


## CADASTRE: THE KEY COMPONENT IN URBAN-BASED INFORMATION SYSTEMS

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### Importance of cadastral data

- *Cadastr*e is a parcel based and up-to-date *land information system* containing a record of interests in land.
- There is *need for cadastr*e in many areas.
- In recent decades, there have been many efforts to develop information systems in which *cadastral parcel* is a very important component.
- In Turkey, the most common of these studies is known as *Urban Information System (UIS)* project.



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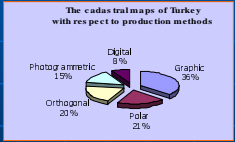
### UIS and digital cadastral data

- *UIS* can be considered as an implementation of GIS *in urban extent*.
- Many geospatial data can be examined at the same time in *UIS*. However, *land parcel-based information* is very significant within this entire management task.
- *Up-to-date cadastral data* has great importance and it should be available for any time.
- If such data is in a *digital form* then it could be more valuable for an *UIS* application.
- Because there is no *digital national cadastral database*, *UIS* studies start with *digitizing* of cadastral maps in Turkey.
- However, there are *important problems in digitizing cadastral data*.

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### Current situation of Turkish cadastral maps


- Some of the *main causes* of these problems are;
  - a) different surveying and mapping *methods*
    - ✓ graphical
    - ✓ polar
    - ✓ orthogonal
    - ✓ photogrammetric
    - ✓ digital
  - b) different *coordinate systems*
    - ✓ local coordinate system
    - ✓ national coordinate system
  - c) different *scale factors*
    - ✓ 10 different scales range from 1/200 to 1/10.000
    - ✓ most common of them are 1/1.000, 1/2.000 and 1/5.000
  - d) different *base materials*
    - ✓ transparent
    - ✓ aluminum
    - ✓ paper-carton



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### Solution initiatives at urban and national levels


- Nowadays, some local authorities are solving these issues via special *protocols* with cadastre directorships *in a partnership manner*.
- However, this situation is still a problem where cadastral maps can not be digitized in *required accuracy*.
- In Turkey, *various projects* have been undertaken for implementation of the cadastral activities in digital environment.
  - ✓ Turkish National Fundamental GPS Network (*TUTGA*), and
  - ✓ Turkish Land Registry and Cadastre Information System (*TAKBIS*) projects are the most important ones.



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### Turkish National Fundamental GPS Network Project (*TUTGA*)

- Because of the inefficiency of former fundamental geodetic network, Turkish National Fundamental GPS Network (*TUTGA*) was constituted.
- *TUTGA* is in *ITRF* coordinate system and has  $\pm 1-3$  cm accuracy.
- It has *594 points* which have three dimensional coordinates. The distance between these points is about 25-30 km.
- This project was *completed* in April 2001.



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