Preparation of Judicial Documents about Cadastral Studies in Turkey and Automation Software

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Key words: Cadastre, Judicial Documents, Mapping, software etc.

SUMMARY

The purpose of cadastral studies in Turkey can be summarized as determining the geometrical and judicial positions of real-estates and preparing their land registries. Cadastral maps are required for every type of planning and design studies, and supposed to serve a great variety of institutions and organizations like municipalities.

Cadastral studies are performed with field and office studies. Bordering and measuring works are made during field studies, and office studies cover the drawing of cadastral maps, preparing announcements, arranging technical folders, massive possession documents, title registers etc.

The cadastral studies in our country have not been completed yet. The past cadastral studies became insufficient in terms of technical and judicial meanings. It is a necessity to accelerate cadastral studies in order to implement cadastral expectations.

In this study, an automation software is introduced which has been enhanced to produce errorless cadastral works and accelerate cadastral studies, and obtained products are exemplified.

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1. INTRODUCTION

Cadastre is a service that regulates land-human relationships. The current task assumed by the Turkish cadastre is to determine the nature of proprietorship and base it on technical principles. Furthermore, information on land registers and cadastre forms the basis of all kinds of project services regarding land. Cadastre is benefited from in planning economic projects, in settling judicial matters, in agricultural activities, in determining forest and grazing lands, in planning urban land use, in determining treasury and public properties, in scientific researches, and statistics. Cadastre establishes the relationship between cadastral knowledge and cartography while conducting these tasks (TKGM, 2005).

The approaches that emerged as a result of technological advances and globalization brought new areas of investigation to services based on land. A Cadastral Information System which will act as the basis of Geographical Information System which has become a basic need today and where information needed by many private and judicial entities and institutions and above all local administrations.

Founding cadastre of Turkey has not yet been completed. Therefore, rapid and accurate completion of cadastral services that are expected to meet the needs such as information technologies based on advanced technology, value of the land, type of soil, vegetation, topography, technical infrastructure, and evaluation maps that are very important for the economy of the country has become inevitable (Erdi, Ozkan, and Çay, 1999).

In this study, information will be provided about automation software involving judicial applications of cadastre which will accelerate cadastral activities and reduce possible human errors to a minimum and the results obtained will be illustrated.

2. CADASTRAL WORKS IN TURKEY

The ownership of real estate in Turkey is a right enshrined in laws and the Constitution. The fundamental condition for a right to be protected and used is that its limits must have been determined. There is no right without limitations. While the existence of real rights as determined by Civil Code is demonstrated by land registry, their quantities are determined by cadastre. During cadastral work, in addition to real estate that has never been recorded in land registry, real estates with title deeds are also measured and their technical descriptions are made. Therefore, through cadastre, identifications of real estates are registered and established (TKGM, 2005).

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Cadastral work conducted in Turkey is proprietorship cadastre (Mataracı, 2005), which is also termed legal cadastre or border cadastre. Today, with these activities performed in accordance with the Cadastral Law no: 3402 dated 21.06.1987, the borders of the real estate on land and the rights on them are determined, their maps are made and thus modern land registries as proposed by the Turkish Civil Code are being formed. Cadastral services conducted in Turkey are summarized in Table 1.

Table 1. Types of Cadastral Activities

A.) Activities of Institutional Cadastre	B) Other Cadastral Activities
Village Cadastre (law no: 3402)	Renewal efforts
Urban Cadastre (law no: 3402)	Cadastre of Catastrophe
	Forest Cadastre
	Cadastre of 2/B lands (law no: 6831)
	Activities regarding pastures, summer and winter pasturages (law no: 4342)
	Activities of construction amnesty

The procedures pursued in institutional cadastre activities in Turkey are below.

A- Preparatory Activities
– Determination of cadastral zones
– Announcement of cadastral work zone
– Selection of experts
– Taking out registers and documents
– Obtaining maps and values
– Making control plans and control books
– Appointment of cadastral technicians

B-Application/ Land Operations

– Establishment of cadastral commission
– Determination of the boundary of cadastral work zone
– Making partition of blocks of houses
– Triangulation and polygon work
– Limitation and determination, measurement, drawing, calculation and control work

C- Legal/ Office Work

– Preparation and submission of the final report and cadastral records
– Announcement on notice board
– Approval of records
– Revision work
– Registration work
– Preparation of title deeds

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–   Preparation of card-indexes and science files
–   Preparation of lists for taxes and charges
–   Transfer work

3. AUTOMATION ACTIVITIES IN JUDICIAL ACTIVITIES OF CADASTRE

In the current practices of cadastral activities, documents regarding various procedures are sent periodically by the cadastral directorates to the head office or district directorates of cadastre. However, these documents can not be pursued; they are only filed and put in archives. This practice does not fully reflect the goal expected of the archives. Therefore, automation efforts must be started regarding archives by the help of rapidly developing technological facilities and a new system of archives must be established.

In our country, institutions set up their own archives for the ground control points and maps which they created for their own needs, but there exists no central archives for the joint benefit of all institutions. Since there is no co-ordination among the existing archives, this may lead to a waste of resources and the inefficiency of the service offered.

Getting cadastral services automated is an inevitable goal. The archiving of the quantitative information regarding the first establishment cadastre and change operations sent to the central archives will enable the re-formation of the provincial archives with the help of the information stored in the central archives.

One of the most important components for the Geographical Information System is the software and its properties. There are no already established standards in our country regarding Geographical Information Systems. Consequently, problems arise in the selection of appropriate software and the exchange of information between institutions (Durduran, 2005).

In the legal documentation activities of cadastral work conducted so far by the General Directorate of Land Registry and Cadastre, manual work has been done but automation software that will act as a basis for an information system does not exist yet. Although CAD-based software is currently being used for land-registry and cadastral activities, problems are still experienced in linking information to one another.

3.1 Sample Software for the Preparation of Judicial Documents in Cadastre

Automation programmes used in installation cadastre are software that has been made to form cadastral information and land registries in computers rather than being CAD-based programmes.

One of the sample software used in institution cadastre is "KadastroSoft". This software has been developed by Seyfettin Kaya, an Engineer of Geodesy and Photogrammetry. The KadastroSoft software is an automation programme prepared in the Delphi programming

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language, operating on Windows operating system and having a relational database (Figure 1).
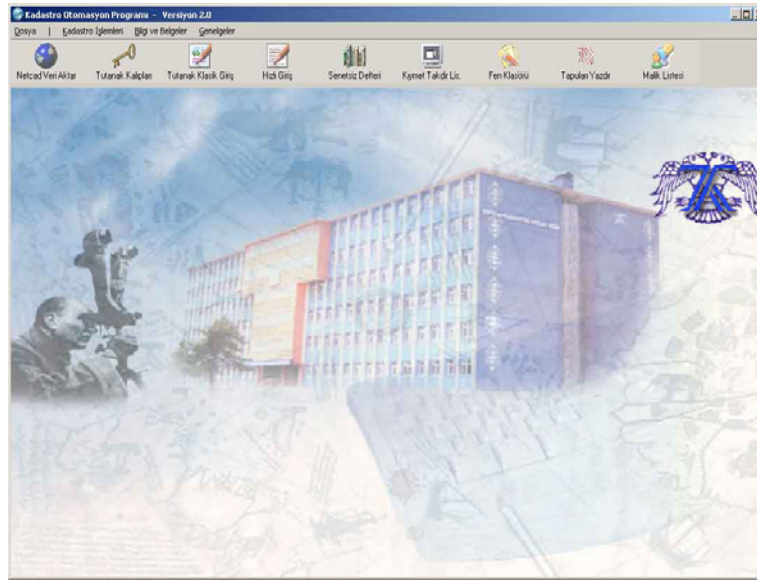

Figure 1. The main window view of the KadastroSoft software

Measurement operations in institution cadastre are conducted in CAD-based software in the form of drawing and accounting operations. The KadastroSoft software is exemplary software that can access to CAD-based information or information in other data formats regarding the preparation of judicial documents in institution cadastre.

KadastroSoft can transfer data from CAD-based software of different formats to its own database or data can be stored in the database through entry of information at every step manually on the keyboard during cadastral operations. The database that is formed through data transfer or data entry has a large operations menu ranging from the preparation of the necessary information and documents to their being printed in a format that conforms to the regulations. It can also prepare, draw and store the information and documents during and after the operations of limitation and determination in cadastral operations.

The formation of cadastral records involves the formation of archival documents such as lists of valuation and other lists, title deeds and their printing, announcements, science files, notice/announcement lists in different file formats on computer and similarly the formation of land registry.

Through the file operations menu, it is possible to open new files of desired numbers, define the task and the information about the place of work and roam among these task files. Information about the place of work can be entered on the file menu; Information on the directorate, technicians and the experts. Also, it is possible to backup and index the files at will by following the steps in the menu (Figure 2).

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After these operations of definition comes the 6 cadastral operations menu where the actual operations of institution cadastre are conducted (Figure 3).

Figure 2. File Menu

Figure 3. Cadastral Operations Menu

Through data entry, information on the area of work (province, district or village), section, city block, plot, surface measure and information on proprietors can be entered in digital medium or data transfer can be performed by making import from CAD software in different formats (NETCAD, EGHAS, GEOCAD).

Following the entry of records, operations of forming all the necessary lists, tables, unbilled lists and valuation lists through the menu of lists can be made. Announcements, science files and menus related to announcement tables which are termed the last cadastral operation can be made within a short a time (Figure 4).
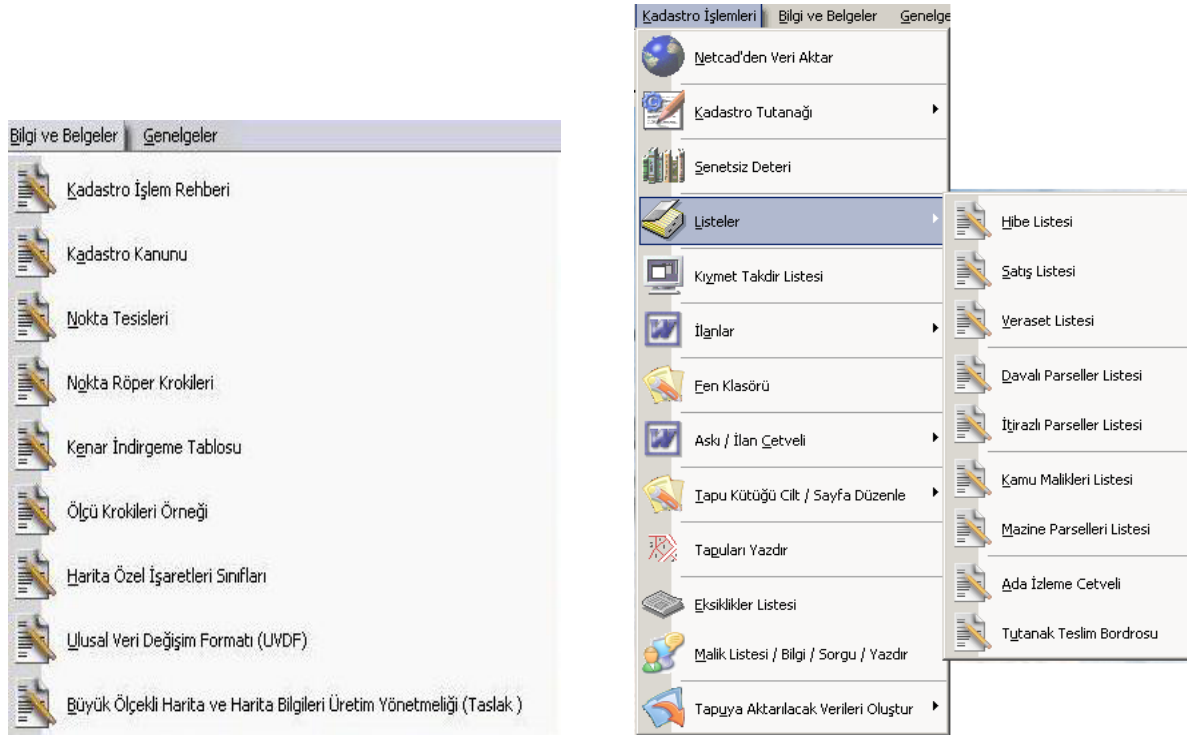
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Figure 4. Information and Documents Menu, Directives Menu and Lists Menu

It is also possible to form cadastral records in accordance with the regulations through entry of information page by page and line by line that conform to standard printed forms in determining real estate in the entry menu (Figure 5).

Also, land registers which are the main registers of Directorates of Land Registry can be printed in accordance with the regulations and their printouts can be obtained. In practice, these registers are written by hand as big and small registers. The small land registers are also sent to district directorates while the big ones are processed in land registry directorates.

Since land registers have to be free of errors, handwriting them takes a long time, whereas preparing land registers in digital medium and getting them printed requires less effort and takes shorter time (Figure 4). Moreover, land registry certificates given to proprietors at the end of cadastral work can be obtained in printed forms that conform to standards and regulations.

The most outstanding feature here is the menu of deficiencies list that aims at removing personal errors. With this menu, users are warned about erroneous information or information that has been forgotten during plot-based work before printing or data transfer and the missing information is indicated. At every step of KadastroSoft, warning windows direct users positively about personal errors or information that has been forgotten or entered incompletely (Figure 6).
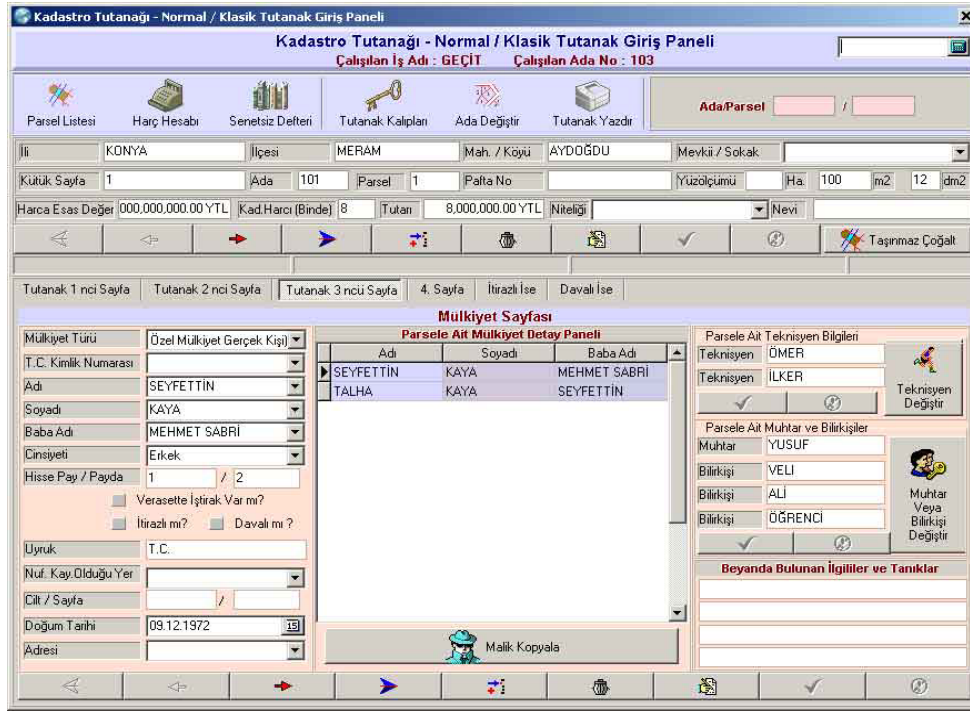
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Figure 5. Cadastral Record, **A**. The section where plot information exists
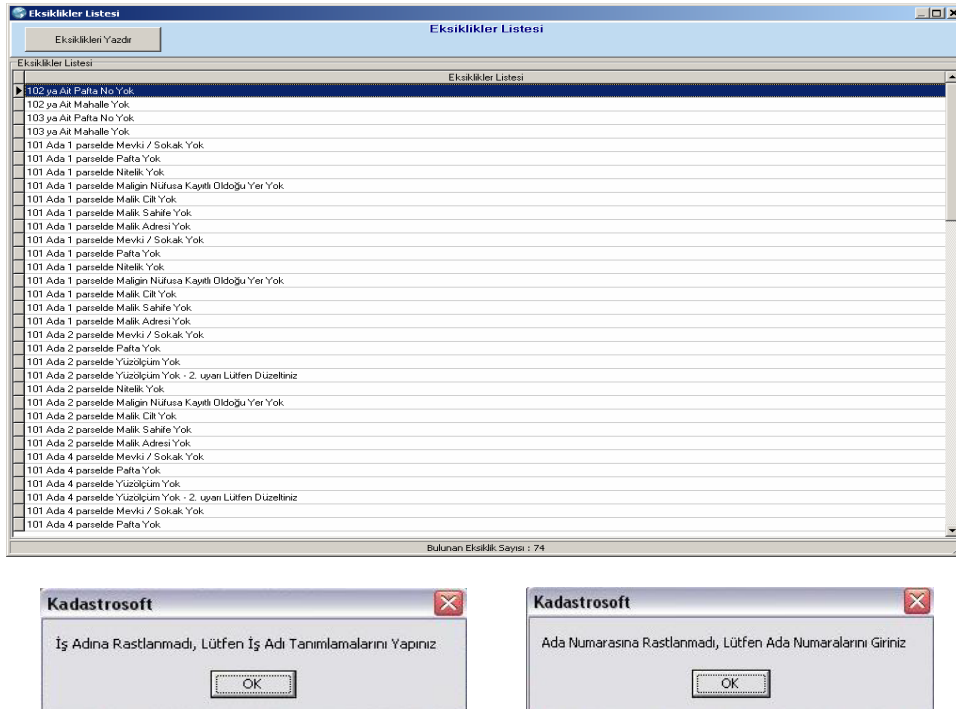**B**. The section for acquisition and proprietorship

Figure 6. Personal errors and warning windows

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It covers procedures like the printing of documents in accordance with the regulations or the printed forms and lastly the transformation of these data to National Data Exchange Format (NDEF) for land registry automation (Figure 7).

Figure 7. Transformation to National Data Exchange Format (NDEF) format

4. CONCLUSION

Today, efforts to set up information systems have intensified in many state offices and institutions. The Land and Cadastre Information System (TAKBIS) project launched by the General Directorate of Land Registry is one of these efforts. The pre-requisite to implement this project is to form a sound database. Cadastral efforts in the country must soon be completed and renewal efforts must be initiated in areas that do not meet the needs of the day.

The use of KadastroSoft automation software in efforts of Installation Cadastre in order to speed up efforts bring along various benefits such as ensuring data quality, data standards, uniformity of data in digital format, providing speedy access to archive information and forming an archive database, and printing of documents in accordance with the standards. Data transfer from CAD-based software and transfer operations to NDEF data formats with dbf format for land registry directorates are very important for cadastral automation.

Increasing the number of such software which will accelerate cadastral services and bring solutions to problems is a national service.

REFERENCES

Durduran, S.S., 2005, "Urban Information System Approaches Today and Formation of a Information System Model for a Municipality", Selcuk University, Institute of Natural Sciences, Doctoral Dissertation, p.260, Konya.

Erdi, A., Özkan, G., Çay, T., "System-based Problems in Turkish Cadastre and Possible Integration Problems with Information System", Symposium on Problems of Cadastre and Proprietorship in the Northeastern Black Sea Region, October 11-12 1999, Karadeniz Technical University-Trabzon.

Mataracı, O., (2005) "The Management of Cadastral Data in the Land Registry Information System Project", the 10th Map Meeting, Chamber of Engineers of Mapping and Cadastre, pp.469-485, Ankara.

TKGM, 2005 "Institution Cadastre and Flow of Procedures", 1-13, Ankara.

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BIOGRAPHICAL NOTES

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