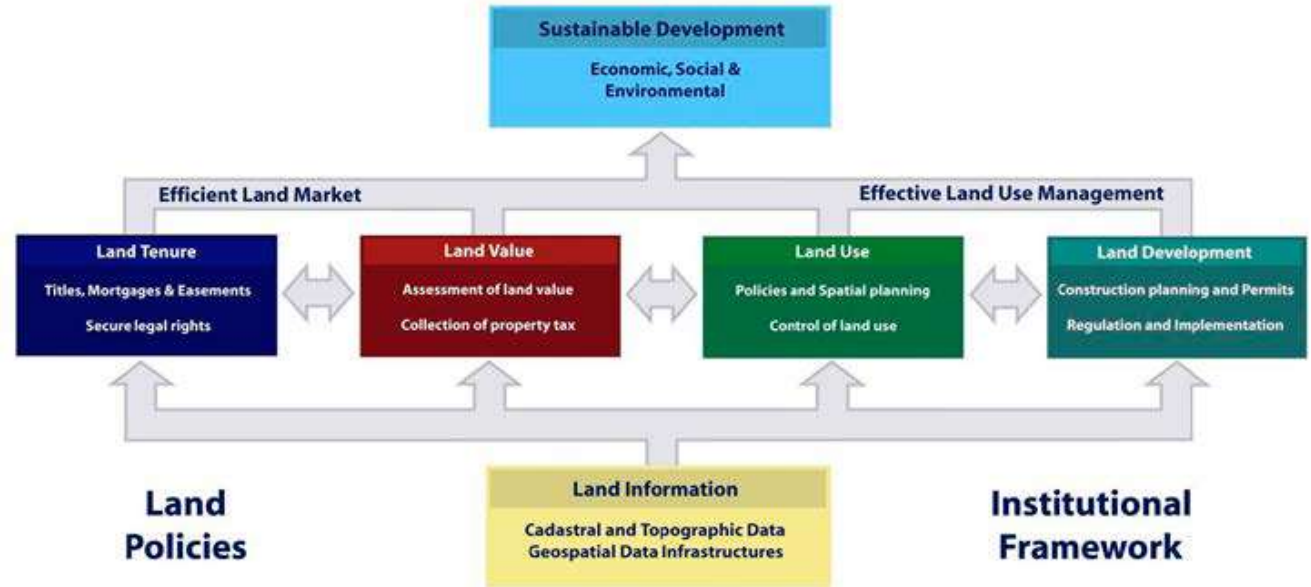


Figure 1. A global land administration perspective (FIG 2014)

A global perspective for land management and administration is shown in the figure.

The operational component of the land management concept is the range of land administration functions that include the areas of:

**land tenure** (securing and transferring rights in land and natural resources);

**land value** (valuation and taxation of land and real estate);

**land use** (planning and control of the use of land and natural resources); and

**land development** (implementing utilities, infrastructure, and construction planning).

## 2. Theory

- The real estate valuation issue is within the land administration and management.
- One tip of the sustainability of land management is the sustainability of real estate valuation.
- In this case, with a sustainable mass plot valuation system for a city can be used to determine the value close to reality and to determine taxation, insurance, fees, etc.
- The goal of this study is to create a sustainable mass plot valuation system.
- The operation of the system; identification of the plot from real estate types, determination of optimum criteria, the creation of the database, application of valuation method and the temporal cycle of economic and extraordinary criteria for sustainability.

## 3. Material

### Criteria of the Plot

In this study, it includes the plots where is improved land in urban areas in the Central Anatolian Region.

There are many criteria affecting the values of the plots.

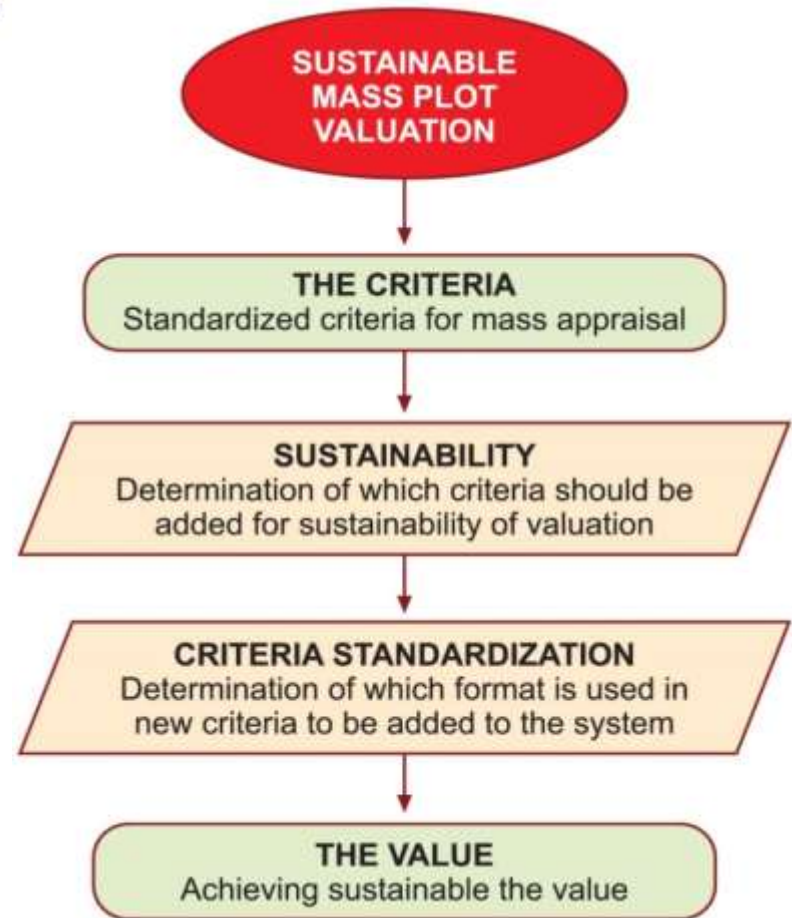
<b>CRITERIA</b>	<b>A. Legal Features</b>	<b>Property Conditions</b> <ul style="list-style-type: none"> <li>• Full ownership</li> <li>• Shared ownership</li> </ul>	<b>Zoning Status</b> <ul style="list-style-type: none"> <li>• The gross floor area</li> <li>• Total construction area</li> <li>• The number of floors ≥10</li> <li>• The number of floors &lt;10</li> <li>• Detached building</li> <li>• Attached building</li> </ul>	<b>Legal Restraints</b> <ul style="list-style-type: none"> <li>• Right of mortgage</li> <li>• Easement</li> <li>• Annotation of lease</li> </ul>
	<b>B. Physical Features</b>	<b>The Location of the Plot</b> <ul style="list-style-type: none"> <li>• Corner parcel</li> <li>• Intermediate parcel</li> </ul>	<b>Technical Infrastructure</b> <ul style="list-style-type: none"> <li>• Water supply</li> <li>• Electricity, sewer, natural gas and telephone</li> <li>• Solid waste collection service</li> <li>• Storm drainage</li> <li>• Unpaved road</li> <li>• Asphalt road</li> </ul>	<b>The Road Condition</b> <ul style="list-style-type: none"> <li>• The periphery road</li> <li>• Road width ≥10 meter</li> <li>• Road width &lt;10 meter</li> </ul>
	<b>C. Locational Features</b>	<b>Health-care Organizations</b> <ul style="list-style-type: none"> <li>• Community clinic, health center, etc.</li> <li>• Public/private hospitals</li> </ul>	<b>Cultural Centers</b> <ul style="list-style-type: none"> <li>• Cinema/theatre</li> <li>• Historical/touristic places</li> </ul>	<b>Insanitary Areas</b> <ul style="list-style-type: none"> <li>• Waste disposal areas</li> <li>• Treatment facilities</li> <li>• Natural gas and tube filling facilities</li> <li>• Petrol stations</li> <li>• Wireless towers</li> <li>• Energy transmission lines</li> <li>• Underdeveloped areas</li> <li>• Marsh areas</li> <li>• Natural disaster areas</li> <li>• Untreated stream sides</li> </ul>
	<b>D. Neighbourhood Features</b>	<b>Educational Institutions</b> <ul style="list-style-type: none"> <li>• Primary schools</li> <li>• Higher education ins.</li> </ul>	<b>Entertainment Centers</b> <ul style="list-style-type: none"> <li>• Fair, concert area, etc.</li> <li>• Sport facilities</li> <li>• Stadium/hippodrome</li> <li>• Entertainment v.</li> </ul>	<b>Industrial Areas</b> <ul style="list-style-type: none"> <li>• Waste disposal areas</li> <li>• Treatment facilities</li> <li>• Natural gas and tube filling facilities</li> <li>• Petrol stations</li> <li>• Wireless towers</li> <li>• Energy transmission lines</li> <li>• Underdeveloped areas</li> <li>• Marsh areas</li> <li>• Natural disaster areas</li> <li>• Untreated stream sides</li> </ul>

Figure 2. Criteria affecting value of plot



## 3. Material

Sustainable mass appraisal should be to bring long-term solutions by discussed on a platform.



**Figure 3.** The general structure of sustainable mass plot valuation

## 4. Method

### Real Estate Valuation and Mass Appraisal

Real estate valuation, the features considering, such as status, location, rights and responsibilities of real estate at a particular time, is to determine the unit price according to market conditions in an impartial manner.

The processes of real estate valuation consist of

- determining the type of real estate and criteria of real estate,
- applying valuation method and
- estimating value of real estate.

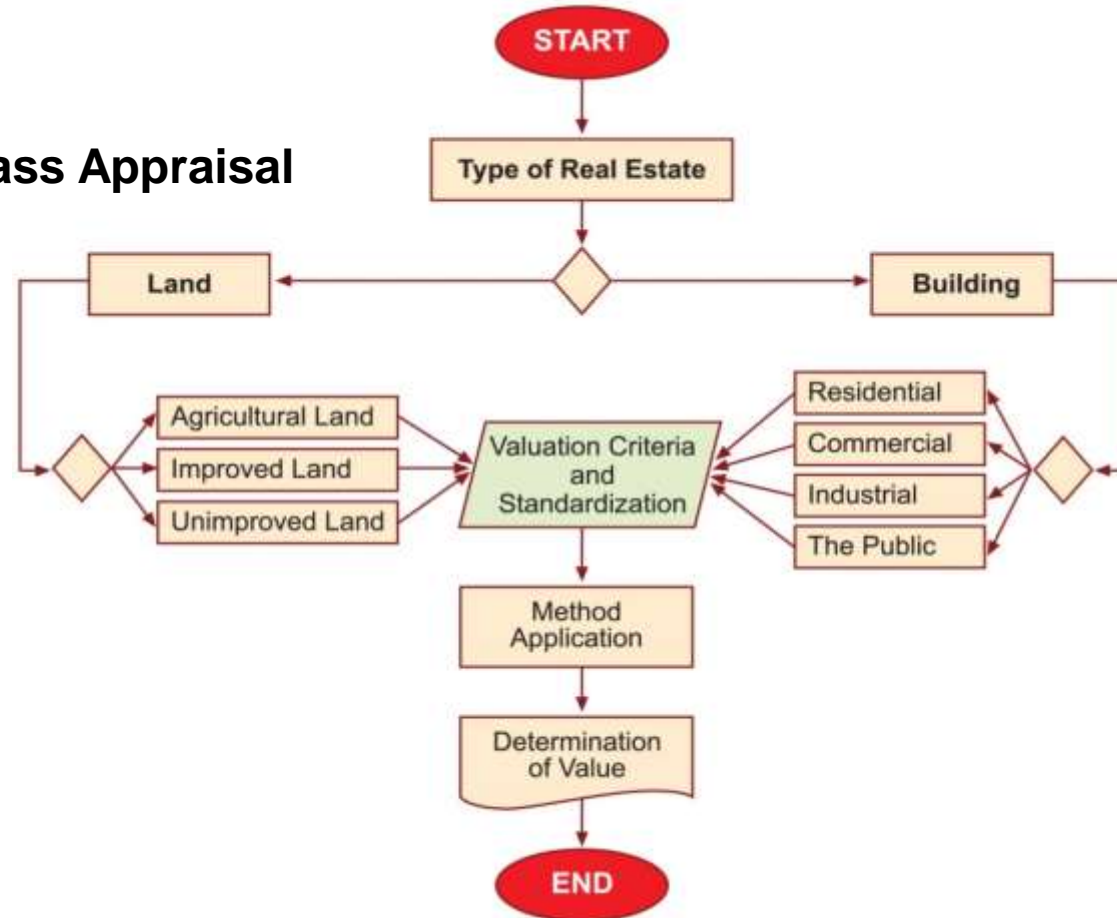


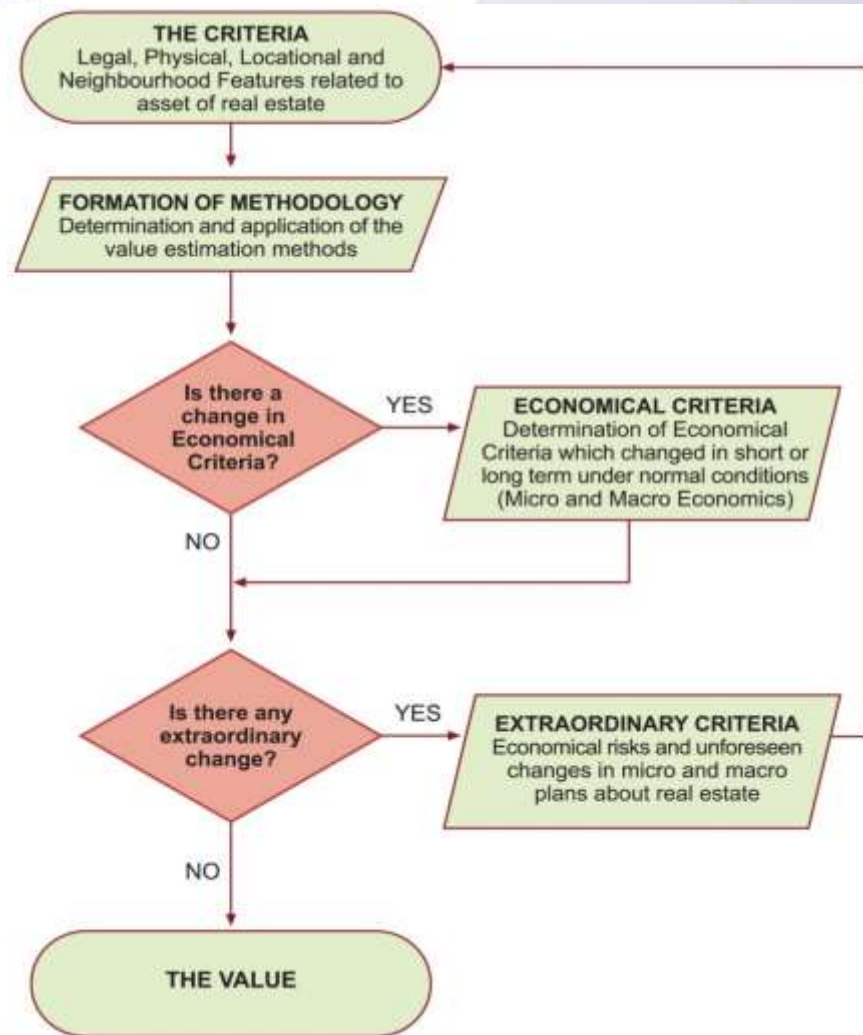
Figure 4. Diagram of real estate valuation



## 5. Sustainable Mass Plot Valuation

Sustainable mass plot valuation should be executed with the inclusion of all the features needed in real estate valuation for urban areas.

Mass plot valuation in the first step, in the second step sustainability, is considered.



**Figure 5.** Sustainable mass plot valuation

## 5. Sustainable Mass Plot Valuation

Suggestions on the operation sequence in the sustainable mass appraisal are as follows:

- By examining all technical units, definitions and concepts related to appraisal and ensuring their common usage,
- The definition and limits of real estate types are clearly identified,
- Consideration of all the criteria related to the evaluation and classification of the optimum criteria according to the type of the real estate underlying the main headings and classification in order of priorities,
- Detecting the criteria that may change temporally for sustainable mass appraisal,
- Standardization studies related to data productions to be used in appraisal and linked to general government institutions and presenting reports to the relevant governmental institutions for the elimination of the identified deficiencies,
- Registration of the market values according to the real estate type by taking into consideration the purchasing and selling dates and the purchasing conditions,

## 5. Sustainable Mass Plot Valuation

- Establishment of databases containing real estate types according to optimum criteria,
- By examining the methods used by developing and developing countries in the literature, determination of the evaluation method which constitutes the model most suitable for our country and closest to the market value,
- Execution of valuation,
- Production of value maps,
- Implementation to percentage increment/decrement every six months according to economic criteria,
- It is to investigate and update whether there are additions/subtractions in the criteria affecting real estate value once every four years.



## 6. Conclusion

One of the important feet of land management is real estate value.

Taxation, which is a major contributor to the economies of the countries, is calculated from this value.

It is pretty important to preserve sustainability and to continuity the system for a mass plot valuation that will be needed in urban management as well.

The basic requirement for sustainable mass plot appraisal is optimum criteria and standardized data on them.



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Thank you for listening



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