



KONYA EXAMPLE OF CADASTRE RENOVATION WORK IN TURKEY

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GENERAL SITUATION OF THE CADASTRE OF TURKEY

Turkey's first cadastral work is spread over a time of 80 years that all of the cadastral work today is not be possibly considered in same quality and it is very difficult to say that the maps and information are up to date. Naturally, the Cadastre Organization was aimed to benefit from every innovation and they benefited.

Different legal bases, different production techniques, different technical equipment and different measurement methods have been used in the cadastral work done by the General Directorate of Land Registry since the first years of the Republic. Thus, the products occurred from the cadastre work for a long time include different features.

Cadastral maps produced in different regulation, scale, layout, measurement method, the coordinate and plot opening system up to now are seen in Table 1 and Table 2

Table 1: Cadastral Maps According to Production Methods

Rank No	Coordinate System	Number of Plot	%
1	ITRF	26942	5.2
2	ED-50	286624	55.0
3	LOCAL	110817	21.2
4	NON-COORDINATE	97154	18.6
Total		521537	100.00

Table 2: Cadastral Maps According to Coordinate System

Rank No	Production Technique	Number	%
1	Digital Method	154008	29.5
2	Polarization Method	127118	24.4
3	Graphical Method	91804	17.6
4	Photogrammetric Method	81314	15.6
5	Prismatic Method	61271	11.7
6	Photoplan	1782	0.3
7	Other	220	0.8
Total		521537	100.00

Cadastral information formed 40-50 years ago cannot perform the function determined as “state’s giving assurance to ownership”, and they cannot response the needs and the expectations of investments and projects. 14 % of the cadastral work is in graphics system. It is known that the existing information and documents need updating in rate of 60 % .

- Produced cadastral layouts should be renewed because of the following reasons:
 - **Technically inadequateness:** Since the production technique of the sheet, required accuracy cannot be obtained.
 - **Loss of application quality:** The lack of ability to apply the information and documents of sheet or basis to floor.
 - **Lack of information:** Illegibility of the information in sheet or impossibility of getting the information from the original documents.
 - **Showing the boundaries of the ground as its original:** the difference of the borders between the Real Estate sheet and the borders identified during the cadastral work on the ground .

LAND REGISTRY AND CADASTRE MODERNIZATION PROJECT (TKMP)

Land Registry and Cadastre Modernization Project (TKMP) entered into force on 13 August 2008 and published in Official Gazette No. 2008 / 13886 in order to increase the effectiveness and quality of services of Land Registry and Cadastre with the credit from a World Bank.

Things to do within the scope of Updating the Information of Cadastre and Map

- **Data Transfer to the Computer and Transformation**
- Data Transfer to the Computer and Transformation includes the following issues:
 - Scanning the cadastre technical archive and saving it as raster in computer,
 - Scanning the sheets and saving it as raster in computer,
 - Controlled vectorization from the Measurement values and sheets,
 - Taking the print out and control of sheet index and the scale,
 - Measuring the fixed common points by CORS and GPS,
 - Calculation of the transformation parameters and transformation with suitable model,
 - Creation of a part for new sheet in ITRF system, and storage drawings and new values,
 - The creation of document management system.

- **Renovation of Required Priority Areas within 22-a**
- The renovation of required areas within 22-a includes:
 - The renovation areas and the areas of forest, pasture and the site, which would be the subject to objections, should not be taken in the first step of application in Reconstruction Implementation, Consolidation etc.
 - Applying renovation process under 22-a
 - Control on the island, completion of records and reaching the step of announcing,
 - Preparing the hanging notices and assuring
 - Delivery of new sheets in Digital Cadastre values and ITRF system
 - Printing and distribution of new land registers.

- **Elimination of Structural Errors in Land Registry Files and Transferring to Computer**

Elimination of Structural Errors in Land Registry Files and Transferring to Computer includes:

Identification and elimination and of Structural Errors like share errors, registration errors, writing errors in Land Registry Files,

Supplying the Citizen ID numbers and entering and comparing it to the cadastre plot and integration,
Creating the new records in computer, announcement and printing new file,
Delivering the records as a result of announcement to the Directorate of Land Registry,

As a result of the collecting data from 22 Regional Directorate, it is determined that 8,010,583 plots need renewal work as soon as possible,

Within the project;

In 2009, 167.000 parcels,

In 2010, 2.098.000 parcels,

In 2011, 1.425.000 parcels,

In 2012, 410.000 parcels, totally 4.100.000 parcels are planned to be renewed (3402/22-a application).

• **CADASTRAL WORK IN KONYA REGION**

The first cadastral work in Turkey was started in Konya Çumra in 1912, but it couldn't be continued because of the Balkan, First World and Independence Wars. Systematic cadastral work was started in 1934. It is still going on within the Cadastre Law no 3402 dated 1987.

The general state of the plots where the cadastral work will be performed by 5th Regional Directorate of Land Registry and Cadastre within the law article 22-a is given in Table3.

Table 3: The general state of the plots where the renovation work will be performed by Konya Regional Directorate.

Group	Cadastre Directorate	Number of Units	Number of Plots	Area (Acre)
1	Selçuklu	20	15375	302173
	Kulu	4	2878	103950
2	Meram	19	11535	60213
3	Karatay	26	12618	468295
4	Karaman	13	12636	261109
5	Aksaray	16	22825	587950
6	Aksaray	11	26400	329800
7	Aksaray	17	24300	324250
8	Aksehir	4	26500	83394
9	Beysehir	7	15736	73060
	Seydisehir	2	1739	15325
10	Bozkir	6	19107	61102
11	Bozkir	4	13397	22736
	Total	149	205046	2693357

A coordinated operation has been performed in the auctioned work within article 22-a of Cadastre Law No. 3402 that the technical measurements have been performed by the contractor firm and the measurements have been controlled by Cadastre Directorates.

Cadastre renovation work is planned to perform in 11 packets with auction method by private sector, and the auction of the 1st and 2nd packet group places was done. Renovation work of the auctioned places was completed and they are in the stage of registration in Land Registry.

- **SAMPLE APPLICATION AREA OF CADASTRAL RENOVATION**

Hamidiye neighbourhood in the district of Selcuklu in the province of Konya is located in the city centre which had the highest urban rant. The first cadastre work was done in graphical method in scale of 1/500 without benefiting a coordinate system in 4 sheets, 157 plots and 45 Map sheet sample produced by using the graphical method in first cadastre work is seen Figure 1.

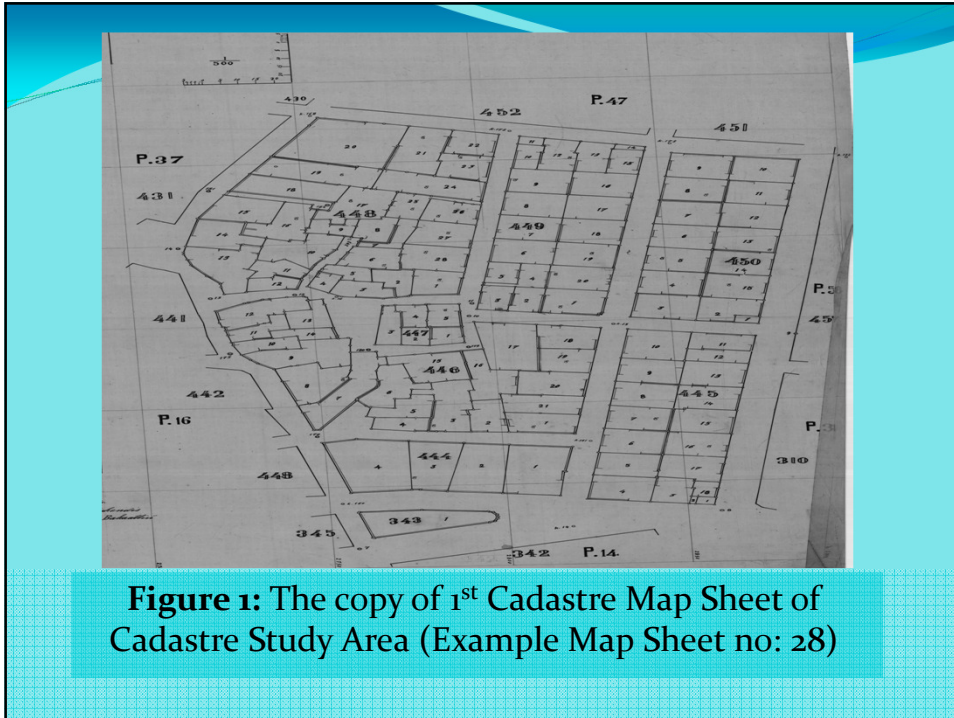


Figure 1: The copy of 1st Cadastre Map Sheet of Cadastre Study Area (Example Map Sheet no: 28)

Construction in this area where establishment Cadastre was completed was developed according to the state of existing cadastre. Since the urban rant is too high and the construction is very intensive the application of the development method could not be applied.

The present time map of the working area produced by Konya Metropolitan Municipality using ortho photo mapping method in 2007 is given in Figure 2.

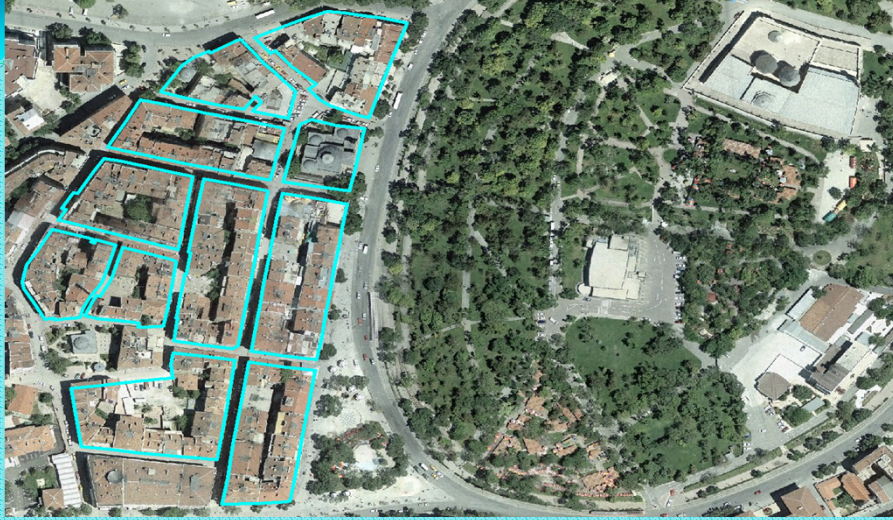


Figure 2: The Present Time Map produced by Ortho-Photo Mapping Method

Hamidiye neighbourhood which is in the responsibility field of Selcuklu Cadastral Directorate was auctioned as 1st group stage in renovation area of Konya Regional directorate. It is one of the 25 units taken by the auction method by Çığır-Aydınlar Engineering joint. Land survey was done depending on the state's triangulation network coordinate system in ITRF coordinate system, based GRS 80 ellipsoid of 2005 Epoch. For application and exposure, triangulation and polygon in enough closeness were established. Surveys were performed by using RTK method of GPS and electronic tachometers. The cadastre renovation was completed and digital data was obtained.

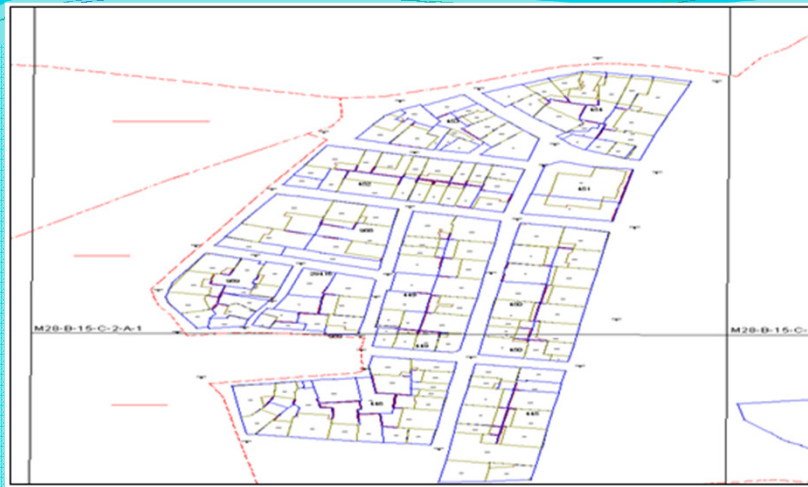


Figure 3: The Situation Map after Cadastral Renovation

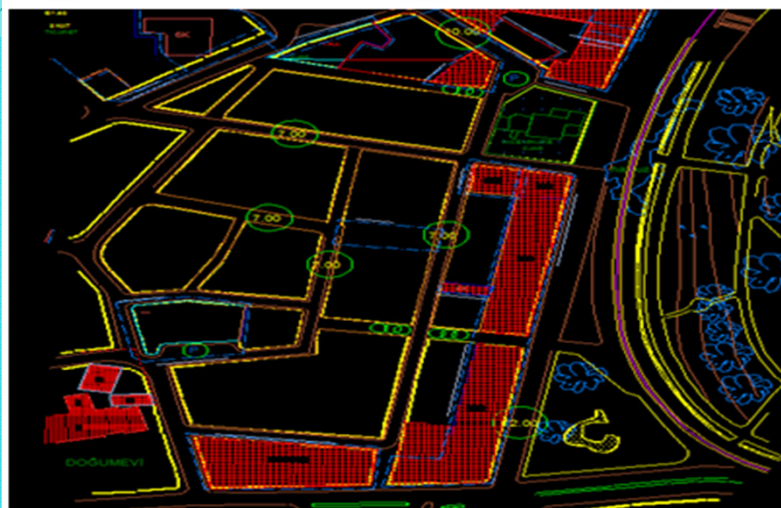


Figure 4: Development Plan Status of Cadastral Renovation Area

CONCLUSION AND PROPOSALS

Turkey is a country which has the purpose and effort of planned and rapid development.

Planning activities usually need a lot of data related to soil. These data can only be served in the size of venue and in update way by Mapping and Cadastre sector.

The cadastral data in our country are not sufficient enough to response the needs since they are insufficient in technical aspect and they are not up to date. In order to answer the needs, both urban and rural cadastre data should be up to date and qualified. The cadastre of Turkey in urban and rural lands should be renovated to gain modern identity according to their urgency.

As a result;

Increase in users' satisfaction from cadastral services,
Concluding cadastral proceedings in the courts as soon as possible (reducing the number of cases),

Creating layout of Spatial Information Systems,
Increasing the access of Public and private sector organizations to data related to land,

Reducing the service time cadastre data given to public institutions and the private sector,

Renovation of 4.1 million parcels will be provided.

Using computer in planning and projecting stage with the aid of digital land models will enable producing the projects very quickly.